

Kindergarten Children's Relatedness to Teachers and Peers as a Factor in Classroom Engagement and Early Learning Behaviours

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The purpose of this study is to examine whether social relatedness within kindergarten classrooms is related to learning behaviours and, if so, whether this can be explained by students' participation in school-related activities. Three indicators of social relatedness (teacher-child relationships, peer acceptance, and feelings of relatedness) were used to test mediation models. Data were collected from 126 French Canadian kindergarteners, all Caucasians (mean age: 6.15 years). Although participation in school-related activities did not mediate the associations between social relatedness and learning behaviours, our results indicate that social relatedness associated with learning behaviours and to participation, especially for girls. Boys' feelings of relatedness within the classroom were not associated with participation or learning behaviours. The findings raise the possibility that the emergence of learning behaviours may follow different pathways for boys and girls. The implications for teachers of facilitating relationships – both teacher-child and between peer relationships – within the classroom are discussed.

INTRODUCTION

Concerns about children lacking the skills necessary for success in the early grades have been growing in recent years (Pianta & Stuhlman, 2004). Although schools are dedicated to the development of academic skills, the social and academic domains are inextricably connected in determining children's learning and adaptation (Miles & Stipek, 2006). Broadly speaking, two sets of competencies have emerged from recent research as the main success factors in school functioning, namely those associated with language development and early literacy, and those pertaining to social relationships and self-system processes (Ladd, Birch, & Buhs, 1999; Ladd & Burgess, 1999). This latter set of competencies and their relation to later school-related outcomes has attracted less scholarly attention than strictly academic predictors of achievement. There is, therefore, a need to better understand of how children's classroom relationships impact school adaptation and adjustment (Ladd, Buhs, & Troop, 2002; Buhs, 2005). Moreover, since gender and children's peer relationships appear intimately intertwined (Underwood, 2004), there is a need for investigating gender similarities and differences in students' social experiences. The purpose of this study is therefore to examine whether social relatedness within kindergarten classrooms is related to learning behaviours, and if so, whether this can be explained by children's engagement in school-related activities.

SOCIAL RELATEDNESS IN THE CLASSROOM

The concept of social relatedness designates the nature and quality of the interpersonal relationships that are available in a specific context. This has been conceptualized in a variety of ways in the school context, as including feelings of connectedness to peers and teachers, social acceptance from peers, and support from teachers (Gest, Welsh, & Domitrovich, 2005). Decades of empirical research support the notion that children's social development and integration are robust predictors of maladjustment in the academic and mental health areas (Guay, Boivin & Hodges, 1999; Hartup, 2005; Ladd, 1999; Parker & Asher, 1987). Current research has focused on identifying processes by which children's social characteristics may be involved in academic adaptation. In this line of research, child by environment models (Connell & Wellborn, 1991; Ladd, 2003; Lubbers, Van der Werf, Snijders, Creemers, & Kuyper, 2006) provide useful theoretical support to the idea that students' social experiences lays a critical foundation for motivated engagement, which in turn promotes academic achievement and positive behavioural adaptation at school. In other words, while behavioural dispositions may shape social experiences, the nature and quality of social relationships are assumed to be primarily responsible for subsequent adjustment and changes in adjustment. The research study reported here proposes a mediation process, where social interaction and relationships are one of the axes on which adaptation is achieved in the school context. Furthermore, this study focuses on three facets of social relatedness that have been identified in the literature as potentially significant to classroom engagement and competence: teacher-child relationships, peer acceptance, and children's feelings of relatedness.

Teacher-child relationships

Psychologists have extensively described the long-term effects of secure versus insecure attachment to caregivers (Bowlby, 1969; Crittenden, 1990). When applied to teacher-child relationships, the relevance of this construct in the study of school adaptation and academic achievement in the elementary grades has been underscored in the extant literature (Connell & Wellborn, 1991; Ladd et al., 2002; Pianta & Stuhlman, 2004; Wentzel, Barry, & Caldwell, 2004; Wentzel & Watkins, 2002). For instance, caring and closeness in teacher-student relationships have been found to be related to more effective child learning processes (Birch & Ladd, 1997; Wentzel, 1997, 1999), and support from teachers has been shown to be associated to more positive academic attitudes and greater satisfaction with school (Klem & Connell, 2004). As for kindergartners, for whom we may suspect that a supportive and warm teaching style may have more relevance than for older students (Hamre & Pianta, 2005), teachers' ratings of closeness in their relationships with children have been found to be good predictors of school adjustment measured the same year (Birch & Ladd, 1997). Moreover, children engaged in chronic conflict with their kindergarten or first grade teachers have been found to demonstrate lower levels of cooperative participation in school and seemed to enjoy school less when compared to children with higher levels of teacher-child closeness (Ladd & Burgess, 2001). The salience of relational processes between teachers and kindergarten children is also supported empirically by Pianta and Stuhlman (2004) with respect to behavioural orientation and academic skills of students. Thus, it appears that the

importance of the teacher-child relationship for academic achievement and adaptation has consistently been validated across the elementary school years.

Several researchers have suggested that the role played by teacher-child relationships during the elementary school years may be different for boys and girls. Hamre and Pianta (2001) and Ladd and colleagues (1999) showed that teachers report warmer teacher-girl relationships and lower levels of conflict with girls than with boys. Consistent with these results, other research has found that peer ratings among 3rd and 4th graders reveal less conflicting relationships with teachers for girls than for boys (Hughes, Cavell, & Willson, 2001); and that girls in Grades 3, 4 and 5 report higher levels of teacher supportiveness than boys (Gest, Welsh, & Domitrovich, 2005). Furrer and Skinner (2003) also found that girls felt significantly closer to their teachers than did boys but that, nevertheless, interpersonal ties to the teacher when entering middle school appeared particularly important for boys. Although these differences have been found to distinguish the relationships that boys and girls establish with their elementary school teachers, it has been difficult to document similar trends in preschool or kindergarten. The only study reporting analyses according to child gender in kindergarten revealed no substantial differences when children were asked to assess teacher-child conflict (Mantzicopoulos, 2005).

In sum, the available evidence shows that teacher-child relationships in the early years of schooling are potentially important antecedents of children's academic adjustment and must be considered in identifying the processes that contribute to children's overall school functioning.

Peer acceptance

Developmental psychologists have shown that what happens in children's peer groups affects development and functioning in many areas, especially their achievement in school. Specifically, peer acceptance, friendships and network affiliation have been linked to central developmental outcomes such as academic readiness, loneliness, and aggressive behaviour (for reviews, see Gifford-Smith & Brownwell, 2003, and Cillessen & Mayeux, 2004). Peer acceptance denotes social standing within the peer group (Greco & Morris, 2005). It is a unilateral concept that describes how members of a particular peer group, in this case classmates, feel about an individual with regard to liking and disliking (Bukowski & Hoza, 1989). In contrast, friendships are voluntary dyadic relationships, characterized by mutual affection (Berndt, 2004; Rubin, Bukowski, and Parker, 1998). Being well accepted by classmates does not guarantee that a child will have a friend in the classroom, yet a well-liked child has many more opportunities for friendship than a disliked child (Lindsey, 2002). Peer networks also shape children's social experience but the scope of work in this area is considerably smaller than the acceptance and friendships domains, and measuring social networks is a complicated task (Gifford-Smith & Brownell, 2003). Incidentally, Gest, Graham-Berman, and Hartup (2001) provided empirical validation for the conceptual distinctions among these dimensions of classroom social position. The present study focuses on the extent to which each child is appreciated by all the other children in the classroom. Therefore, the acceptance component of peer relatedness is included.

Few studies have directly examined peer acceptance as a factor in the process of school adjustment in the early years of schooling. Buhs and Ladd (2001) found that children's peer acceptance in kindergarten predicted changes in classroom engagement that, in turn, predicted later academic and emotional adjustment. The association of peer rejection to children's adjustment was partially mediated through the processes of peer maltreatment and reduced classroom engagement. Academic adjustment was estimated from standardized performance tests. Emotional adjustment focused on loneliness and school avoidance tendencies, assessed through child reports. Consistent findings were reported for 4th to 6th graders for whom there were lower levels of peer acceptance and poorer academic performance. Students in such circumstances consistently showed lower academic self-concepts (Flook, Repetti, & Ullman, 2005). In this case, peer acceptance was assessed through a teacher reported measure of each child's level of peer acceptance within the classroom. Academic self-concept was assessed with a child reported instrument that tapped children's perceptions of their academic abilities. Interestingly, a recent report from Buhs (2005) reveals that peer acceptance within grade 5 classrooms is not directly associated with change in achievement in two process-oriented models linking peer acceptance and peer treatment to children's self-concept, school engagement, and adjustment. This in part underscores the need for further investigation of the modeling of peer relationship processes linked to school adjustment in the early years of.

Of special interest is the contribution of Wentzel (1999). This study illustrates how young adolescents' peer acceptance can motivate engagement in learning activities. Indeed, there is a growing body of evidence that gives support to the idea that social-motivational processes might develop out of socialization experiences, thereby validating the exploration of how social relatedness may influence motivation at school (see also Wentzel & Watkins, 2002). This line of research suggests that well-accepted children have more opportunities to benefit from collaborative learning activities and to maintain interest in school. However, much of this research has been conducted with adolescents. Little is thus known about these processes in the early school years. While biological and psychological maturation play an important role, as research on development and learning has shown in many regards, the context of socialization and the developmental salience of peer relations is clearly different for children in primary, middle or high (Sheridan, Buhs, & Warner, 2003). Thus, this study extends previous research by examining peer acceptance among kindergarten children and its links to emerging learning behaviours.

Feelings of relatedness

Relatedness is a broad concept defined in various manners as belongingness, sense of classroom membership or sense of community (Libbey, 2004). The concept of relatedness complements the group acceptance perspective with information on the child's own sense of acceptance by peers and the child's sense of belongingness to the group (Brownwell & Gifford-Smith, 2003). It reflects the child's desire to be part of the group and the degree to which the child feels successful in his/her efforts to

belong to his/her group. In an extensive review of the literature, Baumeister and Leary (1995) report that the sense of relatedness affects people's perception of others and leads to positive emotions. In a subsequent review conducted from a motivational perspective, Osterman (2000) further concluded that children who experience a strong sense of relatedness in the classroom also report greater levels of personal resources (for ex., positive attitude toward school, intrinsic motivation) known to be required to successfully overcome academic challenges. Wentzel and Watkins (2002) further underline the adaptive importance of relatedness by suggesting that students' perceptions of their peer relationships are perhaps more meaningful predictors of emotional well-being than actual, observed levels of acceptance.

In kindergarten classrooms, affective factors such as feelings of support and relatedness were found to be especially relevant in the process of school adaptation and the acquisition of academic skills (Ladd, Buhs, & Seid, 2000). To our knowledge, however, no other studies reported on kindergarten children's sentiments about their classroom. This is one of the original contributions of the current study.

CLASSROOM ENGAGEMENT AND EARLY LEARNING BEHAVIOURS

Classroom engagement is a key construct in motivational models. It refers to active, goal-directed, constructive interactions with the social and physical environment (Furrer & Skinner, 2003), and reflects the effort directed toward learning (Marks, 2000). The motivational perspective posits that social relatedness in the classroom contributes to students' academic performance indirectly by way of inner changes or motivational outcomes. The concept of classroom engagement has been operationalized in different ways, depending on which dimension was investigated – affective, academic or behavioral (Klem & Connel, 2004; Norris, Pignal, & Lipps, 2003). Presently, our focus is on the behavioural facet of engagement, that is, participation in the classroom (Fredericks, Blumenfeld, & Paris, 2004).

Participation

This type of engagement pertains to involvement in learning, positive conduct, and participation in school-related activities. It reflects the level and quality of children's behavioral engagement in the classroom social context and is reported highly predictive of academic achievement (Ladd et al., 2002). Children who are not participating adaptively in the classroom are likely to be disengaged from peer activities, in part because they are not perceived as attractive playmates. They are also likely to spend more time off-task (Ladd et al., 2000; Wentzel, 1991), which entails spending less time exposed to the pedagogical program. In past research, the association between classroom participation and adjustment has been documented primarily for academic outcomes. However, participation is likely to have an impact on children's emotional adjustment as well because participation gives access to social and emotional resources that help prevent loneliness (Buhs & Ladd, 2001).

According to Finn (1989) there are two possible levels of participation for kindergarten or early school age children. The first level refers to the child's compliance with teacher's demands and programmed activities. The second level focuses on the child's initiatives during class and enthusiasm for class activities. The first participation level was labelled *cooperative participation* and the second *autonomous participation* by Birch and Ladd (1997), who also added a characteristic to the second level, namely the ability to complete learning tasks successfully without help from the teacher.

Early learning behaviours

Children's approaches to learning have been recognized as learning-to-learn skills foundational to school success (McDermott, Leigh, & Perry, 2002). When displayed by preschool children, these critical skills are expected to pave the way to academic achievement in the early elementary grades (Coolahan, Fantuzzo, Mendez, & McDermott, 2000; Fantuzzo, Bulotsky-Shearer, Fusco, & McWayne, 2005). However, the role of participation in this process is not established. It may be argued that school engagement in preschool is a contributor to and an indicator of the emergence of children's learning behaviours. Studies conducted in early elementary grades ascribe an intermediate role (mediating or moderating) to participation and to learning behaviours in the linkage between social relatedness and academic achievement. However, given the learning emergence context of kindergarten, we hypothesized that participation would act as a mediating factor between social relatedness and learning behaviours.

Our study makes a unique contribution to the study of children's socio-relational life by considering three different dimensions of this concept, reported on by three different informants. The current study seeks to address specific issues raised by past research. First, most studies have had the same informant report on key variables (Flook et al., 2005). Second, none of the published work has taken into account multiple indicators of relatedness. Third, this line of research sheds light mostly on the learning process of third-graders and older children, little being known about younger students, boys and girls. Given the developmental perspective relevance, there is a lack of data on young students and particularly on the linkages between different facets of social life in kindergarten and the emergence of learning behaviours. The objective of the present study is to expand our conception of the role that classroom social relatedness may play in early school adjustment processes among boys and girls.

METHOD

Context

In the province of Quebec, kindergarten classrooms generally include 15 to 20 children for every teacher. Children are expected to develop learning-related behaviours—that is, the ability to engage in learning activities with others in the classroom, including flexibility, strategic problem solving, persistence, attitudes toward learning, effectiveness motivation. Thus, teachers are likely to focus on global development and implement exploratory projects and workshops placing the children's own interests at the fore. Teachers' assessments take the form of qualitative feedback on global acquisitions. This is why academic achievement scores could not be included in the present research. In many ways,

abilities and competences targeted by Quebec educational programs for kindergartens are akin to what are described as learning behaviours by American researchers (e.g. Fantuzzo, Perry, & McDermott, 2004; Fantuzzo et al., 2005; McDermott et al., 2002).

Participants

Participants were 126 French Canadian kindergarten children (68 boys, 58 girls; $M = 73.8$ months; $SD = 3.8$) and eight female teachers from four public schools (mean number of children per classroom: 16). One school was located in a rural area, the other three in a medium-sized urban area with a low- and middle-class population. Children's participation required parental consent. The participation rate was over 98%.

Procedure

This study is part of a larger project where other measures were included. Data were collected from children on two different occasions in order to prevent fatigue when completing the different measures: during the winter months (January to March), and during the last two months of the school year (May and June). We did not expect data to be affected by this scheduling. All child measures were administered individually by trained graduate students and research assistants within classrooms. Folding screens were installed for privacy needs. Teacher questionnaires were completed when children were out in physical-education or art classes, subject matters taught by other teachers.

Measures

Teacher-child relationships

The *Comfort with Teacher Scale* from the *Teacher Rating Scale of School Adjustment* (TRSSA) was used to assess the quality of the teacher-child relationships. It is made up of five items (e.g., *Is comfortable approaching teacher*) that describes student attitudes toward the teacher as a person. This specific subscale within the TRSSA was used in the early years of the Pathways Project and later left out (see Ladd, 2003, for a project overview). Items were rated by teachers on a 3-point scale (0 = doesn't apply, 1 = applies sometimes, 2 = certainly applies). The alpha for our sample was .64. Ratings were averaged to obtain a score for each child.

Peer acceptance

Peer acceptance within the classroom was assessed through a sociometric procedure adapted from Asher, Singleton, Tinsley, and Hymel (1979). Four months after school entry, children were provided with training on how to use a liking scale for rating each classmate. This was done by teaching the children to sort pictures of familiar foods in piles according to whether they like the food *a lot* (indicated by a very happy face and assigned a rating of 4), *quite a lot* (indicated by a smiling face and assigned a rating of 3), *indifferent or unconcerned* (indicated by a neutral face and assigned a rating of 2), and *not at all* indicated by a frowning face and assigned a rating of 1). Then, each participating child was given

a stack of photographs, like a card deck, and asked to place each photograph in the appropriate pile in responding to the question: How much do you like the child you see on each picture? When the child was finished with the card deck he/she was asked to join other workshops in the classroom.

Scores were computed by summing the scores each child received from all classmates and standardized according to each class size. High scores denote peer acceptance and low scores reflect peer rejection. Scores in this scale have been shown to have good reliability ($r = .81$, Asher et al., 1979). Ratings across gender groups were used so as to take into account all ratings for each child.

Feelings of relatedness

Children's perceptions of the emotional quality of their relationships with peers were assessed by the *Emotional Quality Scale of the Relatedness Questionnaire* designed by Lynch and Cicchetti (1997) who reported alphas ranging from .67 to .83 with children from grades 2 through 8. This scale of 11 items assesses children's feelings of specific emotions when they are with their classmates. In the present research, children were individually interviewed by research assistants and were reminded to give their answers in relation to their classmates. They were asked to *tell* how true each assertion was (e.g. "When I'm with my classmates I feel safe") by pointing to the bar chart placed in front of them (1 = not at all; 4 = very much). The alpha for our sample was .66. To our knowledge, this measure has not been used with kindergarteners yet. Lynch and Cicchetti's procedures were based on a collective administration of the scale. Given the young age of our sample, individual interviews were required. Students seemed very comfortable with the scale assertions since they referred to feelings similar to what they usually explore in kindergarten.

Classroom participation

Teachers completed the Cooperative (six items) and Autonomous Participation (three items) subscales from the *Teacher Rating Scale of School Adjustment* (TRSSA, Birch & Ladd, 1997; Ladd, Kochenderfer, & Coleman, 1996). Items were scored on a 3-point rating scale (0 = doesn't apply, 1 = applies sometimes, 2 = certainly applies). Alpha values revealed good internal consistency (Cooperative Participation alpha = .85, Autonomous Participation alpha = .86, this sample). Since the subscale scores were highly correlated, $r(224) = .70$, they were summed to form a composite score termed *classroom participation* as in Ladd et al., (1999).

Early learning behaviours

The *Preschool Learning Behaviors Scale* (PLBS; McDermott et al., 2002) was used to assess children's learning behaviours. The PLBS is a 29-item teacher report designed to assess three dimensions: competence motivation, attention/persistence and attitude toward learning. Each item describes a learning-related behaviour that occurs during classroom activities and that teachers can easily observe. Alphas from this sample (.89, .92 and .85, respectively) are slightly stronger than those from the normative sample (.85, .83 and .75). The PLBS has been validated for use with a Head Start population (Fantuzzo et al., 2005).

The *Competence Motivation Scale* reflects children’s approach to learning-related activities and includes items such as “Says task is too hard without making much effort to attempt it.” The *Attention/Persistence Scale* assesses children’s skills in focusing and maintaining attention. It includes items such as “Tries hard but concentration soon fades and performance deteriorates.” The *Attitude toward Learning Scale* focuses on children’s propensity to cooperate, accept help, and express hostility when frustrated. Items such as “Is willing to be helped” are included. The teacher is required to indicate whether items *most often applies* (2), *sometimes applies* (1), or *doesn’t apply* (0) to describe the child’s behaviour over the past two months.

RESULTS

Bivariate correlations were calculated to assess multicollinearity and to determine whether relations among the predictors, mediator, and criteria conformed to expectations. Low to moderate correlations were found among the predictors (see table 1). Moderate correlations were found between mediator and criteria variables. Thus, measures appeared to tap different aspects of children’s relatedness and behaviour.

Table 1

Predictor and Outcome Measures: Means (Standard Deviation) and Intercorrelations

Measures	Means	T-C relationships ¹	Peer acceptance	Feelings of rel. ²	Class. part. ³ (global)	Comp. motivation ⁴	Att./Persist. ⁵	Attit. learning ⁶
Social Relatedness								
T-C relationships	6.76 (2.17)		.19*	.24**	.47**	.26**	.10	.29**
Peer acceptance	1.49 (.99)			.22*	.41**	.34**	.31**	.22*
Feelings of rel.	36.54 (5.45)				.23*	.20*	.21*	.04
Class. part. (global)	18.82 (4.91)					.68**	.55**	.57**
Learning Behaviours								
Comp. / motivation	18.65 (4.49)						.66**	.65**
Att./Persist.	10.72 (2.09)							.16
Attit. learning	12.73 (2.36)							
Global	46.02 (10.26)							

*p<.05. **p<.01.

¹ T-C: Teacher-child

² Feelings of rel.: Feelings of relatedness

³Class. Part.: Classroom participation

⁴ Comp. motivation: Competence/motivation

⁵ Att./Persist.: Attention/Persistence

⁶ Attit. learning: Attitudes toward learning

Three models were tested, with each social relatedness measure standing as a predictor variable. As mentioned earlier, peer acceptance was assessed across gender since our focus was on social resources in the classroom as a whole. Mediation models were tested for girls and boys, respectively, in an attempt to uncover process differences. Empirical support for mediation required four steps (Baron & Kenny, 1986): (1) social relatedness as a predictor of classroom participation, (2) social relatedness as a predictor of learning behaviours, (3) classroom participation as a predictor of learning behaviours, and (4) once classroom participation was added to the equation, the prediction between social relatedness and learning behaviours was to be no longer significant. Simple regressions were used to test Step 1, Step 2, and Step 3, given that social relatedness, classroom participation, and learning behaviours scores were based on continuous scales. Step 4 involved hierarchical regression analyses in which a predictor variable was entered first and classroom participation was entered second.

Figure 1 depicts the results from these analyses involving teacher-child relationships. For Step 1, regression results indicate that boys and girls who are more comfortable interacting with teachers have higher classroom participation, $R^2_{boys} = .12, p = .004$; $R^2_{girls} = .34, p = .000$. However, teacher-child relationships only affected learning behaviours for girls (Step 2), $R^2_{boys} = .03, p = .196$; $R^2_{girls} = .15, p = .002$. Thus, in this model, the mediating effect of classroom participation for boys was ruled out. For Step 3, results showed that boys and girls who have higher participation rate are more likely to show learning behaviours, $R^2_{boys} = .61, p = .001$; $R^2_{girls} = .46, p = .000$. Finally, hierarchical regression analyses were worth considering for girls only (Step 4), since simple regression results for boys did not meet the requirements. The previously significant R^2 value for teacher-child relationships among girls remained highly significant when predicting learning behaviours, as did the R^2 value for girls' classroom participation. Because the R^2 for teacher-child relationships among girls did not drop significantly, and because requirements were not met for boys at step 2, it can be concluded that classroom participation does not mediate the relation between teacher-child relationships and learning behaviours.

Figure 1.

Mediation model linking teacher-child relationships, classroom participation, and learning behaviours

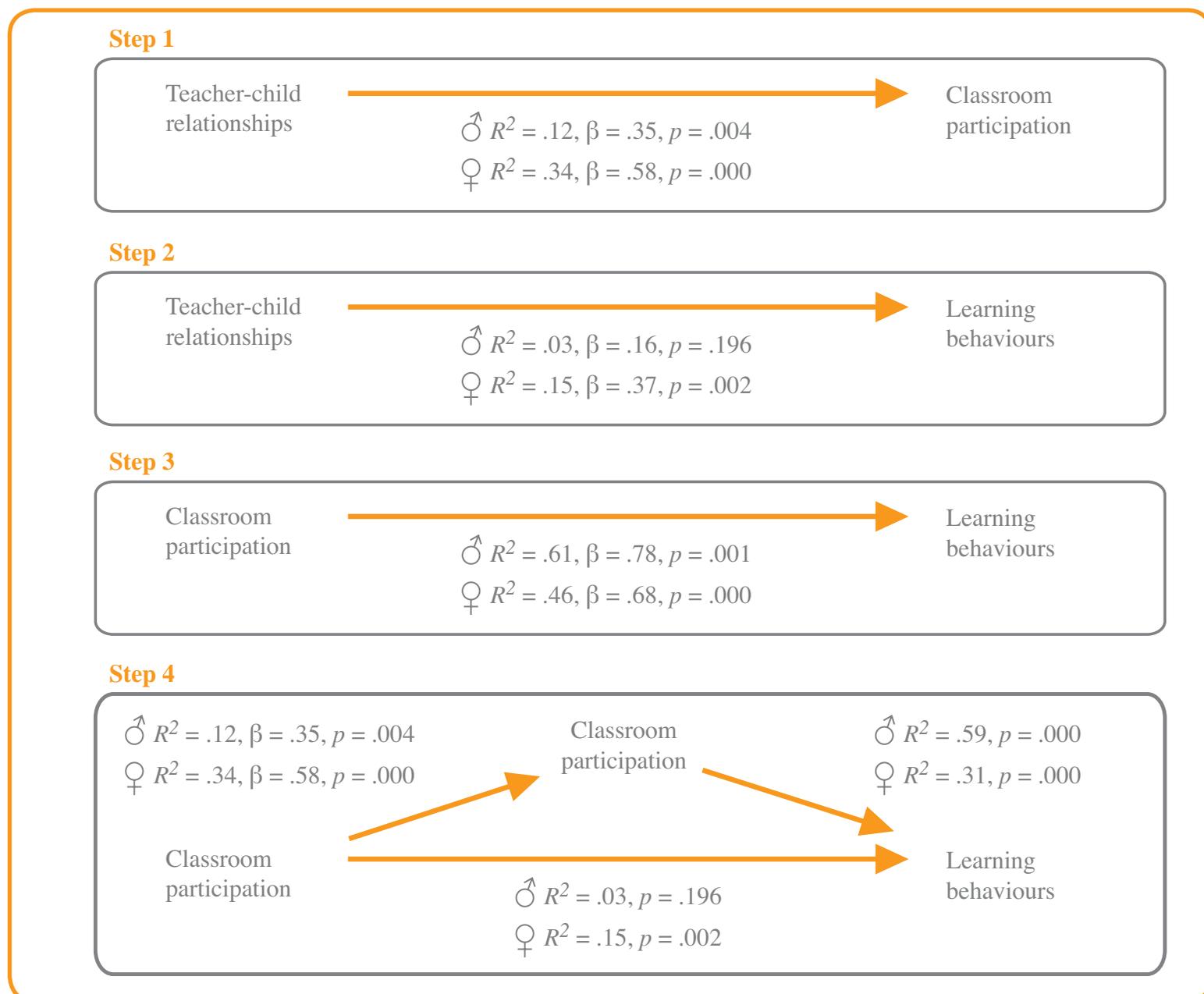
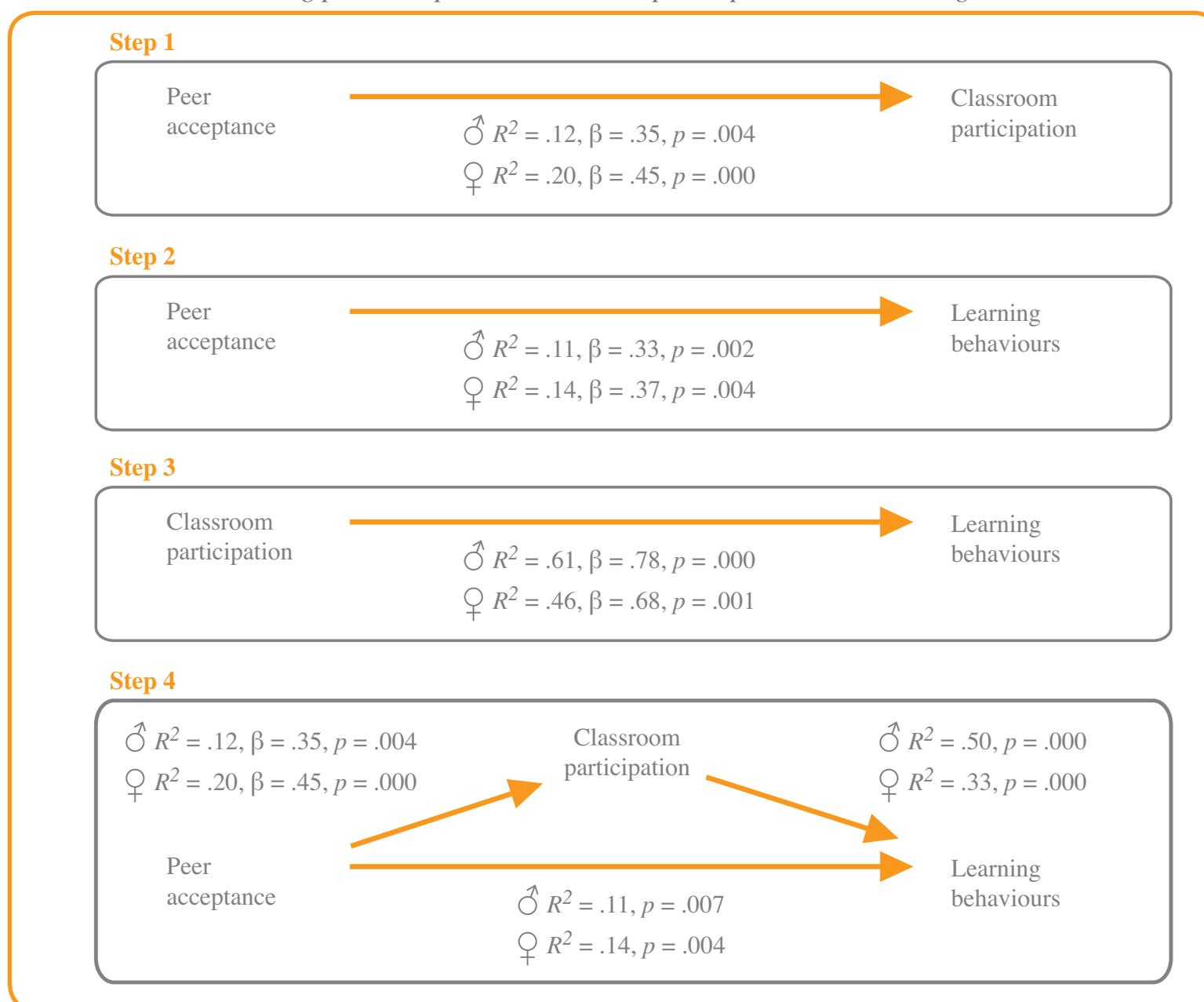


Figure 2 presents the mediation model relating to peer acceptance. It shows that boys and girls with more peer acceptance tended to have higher classroom participation, $R^2_{boys} = .12, p = .004$; $R^2_{girls} = .20, p = .000$. It also shows that boys and girls with more peer acceptance tended to display more learning behaviours, $R^2_{boys} = .11, p = .002$; $R^2_{girls} = .14, p = .004$. For Step 3, results were the same as in figure 1: boys and girls who had higher participation rate were more likely to show learning behaviours. Step 4 analyses showed that R^2 values for boy and girl peer acceptance remained significant even after entering the hypothetical mediator. Thus, it was concluded that classroom participation does not mediate the relation between peer acceptance and learning behaviours.

Figure 2.

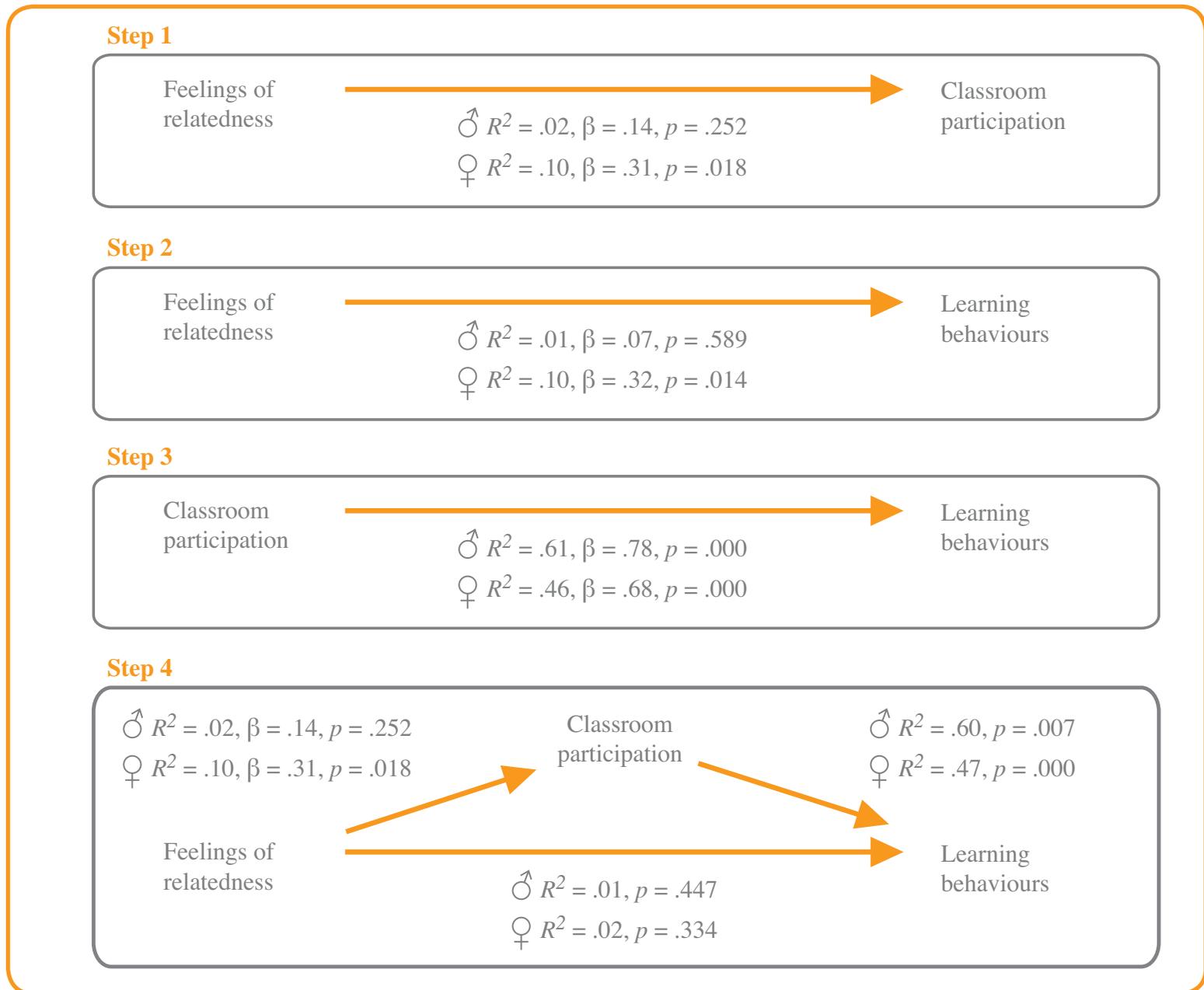
Mediation model linking peer acceptance, classroom participation, and learning behaviours



A third mediation model was tested with feelings of relatedness as a predictor. As can be seen in Figure 3, boys' feelings of relatedness were not linked to classroom participation or learning behaviours, cancelling the mediation hypothesis. However, the first three steps were positively crossed for girls. The fourth step reveals that the previous R^2 value for girls' feelings of relatedness dropped to a nonsignificant level, whereas the R^2 value for girls' classroom participation remained highly significant. Since the R^2 did not drop to a zero value, the conclusion of a partial mediation effect of classroom participation for girls applies.

Figure 3.

Mediation model linking feelings of relatedness, classroom participation, and learning behaviours.



DISCUSSION

The primary focus of this study was to examine linkages between social relatedness, classroom participation and learning behaviours. Broadly speaking, social relatedness was found to be strongly linked to classroom participation which, in turn, was related to learning behaviours. However, the data did not support the mediating role of participation in the association between social relatedness and learning behaviours.

The mediating role of participation

No support was found for the mediation model with teacher-child relationships as predictor. In short,

teacher-child relationships were related to classroom participation which, in turn, strongly predicted learning behaviours; yet, boys' relationships with teachers were not associated with learning behaviours. These findings are consistent with previous research documenting the relative influence of teacher-child relationships on participation in kindergarten (Ladd & Burgess, 2001), but appear inconsistent with studies that underscore the importance of teacher-child relationships for the emergence of learning behaviours (Birch & Ladd, 1997; Hamre & Pianta, 2005). Our findings suggest, that with respect to the acquisition of learning behaviours, relationships with teachers are less important for boys than for girls. This is somewhat contrary to the observations made by Furrer and Skinner (2003) for middle school. One point, however, is noteworthy. The three variables reported by Furrer and Skinner were assessed by the same informant. Teachers in our sample, all female, may have assessed boys differently. More observation and longitudinal studies are needed to understand further how teachers' perceptions of their relationships with boys and girls evolve during the first years of schooling, and how they process behaviour assessment tasks implying young boys and girls.

No support was found for the mediation model with peer acceptance as a predictor. However, strong associations between peer acceptance and classroom participation and between peer acceptance and learning behaviours are worth noting for boys and girls. Well-accepted boys and girls received high teacher ratings for displaying participation and learning behaviours in the classroom. Because of the cross-sectional nature of this research, directions for causality cannot be inferred. It is likely, however, that peer acceptance influences classroom behaviours and approaches to learning through the collaborative learning opportunities and sense of well-being that peer acceptance provides. In this, our findings support the contention that peers can provide contexts that are favourable to the development of academic enablers (Wentzel & Watkins, 2002). Also, they are consistent with Buhs and Ladd's (2001) previous work with kindergarten children. The current findings add further weight to the empirical evidence underlying the key role of peer acceptance in classroom contexts. They clearly suggest that kindergarten children may be well-served by teachers who actively promote peer acceptance within their classroom. The high rate of participation in the classroom (98%) confers reliability to these findings.

Prerequisite conditions and final regression analysis requirements for mediation were satisfied for girls only in the third model (Figure 3). In short, girls who reported having positive feelings when in their group were likely to exhibit more effective learning behaviours. However, the strength of the prediction of feelings of relatedness did not drop to zero: thus, participation only partly explained the link between feelings of relatedness and learning behaviours (Baron & Kenny, 1986). No support for this mediation model emerged for boys. Surprisingly, boys' feelings of relatedness did not predict participation or learning behaviours. These findings are somewhat at odds with Ladd et al. (2000), who found feelings of support and relatedness to be particularly relevant to the process of kindergarteners' school adaptation. They rather suggest that boys' feelings of well-being within the classroom do not affect their approaches to learning.

In sum, the mediating role of participation was not supported by any of the three models. However, relatedness indicators were found to be good predictors of participation and learning behaviours. We suggest that classroom participation may be viewed as a learning behaviour component, at least at the kindergarten level, since academic performance is posed by the kindergarten educational program as a secondary concern. When assessing participation and learning behaviours, teachers are in fact asked to consider how children act in school-related activities. Our results, in short, suggest that participation is a learning prerequisite.

Gender differences

The present findings point to the need for taking into consideration children's gender when addressing the impact of social relatedness on school adjustment. Although the data did not strongly support the mediation models proposed, social relatedness appears to have a greater incidence on girls' emergence of learning behaviours than on boys'. It may be the case that comfort with one's teacher and feelings regarding the classroom context are relatively less important for boys and, consequently, do not impact their attitudes toward learning activities in kindergarten. It may be the case that sensitivity regarding relationships with teachers is less developed in 4- to 6-year-old boys. In contrast, girls' preferences for intimacy and close relationships, which have been largely documented in previous work (Greco & Morris, 2005), and may account for their greater relational sensitivity. Furthermore, the fact that all teachers were female in this sample must be acknowledged as a potential influence on different patterns of school adjustment in boys and girls. It may be easier for young girls to identify and relate with female teachers than it is for boys. Longitudinal study is needed to address this issue both from a developmental and educational perspective.

Peer acceptance appears to play an important role in school adjustment for boys and girls. Peer acceptance is tied to overt manifestations of attraction and repulsion and determines in many ways whether a child may or may not join a specific activity at a particular moment. Thus, these overt signals are likely to be easily read. We suggest that peer acceptance signals play a similar role for boys and girls regarding the emergence of approaches to learning in kindergarten.

Implications for practice

Our findings highlight the need for teachers to be aware of the role that children's social relatedness to peers play in academic functioning. In the role of skills and knowledge builders, teachers can implement effective practices that promote positive relationships among peers (Gettinger, 2003). For example, they can support withdrawn and neglected children in developing and showing interest in their peers. They can offer opportunities for children to participate in a variety of classroom activities as a precursor to finding suitable playmates and forming friendships. Group-oriented activities undoubtedly respond better to this need than traditional teacher-centered strategies. Specifically, giving free choice time to play together, verbally encouraging play between children, providing suggestions to solve problems between children, are among efficient strategies that encourage positive relationships in

the classroom (Buysse, Goldman, & Skinner, 2003). The learning context typical of kindergarten, with its reduced emphasis on academic achievement as compared to elementary grades, offers significant opportunities to respond to relatedness needs and prevent social rejection. Given the gender differences shown in this investigation, we suggest that instructional approaches that provide the opportunity to strengthen peer relationships might be different for boys and girls. For example, it may be occasionally relevant to let children choose whether they work in pairs, small, or medium-sized teams. Earlier research has shown that boys may feel more at ease in groups than girls who are likely to prefer one-to-one interactions (see Underwood, 2004). It may thus be worthwhile for teachers to give children the freedom to form small or medium-sized teams in order to create supportive conditions for relationships formation and learning behaviour. It is our contention that pedagogical differentiation needs to be further investigated regarding teachers' socialization practices. Besides promoting social acceptance within classroom, teachers can also play a key role in identifying early signs of peer problems and giving support to children who are having relationships difficulties.

Our findings also call for designing interventions that facilitate positive relationships between teacher and peers, and positive feelings in the natural environment of the classroom. Benefits in terms of increased psychological well-being must be addressed through various indicators, so as to encompass young boys and girls interests and experiences. Also, it would be useful to collect longitudinal data on various indicators of social relatedness in association to school adjustment. It may be the case that relationships with teachers and feelings of relatedness affect the course of boys' adjustment and achievement in later grades, and only longitudinal designs will allow for such latency processes to be revealed.

Future research

Our sample was comprised of Caucasian children, leaving a clear need for research targeting more ethnically diverse populations. Second, teacher-child relationships were accounted for only by teachers. Future research would be strengthened by including children's perceptions of their relationships with their teachers. Third, even though feelings of relatedness were assessed during individual interviews, only quantitative data were recorded. Taking into account children's comments on what it is like to be a classroom member and how they feel in the company of the whole classroom may contribute differently to our understanding of boys and girls perceptions and needs. Thus, qualitative methods may serve complementary functions in future research. Fourth, it might be well-advised to complement teachers' assessments with direct observation during class activities. Even though teachers are recognized as reliable informants regarding children's classroom behaviours, a same-informant bias can lead to overestimated associations between comfort with one's teacher, classroom engagement, and learning behaviours when all three are assessed by teachers. Finally, it would be pertinent to conduct a cohort longitudinal study that would put into perspective the role of social relatedness in the process of school adaptation for boys and girls in the first years of schooling.

CONCLUSION

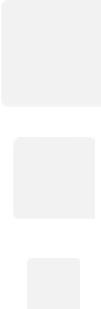
As expected, each domain of social relatedness contributes to the prediction of classroom engagement and learning behaviours in kindergarten children. Each indicator serves a different function according to child's gender. Our findings extend existing research by suggesting that boys may be less influenced by relationships to teacher and their own feelings of relatedness within the classroom. Indeed, further work is needed on how specific interpersonal factors exert an influence on boys and girls adjustment and success in the school context. Taking into consideration children's own perceptions may be a promising avenue. This latter line of investigation is likely to yield useful information for the identification of efficient and differentiated pedagogical strategies designed to assist young children in becoming active members of their classroom setting.

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