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in primary education explained**

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Differences in teacher practices regarding parental involvement in primary education explained

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Abstract

The importance of parental involvement is indisputable, especially in primary education. However, although teachers might underline the importance of parental involvement, their actions do not always reflect that. This paper studies whether school type (regular or low-SES), teacher, pupil and parental characteristics, as well as teacher perceptions, perceived proficiency and contact possibilities can explain differences in teachers' actions. This study is based on 392 questionnaires filled out by teachers from 67 primary schools, on background information on teachers, pupils and their parents, and information on the type of school. The results show that differences in school type, teacher perceptions, perceived proficiency and contact possibilities are the main reasons for differences in actions regarding parental involvement. Teacher, pupil and parental characteristics do not seem to play a role. This implies that there is an important role for schools and for teacher training to change teachers perceptions, possibilities and perceived proficiency.

Key words – Parent teacher relationship; parental involvement; teacher practices, teacher perceptions; primary education.

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1. Introduction

There is growing concern about the inequality in educational outcomes, and in educational opportunities in general, where the Dutch case is no exception. These concerns are emphasized in the annual report of the Dutch Inspectorate of Education, which states that there is an increasing gap in the educational opportunities between children with less-educated parents and children with highly educated parents (Onderwijsinspectie, 2017). The OECD and European Commission emphasize the importance of a well-established relationship between parents and teachers to reduce inequalities in educational opportunities, especially for migrant children and children from less-educated parents (Heckman, 2008; OECD, 2012). Especially for this group of children, with a low socio-economic status (SES) and coming from ethnic minorities, it is observed that parental involvement is lower and also that children's performance is lower. Cohort studies have shown that these parents are often poorly educated and educational deficiencies among their children are quite persistent. For this group in particular, a good collaboration between school and parents is of high importance and could make a big difference for the children (Eberly, Joshi, & Kozal, 2007; Henderson & Mapp, 2002; Valdes, 1996).

Emphasizing the importance of parental involvement is not new: many international studies show that parental involvement positively relates to performance, motivation, satisfaction, self-image and self-appreciation of children. On the relation to performance, there are a few review studies, by Fan & Chen (2001), Carter (2002), and Deforges and Abouchaar (2003), that show that on average there is positive correlation between parental involvement and pupil performance, but that there are large differences between parental involvement and home and at school, and between different characteristics of the pupil (e.g. age and socio-economic status). The more recent meta-analysis by Castro et al. (2015) shows that pupil performance can be increased through parental involvement, but only if the focus of parental involvement is on learning activities and the schoolwork. However, the few causal studies on the effect of parental involvement on pupil performance show mixed results. Avvisati et al. (2014), Bergman (2015) and Mayer, Kalil, Oreopoulos, and Gallegos (2015), all conduct randomized experiments on parental involvement. Although positive results on pupil and parental behaviour are found in all three studies, only Bergman (2015) finds an effect on pupil performance.

Parental involvement relates to parental dispositions and behaviours that directly or indirectly influence children's cognitive development and school achievement (Fantuzzo, MacWayne & Perry, 2004), and is considered as a broad concept from which different aspects are distinguished in the literature. An important distinction is made by Epstein (2011) who defines six types of involvement by parents, that are the key to successful school-family-community partnerships: (1) parenting, (2) communicating, (3) volunteering, (4) learning at home, (5) decision-making, and (6) collaborating with the community. Based on the vast body of literature following amongst others from Epstein's distinction three different aspects of parental involvement can be distinguished: (1) participation in the school such as volunteering in school activities or participation in decision-making processes, (2) communication between parents and the school which can vary from attending parent-teacher conferences to reading the school newsletters, and (3) Educational activities as home which can vary from reading activities to discussing school activities with the child (Bakker, Denessen, & Brus-Laeven, 2007).

Hoover-Dempsey and Sandler (2005) on the other hand describe parents' motivation for involvement and distinguish between: (1) personal motivators such as the role construction for involvement and parental efficacy for helping their child succeed in school, (2) parent's perceptions of invitations to be involved by important others (school climate, teachers and pupils), and (3) life context variables such as parental knowledge and skills, time and energy, and family culture.

When making a distinction in types of parental involvement, the literature shows that parental involvement when learning at home mostly relates to pupil performance (Bakker, Denessen, Dennissen, & Oolbekkink-Marchand, 2013; Fan & Chen, 2001; Vrancken & Coppens, 2014). This type of parental involvement can be stimulated by teachers by explicitly inviting and asking parents to help their child at home, and by distributing specific exercises parents can do with their children (Bakker et al., 2013; Fantuzzo et al., 2004). To achieve higher parental involvement in this, it is important that there is a good relationship between the teacher and the parents (Driessen, Elshof, Mulder & Roeleveld, 2014). Another way to increase parental involvement for teachers is to provide parents with information about school and the progress the child makes, or by giving practical suggestions and specifically asking to support the child in a certain way (Bakker et al., 2013). However, it is unclear whether schools apply these

ways to increase parental involvement, and whether the relationship between parents and teachers is already good enough to do this.

Other studies look at the relationship between parental involvement and pupil motivation. Gonzalez-DeHass, Willems, and Doan Holbein (2005), for example, show that parental involvement is positively related to higher intrinsic and extrinsic motivation and involvement with school. In line with this, Fan and Williams (2010) show that parental involvement relating to school and learning issues is positively related to motivation, but that parental involvement relating to problems at school is negatively related to motivation.

Bakker et al. (2013) look into the role of the teacher in parental involvement, and conclude that teachers can play an important role increasing parental involvement, by explicitly inviting them to do so, and helping/showing them how to be involved. In doing this, the attitude of the teacher towards parents and the perceived involvement of parents by the teacher also play an important role in the ability to increase parental involvement.

However, despite the clear conclusions from Bakker et al. (2013) about the role of the teacher, in practice there seem to be large differences in teacher practices of parental involvement. This makes one wonder why teachers do not, or less frequently, invite parents to be involved, and why teachers perceive the involvement of parents differently. Is this due to observable teacher characteristics such as gender and experience, or is this due to school characteristics, such as the type of the school? It can also be this due to characteristic of the pupil and parent body of the teachers' classroom (where certain types of parents can be difficult to handle) or to the teachers perceptions on parental involvement, on his/her own proficiency to professionally deal with parents, or to the possibilities the school provides to stimulate school/home contacts. And which of these child, parent, school and teacher characteristics (that might explain differences in teacher practices of parental involvement) is the most dominant factor?

Although these characteristics have been analysed separately in previous studies, their interrelatedness has not been studied before. Therefore, in this paper we investigate how teacher practices are related to school, teacher, parent and pupil characteristics, as well as to teacher perceptions, perceived proficiency and contact possibilities.

The main contribution of this paper is the simultaneous analysis of the different types of characteristics that might explain differences in teacher practices of parental involvement. Although we know that the separate characteristics are related to teacher practices of parental involvement, the question is whether there is one (or more) dominant characteristic that explains these differences.

This paper is organized as follows: In the next section we describe the context of the study. Section 3 presents the data and methodology used, followed by the results in Section 4. In Section 5 we present the robustness analyses and Section 6 concludes the paper.

2. Context of the study

This study takes place in the southern part of the province of Limburg, which is in the southern part of the Netherlands. The dataset comprises all schools from two large primary school boards (which covers the large majority of the primary schools in this region). The southern part of the province of Limburg is a special region with respect to the socio-economic background of its inhabitants, and the corresponding educational problems, which makes it very interesting and relevant to perform a study on parental involvement and educational partnership.

The southern part of Limburg is a former mine region, where people could be relatively wealthy through their mining activities, despite not having finished school. The mines have been closed for quite some time, and currently the (great) grandchildren of mineworkers are attending primary school, and the mine history of this region is still visible in children of this time. Although there are not many ethnic minorities present in this region, the region is characterised by a large share of Limburg-Dutch families of which (great) grandparents are or were former mine workers. This relatively large group has a lower socio economic status than 'regular' Dutch families. More than half of the children that are in school live in a neighbourhood that has been marked as a poverty neighbourhood by Statistics Netherlands (Jungbluth, 2012) and parents are relatively low educated. Furthermore, the highest performing pupils in this region are comparable with average pupils in other parts of the country. Since in general, lower educated parents with a lower socio economic status are more difficult parents for schools to reach and to communicate with. This makes them an extremely interesting group to study.

The two school boards where this research is conducted, have a joint number of 92 primary schools that are located all throughout the region of South Limburg. These 92 schools make up for 196 (45%) of primary schools in this region, with a total of almost 40 000 children.² All schools from both boards take part in this study, apart from the special education schools, and these two school boards and their corresponding schools are diverse in such a way that they are representative for all of the primary schools in this region. However, not all teachers (and therefore classes) take part in the research as not everyone filled out the questionnaire. Unfortunately, there is no other data available at the teacher level except the information gathered via the questionnaire, so we cannot perform a response analysis. However, we have a representative distribution of gender and grade level in our sample, which we will discuss below.

3. Data and methodology

3.1 Data

The data used in this paper is obtained by linking three different datasets. The first dataset contains teacher questionnaire data which were collected in the context of this research. Secondly, the freely accessible Dutch National Education Data was included. Finally, a part of the dataset from the Limburg Education Monitor (Onderwijs Monitor Limburg) was linked to the teacher questionnaire data. This data is bi-yearly gathered since 2009, with the goal to measure the educational development of pupils in elementary school and pupils in high school in virtually all schools in the province of Limburg, the Netherlands.

3.1.1 Teacher questionnaire

During the period May-September 2016 a standardized questionnaire was distributed amongst all teachers from two large school boards in the South of Limburg, the Netherlands. Together these schoolboards consist of 92 schools for primary and special primary education. The teacher questionnaire was first distributed digitally and later on also by paper in order to increase the response. The final response rate was 69% including 821 teachers from 89 different schools, of which 82% used the digital questionnaire. Teachers needed about 15 minutes to fill in out this questionnaire.

² Calculations based on data from: *Regionale onderwijsvisie PO Zuid-Limburg* [Regional educational vision primary education South-Limburg]. Amsterdam: B&T Adviesorganisatie.

The teacher questionnaire is based on a questionnaire that used in a trend study on parental involvement in education, which is conducted every two to three years on behalf of the Dutch Ministry of Education. Besides questions related to teacher characteristics such as age, experience, teaching grade, the questionnaire is divided into several overarching themes related to parental involvement and parent-teacher relationship practices such as teacher perceptions on parental involvement, communication with parents, involving parents in decision making and parent-teacher contacts. Furthermore, we included additional items concerning parent-teacher relationship practices, such as 'It is important that parents are involved in discussions regarding the social-emotional and cognitive development of their child' and 'Parents are actively involved in decision making regarding additional care for children with special need'. For all corresponding items teachers had answer possibilities varying from dichotomous (yes, no) to a five-point Likert scale. In this study only the items with answer possibilities on a five-point Likert scale were included with answer possibilities ranging from totally agree to totally disagree, where one is completely disagree and five is completely agree.³

To determine if the items belonging to the different themes represent the underlying themes, a factor analysis using Oblimin rotation was performed. By using this specific type of rotation possible correlations between different dimensions are taken into account. Five different factors related to parental involvement and parent-teacher relationship practices were distinguished. However, based on some of the factor loadings and content check we decided to split one factor into two. This resulted in a distinction between six different factors/themes: (1) Perceptions on parental involvement; (2) Parental involvement; (3) Parent-teacher contacts; (4) contact possibilities; (5) Involving parents in decision making regarding additional care for the child; and (6) Teachers' perceived proficiency. For all six factors the Cronbach's alpha was calculated to check the reliability, which were found to be acceptable with values between 0.67 and 0.79. In table1 the six themes (factors) are presented with the corresponding Cronbach Alpha's and examples of the included items.

³ Except for the set of questions related to the theme parental involvement here the answer possibilities were on a 4-point Likert scale differing from bad to good.

Table 1. Cronbach's Alphas for each distinguished theme

Theme ⁴	Cronbach's Alpha
1. Perceptions on parental involvement (e.g. 'Teachers and parents have a shared responsibility regarding the education opportunities of a child')	0.79
Parent-teacher relationship practices	
2. Parental involvement (e.g. 'How involved are parents with the school')	0.74
3. Parent-teacher contacts (e.g. 'Parents keep me well informed about the situation at home and other important issues')	0.77
4. Contact possibilities (e.g. 'The school organises sufficient opportunities to talk with parents about their child')	0.67
5. Decision making (regarding additional care) (Parents are actively involved in decisions regarding additional care')	0.67
6. Perceived proficiency (e.g. 'I have the necessary skills to invest in the relationship with my pupils' parents')	0.67

Based on the distinguished factors, six variables were created by calculating the mean score for all the respective items.

3.1.2 Dutch National Education Data

To distinguish between low-SES schools and mainstream schools the so called 'school weight' is used. The school weight can be calculated by using the Dutch National Education Data⁵ and is based on the on the socio-economic composition of a school. Based on parental education level, children have a certain weight⁶ and the Dutch government provides schools with additional financial resources based on the total school weight. Schools were assigned to the category low-SES schools compared to mainstream schools if the weight of the total pupil population was higher than the mean plus one standard deviation, in this case higher than 14.

3.1.3 Limburg Education Monitor

Subsequently the data from the teacher questionnaire was matched to already existing data from the Limburg Education Monitor. This data is gathered every two years amongst all mainstream schools for primary education in South Limburg. Unfortunately schools for special education are not participating in this research therefore only teachers from

⁴ A full list of all items per theme can be found in Appendix A.

⁵ Retrieved from https://duo.nl/open_onderwijsdata/

⁶ Three categories can be distinguished: (1) no additional weight; (2) the additional weight of 0.3 for pupils whose parents both have a maximum of low education (maximum of junior secondary vocational education/pre-vocational secondary education); (3) the additional weight of 1.2 for pupils whose parents have a very low education level (one parent has a maximum of primary education and one parent has a maximum of junior secondary vocational / pre-vocational secondary education).

mainstream and low-SES schools could be matched to these population characteristics. Furthermore, it was not possible to match teachers from pre-primary education since their class was not yet included in the data. However, still a considerable amount of teachers could be matched (82%) which results in an analytic sample of 392 (from possible 481) teachers from 67 different schools.

The data we used from the education monitor includes school population characteristics on a class level and is based on administrative data and parent questionnaires. The class level pupil population characteristics we included from this data are the share of girls, mean age, share of children with special needs, and the share of children with social, emotional or learning problems. Furthermore, family and parent characteristics are included as well, including mean number of children per family, language proficiency of the mother and the mothers' education level. For statistical reasons to downsize the number of control variables, only the mothers' language proficiency and education level is included, as additional analyses show that there is a high correlation between mothers' and fathers' characteristics in our dataset.

3.1.4 Descriptive statistics from the combined datasets

Table 2 presents the descriptive statistics corresponding to the three combined datasets. In the analytic sample 19% of the respondents are male and 81% female. The average level of experience, 18 years, is quite high but there is a large variation, from having no experience to having 46 years of experience. The average score of teacher perceptions on parental involvement and parent-teacher relationship practices is also quite high (around 4, ranging between 1 and 5). Furthermore, table 2 shows that the analytic sample consists of teachers from 58 different schools with a majority of teachers from mainstream schools (88%). Regarding the class population characteristics, we observe that on average the half of the class population consists of girls, however this ranges from 24% to 81%. The average percentage of children receiving additional care in a class is 1.7% with some classes having none of these children (0%), and some classes where all children receive additional care (100%). Concerning the background characteristics of the class population we see that children on an average come from families that have a little over two children. Furthermore, an average of 11% of the mothers has a university degree and the average language proficiency of the mother (measured on a scale between one and five) is quite high.

Table 2. Descriptive statistics combined datasets

Teacher questionnaire	N	Frequency			
Sex	350				
Male		19%			
Female		81%			
	N	Mean	Minimum	Maximum	Std. Dev.
Teacher experience (years)	364	18.21	0.00	46.00	10.39
Teacher perceptions on parental involvement	369	4.24	1.29	5.00	0.44
Parental involvement	270	3.48	2.17	4.00	0.34
Parent-teacher contacts	354	3.55	2.00	4.67	0.51
Contact possibilities	355	4.06	1.00	5.00	0.57
Decision making	354	3.75	2.00	5.00	0.49
Perceived proficiency	353	3.98	2.60	5.00	0.44
	N	Number of schools	Frequency		
Open education data					
School type					
Mainstream schools	326	49	88%		
Low-SES schools	43	9	12%		
	N	Mean	Minimum	Maximum	Std. Dev.
Limburg education monitor					
Classroom population, share on class level					
Sex (average number of girls)	354	50.45	23.81	81.82	8.73
Mean age in months	354	100.73	51.71	135.20	21.84
Special needs	354	1.53	0.00	100.00	8.41
Social, emotional or learning problems	301	6.58	5.00	9.92	0.70
Background characteristics share on class level					
Number of children	301	2.20	1.67	3.33	0.24
Mothers' language proficiency	273	4.65	3.83	5.00	0.21
Mothers' education level	301	11.13	0.00	52.94	10.03

3.2 Methodology

The analysis proceeds in two steps. First, the correlation between all six of the distinguished themes in the questionnaire and factor analysis is calculated for the whole sample as well as for mainstream and low-SES schools separately. Secondly, a regression analysis with robust standard errors including ten different models is performed. Here we add school, teacher and pupil/parent characteristics group wise to the regression, both with and without the variables on teachers' perceptions on parental involvement, parent-teacher contact possibilities and perceived proficiency of the teacher regarding parental involvement. The results are discussed separately for both methodological steps.

4. Results

4.1 Results correlation

First, we perform a correlation analysis⁷ between all six of the distinguished themes in the questionnaire and factor analysis for the whole sample as well as for mainstream and low-SES schools separately. In this analysis, we observe that for the whole sample as well as for both school types there is a correlation between parent-teacher contacts and parental involvement. Furthermore, the contact possibilities teachers have and involving parents in decisions regarding additional care correlate with parent-teacher contacts. Involving parents in decision making is found to correlate with teacher perceptions on parental involvement, parent-teacher contacts and contact possibilities in both types of school and the whole sample. Interestingly, differences in correlations between school-types are mainly found regarding perceived proficiency. In low-SES schools a correlation with teacher perceptions and parental involvement is observed while this is not the case in mainstream schools. Furthermore, for mainstream schools a correlation is found between perceived proficiency and contact possibilities and decision making which is not the case for low-SES schools. In mainstream as well as low-SES schools a correlation between perceived proficiency and decision making is observed.

4.2 Results regression

For each theme we estimate seven different models. In model one, all pupil, parent, teacher and school background characteristics are included simultaneously in order to observe the relationship with teacher and school characteristics while controlling for all background characteristics. Subsequently in the following models the variables concerning teachers' perceptions regarding parental involvement, contact possibilities and perceived proficiency are included separately with all the control variables because of the observed correlation between these perceptions. In model three the variable teacher perceptions on parental involvement is included together with teacher background and school characteristics. All teacher, school, pupil characteristics together with teacher perceptions are included in model four. Moreover, in model five the variable contact possibilities is included together with teacher background and school characteristics and all teacher, school, pupil characteristics together with the variable contact possibilities are included in model six. Finally in model

⁷ Results can be found in the online appendix.

seven perceived proficiency is included together with teacher school and pupil characteristics. Significant results on a five percent level are discussed separately for each theme.

4.1.1 Results parental involvement

In table 3 the relationship between school, teacher, parent and pupil characteristics and teacher perceptions on parental involvement is presented. Regarding school type, we find a negative relationship between low-SES schools and parental involvement compared to mainstream schools. This relationship however disappears when pupil background characteristics and class composition characteristics are included. This implies that the relationship between type of school and parental involvement is rather due to pupil and/or family background characteristics. Furthermore, a very small positive relationship between teachers' experience and parental involvement can be observed, as well as a very small relationship between class the composition characteristic and parental involvement. However, both coefficients are negligible in size. Most interesting, a relationship between contact possibilities as well as teachers' perceived proficiency and parental involvement is observed. These results imply that mainly school type and teachers' proficiency and contact possibilities at the school to increase parental involvement are of importance to higher parental involvement. General teacher or classroom characteristics hardly seem to matter in this.

Table 3. Results regression parental involvement

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sex (average number of girls)	0.00373 (0.00229)		0.00375 (0.00229)		0.00362 (0.00248)		0.00372 (0.00219)
Average age in months	0.00218* (0.00107)		0.00222* (0.00110)		0.00194* (0.00111)		0.00205 (0.00105)
Share of children with special needs	0.00105 (0.00165)		0.00101 (0.00166)		0.000910 (0.00143)		0.00107 (0.00136)
Share of children with social, emotional or learning problems	-0.0677 (0.0459)		-0.0677 (0.0461)		-0.0786 (0.0484)		-0.0670 (0.0476)
Low-SES schools (reference: mainstream schools)	-0.197 (0.126)	-0.212* (0.103)	-0.198 (0.126)	-0.215* (0.106)	-0.210 (0.126)	-0.229** (0.106)	-0.202 (0.117)
Teacher experience (years)	0.00443* (0.00199)	0.00321* (0.00163)	0.00437* (0.00197)	0.00246 (0.00175)	0.00352 (0.00206)	0.000859 (0.00169)	0.00198 (0.00200)
Sex (reference: female)	-0.0804 (0.0626)	-0.0262 (0.0506)	-0.0805 (0.0629)	-0.0139 (0.0500)	-0.0619 (0.0632)	-0.0276 (0.0476)	-0.0602 (0.0600)
Average no. children in family	-0.0590 (0.120)		-0.0612 (0.121)		-0.0618 (0.121)		-0.101 (0.107)
Language proficiency mother	0.197 (0.129)		0.197 (0.130)		0.121 (0.131)		0.186 (0.131)
Education level mother	-0.00305 (0.00334)		-0.00304 (0.00336)		-0.00208 (0.00324)		-0.00299 (0.00321)
Perceptions on parental involvement		0.0305 (0.0347)	0.00808 (0.0404)				
Contact opportunities				0.0879** (0.0293)	0.0835* (0.0402)		
Perceived proficiency						0.173** (0.0346)	0.177** (0.0434)
Constant	2.725** (0.872)	3.322** (0.159)	2.691** (0.889)	3.106** (0.127)	2.857** (0.884)	2.804** (0.145)	2.213* (0.900)
Observations	183	287	183	275	176	274	175
Number of schools	52	66	52	66	52	66	52

Robust standard errors in parentheses, ** p<0.01, * p<0.05

4.1.1 Results parent-teacher contacts

In table 4 the results regarding parent-teacher contacts are presented. We find that compared to mainstream schools, low-SES schools score lower on parent-teacher contacts. This relationship remains significant, also when class composition and pupil background characteristics are included. Concerning pupil background characteristics we find a positive relationship between the language proficiency of the mother and parent-teacher contacts. Furthermore, a positive relationship between parent-teacher contacts and teacher perceptions, teachers' perceived proficiency and contact possibilities is found. These results are mostly in line with the findings regarding parental involvement: mainly school type, teacher perceptions, contact possibilities and perceived proficiency are of importance for parent-teacher contact.

4.1.2 Results decision making

The results for involving parents in decision making concerning additional care are presented in table 5. There is a positive relationship between decision making and teacher perceptions as well as contacts opportunities and teacher proficiency. Interestingly, compared to the results on parental involvement and parent-teacher contacts, there is no difference between school types. However, if we interact school type with teacher perceptions, contact opportunities and proficiency this coefficient *is* significant (results can be found in the online appendix), implying that these three variables act as a mediator for school type. Between school types, there seems to be variation in perceptions, contact opportunities and proficiency that is in turn related to differences in whether and to what extent teachers involve parents in decision making. The results regarding teacher perceptions, contact possibilities and perceived perceptions are in accordance with the previous findings in this study.

Table 4. Results regression parent-teacher contacts

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sex (average number of girls)	-0.00228 (0.00333)		-0.00216 (0.00331)		-0.000603 (0.00328)		-0.000406 (0.00301)
Average age in months	-0.00257 (0.00170)		-0.00205 (0.00179)		-0.00224 (0.00151)		-0.00251* (0.00146)
Share of children with special needs	0.00195 (0.00401)		0.00114 (0.00397)		0.00154 (0.00302)		0.00230 (0.00269)
Share of children with social, emotional or learning problems	-0.0131 (0.0511)		-0.0256 (0.0501)		-0.0303 (0.0447)		-0.000566 (0.0489)
Low-SES schools (reference: mainstream schools)	-0.240* (0.114)	-0.338** (0.0796)	-0.240* (0.109)	-0.330** (0.0815)	-0.262* (0.104)	-0.336** (0.0793)	-0.262* (0.106)
Teacher experience (years)	-0.00307 (0.00342)	-0.00165 (0.00241)	-0.00362 (0.00355)	-0.00219 (0.00221)	-0.00491 (0.00317)	-0.00448 (0.00234)	-0.00651 (0.00341)
Sex (reference: female)	-0.0353 (0.101)	-0.00722 (0.0706)	-0.0309 (0.0965)	-0.00296 (0.0707)	-0.0248 (0.0918)	-0.0350 (0.0664)	-0.0213 (0.0886)
Average no. children in family	-0.0182 (0.136)		-0.0298 (0.140)		-0.0169 (0.128)		-0.0212 (0.123)
Language proficiency mother	0.275 (0.155)		0.271 (0.155)		0.178 (0.129)		0.329* (0.149)
Education level mother	-0.000775 (0.00297)		-0.000550 (0.00276)		-0.00117 (0.00271)		-0.00200 (0.00288)
Perceptions on parental involvement		0.250** (0.0625)	0.194* (0.0798)				
Contact opportunities				0.330** (0.0435)	0.329** (0.0440)		
Perceived proficiency						0.404** (0.0565)	0.417** (0.0616)
Constant	2.871** (1.005)	2.578** (0.271)	2.125* (1.037)	2.308** (0.184)	2.029** (0.771)	2.086** (0.220)	0.858 (0.957)
Observations	237	357	237	357	237	356	236
Number of schools	53	67	53	67	53	67	53

Robust standard errors in parentheses, ** p<0.01, * p<0.05

Table 5. Results regression decision making

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sex (average number of girls)	-0.00249 (0.00477)		-0.00227 (0.00451)		-0.000241 (0.00488)		-0.000739 (0.00448)
Average age in months	0.00118 (0.00246)		0.00222 (0.00238)		0.00168 (0.00219)		0.00103 (0.00222)
Share of children with special needs	0.00201 (0.00315)		0.000445 (0.00284)		0.00173 (0.00253)		0.00214 (0.00235)
Share of children with social, emotional or learning problems	0.00915 (0.0492)		-0.00555 (0.0485)		-0.0134 (0.0521)		0.0280 (0.0482)
Low-SES schools (reference: mainstream schools)	-0.0172 (0.101)	-0.00804 (0.0766)	-0.0226 (0.0862)	-0.00129 (0.0848)	-0.0366 (0.0958)	-0.0127 (0.0853)	-0.0910 (0.0939)
Teacher experience (years)	0.00567 (0.00340)	0.00475 (0.00252)	0.00485 (0.00298)	0.00459 (0.00269)	0.00395 (0.00353)	0.00145 (0.00262)	0.00169 (0.00323)
Sex (reference: female)	0.000845 (0.0869)	0.0403 (0.0602)	0.0109 (0.0790)	0.0427 (0.0623)	0.0113 (0.0778)	-0.00138 (0.0537)	0.0309 (0.0630)
Average no. children in family	0.146 (0.117)		0.0854 (0.103)		0.154 (0.119)		0.183 (0.111)
Language proficiency mother	0.0405 (0.206)		0.0626 (0.187)		-0.0284 (0.212)		0.0768 (0.200)
Education level mother	0.00493 (0.00466)		0.00497 (0.00402)		0.00499 (0.00396)		0.00412 (0.00373)
Perceptions on parental involvement		0.432** (0.0805)	0.391** (0.108)				
Contact opportunities				0.335** (0.0438)	0.325** (0.0622)		
Perceived proficiency						0.523* (0.0511)	0.508** (0.0518)
Constant	3.019** (1.106)	1.838** (0.333)	1.390 (1.154)	2.315** (0.180)	2.026 (1.130)	1.653** (0.213)	0.627 (1.089)
Observations	237	357	237	357	237	356	236
Number of schools	53	67	53	67	53	67	53

Robust standard errors in parentheses, ** p<0.01, * p<0.05

5. Robustness check

To check the robustness of the results, several robustness analyses were performed. In these analyses, we use different distinctions between school type are used, as well as a different calculation of teacher perceptions All robustness analyses tables can be found in the online appendix.

In the robustness checks, we use three different distinctions between mainstream and low-SES schools based on school weight. First, we make the distinction between schools with additional weight and schools with no additional weight. Second, schools with no additional weight were distinguished from schools with a weight that was higher than the mean and one standard deviation. The schools with a weight lower than the mean plus one standard deviation were removed from this second analyses. Third, we performed a quantile regression comparing schools in the .10/.25 and .90/.75 quantile to obtain a more comprehensive analysis of the relationship between the variables. The results of these analyses are to a very large extent comparable with the results of the main analysis. Small differences that are observed are mainly observed for the control variables (pupil and pupil background characteristics). Finally, instead of calculating the mean score from all corresponding items to create the variables regarding teacher perceptions, the variables were created by calculating the share of answers in the highest two categories (agree and completely agree). The results are largely comparable to the results of the main analyses.

Overall the findings of these additional analysis confirm the main findings suggesting that there is a relationship between teacher perceptions on parental involvement, contact possibilities, perceived proficiency and school type, with how teachers view parental involvement, evaluate parent-teacher contacts and involve parents in decision making regarding additional care.

6. Conclusion and discussion

In this study, we analysed whether school type, teacher characteristics, pupil and parental characteristics, as well as teacher perceptions, perceived proficiency and contact possibilities can explain the differences in the actions teachers take regarding parental involvement. Using regression analysis in which we simultaneously included all factors, we analysed whether all these factors are of importance or whether there is dominance of certain factors over the

others. In other words, as a main contribution to the existing literature, we analysed the interrelatedness of the factors that might influence the actions teachers take regarding parental involvement. This study was based on over 392 questionnaires filled out by primary school teachers from 67 different primary schools in the southern region of the Netherlands, as well as on background information on teachers, pupils and their parents, and information on the type of school (regular school, or low-SES school).

The results show that differences in school type and teacher perceptions, perceived proficiency and contact possibilities are the main reasons for differences in teachers' actions regarding parental involvement. Teacher characteristics (e.g. experience and gender), as well as pupil and parental characteristics do not seem to play a role in this. This implies that there is an important role for schools and for teacher training to change teachers' perceptions, possibilities and perceived proficiency.

Several aspects of our study and results are of interest to be highlighted in the discussion. We discuss these aspects per type of characteristics separately, starting with teacher characteristics. As our results show that of all teacher characteristics, their vision and perceived proficiency is most important, the logical next question is how to increase and stimulate these aspects. The most natural conclusion would be to include that in formal teacher training, which can be either teacher training at the start of one's career, or further professional development during one's career. The latter is also in line with the theoretical framework of Epstein (2005) in which the professional chain of development for teachers is also an important aspect. As for teacher training before one becomes a teacher, so far the focus mainly lies on content knowledge of the prospective teachers, and it would be recommendable to place more emphasis on teacher vision and self-confidence.

Other teacher characteristics such as experience do not seem to play a role in the parental involvement activities that a teacher applies. This is interesting, as the prejudice that teachers with less experience have more troubles to effectively work with parents is very persistent. Even the Dutch national monitor of parental involvement exaggerates the size and importance of the correlation between teacher age and parental involvement. However, our study shows that these are not related, and that it is the vision and perceived proficiency of the teachers of their own performance is much more important, jointly with the actual

possibilities the school offers to get and keep in touch with parents. This again emphasizes the importance to focus on professional development of teachers, regardless the amount of experience

Another important type of characteristics for parental involvement are the school characteristics. Although most school characteristics do not seem to play a role, one very important factor *is* related to parental involvement, namely the (contact) possibilities for parental involvement that the school offers. The fact that (contact) possibilities make a big difference shows that it is very important that schools facilitate teachers in increasing parental involvement. This does not only include adding this to the policy plan of the school, but also making this a practical implementation at the school. This can be stimulated by training school leaders in this, and by creating awareness about the importance of formally offering teachers possibilities to increase or maintain parental involvement activities. School leaders should not assume that teachers will create their own parental involvement activities, as our study shows that teachers that have less vision or perceived proficiency have lower parental involvement and will most likely not feel confident enough or able to develop their own practices.

In sum, to stimulate parental involvement at home by teachers, as is discussed in (Bakker, Denessen, Dennissen, & Oolbekkink-Marchand, 2013; Fan & Chen, 2001; Vrancken & Coppens, 2014), it is very important for schools to facilitate teachers in their (communication) possibilities with parents. Furthermore, to develop or maintain a good relationship between parents and teachers (Driessen et al., 2014) it is very important that teachers have a clear vision about parental involvement, and that they are confident about their own proficiency to talk to parents and stimulate them.

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Appendix A

Theme	Cronbach's Alpha
<p><u>Perceptions on parental involvement</u></p> <p>Zonder ouders/verzorgers is het onmogelijk alle geplande (buitenschoolse) activiteiten uit te voeren <i>It is impossible to carry out all planned (extracurricular) activities without parents</i></p> <p>Het leerklimaat bij de leerlingen thuis is van invloed op hun leerprestaties <i>The home environment at the pupils home is of influence on their performance</i></p> <p>Het is belangrijk dat ouders meedenken en meespreken over de kwaliteit van het onderwijs <i>It is important that parents are involved in discussions regarding the quality of education</i></p> <p>Het is belangrijk dat ouders meedenken en meespreken over de sociaal-emotionele en cognitieve ontwikkeling van hun kind <i>It is important that parents are involved in discussions regarding the social-emotional and cognitive development of their child</i></p> <p>Het is belangrijk dat ouders participeren in de besluitvorming over de meest passende ondersteuning van (zorg)leerlingen <i>It is important that parents participate in the decision making regarding the most appropriate support for pupils (with special needs).</i></p> <p>Leerkrachten en ouders hebben een gedeelde verantwoordelijkheid inzake het creëren van goede omstandigheden voor het leren en ontwikkelen van leerlingen <i>Parents and teachers have a shared responsibility regarding the conditions for learning and development of the child</i></p> <p>Leerkrachten en ouders hebben een gedeelde verantwoordelijkheid inzake het creëren van onderwijskansen voor leerlingen <i>Teachers and parents have a shared responsibility regarding the education opportunities of the child</i></p>	0.79
<p><u>Parent-teacher relationship practices</u></p> <p>Parental involvement</p> <p>Hoe verloopt het contact met de ouders van uw leerlingen? <i>How is the contact with the parents of your pupils?</i></p> <p>Hoe verloopt het onderlinge contact tussen de ouders van uw leerlingen? <i>How is the mutual contact between the parents of your pupils?</i></p> <p>Hoe betrokken zijn de ouders bij de school? <i>How involved are the parents with the school?</i></p> <p>Hoe betrokken zijn de ouders bij de schoolloopbaan van hun kind? <i>How involved are parents with the school career of their child?</i></p> <p>Hoe goed zijn ouders op de hoogte van uw verwachtingen en ideeën over de betrokkenheid van ouders thuis? <i>How well aware are parents of your expectations and ideas about their involvement at home?</i></p> <p>Hoe goed bent u op de hoogte van de verwachtingen en ideeën van ouders over hun betrokkenheid thuis? <i>How well are you aware of parent's expectations and ideas about their involvement at home?</i></p>	0.74
<p>Parent-teacher contacts</p> <p>Ouders stellen zich voldoende op de hoogte van wat er bij mij in de klas gebeurt <i>Parents are sufficiently aware of what happens in the classroom</i></p> <p>Ouders stellen zich voldoende op de hoogte van alles wat er gebeurt op deze school <i>Parents are sufficiently aware of what happens in the school</i></p> <p>Zodra ouders zich zorgen maken om hun kind, betrekken ze mij daarbij <i>Parents involve me when they are concerned about their child</i></p> <p>Ouders hebben oog voor belangen van alle leerlingen in mijn klas <i>Parents pay attention to the needs of all the pupils in my class</i></p> <p>Ouders houden bij goed op de hoogte van de thuissituatie en andere belangrijke zaken <i>Parents keep me well informed about the situation at home and other important matters</i></p> <p>Ouders kunnen bij voldoende op de hoogte brengen van de ontwikkeling van hun kind <i>Parents are sufficiently able to inform me about the development of their child</i></p>	0.77

Contact possibilities

0.67

De school organiseert voor mij voldoende gelegenheden om met ouders over hun kind te spreken

The school organises sufficient opportunities to talk with parents about their child

Ik krijg van de schoolleiding voldoende tijd om te investeren in mijn contacten met de ouders van mijn leerlingen

The school provides enough time to invest in the contact with the parents of my pupils

De schoolleiding stimuleert mij actief om te investeren in mijn contacten met de ouders van mijn leerlingen

The school actively stimulates me to invest in the contacts with the parents of my pupils

Decision making (regarding additional care)

0.67

Ik vraag ouders naar hun mening over de beste manier om hun kind te begeleiden

I ask parents for their opinion regarding the best way to guide their child

Ik laat ouders meebepalen welke begeleiding hun kind op school krijgt

I involve parents in decisions about the guidance their child receives at school

De school, de leerling en diens ouders nemen gezamenlijk beslissingen over de toekomst van de leerling

The school, the pupils and their parents make joint decisions about the future of the pupil

Ouders worden actief betrokken bij het vaststellen van extra hulp bij zorgleerlingen

Parents are actively involved in decisions regarding additional care'

Perceived proficiency

0.67

Ik heb de nodige vaardigheden om te investeren in mijn contacten met de ouders van mijn leerlingen

I have the necessary skills to invest in the relationship with my pupils' parents'

Als ouders en ik het niet eens zijn, weten we er met elkaar uit te komen

If parents and I disagree we manage to reach consensus

Ik heb de nodige ervaring om om te gaan met ouders met andere ambities of verwachtingen dan ik zelf heb

I have the necessary experience to get along with parents that have different ambitions or expectations than I have

Ik heb de nodige ervaring om om te gaan met ouders met een andere thuistaal

I have the necessary skills to get along with parents that have a different home-language

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