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At risk students and teacher-student relationships: Student characteristics, attitudes to school and classroom climate

Abstract

Student characteristics, their attitude to school and classroom climate can influence teacher-student relationships and adjustment to school. Poor early school experiences are associated with school avoidance, disruptive behaviour, teacher conflict, and suspension and exclusion. The focus, however, remains on the behaviour of individual children, rather than seeing behaviour as the result of interactions between individuals and their pedagogical contexts. This paper presents findings from the first year of an Australian longitudinal project tracking 240 children (101 boys, 139 girls) from high suspending primary schools serving disadvantaged communities through the first six years of school. Analyses, using multiple measures, including classroom observations, assessments and questionnaires, and multiple informants, such as teacher and child reports, explore associations between child characteristics, children's attitudes to school, teacher-student relationship quality and the quality of classroom interactions as children commence school. Findings point to the importance of self-regulation as children transition to school and the pivotal role of inclusive and emotionally supportive classroom contexts in supporting the development of positive teacher-student relationships in the first year of school.

Keywords: teacher-student relationship quality; classroom quality; transition to school

Introduction

The transition to school has been described as a sensitive period and a time when children might be more susceptible to classroom experiences and classroom context (Rimm-Kaufman and Pianta 2000). Adaptation to the school environment is also a key developmental task for children that has important consequences for children's future school success, particularly for children from economically disadvantaged families (K. D. Cook and Coley 2017; Hamre and Pianta 2001). As children commence formal schooling, relationships with adults other than their parents become increasingly important (Doumen et al. 2008) and a growing body of research suggests that teacher-student relationship quality across the early years of school makes an important contribution to children's positive school adjustment (Hamre and Pianta 2001; Pianta 1999; Silver et al. 2005).

Hamre and Pianta (2005) suggest that teacher-student relationship quality may be best conceptualised as an outcome of, at least in part, the teachers' interactions with the child. Positive teacher-student relationships are a key indicator of positive school adjustment (Hamre and Pianta 2005; Pianta 1999). Teacher-student relationship quality is often assessed using the Student-Teacher Relationship Scale (STRS) (Pianta and Steinberg, 1992); a widely used measure that examines the quality of the teacher-student relationship from the teacher's perspective. Pianta, Steinberg and Rollins (1995) identified three dimensions of teacher-student relationship quality using the STRS: Closeness; Conflict; and Dependency. A close relationship is characterised by warmth, open communication and support, while a conflictual relationship is characterised by anger and hostility. A dependent teacher-student relationship is characterised by clingy behaviour and possessiveness on the part of the child.

There is growing evidence that the quality of a teacher-student relationship contributes to academic skills and academic achievement throughout primary school (c.f. Baker 2006; Wubbels et al. 2016). In addition, teacher-student relationship quality makes a

strong contribution to children's social and behavioural adjustment (Baker 2006). A number of studies have demonstrated that teacher-student relationships that are high in conflict are associated with more negative attitudes towards school, increased aggression and problem behaviours (c.f. Buyse et al. 2008; Ewing and Taylor 2009; McGrath and Van Bergen 2015). In contrast, close teacher-student relationships are associated with decreases in problem behaviours, increases in prosocial behaviour and positive school adjustment (Ewing and Taylor 2009; Quin 2017). Further, early teacher-student relationships, in the first year of school, appear to be significantly related to academic outcomes throughout primary school (Hamre and Pianta 2001). Good quality teacher-student relationships early in children's school careers appear to serve as a protective factor for children at risk of poor school adjustment (Buyse et al. 2008; Hamre and Pianta 2001; McGrath and Van Bergen 2015). For example, Hamre and Pianta (2001) found that children with significant problem behaviours in the first year of school who were still able to develop positive relationships with their teachers were less likely to continue to demonstrate behavioural difficulties as they progressed through school. In contrast, those children exhibiting externalising behaviours in the first year of school whose relationships with their teachers are characterised by negativity may be at risk for long term relational issues throughout school and increased problem behaviours (Baker, Grant, and Morlock 2008).

Factors associated with teacher-student relationship quality

Teacher-student relationship quality reflects a bi-directional relationship between student and teacher characteristics (Graham, 2017; Rudasill et al. 2006). With respect to student characteristics, a number of studies have reported gender differences in teacher-student relationship quality such that teachers tend to have closer and less conflictual relationships with girls than with boys (Baker 2006; Silver et al. 2005). Conflict in the teacher-student relationship also appears to be more problematic for boys, being a stronger

predictor of problem behaviours for boys than girls (Ewing and Taylor 2009). Teacher-student relationship closeness on the other hand is more predictive of school adjustment for girls than for boys (Ewing and Taylor 2009). Students' behavioural styles on school entry (e.g., prosocial or antisocial) and their ability to self-regulate have also been shown to predict the quality of the relationship that students form with their teachers (Diaz et al. 2017; Ladd and Price 1987; Walker, Berthelsen and Harrison, 2013). Self-regulation is conceptualised in the literature on child development as "children's ability to persist at work, stay on task, attend to learning goals, and participate actively in learning" (Rimm-Kaufmann et al., 2009, p. 958). Conduct problems and hyperactivity have been associated with higher conflict in teacher-student relationships, while higher self-regulation is associated with lower conflict and more positive teacher-student relationships (Walker et al., 2013).

The final student characteristic that may have an influence on the quality of students' relationships with their teachers is language and communication. Rudasill and colleagues (2006) suggest that children with communication difficulties may be particularly at-risk with respect to their relationships with their teachers who may misinterpret impaired communication as rudeness or disinterest (Snow & Douglas, 2017). Certainly, lower levels of language complexity has been associated with problem classroom behaviour (Qi and Kaiser 2004). There is also some evidence that language difficulties may be directly related to poorer quality teacher-student relationships. For example, using data from the Longitudinal Study of Australian Children (LSAC), Hand (2008) found that children with parent-reported language concerns had relationships with their teachers that were lower in closeness and higher in conflict than children without language concerns, and this effect persisted over time. Individual differences in behaviour, self-regulation and communication then may influence the "goodness of fit" between students and teachers through their effect on teacher-student interactions.

With respect to teacher characteristics, Hamre and Pianta (2005) note that the nature and quality of teachers' interactions with children can be one way in which schooling can interact with children's individual characteristics or background to influence child outcomes. One frequently used and reliable tool for the assessment of the quality of classroom interactions is the Classroom Assessment Scoring System (CLASS) (Pianta and Hamre 2009; Pianta, La Paro, and Hamre 2008). The CLASS organises 10 dimensions of classroom quality into three domains: Emotional Support; Instructional Support; and Classroom Organisation. These domains differentially predict child outcomes across academic and social domains, such that the Emotional Support and Classroom Organisation domains appear to be particularly relevant for social-emotional development, while the domain of Instructional Support has been linked to academic outcomes (Hamre and Pianta 2005; Howes et al. 2008). For example, in an observational study of early childhood classrooms, instructional support was associated with academic achievement, whereas high levels of emotional support predicted social competencies (Hamre and Pianta 2005; Howes et al. 2008). Positive classroom climates that are high in emotional support have also been found to promote children's self-regulation and social skills (c.f. Hamre et al. 2014; Rimm-Kaufman et al. 2009). More recently, Broekhuizen, Mokrova, Burchinal, Garrett-Peters, and Family Life Project Key Investigators (2016) found that higher levels of emotional support and classroom organisation predicted better social skills and fewer behaviour problems.

Evidence from large-scale, longitudinal observational studies underscores the importance of positive emotional and instructional experiences within the early years of school, particularly for those children who might be at risk of school failure (c.f. Hamre and Pianta 2001). For example, Hamre and Pianta, in a longitudinal study of 910 children from the NICHD Study of Early Child Care, found that children at risk of developing conflictual relationships with their teacher were less likely to do so in a classroom with high emotional

support. A number of studies (c.f. Burchinal et al. 2002; Buyse et al. 2008; Mantzicopoulos 2005; Pianta et al. 2002) have begun to consider the nature of the teacher-student relationship within a contextual framework that acknowledges the contribution of child and teacher characteristics along with variations in classroom quality. For example, Buyse et al. (2008) found that teacher emotional support in particular was protective for at risk children such that, in the context of a classroom with high emotional support, children with problematic externalising or internalising behaviours appeared to be no longer at risk for developing poor quality relationships with their teachers.

The Present Study

The current study aims to explore relationships between child characteristics, classroom interactions, and the quality of the teacher-student relationship in a sample of children potentially at risk for poor school adjustment. While many previous studies have focused only on teachers' perceptions of their relationships with children, there is evidence that young children can provide reliable information about their relationships with their teachers (Mantzicopoulos and Neuharth-Pritchett 2003). The current study extends existing research by using multiple measures of teacher-student relationship quality, including observational measures, and teacher and child reports. By using child reports, children are afforded an avenue to voice their perspectives on teacher-child relationship quality. These practices align with child participatory approaches that emphasise "the importance of listening to children's voices to gain understanding of their learning, lives, and experiences" and for children "to be empowered to communicate their own views" (Harcourt and Einarsdottir 2011, 303).

While the majority of prior research has been completed in the United States, this study conducted in the Australian context explores the associations between (i) child characteristics, such as oral language competence and self-regulation, (ii) attitudes to school

from child reports of school liking and avoidance, (iii) relationship quality using child reports of their relationship with their teacher, teacher reported teacher-student relationship quality, and observations to measure the quality of classroom interactions. In this study, classroom quality is conceptualised using the domains of Emotional Support, Instructional Support and Classroom Organisation, which refer to the general emotional, organisational and instructional climate of the classroom as measured by the Classroom Assessment Scoring System (CLASS) (Pianta, La Paro, and Hamre 2008). The quality of the teacher-student relationship as reported by teachers and by children refers to a more internal psychological assessment of individual dyadic relationships, as measured by the Teacher-Student Relationship Scale (Pianta 2001).

Method

The Supporting Behaviour in the Early Years Project is a longitudinal study tracking children's development, school liking, language, learning, relationships and behaviour through the first six years of school. The project aims to explore the child and classroom characteristics that predict why some children begin to engage in disruptive behaviour, and to understand which supports and/or changes in teaching practice are needed to work more productively with these children. This analysis uses data from the first wave of data collection with children in the first year of formal schooling in the Australian state of Queensland, known as the Preparatory (Prep) year. With the consent of participating school principals, teachers, parents and individual children, a suite of standardised measures was administered to each child. Measures were administered in three separate waves over the course of the school year to reduce fatigue. Teachers completed a small collection of short teacher-report scales in the middle of the school year and classroom observations, using the CLASS, were conducted in Terms 3 (July to September) and 4 (October to December).

Participants

The first wave cohort of 240 participating children (101 male, 139 female) were recruited in their first year of formal schooling (Prep) from seven primary schools servicing disadvantaged communities in Queensland, Australia. Participating schools were between 1 and 2 SD below the mean on the Index of Community Socio-Educational Advantage (ICSEA), which is a scale that represents socio-educational advantage for each school, and in the top 20 public primary schools in South-East Queensland for number of suspensions (proportionate to enrolments). Children were between 4 ½ and 6 years of age at school entry (M = 60.86 months, SD = 3.61). Seven children (2.8%) were from an Aboriginal or Torres Strait Islander background and 50 children (20.3%) had a Language Background Other than English (LBOTE). There were 18 participating Prep year teachers (1 male, 17 female) with experience ranging from 1-35 years.

Measures

Language Assessment

Children's receptive and expressive language was assessed through the Clinical Evaluation of Language Fundamentals screener (CELF-4), the Expressive Vocabulary Test (EVT-2), and the Peabody Picture Vocabulary Test (PPVT-4).

The CELF-4 is a 47-item screening measure that examines children's structural language abilities. Children are considered "at risk" for language disorder when their total raw score (ranging from 0 to 28) is less than the criterion score for their age (Semel, Wiig, and Secord 2004). The test-retest reliability of the CELF-4 is high with stability coefficients ranging from .88 to .92 for composite scores. Internal consistency using Cronbach's alpha

range from .70 to .91 for subtests and from .89 to .95 for composite scores. The CELF-4 screener takes approximately 15 minutes to administer.

The EVT assesses children's expressive vocabulary (Williams 2007). Participants are shown a series of visual stimuli and asked to name the stimuli. The PPVT-4 is designed to measure a child's knowledge of the meaning of spoken words, and their receptive vocabulary (Dunn and Dunn 2007). Participants are presented a series of items consisting of four different pictures. For each item they are told a word corresponding to one picture and asked to point to the correct picture. Each test has norms for participants aged 2 ½ to 90 years of age and was individually administered by a research assistant. Together, they take approximately 30 minutes to administer.

Who Am I (WAI)

The WAI measures school readiness (academic) competencies including early literacy concepts, numeracy concepts, and fine motor skills (De Lemos and Doig 1999). The WAI requires children to copy and draw geometric shapes and write letters and words in a booklet. Each item is scored on a 4-point scale relating to the skill required for the task; 0 is allocated to a 'no attempt'. The WAI is considered to be user friendly and reliable. It is not language dependent and is thus considered to be culturally sensitive. Cronbach's alpha in the current study was .55 which, while within the range of previously reported psychometrics, is not high. The WAI takes approximately 5 minutes to complete.

Self-regulation (SSRS)

The child's self-regulatory behaviour in the classroom was measured by teacher ratings on six items adapted from the Social Skills Rating Scale (SSRS) (Gresham and Elliot 1990) as used in Growing up in Australia: The Longitudinal Study of Australian Children. The items

in the scale rate attentiveness, task persistence, eagerness to learn, learning independence, flexibility, and organization on a 4-point scale (never, sometimes, often, and very often). The scale was scored by taking the mean of the 6 items. Higher scores indicate the child is better able to self-regulate. In the current study, Cronbach's alpha was .94. The adapted scale takes about one minute to complete.

Student-teacher relationship scale (STRS) – Short form

Teachers completed the 15 item short-form of the Student-Teacher Relationship Scale (STRS-SF) (Pianta 2001) assessing teachers' perceptions of their relationship with individual children. The short-form has two sub-scales of Closeness (7 items) and Conflict (8 items). Items are rated on a 5-point scale from 'definitely does not apply' to 'definitely applies'. Example Closeness items include "I share an affectionate, warm relationship with this child" and "If upset this child will seek comfort from me". Example Conflict items include "This child and I always seem to be struggling with each other" and "This child easily becomes angry at me". The teacher report STRS-SF has demonstrated good construct validity (Drugli and Hjemdal 2013) and takes about two minutes to complete. Cronbach's alpha in the current study was .86 for Closeness and .92 for Conflict. The STRS-SF was the dependent variable of interest in this analysis.

Strengths and Difficulties Questionnaire (SDQ)

The Strengths and Difficulties Questionnaire (SDQ) (Goodman 1997) is a screening tool for social-emotional skills. For the present study, teacher-reported data from two scales of the SDQ (Hyperactivity and Conduct Problems) were used. Cronbach's alpha in the current study was .90 for Hyperactivity and .84 for Conduct Problems. Teachers responded to 10 questionnaire items on a 3-point rating scale, ranging from "not true" to "certainly true". A

higher score equates to a poorer result. Together, the two scales take about one minute to complete.

School Liking & Avoidance Questionnaire (SLAQ)

School adjustment was measured by items from two scales on the SLAQ, the School Liking (6 items) and School Avoidance scales (8 items) adapted from the School Sentiment Inventory (Ladd and Price 1987). The SLAQ is a short self-report questionnaire that assesses school liking and avoidance. Items are scored on a 5-point scale ranging from 1 = almost never to 5 = almost always. Each scale is summed and meaned. Higher scores indicate better school adjustment. Cronbach's alpha in the current study was .79 for School Liking and .73 for School Avoidance. The SLAQ takes approximately 5 minutes to administer.

People In My Life (PiML)

The PiML scale gathers children's self-reports of their attachment to teachers and school (E. Cook, Greenberg, and Kusche 1995). The People in My Life (PiML) scale is generally considered the most thoroughly validated self-report assessment of attachment to parents, and teacher/school attachment has been assessed using adapted items from the PiML. Children respond to 9 items on a 4-point scale ranging from "almost never or never true", "sometimes true", "often true", and "almost always or always true". Higher PiML scores are interpreted to indicate greater levels of attachment to teachers and school. Example items include: "I like my teacher this year" and "I get along well with my teachers". Cronbach's alpha for the current study was .71. The PiML takes approximately three minutes to administer.

Classroom Observations

Classroom interactions were observed using the Classroom Assessment Scoring System

(CLASS K-3). In the CLASS measure for Kindergarten to Grade 3 (CLASS K-3), classroom interactions (teacher-student, student-teacher, student-student) are grouped into 10 dimensions (Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspectives, Behaviour Management, Productivity, Instructional Learning Formats, Concept Development, Quality of Feedback, and Language Modelling). For each of the 10 dimensions, ratings based on evidence of key indicators are made on a 7-point scale. These dimensions are then grouped into three domains of classroom quality: Emotional Support, Classroom Organisation and Instructional Support. CLASS scores can be organised into low range (1-2), mid-range (3-5) and high range (6-7).

The CLASS is used in 30-minute observation cycles (20 mins observation plus 10 mins scoring) with a minimum of four observational cycles per classroom. In this study, each classroom was observed for a minimum of two hours (at least four cycles) by one of two certified observers who had been trained in-house for two days by the second author, a certified CLASS observer and trainer. The first 10 observation cycles were conducted by all three observers and moderated to ensure consistency. All observations were completed within two months. Dimension scores for each cycle were added and divided by the number of cycles conducted to determine a mean score for each dimension. Dimension means in each of the three domains were then added and divided by the number of dimensions in each domain to obtain mean domain scores. Negative Climate is reverse scored at the domain level for the Emotional Support domain. Cronbach's alpha for Emotional Support, Instructional Support and Classroom Organisation were .93, .96 and .91 respectively.

Data Analysis

Results

Descriptive statistics are presented in Tables 1 and 2. Correlational analyses indicated that children with higher language scores (CELF, PPVT/EVT) were rated better on school readiness, self-regulation, both child and teacher rated relationship quality, and fewer problem behaviours. Children assessed as less ready for school and with poorer self-regulation skills were rated as having more problem behaviours. School liking was associated with higher language scores, greater school readiness, higher self-regulation, better teacher child relationship quality (both child and teacher report) and fewer problem behaviours. Child liking for their teacher was related to higher scores on all three CLASS domains (emotional support, classroom organisation and instructional support).

In order to determine the relative contribution of each of the independent variables to variation in student-teacher relationship quality, two OLS regression models for the outcome measures of STRS-SF Closeness and Conflict were constructed. Independent variables in the models included child demographic characteristics (age, sex, Language Background Other than English), language measures (PPVT, EVT, CELF), school readiness (WAI), behavioural self-regulation (SSRS), SDQ Hyperactivity and Conduct scales, CLASS Emotional Support, CLASS Instructional Support, CLASS Classroom Organisation, School liking and avoidance (SLAQ) and child report on relationship quality (PiML). Results are presented in Table 3.

STRS Closeness

Results for the full model explained 19.7% of the variance. Child sex ($B = .26, p = .003$, see Table 3), Behavioural self-regulation ($B = .059, p < .001$, see Table 3), SDQ Hyperactivity ($B = .283, p = .031$, see Table 3), and CLASS Emotional Support ($B = .212, p = .038$, see Table

3) were significantly associated with STRS Closeness. Being a girl, being better able to regulate behaviour, being hyperactive, and being in a classroom with higher emotional support were related to closer teacher-student relationships as rated by the teacher.

STRS Conflict

Results for the full model explained 73.7% of the variance. SDQ Conduct Problems ($B = 1.58, p < .001$, see Table 3), CLASS Emotional Support ($B = -.268, p = .001$, see Table 3), and CLASS Instructional Support ($B = .153, p = .016$, see Table 3) were significantly associated with STRS Conflict. Higher conduct problems and being in a classroom with lower emotional support and higher instructional support were related to more conflictual teacher-student relationships as rated by the teacher.

Discussion

The present research examined associations between child characteristics, children's attitudes towards school, classroom quality and the quality of teacher-student relationships. Our findings indicate that child characteristics, such as gender, the ability to self-regulate and language competence influence teacher-child relationships. The findings align with previous research (c.f. Walker et al., 2013; O'Connor 2010) finding that (i) girls, (ii) children who are better able to self-regulate, and (iii) children who are less hyperactive were more likely to have a close relationship with their teachers. Higher language scores (CELF, PPVT/EVT) were significantly correlated with school readiness, self-regulation, both child and teacher rated relationship quality, and problem behaviours. Lower scores on all language measures, on the other hand, were related to fewer school readiness skills, poorer self-regulation, more problem behaviours and less close and more conflictual relationships with teachers. While child language did not emerge as a significant predictor of teacher-student relationships in the

regression analyses, the strong association between language, self-regulation and problem behaviours suggest, in line with previous literature (cf., Hand 2008; Justice et al. 2008; Ripley and Yuill 2005), that underlying language difficulties may also be key drivers of less positive teacher-student relationships. Recall also that language modelling is one of the three dimensions constituting the Instructional Support domain of the CLASS.

Children's attitudes towards their teacher, more so than their attitudes towards school, also influenced teacher-student relationships. While child-rated school liking was associated with a slight increase in teacher-student relationship quality on both child and teacher report, the association was not significant in the regression analyses. However, child liking for their teacher (as measured by the PiML) was related to higher scores on all three CLASS domains (emotional support, classroom organisation and instructional support), highlighting the importance of teachers' and students' close relationships for overall classroom quality. Classroom climate also had an important role to play in teacher-student relationship quality. The quality of classroom interactions, in particular emotional support, enhanced the development of close teacher-student relationships. A lack of positive emotional support contributed significantly to conflictual teacher-student relationships.

Our findings support those of Buyse et al. (2008) in identifying an association between child conduct problems and teacher-student conflict. In addition, however, we found that the classroom climate was also associated with teacher-student relationship quality. The findings from this study reveal that higher instructional support in the classroom was associated with more conflict in teacher-student relationships. While this finding seems counter-intuitive, there is evidence that high instructional support is not universally beneficial for children and interacts with the child's characteristics. Rudasill and colleagues (2016), for example, found that high instructional support was only beneficial for children's mathematical development if children had the requisite regulatory skills to profit from a more

demanding level of instruction. In their sample, high risk children with low self-regulation fared more poorly as instructional support increased. It might be speculated that the children in our sample who could be considered as high risk are likely to enter school with lower self-regulatory and language skills and may therefore be less able to respond to the greater intellectual and linguistic demand that is associated with higher levels of instructional support, leading to higher rates of teacher-student conflict. This is particularly likely in a context of low emotional support.

Implications for practice

By examining the associations between child characteristics, children's attitudes towards school, classroom quality and the quality of teacher-student relationships, our findings have important implications for practice. Findings of this study point to the importance of professional development for educators, teachers and school leaders in relation to (i) creating environments that are high in emotional support, (ii) fostering children's ability to develop, practice and enhance self-regulation skills, and (iii) promoting children's oral language development in the early years.

Environments that are high in emotional support are schools and classrooms in which there is little conflict between teachers and peers, no shouting or use of punitive control, and where teachers are actively aware of and responsive to children's emotions and learning needs. Classrooms that achieve high scores in emotional support are characterised by responsive teachers who: use a warm, calm instructional voice; smile and laugh; call children by their first names; notice when children are experiencing difficulty with their work and who provide effective individualised support; soothe children when they are disappointed, frustrated or sad; actively engage with genuine interest in social conversation with their students; provide opportunities for independence and responsibility, for example, allowing children to move freely about the classroom to gather and hand out materials or get a drink

without needing to ask permission; tailor learning activities to students' interests and provide choice in topics and activities; and allow children to engage in productive conversation with peers.

Teachers can foster the development of children's self-regulation skills when they provide children with opportunities to engage in repeated practice of activities which develop the core components of self-regulation such as working memory, cognitive flexibility and problem solving. These activities can be embedded into the curriculum in ways that increase the level of difficulty over time while maintaining student interest. Teacher-designed pedagogical practices for embedding self-regulation activities into their programs increases the likelihood that children will experience engaging and meaningful tasks that will promote the development of their self-regulation. A curriculum designed to enhance self-regulation could include games that require players to remember the locations of cards or match playing cards, games that involve strategy and games that involve attention and quick responses (Center on the Developing Child, 2014).

Teachers can promote children's oral language development by using a rich vocabulary within the context of elaborative social and instructional conversations. Importantly, teachers who score highly in the language modelling dimension of the CLASS use conceptually and intellectually rich instructional language but also take care to pause, and to explain the vocabulary (or model the language) they are using (Cohrssen, Church and Tayler 2014). Immersion in a rich language environment without appropriate scaffolding has the potential to create access barriers for children with language difficulties, leading to frustration and conflict (Gregg 2017). Multiple opportunities for classroom talk, social conversation, peer support and word play will benefit all children in the early years, but particularly those from language backgrounds other than English, disadvantaged backgrounds or with language disorders (Gregg 2017). Literacy-based games that enhance phonemic

awareness and emphasise the meanings of adverbs (before/between/after, above/below) are critical for children who may not have had rich prior-to-school language experiences.

Each of these three components shares elements with inclusive pedagogy (Florian and Black-Hawkins 2011) and their identification in this research highlights the value of high-quality, inclusive environments that are emotionally supportive and accessible, where *both* learning and behaviour are scaffolded by responsive intentional teaching, and where children are provided with opportunities to exercise their own learning preferences and to express their views. The findings from this research are important because they provide empirical support for the value of inclusive practice; something that tends to be implied, rather than evidenced, by researchers in inclusive education. Further, these findings provide some indication of which components are important for the development of positive teacher-student relationships. Investigating practice at a more granular level has the potential to move the field beyond global statements about ‘quality teaching’ or ‘inclusive practice’. Our research suggests that emotional support, self-regulation and oral language are associated with the quality of teacher-student relationships, which prior research has indicated are predictive of student engagement, learning and behaviour. Ensuring that classrooms are high in emotional support, that young children are supported to learn how to self-regulate their own emotions and behaviour, and that pedagogy is intellectually demanding – yet accessible – is also a more inclusive approach than continuing to focus on behaviour problems and teacher-student conflict downstream.

Limitations and future directions

While the sample was drawn from schools in socio-economically disadvantaged areas, family demographic information was not available except at the school aggregate level. While child language background was included in the analyses, the study is limited in the demographic

information that can be included. In addition, there may be a variety of other omitted variables that might introduce bias into the findings. For example, poorer self-regulation has also been associated with language and learning difficulties and lower IQ (McClelland, Acock, and Morrison 2006; Montroy, Bowles, Skibbe, McClelland and Morrison 2016). The presence of language and learning difficulties may complicate the relationship between self-regulation and teacher-student relationship quality. Further research with this sample will include identification of developmental concerns and academic achievement as children progress through school.

In addition, the assessment of self-regulation and teacher-student relationship quality were both based on teacher ratings. It is possible that these measures are more a reflection of teacher perceptions than actual child behaviour. Previous research (Rimm-Kaufman, Pianta, and Cox 2000) has indicated that teachers' perceptions can influence the ways in which they rate children's behaviours and that teachers are likely to rate girls more favourably than boys. However, teachers' ratings of teacher-student relationship quality were positively correlated with students' own ratings of positive teacher relationships providing some validity for teacher assessments. Nevertheless, direct behavioural assessments of self-regulation and problem behaviours would provide support for the current findings.

Finally, this was a cross-sectional analysis using data from only one time point. Understanding of the relationship between self-regulation, classroom quality and teacher-student relationships will be further strengthened as we follow these children through their school years. Incorporating data from later waves of the study will allow stability or changes in the teacher-student relationship to be tracked over time and the relationship between early classroom behaviours, classroom quality and the quality of the teacher-student relationship for boys and for girls to be further explored. Due to the small number of schools involved in

this study, multi-level analysis was not feasible, which is a further limitation of the current findings.

Conclusion

In conclusion, our findings support the conceptualisation of teacher-student relationships as dynamic systems whereby a bi-directional relationship exists between student and teacher characteristics in the development of high-quality teacher-student relationships. In particular, our findings highlight the importance of positive emotional support in the classroom as a contributor to positive relationships between students and their teachers and the significance of teacher-student interactions in students' adjustment to the classroom. In addition, we point to the importance of supporting children's self-regulation and oral language development both in the early years of school and prior to school settings if children who might be perceived as at risk are to avoid increasingly negative behavioural trajectories and consequent poorer relationships with their teachers. It is also recommended that whole school approaches to enhancing inclusive practice must also promote the development of children's self-regulation. Consistent with the international research that concentrates efforts on improving the life chances of children growing up in disadvantaged communities, we argue that teachers and schools have the potential to make strong and positive contributions to child outcomes, particularly for those children most at risk, by adopting inclusive pedagogies within emotionally-supportive learning environments.

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