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# Parental Trust in Teachers and Children's Interest in Reading and Math: A Longitudinal Study

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## ABSTRACT

This study investigated cross-lagged associations between parental trust in a child's teacher and children's academic interest across Grades 1–4 in primary school. Parents rated trust in their child's teacher, and 576 children reported their interest in reading and math at each grade. The results showed that high parental trust in a child's teacher predicted the child's high interest in math. In addition, the child's high interest in reading in Grade 2 was related to the father's subsequent trust in the teacher.

## Introduction

Parents consider education as an important factor that determines their child's future, and they are particularly concerned about the quality of their education in the early years. The importance of education can be reflected in parents' beliefs and involvement, which have a strong effect on their children's schooling. For example, positive parental beliefs, expectations, and support foster children's academic achievement and motivation (Aunola et al., 2003). Moreover, it is well-acknowledged that good parent–teacher relationships and parents' involvement in a child's education facilitate mutual trust (Tschannen-Moran, 2001), which, in turn, supports the child's academic (Cook et al., 2018) and motivational (Penttinen et al., 2020) outcomes. Although the relationship between parental beliefs and children's motivation has been demonstrated in several studies (for a review, see Lazarides et al., 2015), the role of parental trust in teachers has received less attention. Previous studies have investigated parental trust—typically the trust of mothers—in the teacher in relation to a various teacher or parental characteristics (e.g., Kikas et al., 2011). Less is known about how parental trust in the teacher is related to the development of child outcomes, especially interest in reading and math which is relevant for educational attainment, and how risk factors, such as a child's gender or having learning difficulties might be related to these associations. In addition, longitudinal studies of trust are scarce. Therefore, the present study aims to contribute to educational trust research by investigating longitudinal associations between parental trust in a child's primary school teachers and children's interest in reading and math across the first four school years. Because previous studies have shown that parents' relationships with teachers are different between parents of boys and girls (Silver et al., 2005) and with parents of children with learning difficulties (Elkins et al., 2003), we will study the effect of both of these risk statuses on parental trust in teachers. With regard to the comprehensive model of trust (Niedlich et al., 2021), the study focuses on “trust among parents and schools.”

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### ***Parental Trust in a Child's Teacher***

Developmental theories highlight the important influence that families and schools have on a child's development. The bioecological system model frames reciprocal relations between individuals and their environments as engines of child development (Bronfenbrenner & Morris, 2006). Within this model, the microsystem comprises specific settings in which children reside (e.g., home, school), and the mesosystem then includes interactions among microsystems, such as the reciprocal relationships that exist across home and school. Parental trust in a child's teacher represents this kind of social interaction between home and school. Further, these social exchanges (Bryk & Schneider, 2003) and communication concerning the child's schooling build the parent-teacher relationship (Adams & Christenson, 2000). Thus, how teachers respond to their child's academic, emotional, and social needs (Angell et al., 2009) and what kind of pedagogical practices teachers use with the children (Lerkkanen et al., 2013) affect the parental level of trust in the teacher.

However, both parents and teachers have certain expectations concerning each other's roles (Kramer, 1999). In a trustful parent-teacher relationship, trust can be described as confidence that both acts in a way that supports the goals of the relationship and child outcomes, and each other's individual expertise and contribution are valued and respected (Tschannen-Moran, 2001). Therefore, parental trust in a child's teacher can be defined as the parent's willingness to be vulnerable to another party (i.e., the teacher) based on the confidence that the teacher is benevolent, reliable, competent, honest, and open (Hoy & Tschannen-Moran, 1999).

Several studies have shown the benefits of trusting relationships between parents and teachers. When parents participate in their child's schooling and the parent-teacher relationship is warm and respectful, the child typically exhibits higher achievement, motivation, and emotional, social, and behavioral adjustment (e.g., Fan & Chen, 2001; Powell et al., 2010). Moreover, higher levels of parental trust in the teacher are associated with the child's increased prosocial behavior, decreased peer problems, and decreased overall difficulties (Santiago et al., 2016). In addition, Janssen et al. (2012) found support for the relation between teacher trust in parents and reading performance among students in first grade. With adolescents, Froiland and Davison (2014) indicated that better parent-teacher relationships were positively associated with parent perceptions of their child's grades, grade promotion, and positive behavior. Moreover, with a high school sample, Adams and Christenson (2000) found that parental trust in teachers was associated with credits earned and grade point average. However, there is a lack of studies on how parental trust might have an effect on the development of children's interest in reading and math and vice versa during the early school years.

### ***Parents' Role in a Child's Interest***

Motivation directs students' behaviors and efforts in learning situations (Wigfield et al., 2006), which then have a positive effect on achievement. For example, high motivation predicts achievement in reading (e.g., Eccles et al., 2006) and math (e.g., Aunola et al., 2006; Viljaranta et al., 2009). In the school context, the important conceptualization of motivation refers to the question of how interested students are in various subjects and how much they like and enjoy doing tasks related to a particular subject (Eccles et al., 1993). Interest is one of the reasons students interact with learning tasks, perform certain tasks, or exhibit a particular learning behavior (Hidi & Renninger, 2006). Previous studies have shown that children's interest varies across different subjects. For instance, a child who is highly interested in reading may not be as highly interested in math (e.g., Lerkkanen et al., 2012). Although students' interest in various subjects is relatively high at the beginning of their school careers, it often diminishes during the subsequent school years (Spinath & Spinath, 2005). Consequently, in the present study, interest refers to students'

liking and enjoyment of doing academic tasks in reading and math during the first four school years.

Expectancy–value theory of Eccles et al. (1998) concerning interest has proposed that parents’ beliefs concerning their child’s competence and interest are important predictors of the development of a child’s academic interest via parental behavior and direct or indirect communication (Simpkins et al., 2012). Parents can communicate their beliefs and expectations to their children directly by encouraging them to do better in school or by positive feedback when they do well and work hard (Gniewosz et al., 2015). Indirect communication of parents’ beliefs and expectations can be seen through the way they behave with their child, for example, in homework situations (Silinskas et al., 2015) and in the way they talk about teachers, school, and studying in general. It has been shown, for example, that mothers’ ability beliefs predict adolescents’ interest in math, whereas fathers’ ability beliefs were found to predict the changes related to interest in mathematics (Viljaranta et al., 2015). Moreover, parents who have lower expectations concerning their child’s success have been shown to express less encouragement (Bois et al., 2005).

Parents’ perceptions of a teacher might also be communicated to the child in ways that enhance a child’s engagement in studying (Powell et al., 2010). When children perceive that their parents and teachers have a good relationship and they are on the same side, it is easier for them to internalize the expectations and practices of parents and teachers. Furthermore, when children feel that their needs are met and teachers and parents are trying to do their best in supporting their learning, they want to invest effort in learning to have better learning outcomes. However, there is a lack of studies that explain how parental trust in teachers is related to a child’s academic interest longitudinally, and whether there are differences in the effect of mothers’ and fathers’ trust in the teacher on a child’s academic interest.

### ***The Role of Gender and At-Risk Status in the Proposed Associations***

The academic risk perspective proposes that children who are at risk of low achievement and school failure might have more to lose or benefit from through their ability to adapt to the classroom environment (Hamre & Pianta, 2001). Previous research has indicated that gender, for example, is one of these risk factors, whereby boys typically have a higher risk of poorer school adjustment and achievement and fewer warm relationships with teachers and parents (e.g., Hamre & Pianta, 2001). Therefore, there is a tendency to think that gender might affect the quality of the teacher–parent relationship (Hughes & Kwok, 2007). However, there are contradictory findings concerning the influence of a child’s gender on parental trust in teachers and a lack of research on the differences between mothers’ and fathers’ levels of trust in the teacher. While some studies have not found a link between a child’s gender and parental trust in the child’s teacher (Adams & Christenson, 2000; Kikas et al., 2011), other studies have shown different results (Lerkkanen et al., 2013; Powell et al., 2010). The reasons for this might be related to the differences in parental expectations for girls and boys or differences in parent–child relationships, depending on the gender of the parent and the child. For example, while girls are expected to be well-behaved and better regulated (Tolman & Porche, 2000), boys are expected to be strong and independent (Mahalik et al., 2003). Moreover, boys’ typically lower quality of their teacher–student relationship (Hughes & Kwok, 2007) might also be reflected in the parent–teacher relationship. Because of these somewhat contradictory findings concerning the role of the child’s gender, together with the shortage of knowledge on the role of parents’ own gender in parent–teacher trust, the current study investigated the role of parental trust of mothers and fathers in the teacher on their daughters and sons’ academic interest during the early school years.

Another risk factor is the child’s learning difficulties. Students who are struggling with learning are at elevated risk for a variety of poor outcomes, including a lower academic interest and problems in relationships with teachers, peers, and parents (Roorda et al., 2011). In these cases,

parent–teacher trust is even more important for a child’s successful schooling. Parents need to be confident that the teacher will understand the child’s needs and will do their best to effectively educate their child with learning difficulties (Elkins et al., 2003). It might be that, when the child struggles with learning, this is reflected in lower expectations for the child’s achievement and in lower parental trust in the teacher’s ability to support their child. However, there is a lack of studies on how a child’s risk of learning difficulties might affect parental trust in the teacher.

### ***Finnish Educational System***

The present study was conducted in Finland, which has a very high-quality public education system that offers equal and adapted education in an inclusive environment based on a national core curriculum. Finnish children begin nine years of comprehensive schooling in the year when they turn seven. Finnish teachers have a master’s degree in education, and on average, parents have relatively high trust in teachers (Lerkkanen et al., 2013). In primary school, typically one class teacher teaches almost every subject for the students, and the same class teacher follows the group for more than one year. In the national core curriculum, parent–teacher collaboration and parental school involvement are expected to be supported by the school. However, parents usually come to school only when they are invited and do not take part in everyday school life (Sormunen et al., 2011). The most common ways for parents to become involved in schooling are participating in parent–teacher conferences concerning their child’s schooling and helping their child with homework or preparation for assessments (Räty et al., 2009).

### ***Research Questions***

The current study aimed to contribute to the scant literature on longitudinal associations between mothers’ and fathers’ trust in teacher and child outcomes. The aim of the study was to investigate cross-lagged associations between parental trust in a child’s teacher and the child’s interest in reading and math across Grades 1–4. In addition, we investigated to what extent children’s gender and early risk for reading difficulties play a role in these associations. Due to the lack of existing literature on longitudinal associations between the study variables, specific hypotheses were not set.

## **Methods**

### ***Participants and Procedures***

The present study was part of a larger longitudinal study originally conducted in four municipalities in Finland from 2008 to 2010. Ethical approval was received from the University Ethical Board before the commencement of the study. Participants in the present study were a subsample of children participating in the follow-up during Grades 1–4. The parents were asked to complete and sign consent forms for their own and their offspring’s participation. Mothers ( $n = 444$ ) and fathers ( $n = 280$ ) filled out questionnaires measuring their trust in their child’s classroom teacher. The parental questionnaires were sent out and returned by mail. Children’s ( $N = 576$ ; 248 girls, 328 boys) interest in reading and math was measured in individual interviews on the school premises during normal school hours in the spring term of each of Grades 1–4.

### ***Measures***

#### ***Parental Trust in Teachers***

Parental trust in the children’s classroom teachers was measured using a shortened Finnish version of the Trust Scale (Adams & Christenson, 2000; Lerkkanen et al., 2013). Six items were rated

on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) that represented the level of confidence the respondent had that certain behaviors are beneficial for the goal of the family-school relationship. Items began with the phrase “*I am confident that the teacher ...*” and were followed by different statements that reflected a variety of behaviors often used by teachers to enhance students’ school performance (e.g., “... *does a good job of encouraging my child to have a positive attitude toward learning.*”; ... *does a good job of encouraging my child’s sense of self-esteem.*”). A mean score for maternal and paternal trust in the child’s teacher was calculated at each grade. Cronbach alphas were acceptable at each wave for mothers ( $\alpha$ s = .926, .925, .925, and .928 at Grades 1–4, respectively) and fathers ( $\alpha$ s = .930, .934, .919, and .933 at Grades 1–4, respectively).

### **Interest in Reading and Mathematics**

Children’s interest in reading and mathematics was assessed in an interview using the Task Value Scale for Children (TVS-C; Aunola et al., 2006). The scale consisted of items measuring students’ task motivation (i.e., interest in or liking for a particular task) in reading tasks (three items: e.g., “How much do you like reading?”) and in mathematical tasks (three items: e.g., “How much do you like mathematics?”). In the measurement procedure, the students were first to read the question by a research assistant. They were then shown a set of five faces drawn to depict an evaluative scale ranging from very positive to very negative. The students were then asked to point to the picture that agreed the most with their like or dislike for a particular subject (unhappy face/1 = “I do not like it at all/I dislike doing those tasks.”; happy face/5 = “I like it very much/I really enjoy doing those tasks.”). Cronbach alphas were acceptable at each wave for interest in reading ( $\alpha$ s = .773, .796, .875, and .863 at Grades 1–4, respectively) and math ( $\alpha$ s = .880, .896, .936, and .937 at Grades 1–4, respectively).

### **Moderating Variables**

A child’s gender and early risk for reading difficulties were used as moderating variables. Early risk for reading difficulties was defined at the end of the kindergarten year based on the four criteria (Lerkkanen et al., 2011): (1) a child’s initial phoneme identification; (2) letter knowledge; (3) rapid automatized naming; and (4) parental report of their own reading disabilities.

### **Analysis Strategy**

The data were analyzed with the Mplus statistical package (Muthén & Muthén, 1998–2018). We used the robust maximum likelihood estimator (MLR) and full information maximum likelihood (FIML) to handle both non-normally distributed and missing data (Muthén & Muthén, 1998–2018). Separate cross-lagged panel models for interest in reading and math were specified for mothers and fathers to examine reciprocal relations between the study variables. First, we estimated a stability model, which included the autoregressive effects over time and the within-time correlations of the variables. Second, we estimated a fully reciprocal model, which included the autoregressive effects over time, within-time correlations, and all cross-lagged associations. Subsequently, we compared this model to a more parsimonious model in which stability paths and cross-lagged paths were constrained to be equal over time. In addition, moderation analyses were conducted for the child’s gender and risk status using multiple group analyses. An unconstrained model was compared to a fully constrained model in which stability paths and cross-lagged paths were constrained to be equal across boys and girls and at-risk and non-risk students. Consistent with prior research (Satorra & Bentler, 2001), the models were compared to check whether constraints were justified.

The goodness-of-fit of the estimated models was evaluated using five indicators:  $\chi^2$ -test, Bentler's (1990) comparative fit index (CFI), the Tucker–Lewis Index (TLI), root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). According to Kline (2011), TLI and CFI values above .95, RMSEA values below .06, and SRMR values close to .08 can be considered indicators of a good model fit to the data.

## Results

Descriptive statistics and correlations between the study variables separately for mothers and fathers are shown in Table 1. There were some concurrent and longitudinal correlations between parental trust in teachers and children's interests. However, the associations were small in magnitude.

### *Parental Trust and Children's Interest in Reading*

#### *Mother's Trust and Children's Interest in Reading*

The model for mothers' trust in the child's teacher and children's interest in reading did not fit the data well [ $\chi^2(12) = 56.198$ ,  $p < .001$ ; CFI = .929; TLI = .839; RMSEA = .077; SRMR = .058]. The modification indices (MIs) suggested that the model fit could be increased by adding a path from the interest in reading at Grade 2 to interest in reading at Grade 4 (MI = 20.384), a path from the maternal trust at Grade 1 to trust at Grade 4 (MI = 11.128), and a path from the maternal trust at Grade 1 to trust at Grade 3 (MI = 8.421). Next, whether the stability and cross-lagged paths could be set as equal was tested. The fit of the final model was excellent [ $\chi^2(12) = 8.541$ ,  $p = .741$ ; CFI = 1.000; TLI = 1.000; RMSEA = .000; SRMR = .026]. The results showed that maternal trust and children's interest in reading were stable across Grades 1–4, but there were not any statistically significant cross-lagged associations between maternal trust and children's interest in reading.

#### *Father's Trust and Children's Interest in Reading*

The model for father's trust in the child's teacher and children's interest in reading did not fit the data well [ $\chi^2(12) = 58.059$ ;  $p < .001$ ; CFI = .925; TLI = .831; RMSEA = .079; SRMR = .057]. The modification indices (MIs) suggested that the model fit could be increased by adding a path from the interest in reading at Grade 2 to interest in reading at Grade 4 (MI = 22.291), a path from fathers' trust at Grade 2 to Grade 4 (MI = 14.537), a path from the interest in reading at Grade 1 to interest in reading at Grade 3 (MI = 7.433), and a path from fathers' trust at Grade 1 to Grade 3 (MI = 7.903). Next, it was tested with the Satorra and Bentler (2001) scaled difference chi-square test to determine whether the stability and cross-lagged paths could be set as equal. The fit of the final model was excellent [ $\chi^2(12) = 10.068$ ,  $p = .610$ ; CFI = 1.000; TLI = 1.000; RMSEA = .000; SRMR = .031]. The results (Figure 1) showed that children's interest in reading and fathers' trust in teachers were stable across four years of primary school. Moreover, children's high interest in reading in Grade 2 ( $\beta = .17$ ,  $p < .05$ ) was related to fathers' high subsequent trust in the child's teacher.

### *Moderation Effects*

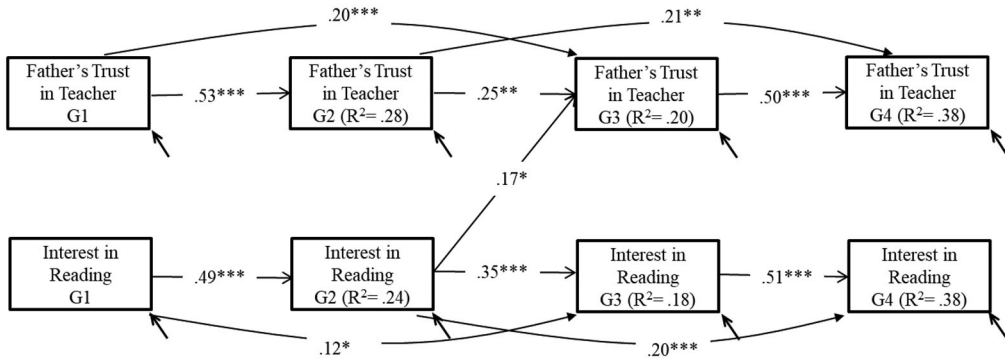
Next, we examined whether children's gender or risk status would moderate the associations between parental trust and children's interest in reading. The results of multiple group analyses indicated that children's gender or risk of reading difficulties did not moderate the associations between maternal trust in the teacher and children's interest in reading. The results (see Table A.1 in Appendix) further revealed that children's higher interest in reading at Grade 2



**Table 1.** Descriptive statistics and correlations between the study variables (correlations for mothers above the diagonal and fathers below the diagonal).

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	Mean	SD
1. Maternal trust G1	1	.518 <sup>a</sup>	.330 <sup>a</sup>	.338 <sup>a</sup>	-.040	.062	.036	.003	-.018	.052	.086+	.002	-.003	-.095 <sup>c</sup>	4.130	.739
2. Maternal trust G2	.538 <sup>a</sup>	1	.353 <sup>a</sup>	.306 <sup>a</sup>	-.034	-.046	-.014	-.027	.012	-.009	.046	.016	-.029	-.025	4.119	.743
3. Maternal trust G3	.349 <sup>a</sup>	.367 <sup>a</sup>	1	.514 <sup>a</sup>	-.103+	.033	-.029	.032	.033	.011	.031	.010	-.020	.039	3.920	.705
4. Maternal trust G4	.272 <sup>a</sup>	.405 <sup>a</sup>	.535 <sup>a</sup>	1	-.084	.000	-.059	-.020	-.006	.028	-.010	.087	.051	-.015	3.903	.751
5. Interest in reading G1	.036	-.003	.096	.042	1	.368 <sup>a</sup>	.283 <sup>a</sup>	.214 <sup>a</sup>	.149 <sup>a</sup>	.156 <sup>a</sup>	.121 <sup>b</sup>	.156 <sup>a</sup>	-.101 <sup>c</sup>	-.102 <sup>c</sup>	3.602	.943
6. Interest in reading G2	.023	.091	.167 <sup>c</sup>	.122+	.368 <sup>a</sup>	1	.400 <sup>a</sup>	.387 <sup>a</sup>	.156 <sup>a</sup>	.142 <sup>b</sup>	.161 <sup>a</sup>	.142 <sup>b</sup>	-.202 <sup>a</sup>	-.117 <sup>b</sup>	3.565	.869
7. Interest in reading G3	.022	.031	.076	.076	.283 <sup>a</sup>	.400 <sup>a</sup>	1	.608 <sup>a</sup>	.009	.080+	.282 <sup>a</sup>	.080+	-.242 <sup>a</sup>	-.138 <sup>a</sup>	3.411	1.120
8. Interest in reading G4	-.073	.020	.085	.049	.214 <sup>a</sup>	.387 <sup>a</sup>	.608 <sup>a</sup>	1	-.013	.033	.113 <sup>b</sup>	.249 <sup>a</sup>	-.268 <sup>a</sup>	-.185 <sup>a</sup>	3.462	1.039
9. Interest in math G1	.001	.002	-.021	.040	.149 <sup>a</sup>	.156 <sup>a</sup>	.009	-.013	1	.464 <sup>a</sup>	.342 <sup>a</sup>	.464 <sup>a</sup>	.209 <sup>a</sup>	.000	4.092	1.118
10. Interest in math G2	.140 <sup>c</sup>	.102	.128+	.058	.156 <sup>a</sup>	.142 <sup>b</sup>	.080+	.033	.464 <sup>a</sup>	1	.551 <sup>a</sup>	.411 <sup>a</sup>	.175 <sup>a</sup>	.001	3.981	1.142
11. Interest in math G3	.148 <sup>c</sup>	.138 <sup>c</sup>	.055	.003	.121 <sup>b</sup>	.161 <sup>a</sup>	.282 <sup>a</sup>	.113 <sup>b</sup>	.342 <sup>a</sup>	.551 <sup>a</sup>	1	.580 <sup>a</sup>	.121 <sup>b</sup>	.049	3.741	1.259
12. Interest in math G4	.074	.112+	.069	.001	.156 <sup>a</sup>	.142 <sup>b</sup>	.080+	.249 <sup>a</sup>	.464 <sup>a</sup>	.411 <sup>a</sup>	.580 <sup>a</sup>	1	.175 <sup>a</sup>	.001	3.486	1.223
13. Child's gender <sup>1</sup>	.009	.023	.007	.064	-.101 <sup>c</sup>	-.202 <sup>a</sup>	-.242 <sup>a</sup>	-.268 <sup>a</sup>	.209 <sup>a</sup>	.175 <sup>a</sup>	.121 <sup>b</sup>	.175 <sup>a</sup>	1	.200 <sup>a</sup>	1.573	.495
14. At-risk status <sup>2</sup>	-.071	-.047	-.064	.019	-.102 <sup>c</sup>	-.117 <sup>b</sup>	-.138 <sup>a</sup>	-.185 <sup>a</sup>	.000	.001	.049	.001	.200 <sup>a</sup>	1	.483	.500
Mean	3.943	4.042	3.853	3.813	3.602	3.565	3.411	3.462	4.092	3.981	3.741	3.486	1.573	.483		
SD	.747	.715	.654	.624	.943	.869	1.120	1.039	1.118	1.142	1.259	1.223	.495	.500		

Note. <sup>1</sup>1 = girl; 2 = boy; <sup>2</sup>0 = not at risk 1 = at risk; <sup>a</sup> $p < .001$ , <sup>b</sup> $p < .01$ , <sup>c</sup> $p < .05$ , + =  $p < .08$ .



**Figure 1.** Associations between fathers' trust and children's interest in reading.

predicted fathers' trust in the teacher only in boys. In addition, the results showed that children's higher interest in reading at Grade 2 predicted fathers' subsequent trust in the teacher significantly among at-risk children ( $\beta = .265, p < .01$ ) but only marginally among not at-risk children ( $\beta = .163, p < .08$ ).

## Parental Trust and Children's Interest in Math

### Mothers' Trust in Relation to Interest in Math

The model for mothers' trust and children's interest in math fit the data well [ $\chi^2(12) = 40.375, p < .001$ ; CFI = .959; TLI = .907; RMSEA = .062; SRMR = .049]. The modification indices (MIs) suggested that the model fit could be increased by adding a path from mothers' trust at Grade 1 to mothers' trust at Grade 4 (MI = 11.375), a path from the interest in math at Grade 1 to interest in math at Grade 3 (MI = 9.182), a path from the interest in math at Grade 2 to interest in math at Grade 4 (MI = 8.230), and a path from mothers' trust at Grade 1 to mothers' trust at Grade 3 (MI = 7.86). The fit of the final model was excellent [ $\chi^2(15) = 22.793, p = .089$ ; CFI = .989; TLI = .980; RMSEA = .020; SRMR = .064]. We tested whether the stability and cross-lagged paths could be set as equal. The results (Figure 2) showed that maternal trust and children's interest in math were stable across Grades 1–4. In addition, high maternal trust in their child's teacher in Grades 1 and 2 predicted children's high subsequent interest in math at Grade 2 ( $\beta = .064, p < .05$ ) and at Grade 3 ( $\beta = .058, p < .05$ ).

### Fathers' Trust in Relation to Interest in Math

The model for fathers' trust and children's interest in mathematics fit the data moderately well [ $\chi^2(12) = 40.302, p < .001$ ; CFI = .957; TLI = .903; RMSEA = .062; SRMR = .052]. The modification indices (MIs) suggested that the model fit could be increased by adding a path from fathers' trust at Grade 2 to fathers' trust at Grade 4 (MI = 14.342), a path from the interest in math at Grade 1 to interest in math at Grade 3 (MI = 9.984), and a path from the interest in math at Grade 2 to interest in math at Grade 4 (MI = 8.705). We tested whether the stability and cross-lagged paths could be set as equal. The fit of the final model was excellent [ $\chi^2(14) = 7.176, p = .928$ ; CFI = 1.000; TLI = 1.000; RMSEA = .000; SRMR = .026]. The results (Figure 3) showed that fathers' trust and children's interest in math was stable across Grades 1–4. Furthermore, high fathers' trust in teachers at Grades 1 and 2 predicted children's high interest in math at Grade 2 ( $\beta = .133, p < .01$ ) and Grade 3 ( $\beta = .116, p < .01$ ).

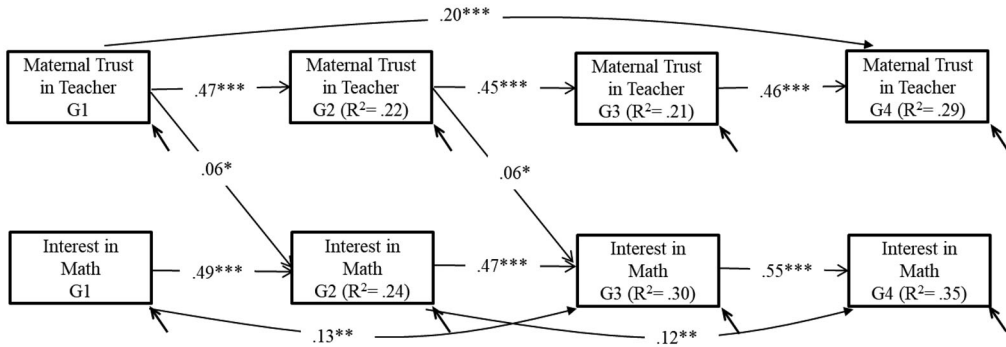


Figure 2. Associations between mothers' trust and children's interest in math.

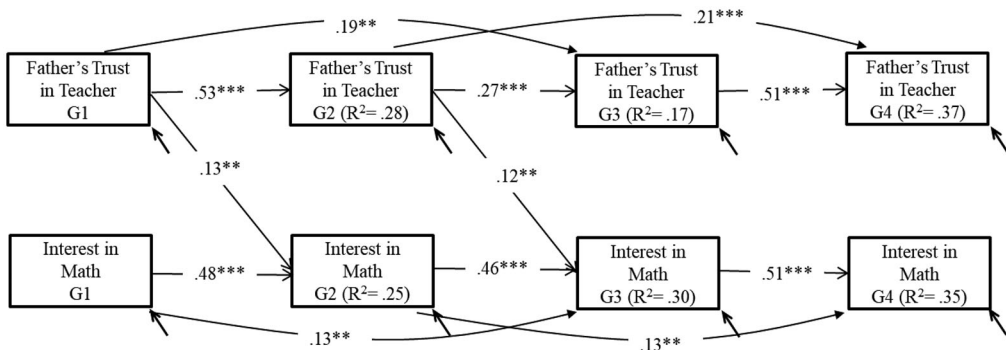


Figure 3. Associations between fathers' trust and children's interest in math.

### Moderation Effects

Next, we examined whether children's gender or risk status would moderate the associations between parental trust and children's interest in math. The multigroup analyses indicated that gender moderated the associations between mothers' trust in the teacher and children's interest in math (see Table A.2 in Appendix). In boys, mothers' trust in the child's teacher at Grade 3 also predicted the child's interest in math at Grade 4 ( $\beta = .064, p < .05$ ). In turn, there was no moderation effect of children's gender on associations between fathers' trust and children's interest in math (see Table A.3 in Appendix). Fathers' higher trust in children's teacher at Grades 1 and 2 predicted both boys' and girls' higher subsequent interest in math.

The moderation analyses (see Table A.2 in Appendix) further showed that children's risk status moderated the associations between parental trust and children's interest in math. In children without the early risk status, there was a reciprocal association between maternal trust in children's teacher and children's interest in math across Grades 1 and 2. When the child reported higher math-related motivation at Grade 1, the mother had higher subsequent trust in the teacher ( $\beta = .138, p < .05$ ). Maternal trust in their child's teacher at Grades 1 and 2 predicted children's higher subsequent interest in math. In children with risk status, fathers' trust in the child's teacher at Grade 3 (see Table A.3 in Appendix) also predicted the child's subsequent interest in math ( $\beta = .113, p < .001$ ).

### Discussion

This study aimed to contribute to the existing literature on trust in educational settings by investigating longitudinal links between parental trust in the children's classroom teacher and

children's academic interest across Grades 1–4. The results showed differences in how mothers' and fathers' trust were associated with the development of children's interest in reading and math. During the first two years of primary school, parental trust in the child's teacher was related to the child's subsequent interest in math. In addition, children's higher interest in reading at Grade 2 predicted fathers' subsequent higher trust in their child's teacher. Children's gender and early risk for reading difficulties had some moderating effects on the associations between parental trust in the teacher and children's academic interest.

### ***Parental Trust and Children's Interest in Reading***

First, the results showed that maternal trust and children's interest in reading were moderately stable across Grades 1–4. There were no statistically significant cross-lagged associations between maternal trust in the child's teacher and children's reading-related interest across the early school years. The non-existing cross-lagged associations may suggest that maternal trust in the child's teacher is built on previous trust and communication with the teacher rather than on the child's interest during the early school years. Mothers are usually active in communicating with their child's teacher during the early school years, which is reflected in their relationship and high trust in teachers (Tschannen-Moran, 2001). This is in line with Lewicki and Bunker's (1996) model of the development of trust, which posits that calculus-based trust is likely at the beginning of a relationship when experiences with each other are few. Knowledge-based trust is likely when a relationship matures and the predictability of the other evolves (e.g., based on their trustworthiness, i.e., facets of trust; Hoy & Tschannen-Moran, 1999).

The results further revealed that fathers' trust in their child's teacher was also stable across the early school years. Furthermore, children's higher interest in reading at Grade 2 predicted fathers' higher subsequent trust in their child's teacher when accounting for the previous level of trust and interest. The reason that children's interest in reading also plays a role in fathers' trust in the teacher may reflect the importance of achieving reading skills in the early school years. When fathers notice their child's interest in reading, they might conclude that the teacher has succeeded in supporting the child's reading-related motivation, which may also be reflected in higher reading performance. It might be that a father needs to "estimate" teachers' competencies through the interest of his child because mothers interact more with teachers than fathers do. The result might reflect the indication of "fulfilled expectations" as a base for fathers' trust in teachers. This result suggests that teachers should aim to support children's interest in reading in the early school years as well as inform fathers and involve them in their child's performance to contribute to enhancing trustful relationships with them.

### ***Parental Trust and Children's Interest in Math***

The results further indicated that parental trust in the child's teacher during the first two years predicted children's subsequent interest in math. Although this result applied to both fathers and mothers, the links were somewhat stronger among fathers. It should be noted that the models controlled for the previous levels of interest and parental trust. Thus, it seems that high parental trust in the child's classroom teacher is reflected in the child's higher interest in mathematics during the first school years. This finding is unique to the parent-teacher trust literature and suggests that parental trust in the child's teacher may be an important point of intervention to support children's engagement in mathematics.

We can only speculate about the mechanisms explaining the results. For example, mathematics as a school subject differs somewhat from language arts. Math skills are hierarchical, as they are built on previous skills and typically require high effort and motivation from children. Moreover, studies have shown cumulative patterns of math performance and interest in math starting to

develop in the early school years (Viljaranta et al., 2009). It may also be that a child's motivation in math is more prone to be influenced by parental beliefs (Aunola et al., 2003) than reading because math is much more demanding for children than learning to read is, especially in the Finnish language, which is easy for children to learn because of its highly regular orthographical structure (Lerkanen et al., 2004). Therefore, parents' positive beliefs toward teachers may be reflected in the child's math-related interest, which might further be reflected in their achievement in math.

### ***The Moderating Role of Gender and At-Risk Status***

Finally, we investigated possible moderation effects of children's gender and at-risk status in the proposed associations between parental trust and children's interest. There were some significant moderation effects for both gender and at-risk status. First, the results concerning children's interest in reading revealed that boys' higher interest at Grade 2 predicted fathers' trust in the teacher, but gender did not moderate the associations between maternal trust and children's interest in reading. Second, maternal trust in teachers at Grade 3 predicted boys' interest in math at Grade 4, but gender did not moderate the association between fathers' trust and children's math interest. This may indicate that fathers have more trust in teachers' professional skills if their sons are interested in reading. Third, children's higher interest in reading at Grade 2 predicted fathers' subsequent trust in teachers, and fathers' trust in teachers at Grade 3 predicted children's subsequent interest in math among at-risk children. Thus, among at-risk children, fathers' higher trust in teachers predicted children's higher interest in math across Grades 1–4. This underlines that fathers' trust fosters children's academic interest, which again strengthens their trust in teachers.

These moderation results are in line with the academic risk perspective (Hamre & Pianta, 2001) that posits that children with risk status and vulnerabilities have more to lose or gain in terms of school environment and relationships with teachers, peers, and parents. In line with this, boys, in particular, might benefit more from trusting parent–teacher relationships in terms of their engagement in reading. This relates to the discussion on social inequalities in education, that is, in emphasizing that, particularly with families with risk status, trusting relationships should be promoted. In children without at-risk status, a reciprocal association between maternal trust in the child's teacher and the child's interest in math across Grades 1 and 2 was found, thus reflecting a self-fulfilling circle: When a child reported higher math-related interest at Grade 1, the mother had higher subsequent trust in the teacher, which again predicted the child's high subsequent interest in math. Moreover, maternal trust in the child's teacher at Grades 1 and 2 predicting subsequent interest in math was also true among at-risk children.

For parents to trust teachers, they must first get to know each other. However, the literature has reported that parental beliefs and their involvement may be associated with their socioeconomic status, cultural background, parents' own experiences of school, and with the parental perception of their role in their child's schooling, and their level of confidence in fulfilling it. Moreover, differences in parenting practices, communication styles, and educational beliefs between teachers and parents may be prone to a lower relatedness between parents and teachers. When parties do not share common values, it is more difficult to establish a shared understanding and build trust (Hughes & Kwok, 2007). However, little research has addressed the partnership and relationship of parents and teachers as well as parents and teachers' beliefs, trust, and practices that affect parental involvement at school. If parents' only interaction with teachers is when something is wrong, this may not build a trusting partnership depending on how problems are addressed and who is blamed for being responsible for the problems or solving them. Therefore, teachers should aim at providing parents with possibilities to get involved in schoolwork. Initiating and building trustful relationships is important; if parents trust their child's

teacher, they believe they and will work together to figure out how to best support the child. However, if they do not trust the teacher, it is possible that they will question them and rationalize why they might be wrong, and the child may not get the support needed. This suggests that pre-service teacher education should include more training in interacting with parents and building educational partnerships.

### **Limitations and Future Directions**

Our study has some limitations that need to be considered when trying to generalize the findings. First, the sample size of the present study was modest. In particular, the response rate of fathers was much lower than that of mothers. Second, the models did not account for any teacher variables, such as teacher trust in parents (Kikas et al., 2011) or teacher classroom practices (Lerkkanen et al., 2013). To better understand the possible mechanisms explaining the associations between parental trust and children's motivation, a wider variety of variables is needed. One such variable could be mutual trust between teacher and parent (Kikas et al., 2011; Minke et al., 2014). Third, the results did not control for children's academic performance in reading or math. Future studies might benefit from investigating whether links between parental trust and children's motivation differ according to the child's academic performance.

### **Conclusions**

The present study is one of the first to empirically investigate longitudinal associations between parental trust in the child's teacher and children's academic interests. Overall, teachers and parents should be aware of the possibility that low parental trust in teachers may be reflected in children's school engagement in terms of lower interest in reading and math across school years. Thus, it would be important to support trusting relationships between teachers and parents, especially during the early school years. This applies to all children but especially to boys and children at risk of learning difficulties.

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## Appendix

**Table A1.** Unstandardized estimates for the father's trust and interest in reading model: moderation of child's gender and at-risk status.

			Child's gender <sup>a</sup>		At-risk status <sup>b</sup>	
			Unstand. estimate	SE	Unstand. estimate	SE
Stability paths						
Trust (G1)	→	Trust (G2)	.379***/.682***	.065/.080	.503***	.048
Trust (G1)	→	Trust (G3)	.167+/.206*	.089/.098	.067/.274**	.086/.084
Trust (G2)	→	Trust (G3)	.312*/.188	.124/.124	.343**/.170	.111/.133
Trust (G2)	→	Trust (G4)	-.043/.370***	.074/.097	.119+/.303***	.066/.082
Trust (G3)	→	Trust (G4)	.637***/.379***	.082/.065	.503***	.048
Interest in reading (G1)	→	Interest in reading (G2)	.414***	.029	.452***	.026
Interest in reading (G1)	→	Interest in reading (G3)	.033/.229**	.072/.081	.159+/.104	.083/.081
Interest in reading (G2)	→	Interest in reading (G3)	.514***/.336***	.101/.082	.539***/.345***	.088/.091
Interest in reading (G2)	→	Interest in reading (G4)	.089/.224***	.072/.062	.274***/.165*	.062/.068
Interest in reading (G3)	→	Interest in reading (G4)	.603***/.414***	.054/.029	.452***	.026
Cross-lagged paths						
Trust (G1)	→	Interest in reading (G2)	-.010	.053	-.040	.058
Trust (G2)	→	Interest in reading (G3)	-.010	.053	-.040	.058
Trust (G3)	→	Interest in reading (G4)	.062/-.022	.092/.116	.031/.142	.090/.116
Interest in reading (G1)	→	Trust (G2)	.016	.028	.018	.028
Interest in reading (G1)	→	Trust (G3)	—	—	-/.142*	-/.062
Interest in reading (G2)	→	Trust (G3)	-.130/.128*	.099/.063	.131+/.177**	.072/.066
Interest in reading (G3)	→	Trust (G4)	.016	.028	.018	.028
Covariances/correlations						
Trust (G1)	↔	Interest in reading (G1)	.042/.007	.073/.053	.044/-.007	.052/.076
Trust (G2)	↔	Interest in reading (G2)	.026/.058	.041/.036	.036/.045	.031/.053
Trust (G3)	↔	Interest in reading (G3)	-.029/.088	.060/.062	-.037/.094	.056/.062
Trust (G4)	↔	Interest in reading (G4)	-.002/.054	.032/.042	.034/-.013	.035/.042

Unstand. estimate: unstandardized coefficient; SE: standard error.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

<sup>a</sup>Girls ( $N = 248$ )/boys ( $N = 328$ ).

<sup>b</sup>Not at-risk ( $N = 320$ )/at-risk ( $N = 267$ ).

**Table A2.** Unstandardized estimates for the mother's trust and interest in math model: moderation of child's gender and at-risk status.

			Child's gender <sup>a</sup>		At-risk status <sup>b</sup>	
			Unstand. estimate	SE	Unstand. estimate	SE
<b>Stability paths</b>						
Trust (G1)	→	Trust (G2)	.602***/.454***	.071/.044	.473***	.030
Trust (G1)	→	Trust (G3)	−/.244**	−/.078	—	—
Trust (G1)	→	Trust (G4)	.291**/.116	.086/.073	.276***/.084	.057/.098
Trust (G2)	→	Trust (G3)	.454***/.144*	.044/.071	.473***	.030
Trust (G3)	→	Trust (G4)	.618***/.454***	.092/.044	.473***	.030
Interest in math (G1)	→	Interest in math (G2)	.501***	.027	.486***	.028
Interest in math (G1)	→	Interest in math (G3)	.104+/.203**	.059/.063	.012/.198**	.072/.063
Interest in math (G2)	→	Interest in math (G3)	.501***	.027	.682***/.486***	.077/.028
Interest in math (G2)	→	Interest in math (G4)	.121*/.111+	.061/.062	.197**/.062	.059/.061
Interest in math (G3)	→	Interest in math (G4)	.501***	.027	.486***	.028
<b>Cross-lagged paths</b>						
Trust (G1)	→	Interest in math (G2)	.108*	.048	.116*	.048
Trust (G2)	→	Interest in math (G3)	.108*	.048	.116*	.048
Trust (G3)	→	Interest in math (G4)	.108*	.048	−.068/.021	.097/.135
Interest in math (G1)	→	Trust (G2)	.001	.017	.083*/−.011	.037/.019
Interest in math (G2)	→	Trust (G3)	.001	.017	−.011	.019
Interest in math (G3)	→	Trust (G4)	.001	.017	−.011	.019
<b>Covariances/correlations</b>						
Trust (G1)	↔	Interest in math (G1)	.066/−.097*	.066/.047	.003/−.040	.056/.060
Trust (G2)	↔	Interest in math (G2)	−.067/−.037	.041/.065	−.057/−.061	.039/.069
Trust (G3)	↔	Interest in math (G3)	.003/−.032	.057/.051	.007/−.023	.051/.056
Trust (G4)	↔	Interest in math (G4)	.051/.149**	.057/.056	.103**/.125+	.038/.073

Unstand. estimate: unstandardized coefficient; SE: standard error.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .<sup>a</sup>Girls ( $N = 248$ )/boys ( $N = 328$ ).<sup>b</sup>Not at-risk ( $N = 320$ )/at-risk ( $N = 267$ ).**Table A3.** Unstandardized estimates for the father's trust and interest in math model: moderation of child's gender and at-risk status.

			Child's gender <sup>a</sup>		At-risk status <sup>b</sup>	
			Unstand. estimate	SE	Unstand. estimate	SE
<b>Stability paths</b>						
Trust (G1)	→	Trust (G2)	.444***/.683***	.072/.080	.513***	.047
Trust (G1)	→	Trust (G3)	.163+/.174+	.090/.100	.064/.236*	.088/.099
Trust (G1)	→	Trust (G4)	.251**/−.209*	.075/.103	—	—
Trust (G2)	→	Trust (G3)	.318**/.224+	.120/.118	.357**/.203	.114/.133
Trust (G2)	→	Trust (G4)	−.042/.433***	.076/.103	.110+/.303***	.065/.085
Trust (G3)	→	Trust (G4)	.635***/.250+	.080/.134	.513***	.047
Interest in math (G1)	→	Interest in math (G2)	.427***/.504***	.055/.071	.511***	.027
Interest in math (G1)	→	Interest in math (G3)	.133***	.037	.131***	.034
Interest in math (G2)	→	Interest in math (G3)	.470***/.617***	.072/.059	.511***	.027
Interest in math (G2)	→	Interest in math (G4)	.133***	.037	.131***	.034
Interest in math (G3)	→	Interest in math (G4)	.484***	.042	.511***	.027
<b>Cross-lagged paths</b>						
Trust (G1)	→	Interest in math (G2)	.222***	.062	.229***	.056
Trust (G2)	→	Interest in math (G3)	.222***	.062	.229***	.056
Trust (G3)	→	Interest in math (G4)	.099/−.066	.186/.147	−.100/.229***	.147/.056
Interest in math (G1)	→	Trust (G2)	−.013	.023	−.014	.021
Interest in math (G2)	→	Trust (G3)	.004/.060	.048/.046	.011/.012	.044/.049
Interest in math (G3)	→	Trust (G4)	−.013	.023	−.014	.021
<b>Covariances/correlations</b>						
Trust (G1)	↔	Interest in math (G1)	.004/−.037	.084/.059	−.007/.031	.077/.069
Trust (G2)	↔	Interest in math (G2)	.027/−.052	.056/.052	.058/.132+	.036/.074
Trust (G3)	↔	Interest in math (G3)	−.053/−.063	.068/.055	.018/.117+	.057/.062
Trust (G4)	↔	Interest in math (G4)	−.016/−.029	.052/.044	.016/−.016	.043/.052

Unstand. estimate: unstandardized coefficient; SE: standard error.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .<sup>a</sup>Girls ( $N = 248$ )/boys ( $N = 328$ ).<sup>b</sup>Not at-risk ( $N = 320$ )/at-risk ( $N = 267$ ).