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Attachment and Learning in K–12 Education: A Review of the Research

Bjorn, Genevive (Higher Learning Lab)

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Introduction

Every school day, millions of children walk into classrooms carrying relational histories that shape how they learn. For most, those histories include a reliably available caregiver, and the classroom is one more setting in which to explore, make mistakes, and recover. For a substantial minority, the picture is different. In federal fiscal year 2023, child protective services agencies in the United States substantiated maltreatment for 546,159 children, a rate of 7.4 victims per 1,000 children (Children's Bureau, 2025). On September 30, 2025, preliminary federal data counted 331,747 children in foster care (Children's Bureau, 2026). In fall 2021, 5.3 million students, or 10.6 percent of public school enrollment, were English learners, many of them navigating a new language, a new culture, and in some cases family separation (National Center for Education Statistics, 2024). Add children living with poverty-related stress, students with disabilities, and first-generation students whose families cannot translate the hidden curriculum of school, and the population for whom the relational climate of the classroom is a precondition for learning becomes large.

Attachment theory offers one of the most developed frameworks for understanding why relationships matter for learning. It proposes that children build expectations about the availability of caregivers from repeated experience, that those expectations organize how they regulate stress and explore their environments, and that a trusted adult functions as a "secure base" from which exploration, including intellectual exploration, becomes possible. Over three decades, researchers have asked whether teachers can serve this function, whether teacher–student relationship quality predicts engagement and achievement, through what mechanisms, and whether schools can deliberately strengthen those relationships. The result is a large and uneven body of evidence: meta-analyses pooling hundreds of studies, a growing set of randomized trials, long-running longitudinal cohorts, and a sprawling practice literature in which claims sometimes outrun data.

This review synthesizes that evidence for practitioners who work with vulnerable K–12 students. It is organized around a simple appraisal

question that Higher Learning Lab applies to every claim it reviews: Does the evidence support the claim, by what reasoning, and how robust is that evidence? Throughout, we distinguish meta-analytic and experimental findings from correlational ones, report effect sizes only where we have read them in the source, and flag where popular claims about "attachment-aware" or "relationship-based" practice rest on thin or methodologically weak studies. The emphasis on peer-reviewed work from roughly the last decade is deliberate; a small number of foundational and official sources are included where they anchor the field or supply prevalence data.

Three conclusions will emerge. First, the association between affective teacher–student relationship quality and students' engagement is consistent and moderate in size, while the association with measured achievement is smaller and partly indirect. Second, the evidence that attachment insecurity and maltreatment histories compromise the regulatory and attentional capacities on which school learning depends is strong, and it points toward the relational quality of classrooms as a plausible lever. Third, interventions that train teachers in specific, proactive relationship practices have produced credible effects in randomized trials, but whole-school "attachment-aware" and trauma-informed models remain far ahead of their evidence base. Each of these conclusions carries practical implications, which we develop in the final sections.

Foundations: Attachment Theory in the Classroom

Secure base, safe haven, and internal working models

Attachment theory originated in John Bowlby's account of the infant–caregiver bond and Mary Ainsworth's observational classification of attachment patterns. Its core propositions are that children form an attachment behavioral system that is activated by distress and deactivated by the perceived availability of a caregiver; that a caregiver who is sensitive to the child's signals provides both a safe haven (comfort when distressed) and a secure base (support for exploration when calm); and that children internalize these experiences as "internal working models," generalized expectations about whether others will be available and whether the self is worthy of care. These models are hypothesized to guide behavior in new relationships, including at school.

The link to learning runs through exploration and regulation. A child who expects adults to be available can tolerate uncertainty, attend to

a task rather than to threat, seek help when stuck, and recover from frustration. A child whose working model predicts rejection may spend attention on vigilance, avoid help-seeking, or escalate conflict. Bergin and Bergin (2009), in a widely cited review that remains the standard introduction for educators, summarized evidence that securely attached students tend to have higher grades and test scores than insecurely attached students, that security is also linked to better emotion regulation, social competence, and willingness to take on challenges, each of which is in turn associated with achievement, and that these effects are stronger for high-risk students. They argued that strengthening teacher–student relationships is fundamental to raising achievement rather than an optional extra, and offered a set of concrete suggestions for doing so.

The teacher as an ad hoc attachment figure

Can a teacher be an attachment figure? The most careful treatment comes from the Leuven and Amsterdam research groups led by Karine Verschueren and Helma Koomen. Introducing a special issue on the topic, Verschueren and Koomen (2012) contended that the teacher can be regarded as an ad hoc attachment figure with safe haven and secure base functions, while cautioning that for most children the relationship with the teacher is probably not an attachment bond in the full sense. Attachment bonds are selective, enduring, and organized around a specific person; teacher–student relationships are shorter, less exclusive, and embedded in a group. What the attachment perspective contributes is a template: it specifies which dimensions of relationship quality should matter (closeness, conflict, and dependency), identifies teacher sensitivity as the central proximal determinant of quality, and generates hypotheses about mechanisms and interventions.

Verschueren (2015) noted that attachment-based teacher–child relationship research had concentrated on early childhood and that the years from roughly age 6 to 12 were understudied. A systematic review of 24 studies published between 2010 and 2020 concluded that early care experiences influence the formation of new relationships at primary school, that teachers' own attachment styles and availability relate to children's school adjustment, and that teacher–student relationship quality is associated with externalizing and internalizing behavior, school liking, peer acceptance, academic performance, self-concept, and emotion regulation (García-Rodríguez et al., 2023). The same review documented that the teacher-report Student–Teacher Relationship Scale (STRS) remains the dominant measurement tool, with student-report instruments emerging more recently.

Spilt et al. (2022), in a practitioner review, compared the theoretical lenses applied to dyadic teacher–child relationships: the attachment perspective is the most widely used in psychological research, self-determination theory is well established, and interpersonal theory, used extensively for teacher–class interactions, has been largely overlooked at the dyadic level. Their recommendations converge on teacher sensitivity, relationship-based communication, and flexibility in interpersonal behavior.

Attachment to the teacher versus attachment to school

Two related constructs are easily conflated. The first is the dyadic relationship between a student and a particular teacher, operationalized in attachment-informed research with the STRS dimensions of closeness, conflict, and dependency (Koomen et al., 2012). The second is school belonging or connectedness, a student's sense of being accepted, respected, and included in the school as an institution: a group-level appraisal rather than a dyadic bond, typically measured by student self-report, with its own meta-analytic literature (reviewed below). The two are related, since teacher support is among the strongest correlates of belonging (Allen et al., 2018), but interventions that target one will not automatically move the other.

Attachment versus the broader teacher–student relationship construct

A third distinction separates an attachment perspective from the broader umbrella of teacher–student relationship (TSR) research. Much TSR research draws on motivational theories (support for autonomy, competence, and relatedness), on interpersonal theory, or on observational frameworks such as the Classroom Assessment Scoring System, which rates emotional support, classroom organization, and instructional support at the classroom level. These frameworks overlap with but are not reducible to attachment constructs. The meta-analyses summarized below pool studies using a variety of measures, and their findings are best read as evidence about affective relationship quality broadly rather than attachment bonds narrowly. This is the single most common place where popular summaries overstate what the research shows.

Dependency: the neglected third dimension

Closeness and conflict have received most of the attention, but the attachment perspective also identifies dependency, the child's excessive reliance on the teacher and failure to explore

autonomously. Verschueren and Koomen (2021) argued that dependency should be understood as a relational construct rather than a stable child trait. A meta-analysis of 28 studies with 7,849 students from preschool through upper elementary school found that dependency was negatively associated with engagement, achievement, and prosocial behavior (small to medium effects) and positively associated with externalizing behavior (medium) and internalizing behavior (medium to large), with the significant moderator analyses consistent with an academic risk hypothesis in which associations were stronger for at-risk students (Roorda et al., 2021). For practitioners working with anxious or clingy children, a secure base is one that supports exploration, not one that substitutes for it.

Teacher–Student Relationships and Academic Outcomes: The Meta-Analytic Evidence

The Roorda meta-analyses

The reference point is a pair of meta-analyses from the University of Amsterdam. Roorda et al. (2011) synthesized 99 studies spanning preschool through high school and found that positive relationship qualities were associated with engagement at medium-to-large magnitudes and with achievement at small-to-medium magnitudes, with corresponding negative associations for negative relationship qualities. Effects were generally stronger in higher grades, although the effects of negative relationships were stronger in primary than in secondary school.

Roorda et al. (2017) updated the sample to 189 studies and 249,198 students and applied meta-analytic structural equation modeling to test whether engagement mediates the link between relationships and achievement. The pooled correlations are the clearest available summary of the field. Positive relationships correlated with engagement at .35 and with achievement at .17; negative relationships correlated with engagement at −.28 and with achievement at −.16; engagement correlated with achievement at .28. In the structural model, the direct path from positive relationships to engagement was .29 and from negative relationships to engagement was −.19, while the direct paths to achievement were small (.07 and −.07) and the indirect paths through engagement were of similar size (.07 and −.05). Engagement therefore partially, not fully, mediated the relationship–achievement link, and in the longitudinal subsample

of 52 studies all direct effects remained significant. The pattern held in both primary and secondary school studies, and the pooled correlation between positive relationships and engagement was stronger in secondary (.38) than in primary (.30) school. The model explained 13 percent of the variance in engagement and 9 percent of the variance in achievement in primary studies, and 18 percent and 9 percent respectively in secondary studies.

Two features deserve emphasis under a claim–evidence–reasoning lens. First, the relationship–achievement association is modest; a pooled correlation of .17 means relationship quality accounts for a small share of variance in grades and test scores. Second, in the longitudinal subsample the direct effect of negative relationships on engagement (−.23) was somewhat stronger than that of positive relationships (.16). This matters because longitudinal designs rule out some, though not all, alternative explanations for cross-sectional associations.

Convergent meta-analyses

Other syntheses corroborate the pattern. Lei et al. (2016) meta-analyzed 57 studies with 73,933 students on affective teacher–student relationships and externalizing behavior problems. Positive relationship indicators correlated with externalizing problems at −.26 and negative indicators at .55, with the latter association notably larger. Culture, age, gender, and informant moderated the effects; the negative correlation between positive relationship indicators and externalizing problems was stronger among Western than Eastern students, in the lower primary grades, and when behavior was rated by teachers or parents rather than students or peers. Lei et al. (2018) examined teacher support and academic emotions across 65 studies with 58,368 students and found correlations of .34 with positive academic emotions and −.22 with negative academic emotions.

A three-level meta-analysis of 74 studies and 233,961 students in China reported an overall correlation of .26 between teacher–student relationship quality and academic achievement, with stronger associations in senior high school (.35) than junior high (.25) or primary school (.22) (Lei et al., 2023). Tao et al. (2022) meta-analyzed 71 articles on perceived teacher support and achievement and found a correlation of .16, with larger associations for upper-secondary students, for course grades than for standardized tests, and for emotional support than for autonomy or academic support; student engagement partially mediated the association. These findings match Roorda et al.'s conclusion that relationship effects on

engagement exceed those on achievement and that relationships do not matter less in adolescence.

Endedijk et al. (2022) extended the frame to peer relationships. Pooling 297 studies and 1,475 effect sizes, they found that negative aspects of the teacher–student relationship were the strongest predictors of students' peer relationships and that relationship quality partially mediated the association between student behavior and peer standing. The authors infer that preventing or reducing conflict with students who have behavioral difficulties can improve classroom peer relationships.

Systematic reviews of longitudinal evidence

Quin (2017) systematically reviewed 46 published studies (13 longitudinal) on teacher–student relationships and adolescent engagement, finding associations across psychological engagement, grades, attendance, disruptive behavior, suspension, and dropout that held after controlling for individual, family, school, and teacher covariates. Di Lisio et al. (2025) reviewed 37 longitudinal studies from an explicitly attachment-informed perspective and reported significant associations between relationship quality and engagement over time, with smaller effects on achievement, and with students from low socioeconomic backgrounds, minority backgrounds, and those with mental health difficulties experiencing poorer relationships that in turn predicted poorer academic outcomes.

Moderators: age, risk status, and background

Three moderator findings matter for practitioners serving vulnerable students. First, relationship effects persist and may strengthen in secondary school, contradicting the assumption that adolescents have outgrown adult support (Roorda et al., 2011, 2017; Lei et al., 2023; Tao et al., 2022). Second, the academic risk hypothesis, which predicts stronger associations for students already at risk, receives support in the dependency meta-analysis (Roorda et al., 2021) and in longitudinal reviews (Di Lisio et al., 2025). Third, students from low-SES and minority backgrounds are at elevated risk of poorer relationships in the first place. A Dutch longitudinal study of 1,566 primary students found that low-SES and non-Western ethnic minority students had more conflict-laden and less close relationships with their teachers; for low-SES students, this was partly explained by observed dyadic interactions that were more negative and less positive, with negative interactions carrying more weight than positive ones (van Vemde et al., 2026). In the United States, a follow-up to a large longitudinal study of 657 academically

at-risk children found that African American ethnicity, but not IQ or SES, uniquely predicted atypical trajectories of increasing teacher–student conflict across elementary school, trajectories previously shown to forecast underachievement (Spilt & Hughes, 2015). The implication is uncomfortable: the students for whom a positive teacher relationship is most protective are, on average, the least likely to have one.

What the correlational evidence cannot establish

The meta-analytic literature is overwhelmingly correlational. Even longitudinal designs that control for prior achievement are vulnerable to reverse causation (teachers may feel closer to students who are doing well) and to confounding by child characteristics. Several rigorous studies illustrate the problem. Using cross-lagged panel models with a national sample of 1,133 children, Hajovsky et al. (2017) found that prior math achievement predicted subsequent teacher-rated closeness and conflict, but that closeness and conflict did not predict subsequent achievement once prior achievement was controlled. A more recent analysis of the Early Childhood Longitudinal Study Kindergarten Cohort of 2010–2011 using dual change score models likewise found that variability in relationship ratings did not predict latent changes in reading or mathematics achievement, nor the reverse (Hajovsky & Chesnut, 2025). By contrast, McCormick et al. (2013) used multilevel propensity score matching with 324 low-income Black and Hispanic kindergartners and found a significant effect of high-quality kindergarten teacher–child relationships on first-grade math achievement, though not on reading.

These mixed results constrain the inference without negating the pattern. The most defensible reading is that affective relationship quality is robustly associated with engagement and behavior; that its association with achievement is real but small, partly indirect, and possibly concentrated among at-risk students and in particular domains; and that the strongest causal evidence comes from the intervention trials reviewed below.

Mechanisms: How Relationships Reach Learning

If relationship quality influences learning, it must do so through identifiable processes. The literature points to several, with varying empirical support.

Engagement

Engagement is the best-documented mediator. Roorda et al. (2017) found partial mediation in both the full sample and the longitudinal subsample, and Tao et al. (2022) found that behavioral, cognitive, and emotional engagement each partially mediated the link between perceived teacher support and achievement. A longitudinal study of 5,382 Belgian adolescents followed from Grade 7 to Grade 9 found that teacher-reported closeness positively and conflict negatively predicted student-reported engagement, and that behavioral and emotional engagement, and disaffection in particular, predicted standardized math achievement within the same school year (Engels et al., 2021). In secondary classrooms, Ruzek et al. (2016) found that observed teacher emotional support early in the year predicted student-reported increases in behavioral engagement and mastery motivation across the year among 960 students aged 11 to 17 in the classrooms of 68 teachers, with the effect mediated by students' mid-year experiences of autonomy and peer relatedness, but not by competence beliefs.

Self-regulation and executive function

Attachment theory predicts that secure relationships support self-regulation, and meta-analytic evidence on parent–child attachment bears this out. Pallini et al. (2018), pooling 100 studies and 20,350 participants, found that securely attached children scored higher on effortful control than insecurely attached children (r = .20), with children classified as having organized attachments scoring higher than those with disorganized attachments (r = .17), though the latter finding may reflect publication bias. A companion meta-analysis of 62 studies found that insecurely attached children had more attention problems than securely attached children (r = .21), with the largest difference between disorganized and organized attachment (r = .27) (Pallini et al., 2019).

Whether teacher relationships specifically support executive function is a separate question. Vandenbroucke et al. (2018) meta-analyzed 28 studies (23 with sufficient data) and found that teacher–student interactions were related to general executive functioning, working memory, and inhibition, but not cognitive flexibility, with stronger associations at the beginning of elementary school, in higher-SES samples, in samples with more boys, and when interactions were measured at the dyadic rather than classroom level. In a sample of 206 socially disadvantaged preschoolers, teacher–child closeness predicted gains in observed self-regulation across the year (Cadima et al., 2016). Portilla et al. (2014) modeled bidirectional pathways in

338 ethnically diverse kindergartners and found that low self-regulation in the fall predicted more teacher–child conflict by spring, that this effect persisted into first grade, and that conflict and low self-regulation jointly predicted decreases in engagement that in turn predicted first-grade academic competence. The process is transactional: dysregulated children elicit conflict, and conflict undermines the engagement through which regulation is practiced.

A striking experimental demonstration comes from Ahnert et al. (2013), who exposed 120 kindergartners to brief computerized cognitive tasks preceded either by a photograph of their teacher or by a neutral image. Children in close teacher relationships solved problems faster when primed with the teacher's image, an effect that persisted after the transition to first grade. Accuracy was unaffected, but the finding supports the idea that the mental representation of a secure relationship can facilitate cognitive processing.

Stress physiology

A small body of research has measured children's cortisol in relation to classroom relationships. Ahnert et al. (2012) collected diurnal cortisol profiles from 105 German first graders on a Monday and a Friday and found that children in non-supportive classrooms had flatter profiles, suggesting impaired down-regulation of stress, and that children in conflict-laden relationships with their teachers were less able to down-regulate stress than children with what the authors termed proximal-balanced relationships. Oberle and Schonert-Reichl (2016), in a sample of 406 upper-elementary students, found that about 10 percent of the variance in morning cortisol lay between classrooms and that teacher burnout significantly predicted this classroom-level variability, a pattern they described as possible stress contagion. In the Banking Time randomized trial, a pilot cortisol study of 113 preschoolers found that children in the Banking Time condition showed a significantly greater decline in cortisol across the morning than children in the business-as-usual condition (Hatfield & Williford, 2017). These are small studies and cortisol is a noisy indicator, but together they offer convergent physiological support for the claim that relationships regulate stress at school.

Motivation, belonging, and academic emotions

The Lei et al. (2018) meta-analysis documented moderate correlations between teacher support and students' positive and negative academic emotions. In a sample of 534 middle school students, teachers' "developmental relationships" (combining care, challenge, support, shared power, and expanded possibilities)

strongly predicted academic motivation at the beginning and end of the year, directly predicted belonging and perceived school climate, and indirectly predicted GPA through motivation; relationship quality for low-SES students was lower and declined more across the year (Scales et al., 2020). Prewett et al. (2019) found that among 336 fifth and sixth graders, teachers' prosocial classroom behavior and social-emotional support were the strongest predictors of students' perceptions of relationship quality, both of which are malleable.

Help-seeking

A secure base should make it easier to ask for help. The developmental literature proposes that children who trust their teachers seek instrumental help (asking for hints) rather than expedient help (asking for answers) or avoiding help altogether. In a study of 1,037 fifth and sixth graders using peer nominations, teacher help was associated with higher adaptive and lower expedient help-seeking, while seeking help from higher-achieving non-friends was associated with more expedient help-seeking (Kilday & Ryan, 2023). Direct tests linking attachment-informed relationship measures to help-seeking are scarce.

Peer relationships as a conduit

Teachers also shape peer ecologies. The Endedijk et al. (2022) meta-analysis showed that teacher–student relationship quality, and especially its negative aspects, predicts how classmates view a student. Mikami et al. (2017) followed 1,084 adolescents in 65 secondary classrooms and found that perceived relatedness with classroom peers predicted increases in behavioral engagement from fall to winter and winter to spring, and that spring engagement predicted end-of-year achievement test scores controlling for prior scores. A teacher's conduct toward an individual student therefore operates partly through that student's standing among peers, consistent with Ruzek et al.'s (2016) finding that peer relatedness mediates the effect of teacher emotional support.

Attachment Insecurity, Maltreatment, and Learning

What insecure and disorganized attachment predict

The evidence that early attachment matters for school-relevant outcomes is now meta-analytic. Fearon et al. (2010), pooling 69 samples and 5,947 children, found that attachment insecurity

predicted externalizing problems (d = 0.31), with the elevated risk concentrated in disorganized attachment (d = 0.34) rather than avoidance (d = 0.12) or resistance (d = 0.11). Madigan et al. (2016), using representational and questionnaire measures in children aged 3 to 18, found that insecure attachment was associated with internalizing problems (165 studies, d = .58) and externalizing problems (116 studies, d = .49), with only disorganized attachment associated with externalizing problems. Groh et al. (2017) concluded that this program of meta-analyses supports attachment theory's claim that early attachment predicts later socioemotional adaptation, while calling for better measurement and more attention to mechanisms and moderators.

The more direct question for educators is whether attachment predicts cognitive and language development. Deneault et al. (2023) conducted a series of meta-analyses on 125 studies and 9,213 participants and found that child–mother attachment security was associated with cognitive outcomes (r = .17) and with language outcomes across 54 studies and 5,564 children (r = .16). Both associations were small to medium. In a meta-analytic structural equation model, attachment partially mediated the path from maternal sensitivity to cognition and language, although the indirect effects were small. Secure attachment, on this evidence, is one of several early experiences that support cognitive and language development, not a dominant determinant.

Taken with the self-regulation and attention meta-analyses (Pallini et al., 2018, 2019), these findings support a coherent account: insecure and especially disorganized attachment is associated with weaker effortful control, more attention problems, and more behavior problems, each of which predicts difficulty with the behavioral demands of school, and modestly with lower language and cognitive performance. A classroom that imposes high regulatory demands without relational support will amplify these disadvantages.

Maltreatment, foster care, and adoption

Maltreatment is the strongest known environmental predictor of attachment disorganization. Cyr et al. (2010) meta-analyzed 55 studies with 4,792 children and found that maltreated children were far less likely to be securely attached (d = 2.10) and far more likely to be disorganized (d = 2.19) than other high-risk children, while children exposed to five or more socioeconomic risks showed disorganization rates not significantly lower than maltreated children. Raby et al. (2019), using the Minnesota Longitudinal Study of Risk and Adaptation (N = 267), found that abuse and neglect in the

first five years of life were consistently associated with lower academic achievement and more interpersonal problems from childhood through ages 32 to 34; after controlling for demographic confounds and early sensitive caregiving, the enduring association held for social but not academic competence. Romano et al. (2015) reviewed maltreatment and educational outcomes and documented impairments in academic performance (special education placement, grade retention, lower grades) and mental health, most pronounced among children in out-of-home care, with disrupted attachment, emotion regulation, and sense of agency as plausible explanatory processes.

Children in foster care illustrate the compounding of these risks. In England, analysis of the National Pupil Database comparing 5,175 children looked after by the state, 17,392 children "in need" but not in care, and 22,567 matched peers found that children in need and children not yet in care were already about one standard deviation below the cohort average at age seven and fell further behind thereafter, while their unauthorized absences and exclusions grew; removal into care appeared to halt or greatly reduce the decline but did not, on average, reverse it (Sinclair et al., 2019). A trajectory analysis of 47,500 looked-after children found that earlier entry into care was associated with a higher probability of a high-achievement trajectory (Sutcliffe et al., 2017). A systematic review of 39 studies identified male gender, ethnic minority status, and special educational needs as consistent predictors of poor educational outcomes among children in foster or kinship care, and carers' and young people's aspirations as predictors of success (O'Higgins et al., 2017). In the United States, Pears et al. (2013) compared 93 maltreated children in foster care with 54 low-income non-maltreated peers and found that foster children had lower affective and cognitive school engagement in early elementary school, and that these dimensions of engagement mediated the association between foster status and academic competence in Grades 3 to 5. Engagement, again, is the bridge.

Can attachment be repaired, and does repair reach school? A randomized trial of the Attachment and Biobehavioral Catch-up (ABC) intervention with 100 Child Protective Services–referred families found that children whose parents received the ten-session intervention in infancy reported higher attachment security at age nine ($d = 0.49$) than children in the control condition (Zajac et al., 2020). This is a parenting intervention, but it establishes that attachment security is malleable in high-risk populations and that effects can persist into the school years.

The teacher as a compensatory figure

The most practice-relevant question is whether teacher relationships can buffer insecure attachment at home. The evidence is encouraging but limited to a handful of studies. Buyse et al. (2011) observed mother–child attachment in 127 preschoolers and then measured teacher sensitivity and teacher–child closeness in kindergarten. With high teacher–child closeness, less securely attached children were no longer at elevated risk for aggressive behavior; with high teacher sensitivity, less securely attached children were no longer at risk of forming less close relationships with their teachers. O'Connor et al. (2012), using the NICHD Study of Early Child Care and Youth Development (N = 1,140), found that insecure maternal attachment at 36 months predicted externalizing and internalizing behavior in fifth grade, and that these effects were mediated through teacher–child relationships during childhood. Magro et al. (2020), using the same cohort (N = 1,306), found that the association between early maternal sensitivity and teacher–student closeness faded from kindergarten to sixth grade, whereas the association with teacher–student conflict endured and was partially accounted for by children's externalizing problems. Early caregiving histories keep showing up in classrooms mainly through conflict, and conflict is the dimension teachers have most leverage over.

Hamre and Pianta (2005) provided a frequently cited demonstration of compensatory effects: among 910 children in a national prospective study, those identified as at risk in kindergarten who were placed in first-grade classrooms with strong instructional and emotional support had achievement scores and teacher relationships comparable to low-risk peers, while at-risk children in less supportive classrooms had lower achievement and more conflict. Hamre and Pianta (2001) had earlier shown, in a sample of 179 children followed from kindergarten to eighth grade, that kindergarten teachers' reports of relational negativity (conflict and dependency) predicted academic and behavioral outcomes through eighth grade, particularly for boys and for children with high behavior problems in kindergarten. These studies are correlational and their samples are not maltreated or foster populations specifically, but they are the empirical basis for the claim that one supportive teacher can change a trajectory.

School Belonging and Connectedness

Belonging research has its own meta-analytic base. Allen et al. (2018) synthesized 51 studies with 67,378 secondary students and identified

ten themes associated with belonging; teacher support and positive personal characteristics were the strongest predictors, and effects were generally stronger in rural than urban settings. Korpershoek et al. (2020) meta-analyzed 82 correlational studies published between 2000 and 2018 and found that school belonging had a small positive correlation with academic achievement; small to moderate positive correlations with motivational outcomes such as mastery goal orientation, with social-emotional outcomes such as self-concept and self-efficacy, and with behavioral, cognitive, and agentic engagement; and a small negative correlation with absence and dropout. Results were similar across grade level and SES but varied by measurement instrument and region.

The pattern mirrors the dyadic literature: belonging relates most strongly to engagement and motivation and only weakly to achievement. Using PISA 2015 data from 309,785 students in 52 countries, Allen et al. (2023) found support for a layered socio-ecological structure of belonging predictors and noted that PISA had tracked a decline in secondary students' sense of belonging between 2003 and 2015. Hughes and Cao (2018), following 550 academically at-risk adolescents across the transition to middle school, found that teacher-reported warmth dropped at the transition beyond age-related declines and that this drop predicted lower math scores and engagement three years later; student-reported school belonging was among the outcomes modeled.

Belonging interventions in K–12 settings are few, and most come from the social-psychological rather than attachment tradition. Borman et al. (2019) tested a brief intervention that led 1,304 sixth graders across a district to reappraise the academic and social adversity of the middle school transition; it reduced disciplinary incidents by 34 percent, increased attendance by 12 percent, and reduced failing grades by 18 percent, with about 80 percent of the long-term effect on GPA accounted for by changes in attitudes and behaviors. Such interventions work on students' interpretation of belonging cues rather than on relationships themselves, and are complementary to, not substitutes for, relationship-building by adults.

Peer attachment is a distinct construct from both teacher relationships and institutional belonging. A meta-analytic review found that parent attachment is moderately correlated with peer attachment in adolescence, that females report stronger peer attachment than males, and that peer attachment does not change systematically with age across the adolescent years (Gorrese & Ruggieri, 2012). With the evidence that teachers shape peer standing

(Endedijk et al., 2022) and that peer relatedness drives engagement (Mikami et al., 2017), the picture is one of interdependent relational systems rather than a hierarchy in which adults matter and peers do not.

Interventions: What Has Been Tested

Only intervention studies can show that deliberately improving relationships changes outcomes. This section reviews that literature with attention to design quality, because this is where the gap between what practitioners are told and what has been demonstrated is widest.

The meta-analytic picture

Kincade et al. (2020) conducted the only meta-analysis of universal (school-wide or class-wide) approaches to improving student–teacher relationships. Twenty-one studies (17 randomized controlled trials and 4 quasi-experiments) evaluating 13 programs met inclusion criteria. The overall effect on relationship quality was small ($d = 0.26$), with a small effect on closeness ($d = 0.22$) and essentially no effect on conflict ($d = -0.05$). Two programs stood out: Establish–Maintain–Restore (combined $d = 0.64$ across two studies) and BRIDGE ($d = 0.65$ in a single study). A common-elements procedure extracted 44 discrete practices, 14 of which were classified as both proactive and direct: praise, respect, one-to-one time, coaching emotions, objective observations, getting to know students personally, maintaining a positive-to-negative interaction ratio, check-ins, reflective and supportive listening, positive greetings, expressing care, child-led activities, positive farewells, and home visits. Programs with medium or larger effects contained a higher proportion of these practices, although the sample was too small for formal moderator analysis.

Under a claim–evidence–reasoning lens, the meta-analysis supports a modest claim: universal relationship programs produce small average improvements in teacher-reported relationship quality, and the programs that work best give teachers concrete, proactive behaviors to enact. It does not show that such programs reliably reduce conflict or produce achievement gains, which most studies did not measure.

Establish–Maintain–Restore

Establish–Maintain–Restore (EMR) is a brief professional development model in which teachers learn to intentionally establish

relationships with each student (for example, through banking time and positive greetings), maintain them through a favorable ratio of positive to negative interactions, and restore them after conflict. Cook et al. (2018a) evaluated EMR with fourth- and fifth-grade teachers in a matched randomized design and found significant improvements in teacher-reported relationships and in observed academic engaged time and disruptive behavior, with changes in relationships associated with moderate changes in student behavior. Duong et al. (2019) then ran a randomized controlled trial with 20 middle school teachers and 190 students, using three hours of training plus implementation support. Multilevel models showed improvements in student–teacher relationships (Hedges' g = .61), academically engaged time (g = .81), and disruptive behavior (g = 1.07). The confidence intervals for the behavioral outcomes were wide (lower bounds of 0.01 for both), a reason for caution about the magnitudes.

An equity-explicit adaptation (E-EMR) for the ninth-grade transition has been tested twice. A mixed-methods pilot with 133 students and 16 teachers found that students of color showed greater improvement than White students in belonging, behavior, motivation, and GPA from pre- to post-test (Gaias et al., 2020). A cluster-randomized pilot across six high schools (94 ninth-grade teachers, 417 students; three schools treated, three control) found no significant main effects on student-reported relationships, belonging, motivation, or engagement, but found targeted benefits for students with low baseline scores and for Asian, Latinx, multicultural, and to a lesser extent Black students, alongside some unexpected less favorable outcomes for high-performing or advantaged groups in the treatment condition (Duong et al., 2022). EMR has the strongest evidence of any brief relationship-focused teacher training in elementary and middle school; its high school evidence is preliminary and mixed, and its evidence base consists of small trials conducted largely by the developers.

Positive Greetings at the Door

Greeting students by name at the door, with brief precorrective reminders, is among the simplest relationship practices. Cook et al. (2018b) randomly assigned middle school teachers to a Positive Greetings at the Door condition or an attention control and observed academic engaged time and disruptive behavior before and after implementation. The strategy produced significant improvements in engaged time and reductions in disruptive behavior, and teachers rated it feasible and acceptable. Secondary summaries report an increase of roughly 20 percentage points in engagement and a decrease of roughly 9 percentage points in disruptive behavior across

10 classrooms and 203 students; readers should consult the original article for exact statistics. The study is small and the outcomes behavioral rather than academic, but it is an experimental test of one of the proactive-direct practices identified by Kincade et al. (2020).

Banking Time

Banking Time is a dyadic, attachment-based intervention in which a teacher holds regular one-to-one sessions with a target child, following the child's lead, labeling emotions, and refraining from teaching or directing. It is the intervention most explicitly derived from attachment theory and has been tested in the largest randomized trial in this literature. Williford et al. (2017) randomized 183 preschool teachers and 470 children aged 3 to 4 to Banking Time, a "child time" comparison condition (one-to-one time without the specific Banking Time techniques), or business as usual. Evidence for main effects on child externalizing behavior was sparse. Teachers in Banking Time showed lower negativity but also fewer positive interactions with children at post-assessment compared with business-as-usual teachers. The impacts of both Banking Time and child time on reductions in parent- and teacher-reported externalizing behavior were greater when teachers had higher-quality classroom-level interactions at baseline. A fidelity analysis of the same trial found that Banking Time practices were present across conditions and that the presence of more positive Banking Time practices accounted for improvements in teacher–child interactions (LoCasale-Crouch et al., 2018). The cortisol pilot described earlier found a steeper morning cortisol decline among Banking Time children (Hatfield & Williford, 2017).

Banking Time is therefore a cautionary case: the theory is clear, the trial was rigorous, and the results were modest and conditional. One-to-one time appears to help, but the attachment-derived techniques did not outperform generic one-to-one time on child behavior, and the intervention worked best in classrooms that were already interactionally strong.

Playing-2-gether

Playing-2-gether (P2G) is a Belgian two-component, twelve-week intervention for preschool boys with elevated externalizing behavior; the first component is attachment-based and targets relationship quality through child-led play, and the second is behavioral and targets teacher behavior management. In a three-wave randomized trial with 175 teacher–child dyads (89 intervention, 86 control), the intervention group showed larger decreases in teacher–child conflict,

conduct problems, and hyperactivity/inattention at post-test. Notably, all positive effects were already visible after the first, attachment-based component and did not increase further during the behavioral component; closeness increased after the first component but the gain had disappeared by post-test (Vancraeyveldt et al., 2015). A follow-up analysis of the same trial found a direct intervention effect on teacher-rated academic engagement at mid-intervention, an indirect effect on engagement at post-test, and a marginally significant indirect effect on standardized language achievement through engagement (Van Craeyevelt et al., 2017). P2G is one of the few relationship interventions with a measured academic outcome, and the pathway it documents, from relationship to engagement to language, is the one the meta-analyses predict.

Relationship-focused reflection

A distinct intervention strategy targets teachers' mental representations of specific relationships rather than their behavior. Spilt et al. (2012) developed a Relationship-Focused Reflection Program and compared it, in a randomized comparative trial with 32 teachers and 64 children with above-median externalizing behavior, against an intervention targeting teacher behavior directly. The reflection program produced changes in closeness for about half the dyads, declines in conflict among teachers with high efficacy beliefs, and increases in observed teacher sensitivity. Bosman et al. (2021) evaluated a coaching program built on this approach (LLInC) in a quasi-experimental design with 46 intervention teachers (92 children) and 32 control teachers (88 children) in Grades 2 to 6. Intervention teachers reported short-term improvements in closeness and in self-efficacy for emotional support, and decreases in conflict, relative to controls; some transfer to other children with whom the teachers had difficulties was observed. These are small studies, and the LLInC evaluation was not randomized, but they test a mechanism that follows directly from attachment theory: change in the teacher's internal working model of a specific child.

My Teaching Partner and interaction-focused coaching

My Teaching Partner–Secondary (MTP-S) is a web-mediated coaching program in which teachers review video of their own classrooms with a coach using an observational framework of emotional support, classroom organization, and instructional support. It targets interaction quality rather than attachment per se. In a randomized controlled trial with 78 secondary teachers and 2,237 students, MTP-S produced gains in student achievement in the year after the intervention equivalent to moving the average student

from the 50th to the 59th percentile, with effects mediated by the targeted interaction qualities (Allen et al., 2011). A replication in a more urban and diverse district with 86 classrooms and 1,194 students produced gains of the same magnitude (Allen et al., 2015). In early childhood, a randomized trial of a 14-week course on effective teacher–child interactions with 440 teachers found that course participants demonstrated more effective emotional and instructional interactions than controls (Hamre et al., 2012). MTP-S is one of very few relationship-adjacent interventions with an achievement effect in a well-powered randomized trial.

Brief social-psychological interventions targeting the relationship

Two experimental programs target the relationship from unusual angles. Gehlbach et al. (2016) randomized 315 ninth graders and their 25 teachers to receive feedback about five actual similarities they shared; when teachers received feedback about specific students, they perceived better relationships with those students and the students earned higher course grades, with exploratory analyses suggesting the effects were concentrated among "underserved" students. Okonofua et al. (2016) tested a brief online exercise encouraging teachers to adopt an empathic rather than punitive mindset about discipline; across five middle schools, 31 teachers, and 1,682 students, year-long suspension rates fell from 9.6 percent to 4.8 percent. A larger active-placebo-controlled replication with 66 teachers and 5,822 students found that the exercise reduced the Black–White and Hispanic–White suspension disparity from 10.6 to 5.9 percentage points over the school year, with reductions persisting into the following year when students had different teachers (Okonofua et al., 2022). These studies target the teacher's relational stance toward students who misbehave, the point at which conflict trajectories diverge for minoritized students (Spilt & Hughes, 2015).

Check & Connect and mentoring

Check & Connect pairs at-risk students with a mentor who monitors attendance, behavior, and grades. The What Works Clearinghouse (2015) rated it as having positive effects on staying in school and potentially positive effects on progressing in school, with no discernible effects on completing school, based on two studies meeting standards. Subsequent trials have been sobering. A multisite randomized trial with 260 primarily Hispanic, economically disadvantaged students in 14 urban middle and high schools found improvements in academic performance and reductions in

disciplinary referrals but no effect on attendance (Maynard et al., 2014). A randomized trial with 553 high school students at the highest predicted risk of not graduating found no statistically significant impacts on engagement, academic progress, dropout, or graduation after three years (Heppen et al., 2018). A large Chicago randomized trial in Grades 1 to 8 found that the program reduced absences in Grades 5 to 7 by 4.2 days, or 22.9 percent, with no detectable effects in Grades 1 to 4 and no significant effects on test scores or GPA (Guryan et al., 2021).

Youth mentoring more broadly shows the same pattern. Raposa et al. (2019) meta-analyzed 70 outcome studies of one-to-one intergenerational mentoring programs with 25,286 youth and found a statistically significant overall effect in the medium range by prevention-program standards, while emphasizing that impacts are modest as programs are currently implemented. For youth in foster care specifically, a meta-analysis of nine U.S. programs found a small-to-medium overall effect ($g = 0.342$), weaker effects in samples with more emotional abuse histories, and more than twice the effect for near-peer mentors than for intergenerational mentors (Poon et al., 2021). Adding a caring adult is helpful but not transformative on its own, and mentoring programs serving children with trauma histories need trauma-informed training.

Nurture groups

Nurture groups, a United Kingdom intervention dating to the 1960s, place a small group of young children with social, emotional, and behavioral difficulties in a homelike classroom with two adults for part of the school day, with the explicit aim of providing reparative attachment experiences. Hughes and Schlösser (2014) systematically reviewed 11 effectiveness studies and found evidence that nurture groups improve emotional well-being, but called for higher-quality and longitudinal research and noted a paucity of studies in secondary schools. The largest evaluation to date used a non-random control group design with 384 children aged 5 to 6 from 30 nurture group schools and 14 matched comparison schools in Northern Ireland and found effect sizes ranging from $g = 0.53$ to 1.35 across social, emotional, and behavioral outcomes measured with the Boxall Profile and Strengths and Difficulties Questionnaire, but no evidence of effects on academic outcomes (Sloan et al., 2020). A 2025 systematic review of 14 studies concluded that nurture groups are effective overall for social and emotional outcomes but that improvements were not consistent across both sections of the Boxall Profile and varied by age, baseline score, and gender (Jones et al., 2025). No randomized trial has been published, and the Boxall Profile is

completed by nurture group staff themselves, which introduces expectancy bias.

Attachment-aware schools and emotion coaching

The United Kingdom has also seen the spread of "attachment-aware schools" programs, typically delivered by local authorities and combining staff training in attachment and trauma, emotion coaching as a universal relational practice, and targeted support for children with additional needs. Rose et al. (2019) reported on a project involving over 200 participants (107 staff and 94 pupils aged 5 to 16) in 40 schools across two local authorities, using a mixed-methods design. They reported significant improvements in pupils' reading, writing, and math, decreases in sanctions and exclusions, and positive changes in practitioners' self-regulation and confidence. The Rees Centre's independent evaluation of the Bath and North East Somerset program (Dingwall & Sebba, 2018) was more circumspect. Attainment and Strengths and Difficulties Questionnaire data for a small number of vulnerable pupils in six primary schools showed gains, but there was no control group, parallel programs ran in the same schools, response rates were low, and much of the evidence came from participant self-report; the authors noted that causal claims remain uncertain. A Derbyshire program working with 77 schools reported ethos change through action research but did not measure pupil outcomes against a comparison group (Kelly et al., 2020).

The appraisal must be blunt. Attachment-aware schools programs are theoretically coherent, popular with staff, and supported by promising before-and-after data. They have not been tested in any design that can rule out maturation, regression to the mean, concurrent programs, or expectancy effects. The claim that they raise attainment is not yet supported, even though the claim that they change staff attitudes and practices is reasonably well documented.

Trauma-informed schools

The same verdict applies with greater force to trauma-informed school models. A Campbell systematic review that searched comprehensively for evaluations of trauma-informed approaches in schools found that no studies met inclusion criteria, which the authors interpreted as indicating a lack of evidence rather than evidence of ineffectiveness (Maynard et al., 2019). A systematic review of multi-tiered trauma-informed approaches identified 13 published and unpublished studies and described the evaluations as limited (Berger, 2019). A later review of school-wide approaches

published between 2008 and 2019 identified four papers covering four models, found high risk of bias and low generalizability, and called for urgent research (Avery et al., 2021). The Attachment, Regulation, and Competency (ARC) framework, which is frequently recommended for schools, is listed by the federal Title IV-E Prevention Services Clearinghouse as not currently meeting criteria because no eligible outcome studies were identified (Title IV-E Prevention Services Clearinghouse, n.d.). This is not a reason to abandon trauma-sensitive practice, whose components overlap heavily with the proactive relationship behaviors that do have evidence. It is a reason to be skeptical of outcome claims made for branded whole-school packages.

Two-by-ten

The “two-by-ten” strategy, in which a teacher spends two minutes a day for ten consecutive days in non-academic conversation with a student, is widely recommended in practitioner outlets, but peer-reviewed evaluation is nearly nonexistent. The one recent study we located examined its use by 18 student teachers and reported improved behavior among selected students, with the authors describing the results as promising and warranting further study (Conniff & Wasburn-Moses, 2025). Two-by-ten plausibly works because it operationalizes one-to-one time and getting to know students personally, but it should be presented as a reasonable practice rather than an evidence-based intervention.

Vulnerable Populations

Students with disabilities

Students with special educational needs are at elevated risk of poorer teacher relationships, and the evidence suggests that behavior rather than disability status per se drives most of the gap. In a Portuguese study of 360 students in Years 3, 5, and 7, of whom 169 had identified special educational needs, teachers’ reports of students’ social skills and externalizing problems were the strongest predictors of closeness and conflict; internalizing problems and special needs status also predicted lower closeness, with smaller effects (Freire et al., 2020). Di Lisio et al. (2025) found in their longitudinal review that for students with special needs, positive relationships supported behavioral engagement and achievement while poor relationships were linked to increased conflict and disengagement. Teachers do not need disability-specific relationship strategies so much as support in

sustaining warmth with students whose behavior makes warmth harder to sustain.

English learners and immigrant students

Attachment-informed research on English learners is thin. The strongest relevant evidence comes from the Longitudinal Immigrant Student Adaptation Study, which followed 407 recently arrived immigrant youth from Central America, China, the Dominican Republic, Haiti, and Mexico over five years and found that supportive school-based relationships strongly contributed to both academic engagement and school performance after accounting for country of origin, gender, maternal education, and English proficiency (Suárez-Orozco et al., 2009). The Dutch longitudinal study described earlier found that non-Western ethnic minority students experienced more conflict and less closeness with teachers, though unlike for low-SES students this was not explained by observed dyadic interactions (van Vemde et al., 2026). Cross-cultural work shows that closeness and conflict achieve partial measurement invariance across Dutch and Chinese samples, with Chinese students reporting more closeness and less conflict, a reminder that relationship norms vary across contexts (Chen et al., 2019). Redding's (2019) review of racial and ethnic matching found fairly strong evidence that Black students score higher on achievement tests when assigned to a Black teacher, with less consistent evidence for Latino/a students; the mechanisms likely include relationship quality and expectations, though the review did not isolate them.

Students with maltreatment histories and in foster care

Children with maltreatment histories arrive at school with elevated rates of disorganized attachment (Cyr et al., 2010), weaker self-regulation and attention (Pallini et al., 2018, 2019), and lower engagement (Pears et al., 2013), and these difficulties forecast underachievement that persists into adulthood (Raby et al., 2019). School-based intervention evidence for this population is thin. Nurture groups were designed for exactly these children and show social-emotional but not academic effects (Sloan et al., 2020). Mentoring for foster youth has a small-to-medium effect that weakens with emotional abuse history (Poon et al., 2021). The empathic-discipline interventions, which reduce suspensions among previously suspended and minoritized students (Okonofua et al., 2016, 2022), are relevant to students whose behavior draws frequent sanctions, though they have not been tested in foster populations specifically. Practice with maltreated and fostered children in schools

is currently guided more by developmental theory and clinical experience than by school-based trials.

Adolescents

Relationship effects do not fade in secondary school. Meta-analyses find stronger relationship–achievement associations in high school than in primary school (Lei et al., 2023; Tao et al., 2022), and the direct effect of positive relationships on engagement is larger in secondary than primary studies (Roorda et al., 2017). Longitudinal studies show that teacher warmth drops at the transition to middle school and that this drop predicts subsequent engagement and math achievement (Hughes & Cao, 2018); that student-perceived closeness predicts changes in achievement and conflict predicts changes in conduct problems across the transition to high school in a sample of 122 Italian students (Longobardi et al., 2016); and that conflict with teachers and externalizing behavior reinforce each other reciprocally within a school year (Roorda & Koomen, 2021). Trajectory analyses from Grades 1 through 12 identify adolescent-onset conflict as a distinct risk pattern associated with conduct problems (Ettekal & Shi, 2020), and children with chronic co-occurring internalizing and externalizing problems show sustained conflict, lower warmth, and lower math and reading performance, with scholastic maladjustment worsening after the middle school transition (Shi & Ettekal, 2021). Departmentalization, larger enrollments, and shorter contact time work against the relational continuity these findings imply adolescents need.

School Transitions and Relationship Continuity

If relationships matter and take time to build, the organizational decision to break them every year is consequential. Three lines of evidence bear on this.

First, transitions are risk points. Longobardi et al. (2019) studied 480 Italian students across three normative transitions (kindergarten to primary, primary to middle, middle to high school), using teacher reports, and found that a stable, low-conflict teacher–student relationship was protective against increases in internalizing and externalizing symptoms across all three, while increases in conflict during the transitions to middle and high school predicted exacerbation of externalizing symptoms in the first year of the new school. Hughes and Cao (2018) documented the warmth drop at the middle school transition and its downstream costs.

Second, keeping students with the same teacher helps, modestly. Hill and Jones (2018) analyzed North Carolina administrative data for Grades 3 to 5 and found that students who had the same teacher for a second year scored higher in reading and math, with larger gains in math, and that the gains were largest for students of color and for students of less effective teachers; the authors attributed the benefit to familiarity and cautioned against departmentalizing elementary grades. Albornoz et al. (2023) found robust positive effects of repeat student–teacher matches on test scores for the universe of eighth graders in Chile, with effects aggregating to the class and school level, extending to university admission exams, and operating partly through attendance, progression, behavior, and teacher expectations. Mangan et al. (2026), distinguishing intentional looping from incidental repeat matches in a large urban district over more than a decade, estimated that looping in Grades 4 to 8 was associated with gains of roughly 0.04 to 0.05 standard deviations in English language arts and 0.025 to 0.04 in math, meaningfully larger than the gains from incidental repeats. These are quasi-experimental administrative-data studies with small effects, but they are consistent across three countries.

Third, school structure can be designed for relationships. New York City's small schools of choice, which emphasized personalization and sustained adult relationships, raised graduation rates by 9.5 percentage points in lottery-based comparisons across 12,130 participants (Bloom & Unterman, 2014). A subsequent analysis of 68 of these schools found suggestive evidence that personalized learning and teacher–student respect were among the features associated with graduation gains, though most of the average effect remained unexplained (Bloom et al., 2020). Advisory programs, in which a teacher meets regularly with a small group of students across years, are widely used for similar reasons, but we located no rigorous outcome evaluations and make no claims about them.

Measurement and Methodological Issues

The measurement literature carries several cautions.

Teacher reports dominate. The Student–Teacher Relationship Scale, completed by the teacher, is the most widely used instrument. Validation work in a Dutch sample of 2,335 children aged 3 to 12 supported its three-factor structure and metric invariance across gender and up to age 8, but found that scalar invariance generally did not hold and that invariance weakened for conflict items at ages 8 to 12 (Koomen et al., 2012). Teacher reports are also not independent of teacher-rated engagement or behavior outcomes.

Student and teacher reports measure different things. Among 714 academically at-risk students, teacher and student reports of relationship quality showed low correspondence; student reports uniquely predicted belonging, perceived competence, and math achievement, while teacher reports uniquely predicted behavioral engagement (Hughes, 2011). A multitrait-multimethod analysis of 709 second and third graders found that peer reports of teacher–student support carried the most trait variance and child reports the most method variance (Li et al., 2012). Student-report instruments developed within the attachment framework, including the Child Appraisal of Relationship with Teacher Scale (Vervoort et al., 2015) and the Student Perception of Affective Relationship with Teacher Scale, have good psychometric properties; notably, the latter's third factor emerged not as dependency but as "negative expectations," a lack of confidence in the relationship that may be the student-side counterpart of an insecure working model (Koomen & Jellesma, 2015).

Attachment is rarely measured directly in school studies. Almost all teacher–student relationship research measures relationship quality (closeness, conflict, dependency) rather than attachment classification. The meta-analyses on attachment and self-regulation, attention, cognition, and language concern child–parent attachment, assessed with the Strange Situation, Attachment Q-Set, or representational measures. Inferences from those findings to teacher relationships are theoretical extrapolations, not empirical demonstrations.

Cross-sectional designs predominate. Dias et al. (2024), reviewing 38 studies of socio-emotional security and school outcomes published between 2018 and 2022, found that 76.3 percent were cross-sectional. The longitudinal subsample in Roorda et al. (2017) was 52 of 189 studies. Cross-lagged and latent change analyses that control for prior achievement sometimes find that the achievement-to-relationship path is stronger than the reverse (Hajovsky et al., 2017; Mason et al., 2017; Hajovsky & Chesnut, 2025).

Teacher characteristics are understudied. Teachers' own attachment orientations, self-efficacy, and well-being plausibly shape relationship quality. Zee and Koomen (2016) reviewed 165 studies of teacher self-efficacy and found positive links with classroom quality and student adjustment. Aldrup et al. (2018) found in a sample of 222 teachers and 4,111 students that the teacher–student relationship mediated the link between perceived misbehavior and teachers' work enthusiasm, consistent with Spilt et al.'s (2011) model in which relationships with students are a central determinant of teacher well-

being. Relationship-building is not only something teachers do for students; it is a condition of their own sustainability.

Implications for Practice

The evidence supports concrete action at three levels. Each recommendation is tied to the strength of its evidence.

For teachers

- **Establish relationships deliberately with every student, not just the easy ones.** The proactive-direct practices identified across effective programs are specific and inexpensive: learn and use names, greet students at the door, hold brief check-ins, express care explicitly, find one-to-one time, listen reflectively, and close the day with positive farewells (Kincade et al., 2020; Cook et al., 2018b). Evidence strength: meta-analytic for relationship quality; experimental for engagement and behavior.
- **Monitor the ratio of positive to negative interactions, especially with students whose behavior invites correction.** Negative aspects of relationships predict outcomes more strongly than positive aspects in several meta-analyses (Lei et al., 2016; Endedijk et al., 2022), and negative dyadic interactions explain part of the relationship gap for low-SES students (van Vemde et al., 2026). Evidence strength: meta-analytic and longitudinal.
- **Repair after conflict.** The “restore” component of EMR, in which the teacher takes responsibility for reconnecting after a negative exchange, is most relevant to students whose working models predict abandonment after conflict (Cook et al., 2018a; Duong et al., 2019). Evidence strength: small randomized trials.
- **Adopt an empathic stance toward misbehavior.** Brief exercises that reframe discipline as an opportunity to understand and sustain the relationship halved suspensions and reduced racial disparities in two randomized trials (Okonofua et al., 2016, 2022). Evidence strength: randomized, replicated.
- **Support exploration, not dependence.** Dependency on the teacher predicts poorer engagement and achievement (Roorda et al., 2021). For anxious or clingy students, a secure base means scaffolding independent attempts, not providing constant proximity. Evidence strength: meta-analytic, correlational.

- **Treat help-seeking as a relational act.** Make it explicit how and when to ask for help, and respond to requests in ways that reward instrumental over expedient help-seeking (Kilday & Ryan, 2023). Evidence strength: correlational.
- **Expect relationship work to matter more, not less, in secondary school.** Adolescents' engagement is at least as sensitive to teacher relationships as younger children's (Roorda et al., 2017; Lei et al., 2023). Evidence strength: meta-analytic.

For school leaders

- **Protect relational continuity across transitions.** Where feasible, loop teachers with classes, limit departmentalization in elementary grades, and build intentional handoffs into the transitions to middle and high school (Hill & Jones, 2018; Mangan et al., 2026; Longobardi et al., 2019). Evidence strength: quasi-experimental administrative data; longitudinal.
- **Invest in brief, structured relationship training with follow-up support.** EMR's three-hour training plus implementation support produced measurable effects; one-off awareness sessions without follow-up have not (Duong et al., 2019; Kincade et al., 2020). Evidence strength: small randomized trials.
- **Use video-based coaching on interactions.** My Teaching Partner–Secondary is one of the only relationship-adjacent interventions with achievement effects in well-powered randomized trials (Allen et al., 2011, 2015). Evidence strength: randomized, replicated.
- **Audit relationship quality by student group.** Low-SES, minoritized, and behaviorally challenging students are systematically more likely to experience conflict-laden relationships (Spilt & Hughes, 2015; van Vemde et al., 2026; Freire et al., 2020). Collect and disaggregate student-report relationship data and treat disparities as an improvement target. Evidence strength: longitudinal.
- **Attend to teacher well-being as a relational variable.** Teacher burnout is associated with students' physiological stress (Oberle & Schonert-Reichl, 2016), and relationships with students mediate the effect of misbehavior on teacher enthusiasm (Aldrup et al., 2018). Evidence strength: correlational.
- **Be skeptical of branded whole-school packages.** Attachment-aware and trauma-informed school models have not been evaluated in designs that can support their outcome claims (Maynard et al., 2019; Avery et al., 2021; Dingwall &

Sebba, 2018). Adopt their component practices without assuming the package has been shown to work. Evidence strength: systematic reviews finding insufficient evidence.

For districts and policymakers

- **Fund relationship-focused professional development as a core instructional investment, not an add-on.** The engagement effects of relationship quality are moderate and consistent, and engagement predicts achievement (Roorda et al., 2017; Quin, 2017). Evidence strength: meta-analytic.
- **Design secondary schools for personalization.** Small schools of choice emphasizing sustained adult relationships raised graduation rates in lottery-based evaluations (Bloom & Unterman, 2014; Bloom et al., 2020). Evidence strength: natural experiment.
- **Require comparison-group evaluation before scaling attachment-aware or trauma-informed initiatives.** The absence of such evaluations is the central weakness of this field (Maynard et al., 2019; Berger, 2019). Evidence strength: systematic reviews.
- **Prioritize children in care and children in need before age seven.** Educational gaps for these children are already large at age seven and widen thereafter; early entry into care is associated with better trajectories (Sinclair et al., 2019; Sutcliffe et al., 2017). Evidence strength: population administrative data.
- **Match mentoring programs to population.** Near-peer mentors outperformed intergenerational mentors for foster youth, and effects weaken with emotional abuse history, implying a need for trauma-informed mentor training (Poon et al., 2021). Evidence strength: meta-analytic.

Limitations and Research Gaps

This review has limitations, and the field has more.

Construct slippage. Most of the evidence concerns affective relationship quality, not attachment. The teacher is rarely an attachment figure in the technical sense, and almost no school-based study measures attachment classification. Claims that “attachment” explains school outcomes are mostly claims that closeness and conflict do, with attachment theory supplying the interpretation (Verschueren & Koomen, 2012; Schuengel, 2012).

Correlational dominance and reverse causation. The great majority of studies are correlational, and several rigorous longitudinal analyses find that achievement predicts relationship quality at least as strongly as the reverse (Hajovsky et al., 2017; Hajovsky & Chesnut, 2025). The strongest causal evidence comes from intervention trials, most of which are small, developer-led, and focused on behavior rather than achievement.

Informant confounding. Teacher reports of relationships and teacher reports of behavior or engagement share method variance. Studies using student, peer, or observational measures of outcomes are fewer, and effect sizes are often smaller when informants differ (Lei et al., 2016; Li et al., 2012).

Thin intervention evidence for the most vulnerable. No randomized school-based trial of a relationship intervention has specifically targeted children in foster care or with substantiated maltreatment. Nurture groups, attachment-aware schools, and trauma-informed models, which were designed for these children, have the weakest designs in the literature (Sloan et al., 2020; Rose et al., 2019; Maynard et al., 2019).

Geographic and cultural concentration. The dyadic relationship literature is dominated by samples from the United States, the Netherlands, and Belgium; the whole-school attachment literature by the United Kingdom; the attachment meta-analyses by North America and Europe (Deneault et al., 2023). Cross-cultural invariance work is beginning but limited (Chen et al., 2019).

Gaps in the secondary and adolescent literature. Although effects persist into adolescence, most intervention trials are in preschool and elementary settings, and the only high school trial of a relationship-focused teacher training found no main effects (Duong et al., 2022).

Under-researched mechanisms. Help-seeking, stress physiology, and peer-mediated pathways each rest on a handful of studies. The teacher's side of the relationship, including teachers' own attachment histories and the training that builds relationship competence, is only beginning to receive systematic attention (Spilt et al., 2022; Zee & Koomen, 2016).

Research priorities. The field needs (a) randomized trials of relationship interventions with achievement outcomes and independent evaluators; (b) trials targeting maltreated and fostered children in school settings; (c) studies that measure both attachment and relationship quality to test the extrapolations on which much

practice rests; (d) secondary school trials with adequate power; (e) multi-informant designs that separate relationship quality from the informant's view of the child; and (f) comparison-group evaluations of the whole-school models now spreading through policy.

Conclusion

The claim that relationships are the foundation of learning is one educators find intuitively true and the research supports, with qualifications. Across hundreds of studies and several hundred thousand students, the affective quality of teacher–student relationships is moderately and consistently associated with engagement and behavior, and more modestly associated with achievement, with the achievement link running partly through engagement. The association is not an artifact of age; adolescents are at least as responsive as younger children. Children with insecure and disorganized attachment histories, most sharply those who have been maltreated, bring to school weaker self-regulation, more attention problems, and lower engagement, and the classroom can either compound those disadvantages through conflict or offset them through a sensitive, available adult. The evidence that teachers can function as a compensatory secure base is suggestive and theoretically coherent, though it rests on fewer and smaller studies than the rhetoric implies.

The intervention evidence is the most useful and the least known. Brief, structured training that gives teachers specific proactive practices to establish, maintain, and restore relationships has produced credible effects on relationship quality, engagement, and behavior in randomized trials. Exercises that shift teachers' mindsets about discipline have halved suspensions and narrowed racial disparities. Video-based coaching on interaction quality has raised achievement. Keeping students with the same teacher produces small but consistent gains, largest for the students most at risk of relational disadvantage. Against this, the whole-school attachment-aware and trauma-informed models that have attracted the most policy attention have the least rigorous evidence, and some widely recommended practices have none.

For practitioners working with vulnerable students, the implication is to act on the evidence that exists while remaining honest about its limits. Learn students' names and greet them. Watch the ratio of positive to negative exchanges with the students who are hardest to like. Repair after conflict. Treat misbehavior as information about a relationship rather than a verdict on a child. Protect continuity across years. Measure relationship quality from the student's side and look

at who is being left out. These practices are cheap, consistent with attachment theory, and, unlike many things schools are asked to do, several have survived randomized tests. That is a reasonable standard for a profession to hold itself to, and a reasonable place for research to build.

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