Optional ERIC Coversheet — Only for Use with U.S. Department of Education Grantee Submissions

This coversheet should be completed by grantees and added to the PDF of your submission if the information required in this form **is not included on the PDF to be submitted**.

INSTRUCTIONS

- Before beginning submission process, download this PDF coversheet if you will need to provide information not on the PDF.
- Fill in all fields—information in this form **must match** the information on the submitted PDF and add missing information.
- Attach completed coversheet to the PDF you will upload to ERIC [use Adobe Acrobat or other program to combine PDF files]—do not upload the coversheet as a separate document.
- Begin completing submission form at https://eric.ed.gov/submit/ and upload the full-text PDF with attached coversheet when indicated. Your full-text PDF will display in ERIC after the 12-month embargo period.

GRANTEE SUBMISSION REQUIRED FIELDS

Title of article, paper, or other content

Teacher–child relationships in the context of poverty: the role of frequent school mobility

All author name(s) and affiliations on PDF. If more than 6 names, ERIC will complete the list from the submitted PDF.

Last Name, First Name	Academic/Organizational Affiliation	ORCID ID
McKinnon, Rachel	New York University	
Friedman-Krauss, Alison	New York University	
Roy, Amanda L.	University of Illinois at Chicago	
Raver, C. Cybele	New York University	

Publication/Completion Date—(if *In Press,* enter year accepted or completed) 2018

Check type of content being submitted and complete one of the following in the box below:

- ☑ If article: Name of journal, volume, and issue number if available
- ☐ If paper: Name of conference, date of conference, and place of conference
- ☐ If book chapter: Title of book, page range, publisher name and location
- ☐ If book: Publisher name and location
- ☐ If dissertation: Name of institution, type of degree, and department granting degree

Journal of Children and Poverty, 24(1)

DOI or URL to published work (if available) 10.1080/10796126.2018.1434761

Acknowledgement of Funding— Grantees should check with their grant officer for the preferred wording to acknowledge funding. If the grant officer does not have a preference, grantees can use this suggested wording (adjust wording if multiple grants are to be acknowledged). Fill in Department of Education funding office, grant number, and name of grant recipient institution or organization.

"This work was supported by U.S. Department of Education **[Office name]** Institute of Education Sciences through **[Grant number]** R305B140037 to **Institution]** New York University .The opinions expressed are those of the authors and do not represent views of the **[Office name]** Institute of Education Sciences or the U.S. Department of Education.

Published in final edited form as:

J Child Poverty. 2018 ; 24(1): 25–46. doi:10.1080/10796126.2018.1434761.

Teacher–child relationships in the context of poverty: the role of frequent school mobility

Rachel D. McKinnon[a], **Allison Friedman-Krauss**[a,b], **Amanda L. Roy**[c], **C. Cybele Raver**[a]

[a]Applied Psychology Department, New York University, New York, NY, USA

[b]National Institute for Early Education Research, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA

[c]Department of Psychology, University of Illinois at Chicago, Chicago, IL, USA

Abstract

Children's relationships with their teachers are critical for classroom-based learning, but children growing up in poverty may be at risk for lower-quality relationships with teachers. Little is known about how changing schools, one poverty-related risk, affects teacher–child relationships. Using growth curve models that control for a host of other poverty-related risks, this study explores the association between children changing schools frequently (defined as three or more school moves) between preschool and third grade and the quality of their relationships with their teachers over these five years in a low-income, ethnic-minority sample. Children who frequently moved schools were reported to be less close to their teachers in third grade and experienced steeper declines in closeness than children who did not change schools frequently. Moreover, the effects of frequent school mobility at third grade were robust to other poverty-related risks, including residential mobility, parental education risk, family income, and single-parent households. Changing schools was unrelated to children's conflict with teachers. We discuss these findings in the context of policies that support students' transitions when changing schools.

Keywords

School mobility; teacher–child relationships; low-income families; longitudinal; early elementary

Introduction

Children's close relationships with their teachers play a key role in classroom-based learning (Downer, Sabol, and Hamre 2010; Pianta and Stuhlman 2004) and positive social-emotional and academic outcomes in both the short- and long-term (Birch and Ladd 1997; McCormick et al. 2013; O'Connor, Collins, and Supplee 2012). Nascent research has found that conventional poverty-related risks (e.g. maternal education level) are related to children's risks of having less positive relationships with teachers relative to their higher income peers

CONTACT Rachel D. McKinnon rdm351@nyu.edu.

Disclosure statement

No potential conflict of interest was reported by the author(s).

(Crosnoe et al. 2010; Ladd, Birch, and Buhs 1999; Valiente, Swanson, and Lemery-Chalfant 2012). School mobility, especially if it occurs chronically, may be another mechanism by which poverty compromises some low-socioeconomic status (SES) children's relationships with their teachers, which may in turn negatively affect their academic outcomes.

School mobility, or changing schools, is widespread across the country, especially for children growing up in poverty and attending lower-resourced, urban schools. Thirteen percent of all students in a national survey of K-8 students from 1998 to 2007 changed schools four or more times (Government Accountability Office [GAO] 2010), and poor children were more likely than their non-poor peers to change schools (Burkam, Lee, and Dwyer 2009; GAO 2010; Rumberger 2003; Xu, Hannaway, and D'Souza 2009). Prior research has shown associations between school mobility and detriments in children's academic performance (Burkam, Lee, and Dwyer 2009; Gruman et al. 2008; Temple and Reynolds 1999), particularly when school changes are as frequent as three or four school moves in five years (Friedman-Krauss and Raver 2015). One hypothesis is that frequent changes in the schools that a young student attends may disrupt their opportunities to build positive relationships with other members of the school community, including with teachers (Carson, Esbensen, and Taylor 2013; Pribesh and Downey 1999; Temple and Reynolds 1999). Yet, to our knowledge, no research has addressed the specific role that school mobility plays in disrupting young, low-SES children's relationships with their teachers.

Understanding how school mobility affects children's relationships with their teachers during early elementary school is critical, particularly for children from low-SES families who are more likely to experience school mobility (Burkam, Lee, and Dwyer 2009; GAO 2010; Rumberger 2003; Xu, Hannaway, and D'Souza 2009) and are already at-risk for lower quality relationships with their teachers (Crosnoe et al. 2010; Ladd, Birch, and Buhs 1999; Valiente, Swanson, and Lemery-Chalfant 2012). Based on extant research (reviewed in more detail below), it is possible that when low-SES children move through multiple schools over short periods of time, they may be less socially anchored to the other members of the school community, leading teachers to feel less closeness and more conflict with them. Alternatively, school mobility might be just one indicator of the broader experiences of family poverty and poverty-related instability, such as residential moves, noisy homes and neighborhoods, adults moving in and out of the household, or unpredictable schedules (Evans 2004; Evans et al. 2005; Raver, Roy, and Pressler 2015), all of which are experiences that may also contribute to disruptions in teacher-child relationships. Therefore, it is important to consider the simultaneous roles of school mobility and other poverty-related risks in shaping children's relationships with their teachers over time (Rudasill et al. 2010).

The present study seeks to fill this gap by examining the extent to which frequently changing schools is related to children's lower quality relationships with teachers (i.e. less closeness and more conflict) over time during early elementary school. Because school mobility, particularly multiple school moves, typically occurs over several grades, we expect the effects to accumulate. Therefore, we examine the influence of frequently changing schools on teacher- child relationships between preschool and third grade. We further examine the robustness of this association when accounting for other poverty-related risks.

Teacher–child relationships

From an attachment theory perspective, teachers are hypothesized to act as a secure base for their students, supporting children's active engagement in their learning environment (Hughes and Kwok 2007; Pianta and Stuhlman 2004). Close teacher-child relationships are marked by easy and open communication, a sense of warmth and understanding, and mutual affection. Conversely, conflictual relationships are characterized by negativity, disagreement, and disparate goals. The quality of children's relationships with teachers has been positively linked to a variety of cognitive and social-emotional outcomes, including higher reading, language, and math skills during elementary school (Arbeau, Coplan, and Weeks 2010; Hamre and Pianta 2001; Maldonado-Carreño and Votruba-Drzal 2011; McCormick et al. 2013; O'Connor, Collins, and Supplee 2012; Valiente, Swanson, and Lemery-Chalfant 2012).

Prior research has identified various patterns of change in teacher-child relationships over the elementary school years. Children's relationships with teachers typically begin high in closeness at school entry and decline over time, whereas conflict with teachers starts low and gradually increases as children progress through school. These patterns have been found across elementary grades in both lower- and higher-SES samples (Collins, O'Connor, and Supplee 2017; Jerome, Hamre, and Pianta 2008; O'Connor and McCartney 2007; McKinnon 2017; Spilt et al. 2012). Recent studies suggest, however, that there may be greater complexity in children's patterns of closeness and conflict with teachers, such as greater stability in conflict over time (Collins, O'Connor, and Supplee 2017; Spilt et al. 2012) or dramatic declines in closeness among individual students that mask gradual increases seen in the larger group when averaged (O'Connor and McCartney 2007). These studies recognize that measurement of teacher-child relationships over time can be challenging, given that different teachers rate the quality of those relationships through different lenses and with different developmentally informed expectations, at different time points (Jerome, Hamre, and Pianta 2008; O'Connor and McCartney 2007).

Even with methodological challenges taken into account, these studies highlight the power of student experiences (i.e. either improved, more positive relationships with teachers over time or increasingly negative, potentially corrosive relationships with them) for both their socioemotional and academic outcomes (Collins, O'Connor, and Supplee 2017; Jerome, Hamre, and Pianta 2008; O'Connor and McCartney 2007; Spilt et al. 2012). Based on these findings, we are interested in examining key predictors of variation in teacher-child relationships over time. That is, why do some children experience larger decreases in closeness or larger increases in conflict with their teachers as they move through elementary school?

Teacher–child relationships, school mobility, and poverty

Nationally, 45% of children change schools by the end of third grade (Burkam, Lee, and Dwyer 2009), and rates of school mobility are even higher for low-SES, ethnic-minority, urban students (Burkam, Lee, and Dwyer 2009; Rumberger 2003; Xu, Hannaway, and D'Souza 2009). In one national study, 43% of fourth-graders eligible for free and reduced-

price lunch had changed schools over the previous two years, compared to only 26% of non-eligible fourth-graders (Rumberger 2003). Up to 30% of students in inner-city schools may change schools each year (GAO 1994; see also Temple and Reynolds 1999).

Changing schools is a destabilizing event, particularly when it occurs frequently (Rumberger 2003; Singh et al. 2014). It is likely to be a stressful experience for children, serving as an additional source of turbulence for those growing up in poverty. Indeed, a large body of research suggests that changing schools and, to an even greater extent, changing schools frequently, negatively impacts children's learning, achievement, and self-regulation (Blane 1985; Burkam, Lee, and Dwyer 2009; Friedman-Krauss and Raver 2015; Gruman et al. 2008; Mehana and Reynolds 2004; Temple and Reynolds 1999) through missed days of school, changes in curricula, and reductions in social capital (Rumberger 2003).

Despite the evidence highlighting the disruptive nature of school mobility, little is known about how changing schools might affect children's relationships with their teachers. Bronfenbrenner (1977) recognized that ecological transitions, which he defined as changes in a child's role or setting, shape development. Each time children transition between schools they must adapt to the new school's culture, routines, rules, teachers, and other students (Adams and Rohacek 2010; Sandstrom and Huerta 2013; Tran and Winsler 2011). Disruptions in proximal processes between children and their teachers due to changing schools may hamper their ability to develop close, high-quality relationships. Although most children must adapt to a new teacher each year, changing schools, even between school years, brings the added challenge of learning and adapting to new school norms and new classmates, which may supersede efforts to develop positive relationships with teachers (Sandstrom and Huerta 2013; Tran and Winsler 2011). As a result, when children change schools, they have less time and capacity to develop relationships and may feel less engaged in the school as a whole and with teachers. Although changing schools during the school year is likely to be more disruptive to proximal processes than changing between school years, any school change is apt to be disruptive (Grigg 2012). Additionally, chronically changing schools may negatively affect children's sense of belonging in a school, especially if they feel another move is imminent.

Understanding the specific role of frequent school mobility in children's relationships with their teachers is complicated by mixed evidence of the effects of other poverty-related risks on teacher-child relationships. Children living in chaotic households and those who attend higher-poverty schools are at greater risk for more conflict and less closeness with teachers than their more advantaged peers (Hamre et al. 2014; Jerome, Hamre, and Pianta 2008; Spilt et al. 2012). Low family income and low parental education have also been associated with more conflict and less closeness in children's relationships with their teachers (Brock and Curby 2014; Crosnoe et al. 2010; Rudasill et al. 2010; Valiente, Swanson, and Lemery-Chalfant 2012). In contrast, other research has found empirical evidence that poverty-related risks do not interfere with teacher-child relationships (Buyse et al. 2008; Hamre et al. 2014; Mashburn et al. 2008; Valiente et al. 2008). These mixed findings underscore the complex and nuanced ways in which SES may relate to teacher-child relationships and highlight the need to understand how specific poverty-related risks, including frequent school mobility, affect teacher-child relationships.

Current paper

The current paper explores the extent to which frequently changing schools (three or more times between preschool and third grade) is related to the quality of the relationships children develop with their teachers across the first few years of school in a low-SES, urban sample. Rooted in the cumulative risk theory and prior research (Raver, Roy, and Pressler 2015; Roy and Raver 2014; Sameroff et al. 1993), our work focuses on frequent or chronic school changes, which are expected to be stressful and psychologically disruptive. Prior research suggests that children who experience higher (but not lower) levels of poverty-related instability have lower self-regulation (McCoy and Raver 2014). And, although any school change may be psychologically and academically challenging for children, prior research with this sample (Friedman-Krauss and Raver 2015) and other samples (Blane 1985; Burkam, Lee, and Dwyer 2009; Temple and Reynolds 1999) suggests that the effects of school mobility on children's achievement and social-emotional skills are most detrimental when children experience multiple destabilizing moves. Additionally, prior research with this sample has found that children who change schools frequently (but not less frequently) demonstrated lower self-regulation in third grade (Friedman-Krauss and Raver 2015). Given that children with lower self-regulation skills also tend to have lower-quality relationships with their teachers (Cadima et al. 2015; Rudasill 2011; Valiente, Swanson, and Lemery-Chalfant 2012), we focus on this more destabilizing form of school mobility in the current paper.

In our analysis, we first assess whether frequently changing schools between preschool and third grade predicts teacher-child relationships in third grade and changes in teacher–child relationships leading up to third grade. We hypothesize that children who change schools frequently will have less closeness and more conflict with their teachers by the time they reach third grade than children who do not change schools frequently. We also expect that children who change schools frequently over this time period will demonstrate larger decreases in closeness and larger increases in conflict with teachers over time than children who do not change schools frequently. Next, we examine whether the hypothesized associations between school mobility and teacher-child relationships are robust to the inclusion of other poverty-related risks (including residential mobility, family income-to-needs, parental education risk, and single-parent household) in our statistical models. Given that school mobility often co-occurs with other poverty-related risks and that these other risks may be related to children's relationships with their teachers, it is important to understand the specific role of frequent school mobility within the broader context of poverty. Indeed, isolating the specific role of school mobility is important, as school and district policies, such as the Families and School Together (FAST) program, can more readily target reductions in school mobility (Fiel, Haskins, and Turley 2013) than other poverty-related risks. In all models we take steps to reduce omitted variable bias by statistically controlling for a rich set of family and child characteristics that have been associated with both teacher-child relationships and school mobility.

Method

Sample

Data come from the Chicago School Readiness Project (CSRP), a cluster randomized efficacy trial of a classroom-based social- emotional intervention targeting at-risk children's emotional and behavioral adjustment and school readiness through teacher trainings and the provision of mental health consultants (Raver et al. 2008, 2009, 2011).

Eighteen Head Start centers participated in the study. Sites were matched by family and child demographic characteristics, as well as by site characteristics, and one site from each pair was randomly assigned to either the treatment or control group. Two classrooms from each site were randomly selected to participate. After selection into the study, one control group site lost its federal Head Start funding and was excluded (see Raver et al. 2009 for additional details).

At baseline, 602 3- and 4-year-olds were enrolled in the study in 35 preschool classrooms over two cohorts (see Raver et al. 2009). Children in the current study were followed for four years post-baseline (a total of five years). Schools for the majority of children were tracked across preschool, kindergarten, and first, second, and third grade. For the third of the children in the sample who were three years old at recruitment (N = 132), schools were tracked for two preschool years, kindergarten, and second and third grade. The analytic sample was limited to the 368 children who were enrolled in Chicago Public Schools (CPS) each year, whose school of enrollment was known each year, and who had data on their relationship with their third-grade teacher. These children were enrolled in 173 different schools in third grade with an average of two children per school ($SD = 2.4$). Most Chicago public elementary schools include kindergarten through eighth grade (CPS 2017a), however, about half of the sample attended preschools housed within their matriculating elementary school. Therefore, it was possible for children to have zero moves between preschool and third grade. To account for differences that might be specific to this normative change, all analyses controlled for whether a child changed schools between preschool and kindergarten.

Children came from families with incomes, on average, below 100% of the federal poverty level at each time point, adjusting for household size and composition. Fifty-two percent of the children were female; 68% were African American, and 24% were Hispanic. During their Head Start year, 23% of the children had a primary caregiver with less than a high school diploma, and 60% lived in a single-parent household. Children were, on average, 4.20 years old at baseline. The 368 children in the analytic sample did not differ significantly from the 602 children in the full CSRP sample on any observed baseline characteristics.

Procedures

Data for the current study come from parents, teachers, and direct child assessments collected at baseline and one and four years later (henceforth referred to as preschool, kindergarten, and third grade, respectively) and annual CPS records once children started kindergarten. Parents provided demographic information about their children and family. Preschool, kindergarten, and third-grade teachers rated their perceptions of their

relationships with the children. Data collectors administered direct assessments of children's math, language, and self-regulation skills during the fall of preschool. School of enrollment was triangulated from school records and parent- and teacher-reports.

Measures

Teacher–child relationships

Quality of relationships between teacher and student was measured using the Student-Teacher Relationship Scale – Short Form (STRS), a teacher-reported questionnaire of teachers' perceptions of their relationships with each target child (Pianta 2001). The closeness subscale includes eight items, such as, 'I share an affectionate, warm relationship with this child.' The conflict subscale includes seven items, such as, 'This child and I struggle with each other.' Each item was rated on a Likert scale of 1 ('Definitely does not apply') to 5 ('Definitely applies'). The STRS was completed by children's teachers at preschool, kindergarten, and third grade. Alphas for closeness (.85 to .91) and conflict (.87 to .92) subscales were adequate at each time point.

Frequent school mobility

Children were coded as changing schools if they were enrolled in two different schools across two consecutive years. The available data allowed us to examine school moves only over two consecutive years and did not capture additional school changes within a single school year, possibly underestimating children's total school moves.

There were four possible school changes over the five years between preschool and third grade. Consistent with prior work with this sample, children with three or four school moves were coded as experiencing frequent school mobility (Friedman-Krauss and Raver 2015). We compare the teacher–child relationships of children who changed schools 0, 1, or 2 times with those of children who changed schools three or four times over this five-year period. By operationalizing school mobility in this way, we capitalize on the disruptive and potentially stressful nature of changing schools frequently, emphasizing a high-risk condition in which children changed schools almost every year. Changing schools three or four times over five grades is expected to be harmful, disruptive, and stressful for children, whereas changing schools fewer times may have less-detrimental effects.

Poverty-related risks

An income-to-needs ratio was computed in preschool, kindergarten, and third grade by dividing the annual household income by the U.S. Census poverty threshold adjusted for family size and composition for the current year. Indicators for parental education risk (less than a high school diploma) and single-parent household were computed each year. Each of these poverty-related risks was included in the models as a time-varying predictor. Children's primary caregivers also reported on the number of residential moves at preschool, kindergarten, and third grade. A continuous residential mobility variable was calculated as the sum of all reported residential moves for families reporting in a minimum of two waves.

Baseline characteristics

During preschool, primary caregivers reported children's gender, race/ethnicity, and birthdate. Children's early math and language were assessed during the fall of preschool using the early math and vocabulary subtests from the National Reporting System (NRS) (U.S. Department of Health and Human Services 2003). The NRS is a cognitively oriented, federally mandated assessment of preschool children's skills. The early math score reflects knowledge of basic addition and subtraction, and the vocabulary assessment measures the ability to identify a picture that matches the word stated by the data collector (Zill 2003).

Children's early dysregulation, assessed during the fall of preschool, was captured using direct assessments and an assessor-report from the Preschool Self-Regulation Assessment (PSRA) (Raver et al. 2011; Smith-Donald et al. 2007). Direct assessments included the Balance Beam (Murray and Kochanska 2002) and Pencil Tap (Diamond and Taylor 1996) tasks, which assess children's abilities to inhibit prepotent responses, attend to instructions, and use working memory. Assessors rated children's behavior during the tasks on 16 items that measured inattention and impulsivity (Cronbach's alpha = .92). Scores for the Balance Beam task (reverse-scored), the Pencil Tap task (reverse-scored), and the assessor report were z-scored and averaged to create a composite score of early cognitive dysregulation. Data were collected by a multiracial group of assessors extensively trained and certified in direct assessment procedures.

Analytic approach

Growth curve modeling (GCM)

We used GCM to analyze the association between frequent school mobility and both closeness and conflict with teachers from preschool to third grade. GCM models allow for modeling longitudinal data with at least three time points as a function of both the level (the intercept) and the rate of change over time (the slope) (Singer and Willett 2003). Using GCM allows us to estimate differences in children's intercept and slope of closeness and conflict as a function of poverty-related risks, including all cases with at least one valid data point on the outcome variables.

All models were fit with the TYPE = COMPLEX RANDOM command in Mplus 7th Edition (Muthén and Muthén 1998–2012) to adjust standard errors to account for non-independence within schools. Conflict was negatively skewed and closeness was positively skewed; as such, we used a maximum likelihood estimator that estimates parameters and standard errors that are robust to non-normality (MLR) (Muthén and Muthén 1998–2012). Because both frequent school mobility and teacher–child relationships were measured over time between preschool and third grade, we centered the growth parameters at the last assessment, and intercept coefficients can thus be interpreted as differences in teacher–child relationship quality between children at third grade (Raudenbush and Bryk 2002; Singer and Willett 2003). All continuous predictors were grand mean centered. Closeness and conflict were modeled separately. We fit unconditional growth models to examine linear trends in teacher–child relationships over time and tested for the significant contributions of random variation in intercept and growth parameters and correlations between variations in

intercepts and slopes with log-likelihood ratio tests. To test our research question regarding the effect of frequent school mobility on the intercept and slope of teacher–child relationships, we added frequent school mobility into the model as a predictor of the intercept, and then the slope, of teacher–child relationships, while controlling for baseline characteristics. Next, we tested the robustness of the effect of frequent school mobility by including other time-varying poverty-related risks (such as residential mobility, family income-to-needs ratio, parental education risk, and single-parent household) as predictors of the intercept, and then the slope, of teacher–child relationships. In addition to baseline child characteristics, all models controlled for initial treatment status, cohort, and whether children changed schools between preschool and kindergarten.

Missing data

Full information maximum likelihood (FIML) was used to handle missing data. Data were missing for 4% of the number of residential moves; 17% of early math, vocabulary, and dysregulation in preschool; 12 to 35% of family income-to-needs at each time point; 5 to 24% of primary caregiver education at each time point; 4 to 32% of single-parent household at each time point; and 15% of school poverty. Teacher–child relationship data were also missing for 14% at preschool and 19% at kindergarten.

Results

Descriptives and correlations

Descriptive statistics are presented in Table 1. Most children changed schools once (45%) or twice (31%) between preschool and third grade ($M = 1.38$, $SD = 0.87$, range 0 to 4). Thirty-eight children (10%) changed schools three or four times and were considered to have experienced frequent school mobility. During the same time, most children experienced zero (50%) or one (27%) residential moves ($M = 0.83$, $SD = 1.20$, range 0–10). Children's school and residential moves were weakly, albeit significantly, correlated ($r = .16$, $p < .01$; see Table 2).

Importantly, children who did and did not change schools frequently did not differ on any baseline characteristics or poverty-related risks, reducing the threat of omitted variable bias.

Consistent with prior research, conflict between children and their teachers in preschool was low ($M = 1.73$, $SD = 0.72$) and increased by third grade ($M = 1.84$, $SD = 1.00$), while closeness started high in preschool ($M = 4.16$, $SD = 0.70$) and decreased by third grade ($M = 3.95$, $SD = 0.76$). However, there were incremental improvements in average conflict and closeness during kindergarten ($M = 1.63$, $SD = 0.85$ and $M = 4.20$, $SD = 0.70$, respectively; see Table 1). Teacher–child conflict across the three time points was positively correlated ($rs = .24$ to $.37$, $ps < .001$), as was closeness ($rs = .13$ to $.24$, $ps < .010$). As seen in Table 2, concurrent measures of closeness and conflict were negatively related at kindergarten and third grade ($rs = -.34$ and $-.30$, respectively, $ps < .001$).

Unconditional growth curves

Unconditional growth curves were estimated for closeness and conflict. For closeness, there was a negative trend ($B = -0.06$, $\chi 2(1) = 3.359$, $p = .07$), suggesting that closeness with teachers declined, on average, across the early elementary years. Based on the log-likelihood ratio tests, random intercepts and slopes were estimated in subsequent closeness models. For conflict, there was a significant positive trend ($B = 0.03$ $\chi 2(1) = 6.772$, $p = .009$), suggesting that conflict with teachers increased, on average, across the early elementary years. The log-likelihood ratio tests suggested that the conflict model include only random intercepts.

Growth curve models

Frequent school mobility

To address our research question regarding frequent school mobility and teacher–child relationships, we first added school mobility and child baseline characteristics as predictors of the intercepts for teacher–child closeness and conflict, and we then added school mobility and child baseline characteristics as predictors of the slope of closeness with teachers over time. Results are presented in Table 3 (closeness) and 4 (conflict). Controlling for baseline characteristics, frequent school mobility was negatively related to closeness with third-grade teachers ($B = -0.17$, $SE = 0.07$, $p = .016$), but not conflict, suggesting that children who changed schools three or four times between preschool and third grade were less close with third-grade teachers than children who did not change schools frequently (Table 4).

Frequent school mobility also significantly predicted changes in teacher–child closeness over time ($B = -0.10$, $SE = 0.05$, $p = .041$), suggesting that children who changed schools frequently had sharper declines in closeness with teachers over time compared to their peers who did not change schools frequently.

Child characteristics

On average, girls had more closeness and less conflict with third-grade teachers than boys ($B = 0.19$, $SE = 0.06$, $p = .001$ and $B = -0.20$, $SE = 0.07$, $p = .004$, respectively). Children's language skills at baseline were positively related to having a closer relationship with third-grade teachers ($B = 0.53$, $SE = 0.30$, $p = .08$), though only at a trend level. Children's early math and language skills and dysregulation were largely unrelated to closeness or conflict with third-grade teachers. However, African American children had both more closeness and more conflict in their relationships with teachers in third grade than other children in our sample, who were predominantly Hispanic ($B = 0.13$, $SE = 0.06$, $p = .045$ and $B = 0.25$, $SE = 0.09$, $p = .006$, respectively).

Poverty-related risks

To test the robustness of the association between frequent school mobility and teacher–child relationships over-and-above other poverty-related adversities, we added additional poverty-related risks as predictors of the intercept and slope of teacher–child closeness. After controlling for residential mobility, family income-to-needs ratio, parental education risk, and single-parent households, children who changed schools frequently continued to demonstrate less closeness with their third-grade teachers than children who did not change

schools frequently ($B = -0.17$, $SE = 0.07$, $p = .02$). However, frequent school mobility now only predicted the slope of closeness at the trend level ($B = -0.08$, $SE = 0.05$, $p = .08$).

Several poverty-related risks were also negatively related to closeness with third-grade teachers. Parental education risk in third grade was negatively related to closeness in third grade ($B = -.026$, $SE = 0.11$, $p = .010$) such that children whose parents had less than a high school diploma demonstrated less closeness with third-grade teachers. Residential mobility also significantly predicted closeness ($B = -0.09$, $SE = 0.03$, $p = .001$): children who moved residences more often demonstrated less closeness with third-grade teachers than children who experienced fewer residential moves. Residential mobility was also a significant predictor of the slope of closeness: children who experienced more residential moves demonstrated sharper declines in closeness with their teachers over the same period of time ($B = -0.03$, $SE = 0.01$, $p = .005$). It is important to note that while residential moves can precipitate school changes, in the current sample there was only a weak correlation between the two risks. Furthermore, although residential mobility affects teacher–child closeness, frequent school mobility continues to play a role even after accounting for this other source of instability. Poverty-related risks did not significantly predict conflict or alter the (lack of) relationship between frequent school mobility and teacher–child conflict.

Discussion

The aim of this study was to explore the role of children's experiences of changing schools frequently between preschool and third grade in the quality of their relationships with their teachers over this same period of time in a predominantly low-SES, ethnic-minority, urban sample. We found that moving schools frequently was more common than prior research would suggest (GOA 2010): 1 out of 10 children changed schools every year or almost every year between preschool and third grade. Our findings suggested that children who moved schools at least three times between preschool and third grade tended to be less close to their third-grade teachers than children who changed schools less frequently.

We also found that the relation between school mobility and teacher–child relationship quality held even after considering children's exposure to other poverty-related risks—risks that themselves predicted lower closeness with teachers. Children who experienced more residential moves through third grade experienced greater declines in closeness with teachers between preschool and third grade. Frequent school mobility was unrelated to conflict with teachers.

Teacher–child closeness and school mobility

Extant literature suggests that high-quality relationships with teachers during preschool and elementary school have a lasting influence on supporting children's cognitive and social-emotional development (Hamre and Pianta 2001; Maldonado-Carreño and Votruba-Drzal 2011). Our study suggests that forming and maintaining close relationships with teachers is more challenging for some children than others, namely those children who change schools every year or nearly every year, an experience associated with growing up in poverty. Although the current analyses do not explore possible mechanisms for this association, we

offer some considerations for why children who change schools frequently form less close relationships with their teachers during early elementary grades.

When children are not continuously enrolled in the same school for the full academic year, or from year to year, they simply have less opportunity and time to develop a close bond with teachers (Gruman et al. 2008; Rumberger 2003). However, changing schools between school years, when all children would normatively be changing teachers, may still create challenges for developing close relationships with teachers. First, the loss of social equity may impede the development of these relationships (Perez and Romo 2011). Children continuously enrolled in the same school from year to year are often familiar with teachers outside their own classrooms through formal interactions as schools facilitate transitions from one grade to the next (Entwisle and Alexander 1998) or informal interactions, such as extracurricular activities or through siblings, an advantage lost when children change schools. Second, a history of frequent school changes may lead both children and teachers to refrain from emotional investment in the other if they believe another change is imminent (Julianelle and Foscarinis 2003), regardless of the time of year of the move. This may be particularly true for children who have experienced school move after school move. Finally, when starting at a new school, even at the beginning of the academic year, children's efforts may be spent struggling to learn school norms and develop peer social networks, at the expense of developing teacher–child relationships. (Fantuzzo et al. 2012; Sandstrom and Huerta 2013; Tran and Winsler 2011). Children who change schools between school years must build new peer networks – relationships that would have carried over from year to year had they remained in the same school.

Poverty-related risks

In an effort to tease apart the role of school mobility from other poverty-related risks, we added residential mobility and time-varying family income-to-needs, parental education risk, and single-parent household to our models as a robustness check. Notably, the association between changing schools frequently and children's closeness with their teachers in third grade remained robust even after accounting for these covariates. In particular, we expected that residential mobility might explain the relation between school mobility and teacher–child closeness (Rumberger 2003). However, in the current sample, children's experiences changing schools and homes were (surprisingly) only weakly related. Indeed, it seems that the disruptions associated with being a new student intrude on children's bonds with teachers in a way that is unique from those occasioned by just being poor.

These findings are concerning because teacher–child relationships are protective for children who start school with fewer of the skills important for academic success. Two studies found that low-SES children with positive relationships with kindergarten teachers had better math outcomes in the same year and the following year compared to their peers with less positive relationships with their teachers in urban (McCormick et al. 2013) and non-urban (Blair and McKinnon 2016) samples. The buffering effect of these relationships in the non-urban sample was even greater among children with lower math skills (Blair and McKinnon 2016). Future research may focus on the ways in which improving relationships between children

and teachers in early elementary school provides children from low-SES families – particularly those who change schools frequently – support to improve school outcomes.

Teacher–child conflict and school mobility

Counter to our hypothesis, frequent school mobility was not related to children's conflict with teachers. Though unexpected, the current findings are consistent with prior research suggesting that the *ways* in which children develop conflictual and close relationships are different. The skills children use to develop close relationships with teachers may be different than those used to avoid conflict with teachers, and these skills may be differently affected by the experience of changing schools and other poverty-related risks. Prior research suggests that conflict is more stable over time than closeness (Jerome, Hamre, and Pianta 2008; McKinnon 2017; Silver et al. 2005). This has led to conclusions that closeness reflects unique relationships between children and each teacher from grade to grade, whereas conflict with teachers may be driven to a greater extent by such characteristics on the part of the child as behavior problems, lower executive functions, and difficult temperaments. (McKinnon 2017; Rudasill et al. 2010; Spilt and Koomen 2009). Therefore, although frequent school moves may disrupt the personal interactions between children, this may not be captured by the measure of conflict.

Limitations and future directions

The current findings should be interpreted within the context of a number of limitations. First, though we were able to identify whether children changed schools between one school year and the next, we do not know the reason behind the school changes. As we mentioned previously, parents may have initiated children's moves from one school to another based on their dissatisfaction. During the time of the study, CPS had a policy of allowing parent-initiated school changes when enrollment was accepted at another school (CPS 2008). The findings may not generalize to other low-income, at-risk urban districts with different choice policies. We also do not know the timing of each school move in terms of whether it occurred during the school year or between school years. In addition, we can identify only whether or not a child moved from one year to the next. The data do not allow us to discern if a child moved multiple times during any one year. Yet, multiple moves during one year are certainly plausible, and therefore our findings may be conservative estimates of the role of frequent school mobility. Next, we do not know the homelessness status of children in our sample, and homeless children tend to experience more school moves (Buckner, Bassuk, and Weinreb 2001). Just under 4% of CPS students in 2011 were identified as homeless (CPS 2017b; Chicago Teachers Union 2012). Therefore, homeless children were likely included in our sample (albeit in a small number), and the number of school changes is more likely to have been underestimated for this group. Additionally, homeless children may be more likely to comprise the frequent school mobility group, suggesting that this is an important area for future research.

Third, these findings allow for only limited causal inference. Although there were no differences on observed characteristics at baseline between children who frequently moved schools and those who did not, there may have been differences on unobserved child

characteristics that could have biased our estimates. We alleviated these concerns somewhat by controlling for observed child and family characteristics.

Relatedly, the teacher–child relationship is a dyadic (and dynamic) construct, and, although our study focuses primarily on contributions children bring to the relationship, we recognize that teachers shape the relationships with their own host of individual characteristics, such as teaching style, work-related stress, and self-regulation (Hamre et al. 2014; Howes et al. 2013; Mantzicopoulos 2005; Mashburn et al. 2006; Swanson et al. 2015; Yoon 2002). As mentioned above, the greater variability in closeness, compared to conflict, may be a result of teachers' characteristics. Future research should consider the role of teacher and/or school characteristics in the relation between school mobility and teacher–child relationships.

Finally, there is evidence from prior research that school moves (as well as residential moves) may be beneficial for some children under certain circumstances, including when the move results in improved school or neighborhood quality (Kling, Liebman, and Katz 2007; Roy, McCoy, and Raver 2014; Temple and Reynolds 1999). School moves might be beneficial if parents purposefully seek out higher quality schools or schools in better neighborhoods. Higher quality schools might be better equipped in ways that allow teachers to take additional time to develop relationships with new students or provide students with resources and practices that aid in the transition to a new school (Rumberger 2003).

On one hand, some research suggests that changes that involve moving into a higher quality school are beneficial for children's academic skills (Temple and Reynolds 1999), while on the other hand, Grigg (2012) suggests that any school move may have negative effects on children. We did not examine school quality in the current study, but, as the cited examples did not address teacher child-relationships, future research is needed to better understand the condition under which school moves may have a positive effect for children's relationships with their teachers.

Conclusions

School mobility is a common occurrence for many children (Rumberger 2003; Xu, Hannaway, and D'Souza 2009), especially for those growing up in poverty (Burkam, Lee, and Dwyer 2009), who simultaneously experience other poverty-related risks (Evans and English 2002; Evans 2004). The results of the current study indicate that 10% of poor children experience frequent school changes and suggest that children who change schools frequently are at-risk for developing less close relationships with their teachers, even after accounting for other poverty-related risks. As high-quality relationships with teachers are important for children's cognitive and social- emotional development (Pianta, Hamre, and Stuhlman 2003; Pianta and Stuhlman 2004), efforts are needed to help prevent these children from developing lower-quality relationships with their teachers. Interventions that help children to remain in their current schools (when desired) can help support children's formation of high-quality relationships with their teachers. The McKinney-Vento Act was reenacted as part of No Child Left Behind in 2001 and allowed children who became homeless to remain in their last enrolled school, or move to a new school based on parental preference (Julianelle and Foscarinis 2003). The Every Student Succeeds Act of 2015

strengthened school stability policies to prioritize attendance in homeless children's schools of origin (Julianelle 2017). Policies like these can reduce the number of times a child changes schools within a school district, especially in large urban districts. Likewise, for school moves that are a result of parents' dissatisfaction with their current schools, interventions to improve parent engagement decrease the likelihood that children most at-risk for changing schools will do so (Fiel, Haskins, and Turley 2013).

However, not all school changes can be prevented; therefore, districts, schools, and teachers need training and resources to provide children who do change schools (especially in the case of chronic school changes) with supports to fully integrate them into the classroom, no matter the time of the year. Developing intake procedures for teachers to assess and familiarize themselves with new students might help teachers better understand children's current needs and past academic histories (Beck, Kratzer, and Isken 1997). Schools can also provide transition activities for children to help them feel more comfortable in their new schools and classrooms (Jason and Bogat 1984; Jason et al. 1989).

The current paper is a first step at describing the association between changing schools and other poverty-related risks and children's development of relationships with their teachers early in their schooling. However, additional research is needed to fully understand how changing schools and other experiences associated with growing up in poverty contribute to the development of the teacher–child relationship, including unpacking the mechanisms for these relationships and better understanding the role of teacher and school characteristics. In light of the current achievement gap between low-SES children and their more advantaged peers, understanding how to support low-SES children's development of high-quality relationships with their teachers may be one way to improve children's learning and achievement.

Funding

This work was supported by New York University's Institute of Human Development and Social Change, as well as by the Institute of Education Sciences, U.S. Department of Education, through Grant R305B080019 and Grant R305B140035. The project described was also supported by Award R01HD046160 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development. The opinions expressed are those of the authors and do not represent the views of the Institute or the U.S. Department of Education, the Eunice Kennedy Shriver National Institute of Child Health and Human Development, or the National Institutes of Health.

Notes on contributors

Dr. Rachel D. McKinnon is currently a Congressional Policy Fellow for the American Association for the Advancement of Science and the Society for Research on Child Development. Much of the work included in this study was completed while she was a graduate student at New York University. Her research interests include understanding childhood development of self-regulation as a school readiness skill, particularly among children from low-income families.

Dr. Allison Friedman-Krauss is an Assistant Research Professor at the National Institute for Early Education Research at Rutgers, The State University of New Jersey. Much of the work included in this study was completed while she was a graduate student at New York

University. Her research interests include evaluating early childhood education programs and interventions, state preschool policy, and cognitive and social-emotional development and health of children growing up in poverty.

Dr. Amanda L. Roy is an Assistant Professor of Community and Prevention Research in the Psychology Department at the University of Illinois at Chicago. Her research explores the ways in which environmental risks and protective factors shape individual health and development.

Dr. C. Cybele Raver is Deputy Provost at New York University. She provides University-wide leadership for strengthening NYU's position among top-tier Research I institutions of higher education. Dr. Raver's own program of research focuses on early learning and development in the contexts of poverty and policy. She also examines the mechanisms that support children's cognitive and emotional outcomes in the context of early educational intervention.

References

Adams G, and Rohacek M 2010 Child Care Instability: Definitions, Context, and Policy Implications. Washington, DC: Urban Institute.

Arbeau KA, Coplan RJ, and Weeks M 2010 "Shyness, Teacher-Child Relationships, and Socio-Emotional Adjustment in Grade 1." International Journal of Behavioral Development 34: 259–269. doi:10.1177/0165025409350959.

Beck LG, Kratzer CC, and Isken JA 1997 "Caring for Transient Students in One Urban Elementary School." Journal for a Just and Caring Education 3: 343–369.

Birch SH, and Ladd GW 1997 "The Teacher-Child Relationship and Children's Early School Adjustment." Journal of School Psychology 35: 61–79. doi:10.1016/S0022-4405(96)00029-5.

Blair C, McKinnon RD, and Family Life Project Investigators. 2016 "Moderating Effects of Executive Functions and the Teacher–Child Relationship on the Development of Mathematics Ability in Kindergarten." Learning and Instruction 41: 85–93. doi:10.1016/j.learninstruc.2015.10.001. [PubMed: 28154471]

Blane D 1985 "A Longitudinal Study of Children's School Mobility and Attainment in Mathematics." Educational Studies in Mathematics 16: 127–142. doi:10.1007/PL00020736.

Brock LL, and Curby TW 2014 "Emotional Support Consistency and Teacher-Child Relationships Forecast Social Competence and Problem Behaviors in Prekindergarten and Kindergarten." Early Education and Development 25: 661–680. doi:10.1080/10409289.2014.866020.

Bronfenbrenner U 1977 "Toward an Experimental Ecology of Human Development." American Psychologist 32: 513–531. doi:10.1037/0003-066X.32.7.513.

Buckner JC, Bassuk EL, and Weinreb LF 2001 "Predictors of Academic Achievement among Homeless and Low-Income Housed Children." Journal of School Psychology 39: 45–69. doi:10.1016/S0022-4405(00)00059-5.

Burkam DT, Lee VE, and Dwyer J 2009 "School Mobility in the Early Elementary Grades: Frequency and Impact From Nationally Representative Data" Prepared for the workshop on the impact of mobility and change on the lives of young children, schools, and neighborhoods, Washington, DC, 6 29.

Buyse E, Verschueren K, Doumen S, Van Damme J, and Maes F 2008 "Classroom Problem Behavior and Teacher-Child Relationships in Kindergarten: The Moderating Role of Classroom Climate." Journal of School Psychology 46: 367–391. doi:10.1016/j.jsp.2007.06.009. [PubMed: 19083364]

Cadima J, Doumen S, Verschueren K, and Buyse E 2015 "Child Engagement in the Transition to School: Contributions of Self-Regulation, Teacher–Child Relationships and Classroom Climate." Early Childhood Research Quarterly 32: 1–12. doi:10.1016/j.ecresq.2015.01.008.

Carson DC, Esbensen FA, and Taylor TJ 2013 “A Longitudinal Analysis of the Relationship Between School Victimization and Student Mobility.” Youth Violence and Juvenile Justice 11: 275–295.

Chicago Public Schools 2008 Chicago Board of Education Report: 08–0827–P02.

Chicago Public Schools 2017a CPS Stats and Facts. http://cps.edu/About_CPS/At-a-glance/Pages/Stats_and_facts.aspx.

Chicago Public Schools 2017b School Data. http://cps.edu/SchoolData/Pages/SchoolData.aspx.

Chicago Teachers Union 2012 The Schools Chicago’s Students Deserve: Research-Based Proposals to Strengthen Elementary and Secondary Education in the Chicago Public Schools. Chicago, IL: Publicity Works.

Collins BA, O’Connor EE, and Supplee L 2017 “Behavior Problems in Elementary School among Low-Income Boys: The Role of Teacher–Child Relationships.” The Journal of Educational Research 110: 72–84. doi:10.1080/00220671.2015.1039113. [PubMed: 29170565]

Crosnoe R, Morrison F, Burchinal M, Pianta R, Keating D, Friedman SL, and Clarke-Stewart KA 2010 “Instruction, Teacher–Student Relations, and Math Achievement Trajectories in Elementary School.” Journal of Educational Psychology 102: 407–417. doi:10.1037/a0017762. [PubMed: 20657743]

Diamond A, and Taylor C 1996 “Development of an Aspect of Executive Control: Development of the Abilities to Remember What I Said and to Do as I Say, Not as I Do.” Developmental Psychobiology 29: 315–334. doi:10.1002/(SICI)1098-2302(199605)29:4<315::AID-DEV2>3.0.CO;2-T. [PubMed: 8732806]

Downer JT, Sabol TJ, and Hamre B 2010 “Teacher–Child Interactions in the Classroom: Toward a Theory of Within- and Cross-Domain Links to Children’s Developmental Outcomes.” Early Education and Development 21: 699–723. doi:10.1080/10409289.2010.497453.

Entwisle DR, and Alexander KL 1998 “Facilitating the Transition to First Grade: The Nature of Transition and Research on Factors Affecting It.” The Elementary School Journal 98 (4): 351–364.

Evans GW 2004 “The Environment of Childhood Poverty.” American Psychologist 59: 77–92. doi:10.1037/0003-066X.59.2.77. [PubMed: 14992634]

Evans GW, and English K 2002 “The Environment of Poverty: Multiple Stressor Exposure, Psychophysiological Stress, and Socioemotional Adjustment.” Child Development 73: 1238–1248. doi:10.1111/1467-8624.00469. [PubMed: 12146745]

Evans GW, Gonnella C, Marcynyszyn LA, Gentile L, and Salpekar N 2005 “The Role of Chaos in Poverty and Children’s Socioemotional Adjustment.” Psychological Science 16: 560–565. doi:10.1111/j.0956-7976.2005.01575.x. [PubMed: 16008790]

Fantuzzo JW, LeBoeuf WA, Chen C, Rouse HL, and Culhane DP 2012 “The Unique and Combined Effects of Homelessness and School Mobility on the Educational Outcomes of Young Children.” Educational Researcher 41: 393–402. doi:10.3102/0013189X12468210.

Fiel JE, Haskins AR, and Turley RNL 2013 “Reducing School Mobility: A Randomized Trial of a Relationship-Building Intervention.” American Educational Research Journal 50: 1188–1218. doi:10.3102/0002831213499962. [PubMed: 25346541]

Friedman-Krauss AH, and Raver CC 2015 “Does School Mobility Place Elementary School Children at Risk for Lower Math Achievement? The Mediating Role of Cognitive Dysregulation.” Developmental Psychology 51: 1725–1739. doi:10.1037/a0039795. [PubMed: 26436870]

Government Accountability Office 1994 Elementary School Children: Many Change Schools Frequently, Harming Their Education. No. GAO/HEHS-94–95. Gaithersburg, MD: Government Accountability Office.

Government Accountability Office 2010 K-12 Education: Many Challenges Arise in Educating Students Who Change Schools Frequently. No. GAO-11–40. Washington, DC: Government Accountability Office.

Grigg J 2012 “School Enrollment Changes and Student Achievement Growth: A Case Study in Educational Disruption and Continuity.” Sociology of Education 85 (4): 388–404. doi:10.1177/0038040712441374.

Gruman DH, Harachi TW, Abbott RD, Catalano RF, and Fleming CB 2008 “Longitudinal Effects of Student Mobility on Three Dimensions of Elementary School Engagement.” Child Development 79: 1833–1852. doi:10.1111/j.1467-8624.2008.01229.x. [PubMed: 19037953]

Hamre BK, Hatfield B, Pianta R, and Jamil F 2014 “Evidence for General and Domain- Specific Elements of Teacher-Child Interactions: Associations with Preschool Children’s Development.” Child Development 85: 1257–1274. doi:10.1111/cdev.12184. [PubMed: 24255933]

Hamre BK, and Pianta RC 2001 “Early Teacher–Child Relationships and the Trajectory of Children’s School Outcomes Through Eighth Grade.” Child Development 72: 625–638. doi:10.1111/1467-8624.00301. [PubMed: 11333089]

Howes C, Fuligni AS, Hong SS, Huang YD, and Lara-Cinisomo S 2013 “The Preschool Instructional Context and Child–Teacher Relationships.” Early Education and Development 24: 273–291. doi:10.1080/10409289.2011.649664.

Hughes JN, and Kwok O 2007 “Influence of Student-Teacher and Parent-Teacher Relationships on Lower Achieving Readers” Engagement and Achievement in the Primary Grades.” Journal of Educational Psychology 99: 39–51. doi:10.1037/0022-0663.99.1.39. [PubMed: 18084625]

Jason LA, Betts D, Johnson J, Smith S, Krueckeberg S, and Cradock M 1989 “An Evaluation of an Orientation Plus Tutoring School-Based Prevention Program.” Professional School Psychology 4: 273–284. doi:10.1037/h0090591.

Jason LA, and Bogat GA 1984 “Evaluating a Preventive Orientation Program.” Journal of Social Service Research 7: 39–49. doi:10.1300/J079v07n02_03.

Jerome EM, Hamre BK, and Pianta RC 2008 “Teacher-Child Relationships From Kindergarten to Sixth Grade: Early Childhood Predictors of Teacher-Perceived Conflict and Closeness.” Social Development 18: 915–945. doi:10.1111/j.1467-9507.2008.00508.x.

Julianelle PF 2017 “The Every Student Succeeds Act of 2015: Amendments to the McKinney-Vento Act.” https://www.schoolhouseconnection.org/wp-content/uploads/2017/03/COSA-article-formatted.pdf.

Julianelle PF, and Foscarinis M 2003 “Responding to the School Mobility of Children and Youth Experiencing Homelessness: The McKinney-Vento Act and Beyond.” The Journal of Negro Education 72: 39–54. doi:10.2307/3211289.

Kling JR, Liebman JB, and Katz LF 2007 “Experimental Analysis of Neighborhood Effects.” Econometrica 75: 83–119. doi:10.1111/j.1468-0262.2007.00733.

Ladd GW, Birch SH, and Buhs ES 1999 “Children’s Social and Scholastic Lives in Kindergarten: Related Spheres of Influence?” Child Development 70: 1373–1400. doi:10.1111/1467-8624.00101. [PubMed: 10621962]

Maldonado-Carreño C, and Votruba-Drzal E 2011 “Teacher–Child Relationships and the Development of Academic and Behavioral Skills During Elementary School: A Within- and Between-Child Analysis.” Child Development 82: 601–616. doi:10.1111/j.1467-8624.2010.01533.x. [PubMed: 21410918]

Mantzicopoulos P 2005 “Conflictual Relationships Between Kindergarten Children and Their Teachers: Associations with Child and Classroom Context Variables.” Journal of School Psychology 43: 425–442. doi:10.1016/j.jsp.2005.09.004.

Mashburn AJ, Hamre BK, Downer JT, and Pianta RC 2006 “Teacher and Classroom Characteristics Associated with Teachers’ Ratings of Prekindergartners’ Relationships and Behaviors.” Journal of Psychoeducational Assessment 24: 367–380. doi:10.1177/0734282906290594.

Mashburn AJ, Pianta RC, Hamre BK, Downer JT, Barbarin OA, Bryant D, and Burchinal M 2008 “Measures of Classroom Quality in Prekindergarten and Children’s Development of Academic, Language, and Social Skills.” Child Development 79: 732–749. doi:10.1111/j.1467-8624.2008.01154.x. [PubMed: 18489424]

McCormick MP, O’Connor EE, Cappella E, and McClowry SG 2013 “Teacher–Child Relationships and Academic Achievement: A Multilevel Propensity Score Model Approach.” Journal of School Psychology 51: 611–624. doi:10.1016/j.jsp.2013.05.001. [PubMed: 24060063]

McCoy DC, and Raver CC 2014 “Household Instability and Self-Regulation among Poor Children.” Journal of Children and Poverty 20: 131–152. [PubMed: 26924923]

McKinnon RD 2017 “Executive Function and Teacher-Child Relationships From Prekindergarten to Second Grade: A Longitudinal Analysis.” Unpublished doctoral dissertation, New York University.

Mehana M, and Reynolds AJ 2004 “School Mobility and Achievement: A Meta-Analysis.” Children and Youth Services Review 26: 93–119. doi:10.1016/j.childyouth.2003.11.004.

Murray KT, and Kochanska G 2002 “Effortful Control: Factor Structure and Relation to Externalizing and Internalizing Behaviors.” Journal of Abnormal Child Psychology 30: 503–514. doi:10.1023/A. [PubMed: 12403153]

Muthén LK, and Muthén BO (1998) 2012. Mplus Users Guide. 7th ed. Los Angeles, CA: Muthén and Muthén.

O’Connor EE, Collins BA, and Supplee L 2012 “Behavior Problems in Late Childhood: The Roles of Early Maternal Attachment and Teacher–Child Relationship Trajectories.” Attachment and Human Development 14: 265–288. doi:10.1080/14616734.2012.672280. [PubMed: 22537524]

O’Connor EE, and McCartney K 2007 “Examining Teacher–Child Relationships and Achievement as Part of an Ecological Model of Development.” American Educational Research Journal 44: 340–369. doi:10.3102/0002831207302172.

Perez BF, and Romo HD 2011 “School Mobility, Social Capital, and Educational Experiences of Latino Foster Care Youth.” The Well-Being, Peer Cultures and Rights of Children 14: 27–49. doi:10.1108/S1537-4661(2011)0000014007.

Pianta RC 2001 Student–Teacher Relationship Scale-Short Form. Lutz, FL: Psychological Assessment Resources.

Pianta RC, Hamre B, and Stuhlman M 2003 “Relationships Between Teachers and Children” In Handbook of Psychology,Educational Psychology Vol. 7:, edited by W. M eynold, and G. J. Miller, 199–234. Hoboken, NJ: Wiley Online Library.

Pianta RC, and Stuhlman MW 2004 “Teacher-Child Relationships and Children’s Success in the First Years of School.” School Psychology Review 33: 444–458.

Pribesh S, and Downey DB 1999 “Why Are Residential and School Moves Associated with Poor School Performance?” Demography 36: 521–534. [PubMed: 10604079]

Raudenbush SW, and Bryk AS 2002 Hierarchical Linear Models: Applications and Data Analysis Methods. 2nd ed. Thousand Oaks, CA: Sage.

Raver CC, Jones SM, Li-Grining CP, Metzger M, Champion KM, and Sardin L 2008 “Improving Preschool Classroom Processes: Preliminary Findings From a Randomized Trial Implemented in Head Start Settings.” Early Childhood Research Quarterly 23: 10–26. doi:10.1016/j.ecresq.2007.09.001.

Raver CC, Jones SM, Li-Grining C, Zhai F, Metzger MW, and Solomon B 2009 “Targeting Children’s Behavior Problems in Preschool Classrooms: A Cluster-Randomized Controlled Trial.” Journal of Consulting and Clinical Psychology 77: 302–316. doi:10.1037/a0015302. [PubMed: 19309189]

Raver CC, Jones SM, Li-Grining C, Zhai F, Bub K, and Pressler E 2011 “CSRP’s Impact on Low-Income Preschoolers” Preacademic Skills: Self-Regulation as a Mediating Mechanism.” Child Development 82: 362–378. doi:10.1111/j.1467-8624.2010.01561.x. [PubMed: 21291447]

Raver CC, Roy AL, and Pressler E 2015 “Struggling to Stay Afloat: Dynamic Models of Poverty-Related Adversity and Child Outcomes” In Families in an Era of Increasing Inequality, edited by Amato PR, Booth A, McHale SM, and Van Hook J, 201–212. New York, NY: Springer.

Roy AL, McCoy DC, and Raver CC 2014 “Instability vs. Quality: Residential Mobility, Neighborhood Poverty, and Children’s Self-Regulation.” Developmental Psychology 50: 1891–1896. doi:10.1037/a0036984. [PubMed: 24842459]

Roy AL, and Raver CC 2014 “Are All Risks Equal? Early Experiences of Poverty-Related Risk and Children’s Functioning.” Journal of Family Psychology 28: 391–400. doi:10.1037/a0036683. [PubMed: 24749652]

Rudasill KM 2011 “Child Temperament, Teacher–Child Interactions, and Teacher–Child Relationships: A Longitudinal Investigation From First to Third Grade.” Early Childhood Research Quarterly 26: 147–156. doi:10.1016/j.ecresq.2010.07.002.

Rudasill KM, Reio TG Jr., N Stipanovic, and J. E Taylor. 2010 “A Longitudinal Study of Student–Teacher Relationship Quality, Difficult Temperament, and Risky Behavior From Childhood to Early Adolescence.” Journal of School Psychology 48: 389–412. doi:10.1016/j.jsp.2010.05.001. [PubMed: 20728689]

Rumberger RW 2003 “The Causes and Consequences of Student Mobility.” The Journal of Negro Education 72: 6–21. doi:10.2307/3211287.

Sameroff AJ, Seifer R, Baldwin A, and Baldwin C 1993 “Stability of Intelligence From Preschool to Adolescence: The Influence of Social and Family Risk Factors.” Child Development 64: 80–97. doi:10.1111/j.1467-8624.1993.tb02896.x. [PubMed: 8436039]

Sandstrom H, and Huerta S 2013 The Negative Effects of Instability on Child Development: A Research Synthesis Low-Income Working Families Discussion Paper no. 3. Washington, DC: Urban Institute.

Silver RB, Measelle JR, Armstrong JM, and Essex MJ 2005 “Trajectories of Classroom Externalizing Behavior: Contributions of Child Characteristics, Family Characteristics, and the Teacher–Child Relationship During the School Transition.” Journal of School Psychology 43: 39–60. doi:10.1016/j.jsp.2004.11.003.

Singer JD, and Willett JB 2003 Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence. London: Oxford University Press.

Singh PS, Winsper C, Wolke D, and Bryson A 2014 “School Mobility and Prospective Pathways to Psychotic-Like Symptoms in Early Adolescence: A Prospective Birth Cohort Study.” Journal of the American Academy of Child and Adolescent Psychiatry 53: 518–527.e1. doi:10.1016/j.jaac.2014.01.016. [PubMed: 24745952]

Smith-Donald R, Raver CC, Hayes T, and Richardson B 2007 “Preliminary Construct and Concurrent Validity of the Preschool Self-Regulation Assessment (PSRA) for Field-Based Research.” Early Childhood Research Quarterly 22: 173–187. doi:10.1016/j.ecresq.2007.01.002.

Spilt JL, Hughes JN, Wu J, and Kwok O 2012 “Dynamics of Teacher–Student Relationships: Stability and Change Across Elementary School and the Influence on Children’s Academic Success.” Child Development 83: 1180–1195. doi:10.1111/j.1467-8624.2012.01761.x. [PubMed: 22497209]

Spilt JL, and Koomen HM 2009 “Widening the View on Teacher-Child Relationships: Teachers” Narratives Concerning Disruptive Versus Nondisruptive Children.” School Psychology Review 38: 86–101.

Swanson J, Valiente C, Bradley RH, Lemery-Chalfant K, and Abry T 2015 “Teachers” Effortful Control and Student Functioning: Mediating and Moderating Processes.” Social Development 25: 623–645. doi:10.1111/sode.12165.

Temple JA, and Reynolds AJ 1999 “School Mobility and Achievement: Longitudinal Findings From an Urban Cohort.” Journal of School Psychology 37: 355–377. doi:10.1016/S0022-4405(99)00026-6.

Tran H, and Winsler A 2011 “Teacher and Center Stability and School Readiness among Low-Income, Ethnically Diverse Children in Subsidized, Center-Based Child Care.” Children and Youth Services Review 33: 2241–2252. doi:10.1016/j.childyouth.2011.07.008.

Department of Health U.S. and Human Services. 2003 Full National Implementation of the Head Start National Reporting System on Child Outcomes. Washington, DC: U.S. Department of Health and Human Services.

Valiente C, Lemery-Chalfant K, Swanson J, and Reiser M 2008 “Prediction of Children’s Academic Competence From Their Effortful Control, Relationships, and Classroom Participation.” Journal of Educational Psychology 100: 67–77. doi:10.1037/0022-0663.100.1.67. [PubMed: 21212831]

Valiente C, Swanson J, and Lemery-Chalfant K 2012 “Kindergartners’ Temperament, Classroom Engagement, and Student-Teacher Relationship: Moderation by Effortful Control.” Social Development 21: 558–576. doi:10.1111/j.1467-9507.2011.00640.x.

Xu Z, Hannaway J, and D’Souza S 2009 Student Transience in North Carolina: The Effect of School Mobility on Student Outcomes Using Longitudinal Data Working Paper no. 22. Washington, DC: Urban Institute.

Yoon JS 2002 “Teacher Characteristics as Predictors of Teacher-Student Relationships: Stress, Negative Affect, and Self-Efficacy.” Social Behavior and Personality: an International Journal 30: 485–493. doi:10.2224/sbp.2002.30.5.485.

Zill N 2003 Early Math Skills Test. Rockville, MD: Westat.

Table 1.

Descriptive statistics

	M/%	SD	Min	Max	N
Teacher-child relationships					
Conflict (P)	1.73	0.72	1.00	4.29	314
Conflict (K)	1.63	0.85	1.00	4.57	299
Conflict (3G)	1.84	1.00	1.00	5.00	368
Closeness (P)	4.16	0.70	1.50	5.00	314
Closeness (K)	4.20	0.70	2.00	5.00	299
Closeness (3G)	3.95	0.76	1.25	5.00	368
Poverty-related risks					
Number of school moves	1.38	0.87	0.00	4.00	368
Residential mobility	0.83	1.20	0.00	10.00	353
Single parent (P)	60				334
Single parent (K)	50				277
Single parent (3G)	51				349
Parental education risk (P)	23				334
Parental education risk (K)	22				277
Parental education risk (3G)	19				349
Income-to-needs ratio (P)	0.66	0.57	0.00	3.23	324
Income-to-needs ratio (K)	0.75	0.62	0.00	3.23	238
Income-to-needs ratio (3G)	0.89	0.84	0.00	4.06	349
Race/Ethnicity					
African American	68				368
Hispanic	24				368
Multi	4				368
Baseline covariates					
Age	4.20	0.69	3.00	5.00	304
Dysregulation	−0.07	0.74	−2.75	1.97	305
Early language	0.44	0.16	0.00	0.87	307
Early math score	0.40	0.20	0.00	0.84	307

Note: P = preschool; K = kindergarten; 3G = third grade.

Table 2.

Correlations between teacher-child relationships, school mobility, and poverty-related risks

1	2	3	4	5	6	7	8	9	10	11	
1. Age	–.										
2. Conflict preschool	−.06	–									
3. Conflict kindergarten	.04	.37***	–								
4. Conflict 3rd grade	−.12**	.37***	.24***	–							
5. Closeness preschool	.04	−.10	−.11	−.07	–						
6. Closeness kindergarten	.04	−.04	−.34***	−.04	.24***	–					
7. Closeness 3rd grade	.07	−.10	−.07	−.30***	.06	.13**	–				
8. Number of school moves	−.07	.11**	−.01	.07	−.04	−.08	−.07	–			
9. Residential mobility	−.02	.08	.07	.13**	.01	−.01	−.16**	.16**	–		
10. Income-to-needs ratio	−.02	.00	−.18**	−.07	.07	.07	.05	.02	−.08	–	
11. Parental ed. risk	.00	−.06	−.08	−.01	−.11	−.12	−.15**	.09	−.01	−.26***	–
12. Single parent	.00	.02	.03	−.01	.06	−.04	.07	.03	.05	−.27***	.02

Note: Income-to-needs ratio, parental education risk, and single parent at third grade.

** $p < .01$

*** $p < .001$.

Table 3

Closeness growth curve estimates with school mobility and povertyrelated risks as predictors.

	School mobility intercept effects		School mobility slope effects		Poverty-related risks intercept effects		Poverty-related risks slope effects	
	Est.	**SE**	**Est.**	**SE**	**Est.**	**SE**	**Est.**	**SE**
Intercept effects								
Intercept (3G)	3.78***	0.09	3.84***	0.13	3.81***	0.10	3.87***	0.12
Frequent school mobility	−0.17*	0.07	−0.38**	0.14	−0.17*	0.07	−0.34*	0.14
Residential mobility				−0.09**	0.03	−0.08**	0.03	
Age	−0.02	0.08	−0.02	0.08	−0.01	0.08	−0.02	0.08
Female	0.19**	0.06	0.18*	0.09	0.20**	0.06	0.18*	0.09
African American	0.13*	0.06	0.14	0.09	0.10	0.06	0.10	0.09
Early language	0.52†	0.30	0.59†	0.31	0.56†	0.29	0.64*	0.30
Early math score	0.23	0.32	0.20	0.32	0.13	0.31	0.13	0.31
Dysregulation	−0.05	0.07	−0.05	0.07	−0.05	0.06	−0.05	0.06
Time variant								
Income-to-needs (P)				−0.28**	0.09	−0.01	0.07	
Parental ed. risk (P)				0.13	0.22	−0.09	0.09	
Single parent (P)				−0.14	0.17	0.02	0.08	
Income-to-needs (K)				−0.10	0.08	0.08	0.08	
Parental ed. risk (K)				0.19	0.15	−0.03	0.11	
Single parent (K)				−0.07	0.13	0.07	0.07	
Income-to-needs (3G)				0.03	0.05	0.04	0.05	
Parental ed. risks (3G)				−0.28*	0.11	−0.26*	0.11	
Single parent (3G)				0.09	0.08	0.09	0.08	
Slope effects								
Slope	−0.06***	0.02	−0.03	0.04	−0.07*	0.03	−0.02	0.04
Frequent school mobility		−0.10*	0.05		−0.08†	0.05		
Residential mobility					−0.03**	0.01		
Variances								
Slope	0.01	<0.01	0.01	0.01	0.01*	0.01	0.01	0.01
Intercept	0.01	0.02	0.12	0.14	0.01	0.02	0.11	0.14

Note: P = Preschool; K = Kindergarten; 3G = Third grade; Additional time invariant control variables (intercept effects) include site-level treatment status, cohort, and an indicator for whether the child changed schools between preschool and kindergarten. Additional control variables predicting the slope include age, female, African American race, a flag for whether the child changed schools between preschool and kindergarten, early language, early math, and early dysregulation. This data is not shown for reasons of brevity but is available from the first author upon request.

† $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$.

Table 4.

Conflict growth curve estimates with school mobility and poverty-related risks as predictors.

	School mobility intercept effects		Poverty-related risks intercept effects	
	Est.	**SE**	**Est.**	**SE**
Intercept effects				
Intercept	1.57***	0.13	1.63***	0.14
Age	−0.01	0.07	−0.01	0.07
Female	−0.20**	0.07	−0.19**	0.07
African American	0.25**	0.09	0.24**	0.09
Early language	0.39	0.31	0.37	0.31
Early math score	−0.49†	0.27	−0.48†	0.28
Dysregulation	0.05	0.06	0.05	0.07
Frequent school mobility	0.16	0.11	0.15	0.11
Residential mobility			0.03	0.02
Slope	0.03*	0.01	0.06**	0.02
Time variant				
Income-to-needs (PK)			0.08	0.07
Parental ed. risk (PK)			0.10	0.09
Single parent (PK)			0.13†	0.07
Income-to-needs (K)			−0.08	0.07
Parental ed. risk (K)			−0.11	0.11
Single parent (K)			−0.07	0.08
Income-to-needs (3G)			−0.07	0.06
Parental ed. risk (3G)			−0.01	0.12
Single parent (3G)			−0.07	0.12
Residual variance	0.20***	0.03	0.19***	0.03

Note: PK = prekindergarten; K = preschool; 3G = third grade; Additional time invariant control variables (intercept effects) also include site-level treatment status, cohort, and an indicator for whether the child changed schools between pre-K and kindergarten. This data is not shown for reasons of brevity parsimony but is available from the first author upon request.

† $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$.