



The role of teacher–child relationships in kindergarten on children’s motivation and reading skills in grade 1

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Accepted: 6 October 2024 / Published online: 29 October 2024
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Abstract

The main aim of the current study was to investigate the role of teacher–child relationship quality in kindergarten on children’s motivation (interest in reading and task persistence) and reading skills in Grade 1. A total of 231 children (age at baseline 6.8 years; 50.6% girls) completed reading-related tasks and answered questions about their interest in reading. Eighteen kindergarten teachers completed questionnaires about the teacher–child relationship for each child in kindergarten. School psychologists reported on children’s task persistence during tests. A cross-lagged path model analysis revealed that teacher–child conflict in kindergarten predicted lower task persistence and interest in reading at the beginning of Grade 1. In addition, we found two indirect effects of teacher–child conflict in kindergarten on reading skills at the end of Grade 1 via task persistence and interest in reading at the beginning of Grade 1. The current study emphasizes the importance of teacher–child relationship quality in kindergarten and its longitudinal effects on the development of children’s motivation and reading skills in Grade 1.

Keywords Teacher–child relationship · Task persistence · Interest in reading · Reading skills

Introduction

The quality of teacher–child relationships in kindergarten plays a crucial role in the development of children’s motivation (Pakarinen et al., 2020; Stephanou, 2014) and reading skills (Caputi et al., 2017). Kindergarten education establishes the foundation for future academic development, preparation for Grade 1, and school adjustment (Kang et al., 2016), which can lead to higher achievement in later school years

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(Claessens & Engel, 2013; Stanley et al., 2017). Children's motivation, task persistence, and interest in reading are important for promoting their reading skills. Given that teacher–child relationship quality can be crucially important for enhancing children's motivation and reading skills, it is surprising that these links during the transition from kindergarten to Grade 1 are poorly understood. Although some previous studies have investigated the associations between teacher–child relationships, motivation, and children's reading skills (Pakarinen et al., 2020; Stephanou, 2014), they have had limitations. First, only a few researchers have investigated the indirect effects of teacher–child relationships on reading skills via task persistence (Hughes et al., 2012; Kiuru et al., 2014), and most have examined task persistence as part of a broader construct, such as engagement. Second, only a few attempts have been made to examine the indirect effects of teacher–child relationships in kindergarten on reading skills via children's interest in reading (Stephanou et al., 2014). Hence, in the current study, we investigated both task persistence and interest in reading as mediators between teacher–child relationships in kindergarten and children's reading skills in Grade 1. Finally, to our knowledge, this is the first study to consider these associations using a Lithuanian sample, although considering different cultural backgrounds can enhance the generalizability of research results. Therefore, in the current study, we investigated the direct and indirect effects of close and conflictual teacher–child relationships in kindergarten on children's motivation (interest and task persistence) and reading skills during the transition to Grade 1 in Lithuania.

Links between children's motivation and reading skills

Since reading skills begin to develop before primary school (Whitehurst & Lonigan, 1998) and kindergarten education establishes the foundation for achievement in primary school, it is beneficial to analyze these skills before children enter formal education. Child motivation has been put forward in explaining the development of reading skills (Pakarinen et al., 2020; Stephanou, 2014). One indicator of motivation is a child's interest in reading. The interest in reading is conceptualized as an intrinsic value relating to how much the child enjoys completing reading-related tasks (Eccles et al., 1993; Wigfield & Eccles, 1992). Previous studies have shown that a strong interest in reading promotes children's reading skills (Kirby et al., 2011; Metsäpelto et al., 2017; Salminen et al., 2017).

Another important motivational construct related to children's academic skills is task persistence (Hirvonen et al., 2012; Kikas & Silinskas, 2016; Kiuru et al., 2014), defined as effort, attention, and perseverance while completing challenging academic tasks (Bulotsky-Shearer et al., 2011; Kikas & Silinskas, 2016; Kikas & Tang, 2018). Previous studies have shown that high task persistence predicted strong literacy (Kikas & Silinskas, 2016), reading, and spelling skills (Hirvonen et al., 2010; Kiuru et al., 2014). When children avoid challenging tasks, they put little effort into their learning, and their reading skills develop slowly (Georgiou et al., 2017).

Associations between teacher–child relationships in kindergarten and children's reading skills and motivation in grade 1

When children enter educational settings, teachers become important attachment figures who shape children's school experiences (Ainsworth & Bowlby, 1991; Bowlby, 1982). Relationships with teachers are crucial for supporting children's academic growth, such as the development of early reading skills and motivation. In the current study, teacher–child relationships were measured from the teachers' perspective. The quality of teacher–child relationships can be conceptualized in terms of closeness and conflict, with closeness defined as expressions of involvement, warmth, and trust, and conflict defined as negativity and tension between teachers and children (Hamre & Pianta, 2001; Pianta & Stuhlman, 2004; Pianta et al., 1997).

Previous studies have shown that close teacher–child relationships facilitate children's academic skills (Silinskas & Kikas, 2022; Stephanou, 2014), task persistence (Kikas & Tang, 2018; Silinskas & Kikas, 2022), and interest (Pakarinen et al., 2020). When children form positive beliefs about their abilities, their perceived task value increases, which promotes interest (Eccles et al., 1993; Wigfield & Eccles, 1992, 2000). In addition, teachers' emotional support and affection encourage children to make greater efforts, thus promoting task persistence (Kikas & Tang, 2018). However, conflictual teacher–child relationships may lead to children's lower academic achievement (Caputi et al., 2017; Hamre & Pianta, 2001; Lippard et al., 2017; Pianta & Stuhlman, 2004; White, 2013), task persistence (Silinskas & Kikas, 2022), and interest in literacy (Pakarinen et al., 2020).

In addition to direct effects, teacher–child relationships may indirectly predict reading skills via children's motivation. When teachers provide care and express trust in their students, children have more positive experiences of learning, which motivates them to try harder to improve their reading skills (Eccles & Roeser, 2009). Regarding the mediating role of interest in reading, children's interactions with adults can shape their intrinsic values (or interest) and, in turn, improve their reading skills (Eccles et al., 1993; Wigfield & Eccles, 2000). Teachers become important figures who shape children's beliefs, and close relationships between teachers and children can enhance children's self-belief and promote their interest in reading and, consequently, their reading skills. Pakarinen et al. (2020) showed the importance of teacher–child relationships for fostering children's interest and pre-academic skills. Stephanou (2014) investigated the indirect effects of teacher–child relationships on literacy skills and found that kindergarten children who felt cared for by their teachers experienced positive emotions toward them, had greater interest in learning, and achieved better literacy performance. However, none of these studies investigated the indirect effects of teacher–child relationships on reading skills via an interest in reading during the transition to primary school. Kindergarten experiences are brought to primary school and can shape children's motivation and reading skills in Grade 1.

Regarding task persistence as a mediator, Kiuru et al. (2014) found that task-focused behavior mediated the association between positive teacher affect and the academic achievement of Finnish primary school children. Previous studies have also investigated the role of task persistence in the association between teacher–child

relationships and reading skills (Hughes & Kwok, 2007; Hughes et al., 2012) but largely as a part of engagement and other constructs. To our knowledge, none of the previous studies have specifically investigated the role of teacher–child relationships in kindergarten on children’s reading skills in primary school via task persistence.

The Lithuanian education system

Since 2016, kindergarten education (one year before entering primary education in Grade 1) has become compulsory in Lithuania (LR Ministry of Education, Science, and Sports, 2019a). Children start kindergarten in the calendar year of their 6th birthday. Primary education starts in Grade 1 and continues to Grade 4. The kindergarten education curriculum in Lithuania is child-oriented and focused on developing social, health, cognitive, communication, and art competencies (LR Ministry of Education & Science, 2014a). Together with these competencies, children also develop their early language skills (i.e., speaking, reading, and writing). Children are taught to differentiate sounds and connect them with letters. In kindergarten, teachers aim to help children learn letters and read individual words and short texts (LR Ministry of Education & Science, 2014a). The early skills gained in kindergarten continue to develop in Grade 1, where language skills (listening, speaking, reading, and spelling) are particularly important, and reading skills develop more rapidly. During Grades 1–2, children are expected to be able to find information while reading, interpret texts, and express their opinions about the texts they have read (LR Ministry of Education & Science, 2016). Throughout the first grade, in Lithuanian-speaking schools, children have approximately 280 language lessons (around 8 lessons per week; LR Ministry of Education, Science, and Sports, 2019b). All teaching practices must be based on the main curriculum while considering individual needs and the models endorsed by individual schools (LR Ministry of Education & Science, 2014b). Since learning to read is a huge part of the curriculum throughout the transition from kindergarten to Grade 1, the present study concentrated on reading skills during this transition phase.

The present study

The current study aimed to investigate the role of teacher–child relationships in kindergarten on children’s motivation and reading skills in Grade 1. Multiple reports from teachers, psychologists, and children were used to enhance the research design and comprehensiveness of the study. To achieve the study goals, two research questions were formulated:

1. To what extent do teacher–child relationships (i.e., closeness and conflict) in kindergarten predict motivation (i.e., task persistence and interest in reading) and reading skills in Grade 1? We expected that teacher–child closeness would predict strong motivation and reading skills, whereas teacher–child conflict would predict weak motivation and reading skills in Grade 1 (Hypothesis 1).

2. What are the indirect effects of teacher–child relationship quality in kindergarten on reading skills in Grade 1? We expected to find that teacher–child relationships in kindergarten predicted reading skills at the end of Grade 1 via task persistence and interest in reading at the beginning of Grade 1 (Hypothesis 2).

Previous research has shown the associations between parental education and children's academic achievement and motivation (e.g., Caputi et al., 2017; Kikas & Silinskas, 2016). In addition, gender differences have also been shown in children's relationships with teachers, motivation, or academic achievement (e.g., Georgiou et al., 2017; Kikas & Silinskas, 2016). For instance, girls have been rated as more task persistent than boys (Georgiou et al., 2017; Kikas & Silinskas, 2016), whereas boys showed less closeness with their teachers (Skalická et al., 2015). Therefore, the effects of children's gender and highest parent education were controlled for.

Methods

Participants and procedure

The current study is part of a longitudinal data collection “Get involved! Transition to Grade 1” (Silinskas & Raiziene, 2017–2018). The data collection was conducted in six schools in rural (35%) and urban (capital, 65%) areas of Lithuania. All participating schools were Lithuanian-speaking schools. Data were collected at three time points: the end of kindergarten (T1), the beginning of first grade (T2), and the end of first grade (T3). Kindergarten teachers completed questionnaires about the quality of their relationships with children. School psychologists interviewed children about their interest in reading, assessed their reading skills, and rated the children's task persistence while completing tasks. Before the study, research permission was received from the school administration, and parents signed written consent forms for their own and their children's participation. The procedures followed the principles of the Helsinki Declaration regarding research with human subjects. The study was approved by the ethics committee of the University of Jyväskylä (May 3, 2017).

We analyzed data collected from 231 children who participated in the study at T1 (50.6% girls, $n = 117$; 49.4% boys, $n = 114$), their kindergarten teachers ($n = 18$), and school psychologists in kindergarten and Grade 1. The average age of the children at the end of kindergarten was 6.73 years ($SD = 0.30$): girls 6.73 ($SD = 0.27$), and boys 6.74 ($SD = 0.33$). There was no difference in boys' and girls' ages ($t(226) = -0.25$, $p = 0.81$). Attrition analyses did not show systematic differences between children who stayed in the study and those who dropped out at T2, and between those who stayed at T3 and dropped out at T3. The only significant difference was found in interest in reading between those children who stayed in T2 ($M = 3.79$) and those who dropped out at T2 ($M = 4.22$).

Most of the parents had university degrees (60.2% of mothers and 47.6% of fathers) or had finished college or vocational school (23.8% of mothers and 27.7% of fathers). In terms of home language, 89.6% of the children spoke only Lithuanian at home, 6.8% spoke combined Lithuanian and Russian or Polish, 1.8%

spoke only Russian, and 0.9% spoke only Polish at home. Most of the teachers had bachelor's degrees in education (52.4%), 37.2% had master's degrees in education or other fields, and 7.0% had college degrees in education. Teachers had different years of experience as teachers: 24.2% had 5 years or less, 16.5%—6 to 10 years, 19.0%—11 to 20 years, 31.6%—21 to 30 years, and 8.7%—more than 30 years.

Measures

The research measures for reading skills were adapted from the First Steps longitudinal study (Lerkkanen et al., 2006–2016), the ARMI test battery (Lerkkanen et al., 2006), and Gedutienė's (2008) doctoral dissertation. The measures were also described in Silinskas et al.'s (2024) study. For the data analysis, two control variables were chosen: gender and the parents' highest education level (Pakarinen et al., 2011; Silinskas et al., 2016). The psychometric properties of all the measures are presented in Table 1.

Table 1 Descriptive statistics

	<i>n</i>	<i>M</i>	<i>SD</i>	Potential range	Actual range	Skewness
<i>Teacher Questionnaire</i>						
Teacher–child closeness T1	229	4.08	0.64	1–5	2.14–5	−0.33
Teacher–child conflict T1	229	1.78	0.83	1–5	1–4.43	1.02
<i>Testers' (School Psychologists') Questionnaire</i>						
Task persistence T1	229	3.88	1.00	1–5	1.2–5	−0.62
Task persistence T2	184	4.16	0.92	1–5	1–5	−1.11
<i>Children's Tests</i>						
Interest in reading T1	229	3.88	0.93	1–5	1–5	−0.78
Interest in reading T2	184	4.01	0.85	1–5	1–5	−0.95
Letter knowledge T1	229	26.92	7.31	0–32	1–32	−2.07
Initial phoneme identification T1	229	9.99	3.04	0–12	0–12	−2.30
Initial phoneme deletion T1	229	3.53	4.67	0–12	0–12	0.77
Initial phoneme deletion T2	184	7.40	6.57	0–16	0–16	−0.02
Word reading fluency T1	229	6.71	5.93	0–16	0–16	0.32
Word reading fluency T2	184	15.57	11.50	0–75	0–57	1.01
Word reading fluency T3	187	24.41	12.42	0–75	0–61	0.47
Sentence reading fluency T3	187	16.16	8.25	0–60	0–47	0.42
Story reading comprehension T3	187	8.50	3.01	0–13	0–13	−1.15
<i>Control Variables</i>						
Gender (1 = girls; 2 = boys)	231	1.49	0.50	1–2	1–2	0.03
The highest parent education	228	4.55	0.75	1–5	1–5	−1.82

T1 = Kindergarten; T2 = Grade 1 Fall; T2 = Grade 1 Spring

Teachers' Questionnaire

Teacher–child relationships (T1)

The student–teacher relationship scale (STRS; Pianta, 1992, 2001) was used to investigate the quality of teacher–child relationships in kindergarten. Teachers rated relationship quality for each student in their class on a scale ranging from 1 to 5 (1 = completely disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = completely agree). The scale consisted of 15 items: closeness (8 items; e.g., “I share an affectionate, warm relationship with this child” and “This child values his/her relationship with me”) and conflict (7 items; e.g., “This child and I always seem to be struggling with each other” and “This child remains angry or is resistant after being disciplined”). The Cronbach's alpha value for closeness was 0.856, and the value for conflict was 0.923. Good reliability and validity of the measure have been shown by various authors in different countries: Greece (Gregoriadis & Tsigilis, 2007), the Netherlands (Koomen et al., 2012), and Finland (Pakarinen et al., 2017).

Testers' (school psychologists') Questionnaire

Task persistence (T1, T2)

The behavioral strategy rating scale (BSRS; Aunola et al., 2000; Nurmi & Aunola, 2000) was used to measure task persistence in kindergarten and in the fall of Grade 1. Psychologists were asked to rate five items on a five-point scale (1 = completely disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = completely agree); for example, “The child actively tries to manage even difficult situations or assignments.” The values of the other three negatively worded statements were reversed. The Cronbach's alpha values were 0.897 and 0.902 at T1, and T2, respectively.

Children's measures

Interest in reading (T1, T2)

The task-value scale (TVS-C) was used to interview children about their interest in reading at two measurement points (Nurmi & Aunola, 1999; based on Eccles et al., 1983). Pictures of five faces were presented to each student individually, with expressions ranging from very sad to very happy. The children were asked to point to one of the faces for each of the three statements related to their interest in reading. The answers were scored from 1 = very boring to 5 = very fun. The Cronbach's alpha values were 0.601 and 0.584 at T1 at T2, respectively.

Early reading skills (T1)

In the current study, early reading skills in kindergarten were measured using four tests: letter knowledge, initial phoneme identification, initial phoneme deletion, and word reading. To obtain a composite of early reading skills, all three tests were standardized (using z-scores), and the mean score was calculated. First, to measure letter knowledge, children had to name all 32 uppercase letters of the Lithuanian alphabet. Letters were randomly written on a piece of paper and organized into three rows. The children had to name letters from left to right, while lower lines were covered with paper. This task was previously used by Gedutienė (2008) and ARMI (Lerkkanen et al., 2006). The sum of correctly named letters was used for further analysis. Second, children completed two tests of phonological awareness: phoneme identification and phoneme deletion (Silinskas et al., 2024; based on Gedutienė, 2008). During both tests, psychologists pronounced 12 words aloud. During the phoneme identification task, the children had to identify the first phonemes of the words, and during the phoneme deletion task, the children were asked to pronounce the words without the first phonemes. All the answers were rated as 0 = incorrect or 1 = correct. The sum of correct answers was used for further analysis. To measure word reading fluency, children were asked to read 16 words aloud in order of increasing difficulty (Gedutienė, 2008; Häyrynen et al., 1999). The children were given 45 s to read all the words as quickly as possible. The Cronbach's alpha values were 0.993 for letter knowledge, 0.983 for phoneme identification, 0.973 for phoneme deletion, and 0.971 for word reading fluency.

Reading skills at the beginning of the first grade (T2)

To measure reading skills at the beginning of Grade 1, children completed two tasks: initial phoneme deletion and word reading fluency. The summed scores for both tasks were standardized (z-scores), and the mean score was calculated for further analysis. First, the phoneme deletion task included 16 words (Gedutienė, 2008), and the children were asked to pronounce each word without the first phoneme after the examiner pronounced the full word. Incorrect answers were scored 0 and correct answers were scored 1. The sum of correct answers was used for further analysis. Second, to measure word reading fluency, children were asked to read 75 words aloud, presented in order of increasing difficulty and divided into three columns (Gedutienė, 2008; Häyrynen et al., 1999; Silinskas et al., 2024). The children were given 45 s to read all the words as quickly as possible. All the answers were scored as correct or incorrect (1 or 0), and the total number of correctly read words was calculated. The Cronbach's alpha values were 0.975 for phoneme deletion and 0.967 for word reading fluency.

Reading skills at the end of first grade (T3)

The children completed three tasks to measure their reading skills: word reading fluency, sentence reading fluency, and story reading comprehension. To measure word reading fluency, children were asked to read 75 words aloud, presented in order of

increasing difficulty, in 45 s as quickly as possible (Gedutienė, 2008; Häyrynen et al., 1999). To measure sentence reading fluency, 60 sentences were prepared, but the children were encouraged to read as many as they could and were told that they did not need to read all of them (Wagner et al., 2010). The children had 3 min to complete the task. During the task, the children silently read sentences and marked whether the sentence was right or wrong (“Yes” or “No”). Thus, apart from measuring sentence reading fluency, the test also measured children’s reading comprehension. Another task that measured reading comprehension was story reading (Silinskas et al., 2024; based on Gedutienė, 2008). The children had to read three different stories and answer questions about their understanding of the stories. For all the tasks, each correct answer was scored as 1, and the total sum was calculated. The sums of all three tests were standardized, and the mean was calculated for the analysis. The Cronbach’s alpha values were 0.975 for word reading fluency, 0.952 for sentence reading fluency, and 0.901 for story reading comprehension.

Control variables

Gender and parents’ highest education were used as control variables. Gender was coded as either 1 (for girls) or 2 (for boys). Parents reported the educational level that they and the other parent of the child had completed. The educational levels were scored from 1 to 5 (1=0–8 years, 2=9–10 years, 3=11–12 years, 4=college or vocational school, 5=university). The variable for the highest education level in the family was calculated and used in the analyses.

Analytical strategy

IBM SPSS Statistics 28 was used to calculate Pearson correlations with pairwise deletion. Mplus Version 8.8 (Muthén & Muthén, 1998–2017) was used to run the cross-lagged analyses: full information maximum likelihood (FIML) estimation with robust standard errors (MLR). Little’s test showed that all the used data were missing completely at random (MCAR; $\chi^2 [55] = 69.810, p = 0.086$). This result is consistent with attrition analyses and indicates that children may have dropped out largely because after kindergarten they moved to other primary schools. Due to the nested nature of the data, the COMPLEX approach was applied to a cluster of class pupils in kindergarten (T1). To answer the research questions, a cross-lagged path model was developed. First, stability paths were specified for motivation (interest in reading and task persistence) between T1 and T2, reading skills between T1 and T2, and between T2 and T3. Second, paths from teacher–child relationships in kindergarten (T1) to motivation and reading skills at the beginning of Grade 1 (T2) were added to the model. Third, paths from motivation at T1 to reading skills at T2 and paths from motivation at T2 to reading skills at T3 were added. Finally, paths from reading skills at T1 to motivation at T2 were added. Concurrent correlations between all variables at T1 and T2 were specified. The effects of covariates (gender and parents’ highest education) were investigated by correlating them with all the study variables. To answer the second research question, we estimated the indirect effects of teacher–child relationships in kindergarten (T1) on reading skills at the

end of Grade 1 (T3) via children's motivation (interest in reading and task persistence) at the start of Grade 1 (T2). The indirect paths were specified in the Mplus model. The standardized indirect effects and p -values were used to interpret significant associations. All the significant and non-significant paths were always included in the model, as well as while assessing the model fit.

Five model-fit coefficients were used to judge the model fit based on a chi-squared test, the root mean square error of approximation (RMSEA), a comparative fit index (CFI), Tucker–Lewis index (TLI), and the standardized root mean square residual (SRMR). Values higher than $p = 0.05$ for the chi-squared test, smaller than 0.06 for the RMSEA, higher than 0.95 for the CFI and TLI, and lower than 0.08 for the SRMR indicated a good model fit (Hu & Bentler, 1999).

Results

Table 1 shows the psychometric properties of the constructs for the current study. The results of the correlational analysis (Pearson's correlations) are presented in Table 2.

Direct effects of teacher–child relationships on motivation and reading skills

To answer the first research question about the extent to which the teacher–child relationships in kindergarten predict motivation and reading skills at the beginning of Grade 1, cross-lagged paths controlling for gender and parents' highest education were constructed (Fig. 1). The cross-lagged path model showed a good fit to the data: $\chi^2(6) = 11.185$, $p = 0.083$, $CFI = 0.991$, $TLI = 0.932$, $RMSEA = 0.061$, $SRMR = 0.013$. The results showed that teacher–child conflict in kindergarten predicted task persistence and interest in reading at the beginning of Grade 1. The more conflict teachers had with their students, the lower the children's task persistence and interest were. However, no significant associations were found between teacher–child conflict in kindergarten and reading skills at the beginning of Grade 1. In addition, teacher–child closeness in kindergarten did not statistically significantly predict motivation or reading skills at the beginning of Grade 1.

Indirect effects of teacher–child relationships on reading skills

To answer the second research question about the indirect effects of teacher–child relationships in kindergarten on reading skills at the end of Grade 1 via children's motivation at the beginning of Grade 1, indirect paths in the cross-lagged path model were estimated. The results showed the significant indirect effects of teacher–child conflict in kindergarten on reading skills at the end of Grade 1 via task persistence ($\beta = -0.033$, $p = 0.023$) and interest in reading ($\beta = -0.029$, $p = 0.045$) at the beginning of Grade 1. The results indicated that the more conflict children had with their teachers in kindergarten, the lower their task persistence at the beginning of Grade 1 and, consequently, the weaker their reading skills at the end of Grade 1 were. In

Table 2 Results of the correlational analysis

Variable	1	2	3	4	5	6	7	8	9	10
<i>Teacher Questionnaire</i>										
1. Teacher–child closeness T1	–									
2. Teacher–child conflict T1	–.606***	–								
<i>Testers' (School Psychologists') Questionnaire</i>										
3. Task persistence T1	.353***	–.335***	–							
4. Task persistence T2	.311***	–.398***	.557***	–						
<i>Children's Tests</i>										
5. Interest in reading T1	.262***	–.279***	.252***	.270***	–					
6. Interest in reading T2	.08	–.213**	.155*	.127	.295***	–				
7. Early reading skills T1	.294***	–.307***	.484***	.586***	.377***	.213**	–			
8. Reading skills T2	.274***	–.322***	.468***	.537***	.346***	.187*	.809***	–		
9. Reading skills T3	.264***	–.308***	.499***	.570***	.242***	.292***	.737***	.782***	–	
<i>Control Variables</i>										
10. Gender (1 = girls; 2 = boys)	–.161*	.230***	–.128	–.180*	–.183***	–.172*	–.201**	–.186*	–.168*	–
11. The highest parent education	.175**	–.117	.355***	.404***	.124	.030	.378***	.318***	.451***	–.029

$N = 231$. * $p < .05$, ** $p < .01$, *** $p < .001$. T1 = Kindergarten; T2 = Grade 1 Fall; T3 = Grade 1 Spring

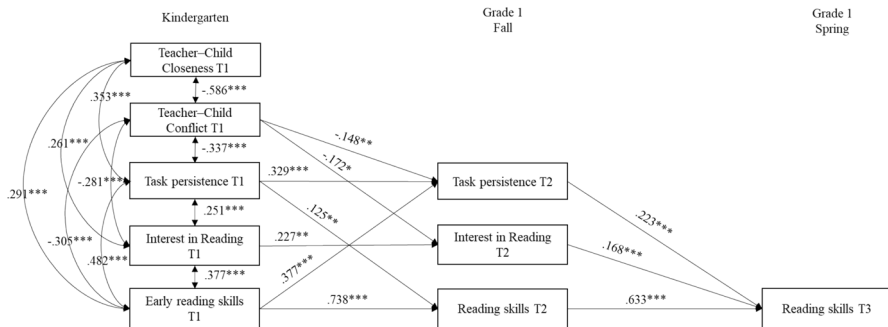


Fig. 1 Longitudinal Associations between Teacher–Child Relationships, Task Persistence, Interest in Reading, and Reading Skills During the Transition to Primary School. The effects of gender and highest parent education were correlated with all the study variables. $N=231$. $*p < .05$, $**p < .01$, $***p < .001$. Early reading skills T1=letter knowledge, initial phoneme identification, initial phoneme deletion, word reading; Reading skills T2=initial phoneme deletion, word reading fluency; Reading skills T3=word reading fluency, sentence reading fluency, story reading comprehension

addition, the more conflict with children teachers reported in kindergarten, the lower children's interest in reading at the beginning of Grade 1 and, in turn, the weaker their reading skills at the end of Grade 1 were.

Additional results

In addition to the main research questions, the results also showed bidirectional associations between children's task persistence and their reading skills. The study showed that when children had high task persistence in kindergarten (T1), they achieved better reading skills when they entered Grade 1 (T2). In addition, those children who had stronger early reading skills in kindergarten (T1) were more persistent in completing tasks when they entered Grade 1 (T2).

Discussion

The current study investigated the direct and indirect associations between teacher–child relationships in kindergarten and motivation and reading skills in Grade 1. This is one of the first longitudinal studies to focus on kindergarten's role in education in Grade 1, based on multiple reports from teachers, children, and psychologists. In addition, the study focused on the previously underexplored educational context of Lithuania. The results of this study showed that children's relationships with their kindergarten teachers played a role in children's primary school education and determined their motivation and the further development of their reading skills. The study showed that teacher–child conflict in kindergarten predicted lower task persistence and lower interest in reading at the beginning of Grade 1. In addition, greater conflict with teachers in kindergarten predicted weaker reading skills at the end of Grade 1 via lower task persistence and lower interest in

reading at the beginning of Grade 1. Therefore, the current study emphasizes the significance of kindergarten education for enhancing children's motivation, which is an important factor for the later development of their reading skills in Grade 1.

The role of teacher–child relationships in kindergarten on motivation and reading skills at the beginning of grade 1

The first research question asked about the main effects of teacher–child relationships in kindergarten on motivation and reading skills in Grade 1. In line with Hypothesis 1, teacher–child conflict in kindergarten predicted lower task persistence at the beginning of Grade 1. The results of the current study coincide with previous research showing the importance of teacher–child relationship quality on children's task persistence (Bulotsky-Shearer et al., 2011; Silinskas & Kikas, 2022). There may be a few explanations for the current findings. First, conflict with teachers may undermine children's confidence in their abilities, meaning they may give up easily on tasks due to lower task persistence (Georgiou et al., 2017). Second, a positive atmosphere in kindergarten classrooms and teachers' support are crucial for providing safe spaces for children (Silinskas et al., 2017). When teachers experience conflict with the children they teach, the classroom environment may become tense and less secure, manifesting in lower classroom participation and task persistence.

In addition, the results of the current study showed that when teachers perceived greater conflict with children in kindergarten, the children had less interest in reading at the beginning of Grade 1. This finding aligns well with previous studies showing the importance of relationships with teachers in promoting children's interest in reading (Pakarinen et al., 2020; Stephanou, 2014). First, conflict with teachers may make children feel disconnected from school and learning to read, thus undermining their interest in reading (Eccles & Roeser, 2009). Second, children's behavior and beliefs largely depend on their socializers, such as parents and, when they enter kindergarten, teachers (Wigfield & Eccles, 2020). When children perceive negative attitudes from their teachers, they may perceive themselves as having low ability, place less value on learning, and perform poorly (Wigfield & Eccles, 2000, 2020). Such perceptions can result in less enjoyment of tasks, low interest in reading, low expectations, and perceived difficulty of tasks, as evidenced by low task persistence. Experiences in school play a significant role in forming children's beliefs, values, and motivation (Eccles & Roeser, 2009; Eccles et al., 1993). Positive relationships with teachers are vital for fostering children's motivation in kindergarten. Therefore, conflict between teachers and children may destabilize the positive classroom environment needed to encourage children's interest in reading.

In addition to the expected findings, we also obtained some surprising results. First, we did not find significant associations between teacher–child conflict in kindergarten and children's reading skills at the beginning of Grade 1. This finding contradicts previous studies showing that tension between teachers and children predicts weaker reading skills (Caputi et al., 2017; Hamre & Pianta, 2001; Lippard et al., 2017; Pianta & Stuhlman, 2004; White, 2013). This result may indicate that, at the beginning of Grade 1, children are still learning to read, and their reading

skills may be largely unformed. Thus, conflict with kindergarten teachers may not predict children's reading skills at the time they enter Grade 1. Second, contrary to previous studies (Kikas & Tang, 2018; Pakarinen et al., 2020; Stephanou, 2014), teacher–child closeness in kindergarten did not predict motivation or reading skills at the beginning of Grade 1. It may be that conflict experienced with teachers in kindergarten is detrimental to the motivation of children at the beginning of Grade 1.

Taken together, the results showed that negative experiences in kindergarten, such as conflict with kindergarten teachers, can negatively influence children's motivation at the beginning of Grade 1. In kindergarten, teachers become important attachment figures (Ainsworth & Bowlby, 1991; Bowlby, 1982). Therefore, children's relationships with kindergarten teachers shape their experiences and motivation through to Grade 1. Hence, even though it is difficult for teachers to maintain close relationships with some kindergarten children, it is important for them to avoid conflict situations in the classroom and to exhibit more positive approaches toward the children.

The indirect effects of teacher–child relationships on reading skills during the transition to primary school

The second research question asked about the indirect effects of teacher–child relationships in kindergarten on reading skills at the end of Grade 1. In line with Hypothesis 2, the results showed an indirect effect of teacher–child conflict in kindergarten on reading skills at the end of Grade 1 via task persistence at the beginning of Grade 1. Conflict between teachers and children negatively predicted children's persistence in completing challenging tasks, and, in turn, the slower development of their reading skills. This finding coincides with a previous study highlighting that task-focused behavior can mediate the association between positive teacher affect and academic achievement (Kiuru et al., 2014). This may be due to conflict with teachers exacerbating children's lack of safe spaces and trust in their ability to complete challenging tasks. When children do not feel safe while completing challenging tasks, their persistence decreases, they invest less effort in achievement, and their reading skills develop more slowly (Georgiou et al., 2017).

In line with Hypothesis 2, the results showed indirect effects of teacher–child conflict on children's reading skills via interest in reading. Stephanou (2014) also found indirect effects of teacher–child relationships on reading skills via interest. Experiences and beliefs about one's abilities in kindergarten continue into primary school. Conflict with teachers may foster children's negative beliefs about their abilities, in turn lowering their task persistence and interest in reading (Eccles et al., 1993; Wigfield & Eccles, 1992, 2000). When children are not interested in reading, their reading skills develop at a slower rate. The results of the current study showed that teacher–child relationships were associated with children's reading skills in kindergarten but did not predict reading skills at the beginning of Grade 1. However, they showed that conflict with kindergarten teachers may have indirect longitudinal effects on children's reading skills at the end of Grade 1, possibly due to the more formal and systematic reading instruction children encounter when they enter Grade 1 (Silinskas et al., 2017). Children's reading skills develop rapidly when they start

Grade 1; therefore, conflict with their kindergarten teachers may be detrimental to their motivation, but not their reading skills, at the beginning of Grade 1. However, children's motivation was shown to be an important mechanism by which conflict with kindergarten teachers predict children's reading skills at the end of Grade 1. The current findings are an important indication of the crucial role of kindergarten teachers in fostering children's motivation and reading skills in Grade 1. When children enter Grade 1, the educational transition poses new academic, social, and behavioral challenges (Dockett & Perry, 2007). Therefore, the motivation they bring from kindergarten may become an important factor in ensuring the successful development of their reading skills in Grade 1.

Children's task persistence and reading skills

In addition to the main research findings, reciprocal associations between children's task persistence and their reading skills were found. These results align with previous studies (Georgiou et al., 2017; Hirvonen et al., 2010; Kiuru et al., 2014; Stephanou, 2014), which showed associations between high task persistence and strong reading skills. If children have low task persistence, they do not put much effort into learning and completing challenging tasks; therefore, they have weaker reading skills (Georgiou et al., 2017). In contrast, if children have weak reading skills, they may perceive the value of reading as low, which may be detrimental to their motivation (Eccles et al., 1993; Wigfield & Eccles, 1992, 2000). Low motivation manifests in children's low task persistence, such as paying less attention to reading tasks or putting in less effort.

Limitations and practical implications

The current study is not without limitations. First, although we examined longitudinal data, the direction of the associations between constructs should be interpreted with caution, since the experimental design may have determined the direction of associations. Second, in the current study, only teachers' reports on teacher–child relationships were considered. Future studies could benefit from children's reports to capture a broader perspective on relationship quality between teachers and children. In addition, self-reports may not uncover the whole picture of such relationships; thus, observational data could broaden understanding of the influence of kindergarten teachers' relationships with children on children's motivation and their reading skills. Third, self-reported children's interest in reading had a weak correlation between T1 and T2. Additional reports by parents or teachers could be beneficial for a stronger interpretation of research findings. Finally, additional factors may have played a role in the associations between teacher–child relationships, motivation, and reading skills. For instance, parental education may have had an effect on such associations. In the current sample, most parents were highly educated; therefore, such comparisons were not made. However, we included parents' highest education as a control variable.

The current study provides strong support for the importance of teacher–child relationships in kindergarten and helps to explain how they relate to motivation and reading skills. When we know the mechanism underpinning the associations between teacher–child relationships and early reading skills, we will be able to better observe and predict children’s future outcomes. Therefore, kindergarten teachers should be aware of how tension with children can demote children’s motivation and reading performance in Grade 1. Positive reactions toward children, and especially avoiding conflict with them, can be highly important for motivating children to persist, even in challenging tasks. In kindergarten, children start to become familiar with “school life,” and they bring kindergarten experiences into primary school. Therefore, the skills children acquire and the relationships they form with their teachers in kindergarten can undermine their learning at the beginning of Grade 1. Based on the study findings, it is important to note that decreasing conflictual relationships should be among the main goals in kindergarten education to promote children’s interest in reading and their task persistence in Grade 1.

Conclusion

The current study broadens the understanding of the associations between teacher–child relationships in kindergarten, motivation, and reading skills during the transition to primary school in the following ways. First, the study showed that conflict between teachers and children in kindergarten can be detrimental to the task persistence and interest in reading of children in Grade 1. Second, the study provides a better understanding of the mechanism underpinning the relationships between conflict in kindergarten and reading skills at the end of Grade 1 via task persistence and interest in reading at the beginning of Grade 1. Children’s experiences in kindergarten may define their motivation and reading skills in Grade 1.

This study is part of a broader data collection “Get involved! Transition to Grade 1” which was supported by grants from the Academy of Finland awarded to GS (# 296082, # 331525, # 336148, and # 358041). The work of VH was supported by EDUCA Flagship, funded by the Research Council of Finland (#358924). Materials and analysis code for this study are available by emailing the corresponding author. We have no conflicts of interest to disclose.

Funding Open Access funding provided by University of Jyväskylä (JYU).

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