

RESEARCH

Open Access



A multilevel investigation of teacher wellbeing, vibrant school climate, and trust

Ayse Nur Boos^{1*}  and Megan Tschannen-Moran²

*Correspondence:

Ayse Nur Boos

ayse.boos@kit.edu

¹Institute for School Pedagogy and Didactics, Karlsruhe Institute of Technology, Karlsruhe, Germany

²Educational Policy, Planning & Leadership, William & Mary School of Education, Williamsburg, VA, USA

Abstract

This study examined how teachers' wellbeing relates to vibrant school climate (VSC) and trust in students within a multilevel framework. Participants were 402 educators nested within 35 schools who completed a shortened PERMA-based measure of wellbeing, the Vibrant School Scale, and a measure of faculty trust in students. Multilevel analyses distinguished individual- and school-level effects, with inference based on cluster-robust standard errors. At the within level, teachers who perceived a more vibrant climate than their school's average reported higher wellbeing ($\beta=0.56$, $p < .001$), and those who trusted their students more than their colleagues also reported higher wellbeing ($\beta=0.12$, $p = .012$). At the between level, average VSC was strongly associated with average wellbeing ($\beta=0.43$, $p < .001$), whereas average trust in students showed no reliable independent association with wellbeing once climate was accounted for. The model explained approximately 52% of the total variance in wellbeing. Findings underscore the contextual and relational foundations of teacher flourishing and suggest that vibrancy is meaningfully associated with teacher wellbeing at both the individual and school levels, while trust in students is associated with wellbeing primarily as an individual experience, pointing to school climate as a promising focus for teacher education and professional development internationally.

Keywords Teacher wellbeing, Vibrant school climate, Faculty trust, Trust in students, Positive psychology, Hierarchical level analysis

1 Introduction

Wellbeing, as a multidimensional construct reflecting educators' positive evaluations of and healthy functioning within their professional environments, is increasingly viewed as central to effective teaching and learning [9, 20, 35, 37, 94]. Yet, much of the earlier research on teacher wellbeing concentrated on identifying stressors and preventing negative outcomes such as burnout. A recent systematic review revealed that only six studies considered all three discourses of wellbeing (negativity/deficiency, positivity/flourishing, and professionalism) together, underscoring that important insights are lost when alternative lenses are neglected [95]. At the same time, more recently, scholars have turned to positive psychology, which encourages a focus on growth and flourishing



© The Author(s) 2026. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

by strengthening protective factors, fostering purpose, and leveraging personal and collective strengths [70, 102, 106, 124, 125]. From the perspective of Self-Determination Theory (SDT), such flourishing is rooted in the satisfaction of the basic psychological needs for autonomy, competence, and relatedness, which is shaped in schools both by structural conditions and by the motivating versus demotivating interpersonal styles that teachers and leaders adopt in daily practice [30, 101, 127]. Despite this progress, critical gaps remain in understanding how organizational conditions oriented within positive psychology, rather than individual coping strategies, shape educators' capacity to thrive.

One emerging construct that could address this gap is Vibrant School Climate (VSC), which represents a positive-psychology-based approach to understanding how schools cultivate flourishing [118]. Advocates of the Vibrant Schools model emphasize generative, aspirational dialogues that unite educators and learners in co-creating flourishing environments that support autonomy, competence, and relatedness [11, 21, 22, 115]. As a new conceptualization of school climate rooted in positive psychology, VSC requires empirical examination. In parallel, faculty trust can be another organizational contrast that could add value to this perspective, as it is among the positive characteristics of the school. While organizational trust has been linked to teacher motivation and commitment, its relationship with wellbeing remains underexplored. Specifically, faculty trust in students has been identified as a critical but underexplored relational dynamic influencing teacher wellbeing [10], presenting an opportunity for further investigation into how trust-building strategies in educator-student relationships may strengthen resilience, motivation, and professional satisfaction among faculty.

VSC reflects the organizational conditions that foster growth, trust captures the relational dynamics that enable collaboration and resilience, and wellbeing represents the ultimate outcome of flourishing. Collectively, the common ground of these constructs lies in the positive psychology perspective [22, 55, 106]. By shifting the focus from problem-solving to possibility-seeking, this perspective positions the climate, trust and wellbeing not simply as the conditions for absence of ill-being, but as the presence of thriving conditions. In selecting predictors, we deliberately prioritized organizational and relational resources (climate and trust) over positive individual attributes such as vitality, work enthusiasm, or self-efficacy. This choice reflects the study's central aim to illuminate the contextual conditions that schools, rather than individual teachers, can shape while responding to calls to move beyond individually focused accounts of teacher wellbeing [17, 61]. Positive individual attributes remain important complements to this perspective and are taken up in the discussion as directions for future research. Accordingly, for the above reasons, the purpose of this study was to examine the associations between VSC, faculty trust in students, and psychological wellbeing among educators.

2 Literature review (background of the study)

2.1 Faculty wellbeing

A vast body of literature across clinical, social, and educational psychology emphasizes that wellbeing extends far beyond the mere absence of psychological distress; instead, it is a multidimensional construct best captured through a synergy of positive indicators [32, 77, 103, 128]. Historically, Diener [33] conceptualized subjective wellbeing around an individual's evaluation of their own life quality, categorizing it into three distinct components: *overall life satisfaction*, *the presence of positive emotions*, and *the*

relative absence of negative emotions. Expanding on these dimensions, Seligman [106] introduced the PERMA framework as a multifaceted model of human flourishing, which identifies five core pillars: cultivating Positive emotions, fostering deep Engagement, nurturing supportive Relationships, discovering Meaning and purpose, and pursuing Accomplishment for its own sake. Collectively, these theoretical frameworks demonstrate that wellbeing is a complex phenomenon bridging both hedonic and eudaimonic dimensions of thriving. The PERMA model, in particular, offers a highly applicable lens for the educational sphere, providing a structured approach to understanding the elements that foster sustainable professional thriving among educators.

Complementing these frameworks, Self-Determination Theory provides an explanatory account of how environments come to support or undermine wellbeing. According to SDT, wellbeing flourishes when the basic psychological needs for autonomy, competence, and relatedness are satisfied, and it suffers when these needs are frustrated [30, 101]. In educational settings, need satisfaction depends substantially on the interpersonal styles enacted within the school: autonomy-supportive and structuring (motivating) styles nurture need satisfaction, whereas controlling and chaotic (demotivating) styles thwart psychological needs and are associated with diminished wellbeing among both students and educators [101, 127]. Viewed through this lens, school climate can be understood as a macro-level context that renders need-supportive practice more or less likely, providing a theoretical bridge between organizational conditions and individual flourishing.

Because of its inherent complexity, teacher wellbeing operates in constant interplay with diverse personal and organizational variables. Research consistently links higher occupational wellbeing to favorable professional outcomes, including enhanced job satisfaction (e.g., [62, 76, 80]) and broader life satisfaction [2, 63, 133]. Conversely, it maintains a strong inverse relationship with workplace stress and burnout [19, 57, 109, 126]. Within the broader educational ecosystem, an educator's psychological health is deeply tied to their engagement in meaningful work, such as delivering high-quality, effective instructional practices [121]. Furthermore, lower teacher stress and higher systemic wellbeing have been shown to predict greater learning motivation among students, which subsequently correlates with improved student reading outcomes [96]. Leadership dynamics also play a critical role; teacher wellbeing is positively influenced by supportive administrative leadership [45, 75, 114, 133]. Specifically, collegial principal leadership has been found to substantially mitigate stress in preschool settings [75], while transformational leadership styles serve as a significant predictor of reduced teacher burnout [114]. Unpacking these individual and institutional correlates is essential for designing targeted policies and interventions meant to elevate educators' professional lives.

While documenting these correlations is vital for designing supportive interventions, the existing literature remains disproportionately focused on deficit-based models—treating wellbeing primarily as the mitigation of negative states like stress, coping, and burnout, rather than investigating the positive conditions that sustain long-term flourishing [17, 95, 124, 125]. Although this deficit-oriented research yields valuable insights, it provides an incomplete picture of the construct by prioritizing remediation over proactive growth. Decades ago, Hoy and Tarter [70] argued that evaluating school personnel through the lens of positive psychology would meaningfully enrich the field. Responding to this call, contemporary researchers have begun adopting holistic approaches to

teacher wellbeing (e.g., [25, 89, 125]), progressively shifting the scholarly conversation away from an exclusive focus on reactive stress-coping strategies.

Even as this evolving paradigm highlights the necessity of moving past deficit-centric views of burnout, a significant gap in the literature persists: identifying the specific school-level and interpersonal resources that actively cultivate teacher flourishing. Although frameworks like PERMA are frequently used to map wellbeing theoretically, systematic reviews indicate that empirical attention has skewed heavily toward individual coping mechanisms rather than the contextual resources embedded within school environments [4, 17, 61]. This discrepancy emphasizes the urgency of exploring institutional and relational antecedents to educator health. To address this gap, the current study investigates how an aspirational school climate and organizational trust—two vital systemic resources that influence daily professional experiences like collaboration, stress, and job satisfaction—relate to educators' wellbeing when operationalized through the PERMA framework [28, 123].

2.2 School climate: a new era with vibrant school climate

School climate has long been recognized as a powerful determinant of students and educators experiences and was often described as the “personality of the school” ([69], p. 3), encompassing shared perceptions, norms, and values that shape daily interactions within the school community [23]. A positive school climate is thus characterized by engagement, mutual respect, and a sense of belonging, nurturing the wellbeing of all participants. With these defining characteristics, school climate plays a pivotal role in shaping teachers' daily experiences and overall wellbeing.

A growing body of research highlights the significant impact of positive school climate on various psychological, emotional, and behavioral outcomes. When positive school climates are cultivated, both educators and students experience elevated levels of wellbeing, contributing to a more vibrant and enriching educational experience [54, 134]. Studies have shown that a supportive climate enhances teachers' enjoyment of their profession [3, 24]; strengthens motivation to build good relationships [12]; fosters resilience among educators [8]. Moreover, a favorable school climate can promote psychological wellbeing, ultimately enhancing teachers' enjoyment of their profession. Teachers' perceptions of the overall ethos and ambiance of their schools also exert an indirect but powerful influence on their psychological wellbeing, shaping their professional fulfillment and long-term commitment to teaching [137]. Teacher wellbeing, in turn, reinforces a more positive and productive school environment, creating a reciprocal relationship between climate and wellbeing [36, 75, 80, 132].

Although school climate has been widely studied, most research emphasizes traditional aspects such as safety, discipline, or academic press, with relatively little attention to strengths-based conceptualizations. Considering the growing emphasis on fostering deeper learning and worldwide shift beyond the constrained curricula of the accountability era, and considering that educators emerge as the central agents in this transition, fostering the wellbeing of educators in a school environment with aspirational qualities becomes not only beneficial but inevitable [90, 107]. Therefore, beyond the reciprocal relationship between school climate and teacher wellbeing, it is essential to adopt frameworks that not only assess these dynamics but also actively cultivate environments where educators can thrive.

The conceptualization of Vibrant School Climate (VSC) addresses this gap by explicitly situating climate within positive psychology and focusing on aspirational qualities of schools [11, 22, 118]. VSC is a reconceptualized aspirational measure of organizational climate for educators who seek to improve their schools [22]. Fostering curiosity, creativity, and critical thinking, honoring the voices of school community, and playful learning are the indicators of vibrant schools [11, 21, 22, 115, 118]. Fostering sensitivity and appreciation of students' differences while inspiring individuality and reducing standardization, the Vibrant School Scale (VSS) includes three dimensions: enlivened minds, emboldened voice, and playful learning.

2.2.1 Enlivened minds

The “enlivened minds” subscale captures the core traits of dynamic educational environments that actively cultivate a dedication to continuous learning while embedding essential skills in critical analysis, creativity, and inquiry [11, 21, 22, 115, 118]. These climates are intentionally organized to promote ongoing intellectual growth by prioritizing student autonomy and rigorous analytical reasoning. Empirical evidence demonstrates that institutions skilled at cultivating self-directed investigation and exploration profoundly boost students' capacity for lifelong educational development [29, 64]. Theoretically, this facet corresponds directly with Self-Determination Theory (SDT), given that it supports the fulfillment of autonomy and competence that are two core psychological needs that drive intrinsic motivation [30]. Furthermore, this dimension interfaces seamlessly with the “engagement” and “meaning” pillars of the PERMA framework [106], demonstrating how an intellectually invigorating workplace can revitalize an educator's professional purpose and safeguard against occupational stagnation.

2.2.2 Emboldened voices

The emboldened voices subscale refers to vibrant schools as being open and responsive to the perspectives of the school community irrespective of their individual differences [11, 21, 22, 115, 118]. This openness not only strengthens interpersonal trust and community cohesion but also satisfies fundamental psychological needs for relatedness and autonomy, satisfying SDT. This dimension builds on psychological safety theory [41], ensuring that teachers feel respected, heard, and valued. Theoretically, it also aligns with PERMA's *relationships* and *meaning*, suggesting that emboldened voices reduce emotional labor and foster belonging which are critical conditions for wellbeing.

2.2.3 Playful learning

The playful learning subscale highlights vibrant schools as being filled with the hands-on, exploratory and experimental activities that cultivate a dynamic and joyful learning and teaching atmosphere [11, 21, 22, 115, 118]. Drawing on the broaden-and-build theory of positive emotions [48], playful learning broadens thought–action repertoires and builds enduring personal and professional resources. It corresponds with PERMA's *positive emotions* and *engagement*, suggesting that playful climates buffer stress, enhance resilience, and support professional rejuvenation [14, 56].

VSC proves to theoretically and conceptually grounded concept for examining how positive school climates function as organizational resources for educators to thrive. However, despite its theoretical promise, empirical evidence on VSC remains limited,

particularly in relation to teacher wellbeing. In the present study, VSC is considered as a holistic construct, and is expected to positively predict wellbeing. This association could manifest by fostering renewed intellectual engagement (through enlivened minds), strengthening relational belonging and autonomy (through emboldened voices), and supporting joy and resilience in professional life (through playful learning).

2.3 Faculty trust in students

Although the conceptualization of trust fluctuates across academic fields, Hoy and Tschannen-Moran [71] synthesized the literature by reviewing over 150 scholarly pieces spanning individual, systemic, behavioral, and generalized dimensions. From this extensive analysis, they formulated a widely adopted baseline definition constructed around the fundamental mutual expectations required to establish trust [71]. Specifically, they defined trust as “an individual’s or group’s willingness to be vulnerable to another party based on the confidence that the latter party is benevolent, reliable, competent, honest, and open” ([71], p. 189). This framing captures trust as an intersecting interpersonal and systemic phenomenon, highlighting the interplay between vulnerability and a belief in the integrity and capability of others. Psychologically, trust manifests through various dimensions, including actions that depend directly on another person, cognitive assessments regarding the predictability of specific behaviors, internal attitudes about reliability, and a general sense of emotional security [42, 81, 104]. Recognizing trust as a dual interpersonal and institutional mechanism [70] allows this investigation to theoretically treat it as a school-level variable.

Within the fields of educational leadership and school effectiveness, organizational trust has long been established as a core determinant of healthy school environments [15, 47, 71–73, 111, 119, 120]. It operates simultaneously as a desirable institutional product and an iterative process that reinforces academic achievement, positive campus dynamics, and responsive organizational structures [15, 31, 52, 53, 68, 73, 119]. Beyond stabilizing school infrastructure, systemic trust encourages authentic collaboration, practitioner professionalism, and transparent decision-making practices, which collectively prepare educators to navigate organizational reform and innovation [26, 55, 60, 105, 131, 136]. Under these supportive conditions, teachers exhibit higher levels of adaptability, occupational resilience, and personal drive to engage in continuous pedagogical improvement.

Furthermore, trust acts as a vital foundation for workplace stability, psychological safety, and occupational satisfaction among educators [135]. Teachers who evaluate their professional environment as supportive and high-trust are insulated against severe stress, reporting greater workplace engagement and a deeper connection to their professional community. On a broader scale, data from the World Values Survey underscores a robust link between generalized trust and overall life satisfaction [5]. Mirroring these trends, school-centered research confirms that trust correlates with teacher wellbeing [88], career satisfaction, and institutional commitment, all of which are essential elements for sustaining teacher stamina and motivation [138, 139]. Nevertheless, empirical work has rarely isolated how specific, distinct dimensions of institutional trust shape educator wellbeing, pointing to a clear need for deeper investigation into how trust-building processes within schools protect teachers [85].

Organizational trust in schools has traditionally been conceptualized as a multidimensional construct, encompassing faculty trust in the principal, in colleagues, and in clients—that is, in students and their parents [71, 119]. Among these referents, the present study deliberately isolates faculty trust in students, for three interrelated reasons. First, whereas trust in principals and colleagues has been examined extensively in relation to teacher outcomes such as satisfaction and burnout [117, 122, 123], trust in students remains the least studied referent with respect to teacher wellbeing specifically [10, 85]. Second, trust in students is the referent most proximal to teachers' daily classroom experience, where the majority of teachers' emotionally significant professional interactions occur. Third, trust in students is conceptually the most closely aligned with the student-centered orientation of the Vibrant School Climate construct, making it the theoretically most coherent trust dimension to examine alongside VSC. This focus is further justified by substantial evidence indicating that the teacher-student trust dynamic represents one of the most powerful relational vectors in an educational institution. For instance, faculty trust in students has been shown to counteract the adverse effects of socioeconomic disadvantage [52, 116, 117]. Furthermore, mutual trust between teachers and students stands out as the most robust predictor among all institutional trust metrics [110, 119]. Aside from driving academic performance, trusting student-teacher alliances cultivate a sense of personal agency, systemic equity, and social belonging [18, 27, 93, 113]. Crucially, these relational assets directly benefit the faculty; when teachers extend trust to their classrooms, their daily professional interactions become less emotionally draining, more rewarding, and more mutually respectful, and this has been found to be associated with higher teacher wellbeing [65]. Day-to-day encounters shift toward positive outcomes, with lower burnout and higher professional satisfaction [122]. Prioritizing faculty trust in students thus provides a practically and theoretically robust framework for analyzing how school relational patterns associate with educator health.

Additionally, trusting students has been tied to institutional innovation [105] and self-regulatory organizational environments [1], indicating that it sustains workplace cultures anchored in autonomy, collaboration, and collective responsibility. Within this landscape, the Vibrant School Climate (VSC) model serves as a compelling conceptual framework for mapping how these relational dynamics fuel school improvement efforts. Because the VSC construct is relatively new, empirical data exploring its predictors and correlates remains scarce; this study bridges that gap by explicitly testing the relationships between faculty trust in students and VSC. Both concepts share a foundational student-centered orientation: VSC positions curiosity, student voice, and playful engagement as the bedrock of a thriving campus, while faculty trust in students reflects an educator's readiness to grant autonomy, value student perspectives, and rely on students' capacity to co-author their learning experiences. Conceptually, these two metrics converge in their focus on respect, engagement, and self-determination, offering a highly complementary framework for evaluating aspirational school environments.

Considering that both VSC and faculty trust in students reflect strengths-based, relational, and organizational resources, their associations with educator wellbeing warrant empirical investigation. Grounded in positive psychology [106], and building on the literature reviewed above, this study positions faculty trust in students and Vibrant School Climate (VSC) as key organizational resources that may help explain variations in educator wellbeing. While prior work has established general links between school climate,

trust, and teacher outcomes, little is known about how these constructs operate together within a positive psychology framework or across multiple levels of analysis. Because wellbeing is shaped both by teachers' individual experiences relative to their colleagues and by broader school-level contexts, a multilevel modeling approach is well-suited to disentangle these effects. A conceptual overview of the hypothesized multilevel associations is presented in Fig. 1. Accordingly, the following hypotheses were developed:

H1 Teachers who report higher perceptions of faculty trust in students, relative to their school's average, will report higher levels of wellbeing.

H2 Schools with higher average levels of faculty trust in students will, on average, report higher levels of faculty wellbeing.

H3 Teachers who perceive their school climate as more vibrant than their colleagues' average perceptions will report higher levels of wellbeing.

H4 Schools with higher average levels of Vibrant School Climate will report higher levels of faculty wellbeing.

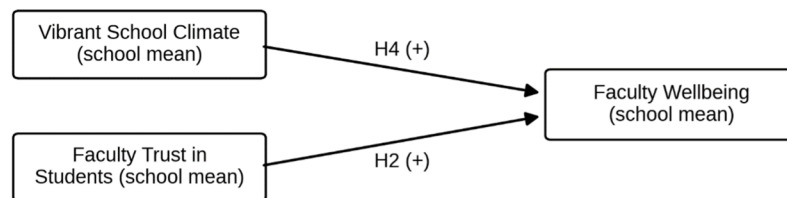
H5 When modeled simultaneously, Vibrant School Climate (between-school) and faculty trust in students (within- and between-school) will account for unique variance in faculty wellbeing.

3 Methods

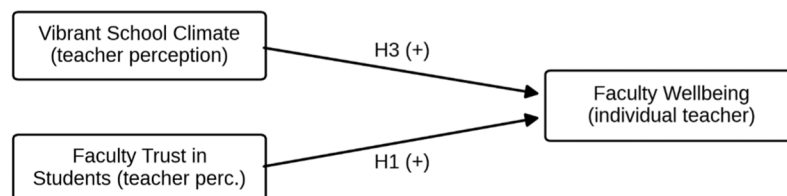
Prior to estimating multilevel regression models, descriptive statistics, internal consistency reliability, and bivariate correlations among the study variables were examined. Reliability was assessed using McDonald's omega (ω), which provides a more accurate estimate of internal consistency than Cronbach's alpha [39].

To account for the nested structure of the data, correlations were computed separately at the within- and between-school levels. Within-school correlations were estimated by centering teacher scores around their respective school means, capturing the degree to which teachers' perceptions co-varied relative to their colleagues. Between-school

Between-school level (Level 2)

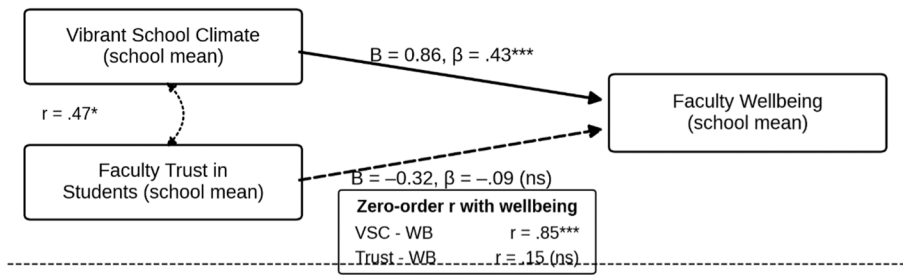
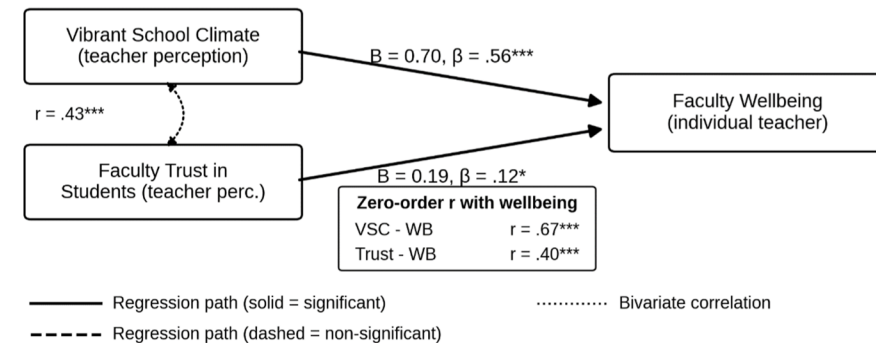


Within-school level (Level 1)



H5: VSC and faculty trust in students each account for unique variance in wellbeing when modeled simultaneously

Fig. 1 Hypothesized Multilevel Associations

Between-school level (Level 2)**Within-school level (Level 1)****Fig. 2** Results: Full Picture

correlations were estimated using school-level means, representing the extent to which schools differed from one another in their average levels of wellbeing, vibrant school climate, and trust [87]. This two-level correlational approach allowed the researcher to distinguish individual-level associations from school-level associations and provided a foundation for subsequent multilevel regression models.

A multilevel modeling approach was then employed to account for the nested structure of the data, with teachers (Level 1) nested within schools (Level 2). Because the focal predictors, vibrant school climate (VSS) and faculty trust (FT), were assessed through individual educators' reports, their variance was decomposed into within- and between-school components to avoid conflating individual- and school-level effects [43, 87].

Specifically, for each school, the school mean of VSS and FT was calculated, which represented the between-school components (VSS_b, FT_b). Each teacher's score was then group-mean centered around the school mean, yielding the within-school components (VSS_w, FT_w). The within components reflect teachers' perceptions relative to their school's average, whereas the between components capture differences across schools in their mean levels of climate and trust. This approach, sometimes referred to as the "contextual effects" or "REWB/Mundlak specification," allows simultaneous estimation of individual- and school-level effects while reducing bias due to the ecological fallacy and atomistic fallacy [100].

Faculty wellbeing (FWB) served as the dependent variable. Random-intercept models were estimated using the lme4 [6] and lmerTest [82] packages in R. Model estimates were reported with CR2 cluster-robust standard errors and Satterthwaite degrees of freedom computed with the clubSandwich package [7, 99], together with 95% confidence intervals. All inferential statistics for the fixed effects reported below, including p values

and confidence intervals, are based on these cluster-robust standard errors, which provide valid inference under heteroskedasticity, clustering, and small numbers of Level-2 units. To aid interpretation, standardized coefficients were computed using the parameters package [86]. Model fit was evaluated with marginal and conditional R^2 values [92].

3.1 Participants

Using a multi-stage clustered sampling approach as advocated by Bryman and Bell [16], schools were employed as the primary sampling units in the initial stage, with faculty constituting the secondary sampling stage. Adhering to the ethical guidelines and principles set by the Institutional Review Board at the institution, upon securing approval to conduct research, 162 schools in a southeastern U.S. state were invited within 9 districts that had agreed to participate in our study. Of these, 51 schools (31% participation rate) submitted data, and 35 schools had more than five individual respondents, meeting the threshold for inclusion in the multilevel analysis. This number was within the range of group number and group size recommended in the literature [66, 67, 74]. As Table 1 shows, this study included 402 participants (12 leaders, 390 teachers) from 35 schools (18 elementary, 7 middle, 10 high schools) in total.

3.2 Instruments

3.2.1 Teacher wellbeing scale

Wellbeing was assessed with the nine-item short form of the PERMA + 4 [34]. Confirmatory factor analysis using robust maximum likelihood estimation (MLR) with full information maximum likelihood for missing data showed that the nine-item model fit the data well overall, $\chi^2_{\text{scaled}}(27) = 32.10$, $p = .228$, CFI = 0.996, TLI = 0.994, RMSEA = 0.022 (90% CI [0.000, 0.051]), SRMR = 0.023. However, the loading pattern was markedly uneven: items 1–5 loaded strongly on the latent factor ($\lambda = 0.69\text{--}0.87$), whereas items 6–9 showed loadings that were negligible and non-significant ($\lambda = 0.002\text{--}0.084$, all $p > .14$). Model-based reliability for the nine-item set was modest ($\omega = 0.74$) and average variance extracted fell well below the 0.50 threshold (AVE = 0.35), indicating inadequate convergent validity [46, 59].

Because items 6–9 did not cohere with the remaining items in this sample, they were removed and the five core items retained. The five-item model showed good fit, $\chi^2_{\text{scaled}}(5) = 15.66$, $p = .008$, CFI = 0.985, TLI = 0.970, SRMR = 0.019, robust RMSEA = 0.089. Because RMSEA is known to be inflated and unstable in models with few degrees of freedom, CFI and SRMR provide more informative indices of fit for this model. All standardized loadings were strong ($\lambda = 0.69\text{--}0.87$), model-based reliability was excellent ($\omega = 0.91$), and average variance extracted supported convergent validity (AVE = 0.67). The measurement employs a five-point response scale with the following anchors: 1 = not at all, 2 = very little, 3 = to some extent, 4 = quite a bit, and 5 = a great deal. Sample

Table 1 Participant demographics based on school level and role in the school

Level	No. of schools	Leaders		Teachers		Total
		f	%	f	%	
Elementary	18	3	1.4	206	98.6	209
Middle	7	2	3.3	59	96.7	61
High	10	7	5.3	125	94.7	132
Total	35	12	3	390	97	402

items include: “Taking all things together, how happy are you at school?” and “To what extent do you feel that your work at school is worthwhile?”

Two implications of this modification warrant explicit acknowledgement. First, the retained items assess positive emotion, meaning, and relationships, and do not include indicators of engagement or accomplishment. The resulting measure is therefore best understood as capturing an affective–eudaimonic core of wellbeing rather than the full five-component PERMA structure. Second, because the instrument differs from the validated PERMA + 4, findings should not be interpreted as directly comparable to studies using the complete scale. For these reasons the measure is referred to throughout as a shortened PERMA-based wellbeing measure rather than as the PERMA + 4 instrument.

3.2.2 Vibrant school scale

We employed the validated version of the Vibrant School Scale (VSS; [11]). The 19-item, three-factor at the within level, one factor at the between level solution provided the best fit ($\chi^2(269) = 354.97, p < .01$, CFI = 0.95, TLI = 0.94, RMSEA = 0.02, SRMR_within = 0.02, SRMR_between = 0.07). Within the present analyses, the three-factor within-level structure was reconfirmed on the current data, $\chi^2_{\text{scaled}}(149) = 424.28$, CFI = 0.946, TLI = 0.938, RMSEA = 0.073, SRMR = 0.041, with standardized loadings ranging from 0.72 to 0.85. Model-based reliabilities were high (enlivened minds $\omega = 0.88$; emboldened voices $\omega = 0.93$; playful learning $\omega = 0.92$), and average variance extracted ranged from 0.61 to 0.66. Consistent with the validation study, the three dimensions were strongly intercorrelated ($r = .79\text{--}0.89$), supporting the treatment of VSC as a higher-order composite in the present analyses. The measurement employs a five-point response scale (1 = not at all to 5 = a great deal). Sample items include: “In this school, creativity abounds,” “I feel I belong here,” and “We engage in learning with a playful spirit.”

3.2.3 Faculty trust in students scale

Trust was assessed using the client-trust subscale of the Omnibus Trust Scale [119], which comprises nine items addressing two referents: faculty trust in students (four items) and faculty trust in parents (five items). Educators rated their agreement on a five-point scale ranging from strongly disagree (1) to strongly agree (5).

Confirmatory factor analysis indicated that a single-factor solution across all nine items fit the data poorly, $\chi^2(27) = 220.65, p < .001$, CFI = 0.912, TLI = 0.883, RMSEA = 0.134 (90% CI [0.118, 0.150]), SRMR = 0.058. Inspection of the modification indices revealed systematic residual covariation clustering separately among the student-referent items and among the parent-referent items, with negative residual covariances across the two blocks. A two-factor model distinguishing trust in students from trust in parents fit substantially better, $\chi^2_{\text{scaled}}(26) = 68.63$, CFI = 0.977, TLI = 0.969, RMSEA = 0.069, SRMR = 0.027, and represented a significant improvement over the single-factor solution, $\Delta\chi^2(1) = 140.27, p < .001$. The two factors were correlated but clearly distinguishable ($r = .79$).

Because the present study is concerned specifically with the teacher–student relational dynamic, the four student-referent items were used to operationalize faculty trust in students. This four-item measure showed strong psychometric properties: standardized loadings ranged from 0.66 to 0.77, model-based reliability was good ($\omega = 0.82$), and average variance extracted supported convergent validity (AVE = 0.53). Fit indices for

the four-item model were CFI = 0.975 and SRMR = 0.024; the elevated RMSEA (0.131) reflects the well-documented instability of this index in models with very few degrees of freedom and is not interpreted as evidence of misfit. Sample items include “Teachers in this school trust their students” and “Students in this school can be counted on to do their work.” For comparison purposes, the parent-referent subscale was also scored ($\omega = 0.92$, AVE = 0.69) and is used in a supplementary analysis reported below.

3.3 Data analysis

Missing data were examined using Little’s MCAR test, which indicated that the data were not missing completely at random, $\chi^2(635) = 737$, $p = .003$ [84]. Because the overall level of missingness was minimal (< 5%) and full information maximum likelihood (FIML) estimation produced results nearly identical to listwise deletion, no cases were removed due to missing data. In preparation for analysis, missing values originally coded as – 9 in SPSS were recoded to NA in R. To evaluate the impact of missing data handling, CFA models were estimated using both listwise deletion and full information maximum likelihood (FIML; missing = “fiml” in lavaan). The fit indices, factor loadings, and reliability estimates were substantively identical across the two approaches, suggesting that missing data did not bias the results. Given this convergence, subsequent analyses were conducted using FIML, with sensitivity checks via listwise deletion confirming the robustness of the findings.

Because all constructs were assessed via self-report from the same respondents at a single occasion, two complementary procedures were used to evaluate common method variance. Harman’s single-factor test was conducted by submitting all 28 study items to an unrotated principal components analysis [98], and the full collinearity approach proposed by Kock [79] was applied, in which each construct is regressed on the remaining constructs and variance inflation factors exceeding 3.3 are taken to indicate collinearity attributable to method effects. Results of both procedures are reported at the beginning of the Results section.

As participants were nested within schools, intraclass correlations (ICCs) were estimated for wellbeing and all predictors [67, 100]. The ICCs were 0.096 for wellbeing, 0.096 for trust in students, and 0.220 for school climate, indicating meaningful between-school variance [87]. The ICC, ranging from 0 to 1, denotes the extent of variation across Level 2 units. A zero ICC signifies no mean variation across schools, indicating that all score variations occur at the individual level [97]. Only when the ICC exceeds a trivial threshold is the use of Hierarchical Linear Modeling (HLM) warranted [83]. Higher ICC values suggest larger proportions of between-level variance, making it biased to disregard the multilevel structure of the data [40]. The design effect was also computed, as recommended for clustered data structures [78, 91]. DEFF values exceeded 2 for all variables (2.00–2.41 for wellbeing, 2.01–2.42 for trust in students, 3.31–4.25 for climate), confirming that clustering could not be ignored. Considering the ICC and DEFF values, an HLM meaning multilevel regression was conducted.

To evaluate model assumptions, a series of diagnostic checks were evaluated. Residual diagnostics supported normality (Shapiro–Wilk $W = 0.997$, $p = .558$; Kolmogorov–Smirnov $D = 0.025$, $p = .969$), and Q–Q plots for both residuals and school-level random effects showed approximate alignment with the theoretical distribution [44, 112]. Posterior predictive checks further indicated close correspondence between observed and

model-predicted outcome distributions [49, 51]. Residuals were randomly scattered around zero in fitted-value plots, supporting linearity, and no influential cases were detected [6, 50]. Although Breusch–Pagan and White tests indicated heteroskedasticity in single-level models [13, 130], CR2 cluster-robust standard errors were used throughout to provide valid inference under heteroskedasticity and clustering [7, 99]. Multicollinearity was not a concern: variance inflation factors were low for both FTS (1.23) and VSS (1.23). Taken together, these diagnostics indicate that model assumptions were adequately met and that the multilevel estimates with robust SEs provide reliable inference [108].

4 Results

4.1 Descriptive analysis of nested data

Descriptive statistics are reported in Table 2. On average, educators reported relatively high wellbeing ($M=3.77$, $SD=0.79$), followed by trust in students ($M=3.54$, $SD=0.58$) and perceptions of vibrant school climate ($M=3.41$, $SD=0.75$). A repeated-measures analysis of variance revealed a significant main effect of variable, $F(1.83, 734.01)=57.62$, $p < .001$, generalized $\eta^2 = 0.043$. Mauchly's test indicated a violation of sphericity ($W=0.907$, $p < .001$); therefore, Greenhouse–Geisser corrections were applied ($\epsilon=0.915$). Post-hoc pairwise comparisons with Holm correction showed that wellbeing was rated significantly higher than both trust in students ($d=0.32$, $p < .001$) and vibrant school climate ($d=0.51$, $p < .001$), and that trust in students was rated significantly higher than vibrant school climate ($d=0.19$, $p < .001$). All three variables were rated on 1–5 scales.

4.2 3.1. Common method variance

Prior to the main analyses, common method variance was evaluated. Harman's single-factor test indicated that the first unrotated component accounted for 50.42% of the total variance among the 28 study items, and four components with eigenvalues greater than one were extracted (14.12, 1.96, 1.89, and 1.13). Because Harman's test is widely recognized as a weak diagnostic that is sensitive to the number and homogeneity of items included [98], the full collinearity approach was also applied. Variance inflation factors were 2.06 for wellbeing, 2.22 for vibrant school climate, and 1.31 for trust in students, all well below the 3.3 threshold indicative of method-induced collinearity [79]. Taken together, these results suggest that common method variance is unlikely to account for the observed associations, although, as with all post hoc procedures, it cannot be ruled out entirely. This limitation is addressed further in the Limitations section.

Table 2 Descriptive statistics and ICC levels

Variable	M	SD	ICC	Skew	Kurtosis	DEFF (equal)	DEFF (unequal)
1. Faculty Wellbeing	3.77	0.79	0.096	-0.43	-0.04	2.00	2.41
2. Vibrant School Climate	3.41	0.75	0.220	-0.10	-0.05	3.31	4.25
3. Faculty Trust in Students	3.54	0.58	0.096	0.18	-0.01	2.01	2.42

$N=35$ schools. Intraclass Correlation Coefficient = ICC Design Effect = DEFF

Table 3 Reliability and bivariate correlations of variables

Variables -within	1	2	3
1. Faculty Wellbeing		0.67***	0.40***
2. Vibrant School Climate			0.43***
3. Faculty Trust in Students			
Variables - Between	1	2	3
1. Faculty Wellbeing	(0.91)	0.85***	0.15
2. Vibrant School Climate		(0.95)	0.47*
3. Faculty Trust in Students			(0.82)

Internal consistency reliability of the measures is reported within parentheses along the diagonal. * = $p < .05$, *** = $p < .001$. Ratings for the scales based on 5-point scales

Table 4 Multilevel regression analysis on faculty wellbeing

Predictor	B	SE (CR2)	95% CI		t	df	β	p
			LL	UL				
<i>Within</i>								
VSS_w	0.70	0.05	0.59	0.80	14.20	17.87	0.56	< 0.001***
FTS_w	0.19	0.07	0.05	0.32	2.81	17.28	0.12	0.012*
<i>Between</i>								
VSS_b	0.86	0.10	0.63	1.09	8.60	8.53	0.43	< 0.001***
FTS_b	-0.32	0.14	-0.62	-0.01	-2.25	11.94	-0.09	0.044*
Model Fit								
R ² _marginal								0.524
τ_{00} (uncond.)								0.060
σ^2 (uncond. / final)								0.571 / 0.302

Dependent variable=faculty wellbeing. VSS=Vibrant School Scale; FTS=faculty trust in students; subscripts w and b denote within- and between-school components. SE(CR2) = CR2 cluster-robust standard errors; CI (LL, UL) based on Satterthwaite degrees of freedom; β = standardized coefficient. The between-school coefficient for faculty trust in students reflects statistical suppression and is not interpreted substantively (see Discussion). The random-intercept variance in the final model was estimated at the boundary; cluster-robust standard errors provide valid inference under this condition. * $p < .05$, *** $p < .001$

4.3 Correlation analysis

Table 3 presents the internal consistency reliabilities and bivariate correlations of faculty wellbeing, vibrant school climate, and faculty trust at both the within- and between-school levels.

At the within-school level, faculty wellbeing was positively associated with vibrant school climate ($r = .67, p < .001$) and with trust in students ($r = .40, p < .001$), and climate and trust were moderately correlated ($r = .43, p < .001$). At the between-school level, average wellbeing was very strongly associated with average climate ($r = .85, p < .001$), whereas its association with average trust in students was small and non-significant ($r = .15, p = .397$). Average climate and average trust were moderately correlated across schools ($r = .47, p = .018$). This divergence between the within- and between-school patterns for trust is examined in the multilevel models below.

4.4 Multilevel regression analysis

A two-level random-intercept model was estimated with teachers (Level 1) nested within schools (Level 2), and with the within- and between-school components of vibrant school climate and trust in students entered simultaneously. Inference was based on CR2 cluster-robust standard errors with Satterthwaite degrees of freedom (Table 4).

At the within level, teachers who perceived their school as more vibrant than their colleagues reported higher wellbeing ($B = 0.70, SE = 0.05, \beta = 0.56, t = 14.20, df = 17.87, p$

Table 5 Sensitivity analysis excluding school leaders (teachers only)

Predictor	B	SE (CR2)	LL	UL	t	df	p
VSS_w	0.70	0.05	0.59	0.80	13.98	16.80	< 0.001
FTS_w	0.19	0.07	0.04	0.33	2.72	15.97	0.015
VSS_b	0.84	0.10	0.61	1.08	8.22	8.41	< 0.001
FTS_b	−0.29	0.15	−0.61	0.03	−1.98	12.15	0.071

< .001), supporting H3. Teachers who reported greater trust in students than their colleagues also reported higher wellbeing ($B = 0.19$, $SE = 0.07$, $\beta = 0.12$, $t = 2.81$, $df = 17.28$, $p = .012$), supporting H1.

At the between level, schools with higher average vibrant school climate reported higher average wellbeing ($B = 0.86$, $SE = 0.10$, $\beta = 0.43$, $t = 8.60$, $df = 8.53$, $p < .001$), supporting H4. The coefficient for school-mean trust in students was negative and marginally significant ($B = -0.32$, $SE = 0.14$, $\beta = -0.09$, $t = -2.25$, $df = 11.94$, $p = .044$). As detailed in the Discussion, several converging indicators identify this coefficient as reflecting statistical suppression rather than a substantive negative association; H2 was therefore not supported. H5 was partially supported: vibrant school climate accounted for unique variance at both levels, whereas trust in students did so only at the within level.

The fixed effects accounted for approximately 52% of the total variance in wellbeing ($R^2_{\text{marginal}} = 0.524$). The unconditional model yielded a between-school variance of $\tau_{00} = 0.060$ against a within-school variance of 0.571 ($ICC = 0.096$), indicating that roughly one tenth of the variability in wellbeing lay between schools. In the final model, within-school variance was reduced to 0.302 (a 47% reduction), and between-school variance was reduced to approximately zero, producing a boundary estimate of the random intercept. Rather than reporting a proportion of between-school variance explained, which is unstable and uninformative under these conditions, we note that the school-level predictors accounted for essentially all of the modest between-school variability present in the data. Because cluster-robust standard errors were used for inference, the fixed-effect estimates remain valid despite the boundary estimate of the random-effect variance [7, 99].

4.5 Sensitivity and robustness analysis

School leaders Because the sample comprised both teachers ($n = 390$) and school leaders ($n = 12$), the model was re-estimated excluding leaders, with within- and between-school components recomputed within the teacher-only subsample. All 35 schools were retained. Results were substantively identical (Table 5): within schools, climate ($B = 0.70$, $SE = 0.05$, $p < .001$) and trust in students ($B = 0.19$, $SE = 0.07$, $t = 2.72$, $df = 15.97$, $p = .015$) both predicted wellbeing; between schools, average climate remained significant ($B = 0.84$, $SE = 0.10$, $p < .001$) while average trust did not ($B = -0.29$, $p = .071$). Adding role as a Level-1 covariate to the full model showed no difference in wellbeing between teachers and leaders ($B = -0.03$, $SE = 0.16$, $p = .878$). Role composition therefore does not appear to have influenced the findings.

School level Mean wellbeing was similar across elementary ($M = 3.79$, $SD = 0.78$), middle ($M = 3.66$, $SD = 0.77$), and high schools ($M = 3.80$, $SD = 0.82$), and a one-way analysis of variance on school means was non-significant, $F(2, 32) = 1.46$, $p = .249$. Adding school level as a Level-2 covariate did not improve model fit, $\chi^2(2) = 4.47$, $p = .107$, and neither middle schools ($B = 0.15$, $p = .190$) nor high schools ($B = -0.04$, $p = .648$) differed

significantly from elementary schools under robust standard errors. The within- and between-level coefficients were unchanged. These results suggest comparable associations across school levels, although with only seven middle schools the design has limited power to detect such differences, which should be examined in larger samples.

Trust referent To examine whether the observed associations were specific to trust in students, the models were re-estimated substituting faculty trust in parents. Neither the within-level ($B = 0.08$, $t = 1.11$, $p = .284$) nor the between-level component ($B = -0.12$, $t = -0.92$, $p = .379$) was significantly associated with wellbeing, while the climate effects remained unchanged. This contrast supports the theoretical rationale for focusing on the student referent: it is the daily, sustained character of teacher–student interaction, rather than trust in the school community generally, that appears most closely tied to educator wellbeing.

5 Discussion

The present study examined the association between faculty wellbeing, vibrant school climate (VSC), and the faculty trust in students within a multilevel framework that distinguished individual and school level effects. Three findings emerged. First, perceptions of a more vibrant climate were strongly associated with higher wellbeing at both the individual and school levels. Second, teachers who reported greater trust in their students than their colleagues did also reported higher wellbeing, although this association was modest relative to that of climate. Third, average trust in students showed no reliable independent association with average wellbeing at the school level once climate was taken into account. Together these findings indicate that the aspirational and relational features of school life are closely tied to educators' wellbeing, and that the relational dimension of trust operates primarily at the level of individual experience rather than as a shared organizational property.

The association between VSC and wellbeing was substantial at both levels of analysis, and its magnitude at the school level ($r = .85$ among school means) indicates that vibrancy functions not only as an individual perception but as a shared organizational quality. Teachers who experience their schools as intellectually stimulating, relationally inclusive, and emotionally joyful reported correspondingly greater wellbeing. These findings are consistent with several complementary theoretical accounts. From the perspective of self-determination theory [30, 101], vibrant schools appear to provide conditions that correspond to the basic psychological needs for autonomy, competence, and relatedness, whose satisfaction is associated with more autonomous motivation and greater psychological health among teachers. The broaden-and-build framework [48] offers a complementary reading: environments characterized by curiosity, creativity, and play may expand teachers' cognitive and emotional repertoires and, over time, build enduring personal and social resources. These interpretations converge on the same implication—that the affective and relational texture of daily school life is bound up with teachers' capacity to thrive—and they align with prior research linking positive school climate to teacher motivation and engagement [3, 24, 134].

The strength of the between-school association is of particular interest, indicating that where vibrancy becomes part of the institutional ethos, wellbeing appears to be collectively patterned rather than individually distributed. This connects to the deeper learning agenda, which calls for schools to move beyond compliance-driven instruction

toward meaning-centered environments [90, 107]. As the central agents of this pedagogical shift, teachers may themselves require contexts that afford engagement, voice, and joy. Notably, educators in this sample rated their trust in students more highly than the vibrancy of their schools, suggesting that aspirational climate may be the scarcer organizational resource and thus a particularly promising target for improvement efforts.

The within-school association between trust in students and wellbeing offers insight into the relational foundations of flourishing. Teachers who reported greater trust in their students than their colleagues tended to report higher wellbeing, suggesting that the quality of teacher–student relational expectations is connected to educators' daily sense of fulfillment. Where teachers extend trust to students, classroom interactions may become less emotionally demanding and more mutually rewarding, consistent with prior findings linking trust to reduced emotional strain and greater job satisfaction [65, 122]. Within the PERMA framework, such trustful relationships plausibly support positive emotion, engagement, relationships, and meaning simultaneously [106]. The specificity of this association merits emphasis: when the parallel analyses were conducted using faculty trust in parents rather than in students, no significant association with wellbeing emerged at either level. This contrast supports the theoretical rationale for isolating the student referent, indicating that it is the daily, sustained character of teacher–student interaction, rather than trust in the school community generally, that is most closely tied to educator wellbeing. At the same time, the magnitude of the trust association ($\beta = 0.12$) was considerably smaller than that of climate ($\beta = 0.56$), indicating that relational trust in students accounts for a comparatively modest share of the variation in wellbeing.

The negative between-school coefficient for trust in students requires careful interpretation and should not be read as indicating that schools with higher collective trust have less satisfied faculty. Several converging findings identify this coefficient as reflecting statistical suppression. The zero-order association between school-mean trust and school-mean wellbeing was small and non-significant ($r = .15$, $p = .397$). When school-mean climate was omitted from the model, the coefficient for school-mean trust was positive rather than negative ($B = 0.46$, $p = .036$), with the sign reversal occurring only once climate was controlled. School-mean climate was strongly related to both school-mean wellbeing ($r = .85$) and school-mean trust ($r = .47$), producing substantial collinearity between the two Level-2 predictors. Under such conditions, the residual variance in trust that remains after climate is partialled out no longer corresponds to the construct as theoretically intended, and its coefficient cannot be interpreted as a contextual effect of trust [58, 129]. Consistent with this reading, the coefficient was reduced and non-significant when school leaders were excluded ($B = -0.29$, $p = .071$) and when school level was included as a covariate ($p = .106$). We therefore conclude that collective trust in students showed no reliable independent association with average wellbeing once climate was accounted for, and we caution explicitly against substantive interpretation of the negative sign. Future longitudinal or structural work with mediation models could clarify whether trust operates as an antecedent, mediator, or consequence of perceived vibrancy and wellbeing.

Finally, the magnitude of the between-school variance accounted for warrants comment. The unconditional model yielded a between-school variance of $\tau_{00} = 0.060$ against a within-school variance of 0.571 ($ICC = 0.096$), indicating that approximately one tenth

of the variability in wellbeing lay between schools. In the final model this between-school component was reduced to approximately zero. Three considerations bear on interpretation. First, the absolute quantity of between-school variance available to be explained was small, so that near-complete reduction reflects a modest baseline rather than exceptional explanatory power. Second, with only 35 Level-2 units, variance-component estimates are imprecise and some degree of overfitting is likely. Third, both school-level constructs were reported by the same respondents, so shared method variance may inflate their association. The between-level result is therefore best read as indicating a strong school-level association between vibrancy and wellbeing rather than as evidence that vibrancy accounts for nearly all school-level differences in teacher wellbeing.

5.1 Limitations and suggestions for future research

Despite the contributions of this study, several limitations should be noted. First, the data were collected cross-sectionally, which fundamentally constrains the conclusions that can be drawn. The observed relationships are directionally ambiguous: it is equally consistent with the data that vibrant climates are associated with wellbeing because flourishing teachers perceive and co-create more vibrant climates, that reciprocal dynamics operate over time, or that unmeasured third variables (e.g., leadership quality, student composition, resource levels) drive both. Accordingly, no causal inferences are warranted, and statements throughout the manuscript are framed in associational terms. Second, all variables relied entirely on self-report measures from the same respondents at one time point, which introduces the possibility of common-method bias. Although the Harman's single-factor test and full collinearity VIFs reported in the Data Analysis section suggest that common method variance does not fully account for the findings, these procedures cannot rule it out entirely. Future research should incorporate data from multiple sources (e.g., student or parent reports, observational climate ratings) or apply temporal separation between measures to reduce this potential bias. Third, the measurement models involved compromises: the wellbeing measure was a shortened, five-item PERMA-based index rather than the full PERMA + 4 instrument, and the Faculty Trust in Students scale showed elevated RMSEA in this sample; both issues limit comparability with prior work and call for measurement refinement in future studies. In addition, participation was voluntary, and schools self-selected into the study. While no monetary or material incentives were provided, participation required administrative approval and coordination. Consequently, the participating schools may represent contexts already more receptive to innovation and transformation, which should be considered when interpreting generalizability. Moreover, the sample included substantially more teachers than school leaders; although sensitivity analyses excluding leaders yielded substantively identical results, the small number of leaders precluded meaningful role comparisons, and future studies should seek more balanced samples across professional roles to enable comparisons and a fuller understanding of organizational dynamics.

Several avenues for future research follow from these considerations. A validated measure of VSC was used, and its multilevel structure was re-examined in the present sample; nevertheless, future research could extend this work by testing the higher-order measurement structure of the VSS using multilevel confirmatory factor analysis (CFA) or structural equation modeling (SEM) to evaluate potential second-order or bifactor

representations of Vibrant School Climate and examine measurement invariance across levels more rigorously in different contexts. Relatedly, because the three VSC dimensions (enlivened minds, emboldened voices, and playful learning) represent conceptually distinct facets of climate, an important next step is to examine whether these dimensions contribute differentially to teacher wellbeing; in the present study the between-level structure of the VSS was unidimensional, which constrained such analyses at the school level, but dimension-specific associations could be explored at the within level and in larger multilevel samples. Future work should also broaden the nomological net in two directions. On the outcome side, additional positive constructs such as vitality, work enthusiasm, and teacher self-efficacy would enrich the strengths-based account of teacher functioning examined here. On the process side, Self-Determination Theory suggests concrete mechanisms worth testing: whether vibrant climates are associated with wellbeing via basic psychological need satisfaction, and via the prevalence of motivating (autonomy-supportive, structuring) versus demotivating (controlling, chaotic) interpersonal styles among teachers and leaders [127]. Because the present study focused on faculty trust in students, extending the analysis to other trust referents (principals, colleagues, parents) would also clarify which relational resources matter most for wellbeing.

Lastly, subsequent research should use longitudinal or quasi-experimental designs to examine temporal dynamics and potential reciprocal associations among wellbeing, trust, and climate. Testing theoretically motivated mediation and moderation models—for example, VSC → trust → wellbeing, or trust as a moderator of the climate–wellbeing association—could help clarify functional linkages. A particularly promising avenue is intervention research: systematic reviews indicate that school-based interventions can improve educator wellbeing [4, 17, 38, 125], and the VSC framework offers a concrete, organization-level target for such interventions. Experimental or quasi-experimental studies that attempt to cultivate vibrancy through inquiry-oriented professional development, participatory decision-making, or playful professional learning and to track subsequent changes in need satisfaction, trust, and wellbeing would provide causal evidence that the present correlational design cannot.

6 Implications and conclusion

The findings of this study offer practical insights for educational leadership and critical policy implications for teacher health promotion. Rather than focusing solely on individual-level stress management, educational policy and system-level efforts could prioritize the cultivation of Vibrant School Climates as a form of institutional support, with the caveat that the present evidence is associational and intervention studies are needed to establish effectiveness. Although Vibrant School Climate (VSC) was modeled as a single composite construct, its validated subdimensions (enlivened minds, emboldened voices, and playful learning) provide a useful framework for translating the concept of vibrancy into everyday school practices. Collectively, these dimensions emphasize that faculty wellbeing is closely tied to the intellectual, relational, and emotional qualities of school life rather than to individual coping alone.

Through enlivened minds, leaders can cultivate professional cultures that nurture curiosity, creativity, and continuous learning among teachers. Establishing inquiry-based professional development, cross-disciplinary collaborations, and reflective learning

communities allows teachers to experience autonomy and growth in their own work. Concretely, school leaders might protect scheduled time (e.g., a recurring block within contractual hours) for teacher-led inquiry projects and recognize experimentation in evaluation conversations rather than penalizing productive failure. With the perspective of emboldened voices, schools can implement inclusive decision-making structures and ensure that faculty perspectives inform both pedagogical and organizational directions. Shared leadership councils, staff advisory groups, or participatory planning sessions can strengthen teachers' sense of agency and belonging. Embedding psychological-safety routines such as regular feedback dialogues, open forums, and transparent communication helps create climates where differing opinions are not only tolerated but valued as sources of collective insight. To encourage playful learning, professional experiences that are experiential, collaborative, and joyful can be designed such as creative lesson-design workshops, peer-observation exchanges, or "innovation days" that invite experimentation and reflection. When playfulness is normalized as a shared professional value, growth and enjoyment can coexist within the serious work of teaching and learning.

For educational policymakers, three specific implications follow. First, teacher wellbeing and strengths-based climate indicators (such as vibrancy) could be incorporated alongside conventional safety and achievement metrics in school quality frameworks and regular school climate surveys, so that flourishing becomes visible and monitorable at the system level. Second, funding streams for professional development could explicitly support the organization-level practices described above (inquiry-based professional learning, participatory governance structures), rather than exclusively individual-level stress-management offerings. Third, given persistent concerns about teacher attrition, wellbeing-supportive climate development could be positioned as a component of retention strategy, with district-level support for principals in building trust and vibrancy.

Children and adolescents spend a significant portion of their lives in schools; therefore, schools have a crucial responsibility to model and sustain environments that promote wellbeing for all participants. While the cross-sectional nature of the data limits causal inference, the results suggest that schools characterized by vibrant, participatory, and joyful climates, where trusting relationships are fostered and curiosity and collaboration are encouraged, tend also to be schools where faculty report higher wellbeing. Fostering such environments, where teachers' intellectual engagement, voices, and creativity are supported, may go hand in hand with more inclusive, dynamic, and fulfilling workplaces. These insights underscore the central role of school climate in a positive and thriving educational community for both educators and students. By prioritizing vibrant, participatory, and joyful climates where trusting relationships are the norm, educational systems may be better positioned to retain teachers and sustain a thriving educational community that is resilient in the face of modern-day teaching pressures.

Abbreviations

Study constructs and models

VSC	Vibrant School Climate
VSS	Vibrant School Scale
PERMA	Wellbeing framework representing Positive emotions, Engagement, Relationships, Meaning, and Accomplishment
SDT	Self-Determination Theory
FT	Faculty Trust
FWB	Faculty Wellbeing

Statistical and methodology terms

HLM	Hierarchical Linear Modeling
ICC	Intraclass Correlation Coefficient
DEFF	Design Effect
CFA	Confirmatory Factor Analysis
SEM	Structural Equation Modeling
ANOVA	Analysis of Variance
FIML	Full Information Maximum Likelihood
MCAR	Missing Completely At Random
VIF	Variance Inflation Factor
REWB	Random Effects Within-Between (Mundlak specification)
VSS_w / FT_w	Within-school components of predictors (group-mean centered)
VSS_b / FT_b	Between-school components of predictors (school means)

Measurement fit and reliability indices

CFI	Comparative Fit Index
TLI	Tucker-Lewis Index
RMSEA	Root Mean Square Error of Approximation
SRMR	Standardized Root Mean Square Residual
AVE	Average Variance Extracted
HTMT	Heterotrait-monotrait ratio
ω (Omega)	McDonald's omega (a measure of internal consistency reliability)

General reporting terms

M / SD	Mean / Standard Deviation
SE	Standard Error
CI	Confidence Interval
LL / UL	Lower Limit / Upper Limit (referring to confidence intervals)
CR2	A specific type of robust standard error estimation
SPSS	Statistical Package for the Social Sciences
NA	Not Available (used for recoding missing values)

Acknowledgements

Not applicable.

Author contributions

ANB was responsible for the conceptualization and design of the study, including the theoretical framing of Vibrant School Climate (VSC), faculty trust, and wellbeing. ANB managed the data collection from the participating school districts and was responsible for cleaning the data and managing missing values. ANB performed all statistical analyses, including descriptive statistics, reliability assessments, and the multilevel regression models using R. ANB was the major contributor in writing the manuscript. MTM served as the primary supervisor for the study, contributing to the interpretation of findings and the integration of positive psychology frameworks. MTM was also a major contributor in revising and editing the manuscript for important intellectual content and readability.

Funding

Open Access funding enabled and organized by Projekt DEAL. There is no funding associated with this study.

Data availability

The data that support the findings of this study are not publicly available due to privacy and confidentiality agreements with participating school districts but are available from the corresponding author on reasonable request.

Declarations**Ethics approval and consent to participate**

This study adheres to the ethical guidelines and principles set by the Institutional Review Board at William & Mary School of Education (EDIRC-2023-06-06-16382-mxtsch). This research carried out on the data provided by teachers and school leaders is in compliance with the Helsinki Declaration and the national guidelines. Before data collection, informed consents (Consent to Participate) were obtained from all participants or, if participants are under 16, from a parent and/or legal guardian.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Received: 1 June 2026 / Accepted: 6 August 2026

Published online: 11 August 2026

References

- Adams CM, Ware JK, Miskell RC, Forsyth PB. Self-regulatory climate: A positive attribute of public schools. *J Educational Res.* 2016;109(2):169–80. <https://doi.org/10.1080/00220671.2014.934419>.
- Aldridge JM, Fraser BJ, Fozdar F, Alai K, Earnest J, Afari E. Students' perceptions of school climate as determinants of well-being, resilience and identity. *Improving Schools.* 2016;19(1):5–26. <https://doi.org/10.1177/1365480215612616>.
- Aldridge JM, Fraser BJ. Teachers' views of their school climate and its relationship with teacher self-efficacy and job satisfaction. *Learn Environ Res.* 2016;19(2):291–307. <https://doi.org/10.1007/s10984-015-9198-x>.
- Avola P, Soini-Ikonen T, Jyrkiäinen A, Pentikäinen V. Interventions to Teacher Well-Being and Burnout A Scoping Review. *Educ Psychol Rev.* 2025;37(1):11. <https://doi.org/10.1007/s10648-025-09986-2>.
- Awaworyi Churchill S, Mishra V, Trust. Social Networks and Subjective Wellbeing in China. *Soc Indic Res.* 2017;132(1):313–39. <https://doi.org/10.1007/s11205-015-1220-2>.
- Bates D, Mächler M, Bolker B, Walker S. Fitting linear mixed-effects models using lme4. *J Stat Soft.* 2015;67(1). <https://doi.org/10.18637/jss.v067.i01>.
- Bell RM, McCaffrey DF. Bias reduction in standard errors for linear regression with multi-stage samples. *Surv Methodol.* 2002;28(2):169–81.
- Benard B. Resiliency: What we have learned. San Francisco: WestEd; 2004.
- Berger E, Reupert A, Campbell TCH, Morris Z, Hammer M, Diamond Z, et al. A Systematic Review of Evidence-Based Well-being Initiatives for Schoolteachers and Early Childhood Educators. *Educ Psychol Rev.* 2022;34(4):2919–69. <https://doi.org/10.1007/s10648-022-09690-5>.
- Berkovich I. Typology of trust relationships: profiles of teachers' trust in principal and their implications. *Teachers Teach.* 2018;24(7):749–67. <https://doi.org/10.1080/13540602.2018.1483914>.
- Boos AN, Tschannen-Moran M. Mining diamonds: validation of the vibrant school scale. *J Educational Adm.* 2025;63(5):381–95. <https://doi.org/10.1108/JEA-11-2024-0374>.
- Borkar VN. Positive school climate and positive education: Impact on students' wellbeing. *Indian J Health Wellbeing.* 2016;7(8):861–2.
- Breusch TS, Pagan AR. A Simple Test for Heteroscedasticity and Random Coefficient Variation. *Econometrica.* 1979;47(5):1287. <https://doi.org/10.2307/1911963>.
- Brown SL, Vaughan C, Play. How it shapes the brain, opens the imagination, and invigorates the soul. New York: Penguin; 2009.
- Bryk A, Schneider B. Trust in schools: A core resource for improvement. New York: Russell Sage; 2002.
- Bryman A, Bell E. Social research methods. 5th ed. Oxford: Oxford University Press; 2019.
- Cann R, Sinnema C, Rodway J, Daly AJ. What do we know about interventions to improve educator wellbeing? A systematic literature review. *J Educ Change.* 2024;25(2):231–70. <https://doi.org/10.1007/s10833-023-09490-w>.
- Cantor P. All children thriving: a new purpose for education. *Am Educ.* 2021;45(3):14–48.
- Capone V, Pettrillo G. Teachers' perceptions of fairness, well-being and burnout: A contribution to the validation of the Organizational Justice Index by Hoy and Tarter. *Int J Educational Manage.* 2016;30(6):864–80. <https://doi.org/10.1108/IJEM-02-2015-0013>.
- Chen J, Zhang L, Li X, Xu W, Yan Z. The multidimensional teacher well-being: a mixed-methods approach. *Teachers Teach.* 2024;30(6):724–44. <https://doi.org/10.1080/13540602.2023.2282483>.
- Clement D, Tschannen-Moran M, Erdogan U. Vibrant schools: Measuring our highest aspirations for our students. In: Cherkowski S, Walker K, editors. *Perspectives on flourishing in schools*. Lanham: Rowman & Littlefield; 2018. pp. 383–94.
- Clement D, Tschannen-Moran M, Hockaday M, Feldstein L. Vibrant schools: measuring our highest aspirations. Paper presented at: University Council for Educational Administration Annual Conference; 2017 Nov 15–19; Denver, CO.
- Cohen J, McCabe EM, Michelli NM, Pickeral T. School Climate: Research, Policy, Practice, and Teacher Education. *Teachers Coll Record: Voice Scholarsh Educ.* 2009;111(1):180–213. <https://doi.org/10.1177/016146810911100108>.
- Collie RJ, Shapka JD, Perry NE. School climate and social-emotional learning: Predicting teacher stress, job satisfaction, and teaching efficacy. *J Educ Psychol.* 2012;104(4):1189–204. <https://doi.org/10.1037/a0029356>.
- Education COMBERFof, University N-W, Mafikeng S, Africa, Wessels E, Wood L. Faculty of Education, North-West University, Potchefstroom, South Africa. *Fostering teachers' experiences of well-being: A participatory action learning and action research approach.* SAJE. 2019;39(1):1–10. <https://doi.org/10.15700/saje.v39n1a1619>.
- Cosner S. Drawing on a Knowledge-Based Trust Perspective to Examine and Conceptualize Within-School Trust Development by Principals. *J School Leadersh.* 2010;20(2):117–44. <https://doi.org/10.1177/105268461002000202>.
- Darling-Hammond L, Cook-Harvey CM. Educating the whole child: Improving school climate to support student success. Palo Alto: Learning Policy Institute; 2018. https://learningpolicyinstitute.org/sites/default/files/product-files/Educating_Whole_Child_REPORT.pdf.
- Darling-Hammond L, DePaoli J. Why school climate matters and what can be done to improve it. *State Educ Stand.* 2020;20(2):7–12.
- Darling-Hammond L, Flook L, Cook-Harvey C, Barron B, Osher D. Implications for educational practice of the science of learning and development. *Appl Dev Sci.* 2020;24(2):97–140. <https://doi.org/10.1080/10888691.2018.1537791>.
- Deci EL, Ryan RM. The What and Why of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychol Inq.* 2000;11(4):227–68. https://doi.org/10.1207/S15327965PLI1104_01.
- Dewulf L, Van Braak J, Van Houtte M. The role of teacher trust in segregated elementary schools: a multilevel repeated measures examination. *School Eff School Improv.* 2017;28(2):259–75. <https://doi.org/10.1080/09243453.2016.1260599>.
- Diener E, Suh EM, Lucas RE, Smith HL. Subjective well-being: Three decades of progress. *Psychol Bull.* 1999;125(2):276–302. <https://doi.org/10.1037/0033-2909.125.2.276>.
- Diener E. Subjective well-being. *Psychol Bull.* 1984;95(3):542–75. <https://doi.org/10.1037/0033-2909.95.3.542>.
- Donaldson SI, Donaldson SI, McQuaid M, Kern ML. The PERMA+4 Short Scale: A Cross-Cultural Empirical Validation Using Item Response Theory. *Int J Appl Posit Psychol.* 2023;8(3):555–69. <https://doi.org/10.1007/s41042-023-00110-9>.
- Dreer B. On the outcomes of teacher wellbeing: a systematic review of research. *Front Psychol.* 2023;14:1205179. <https://doi.org/10.3389/fpsyg.2023.1205179>.
- Dreer B. Teacher well-being: Investigating the contributions of school climate and job crafting. *Cogent Educ.* 2022;9(1):2044583. <https://doi.org/10.1080/2331186X.2022.2044583>.

37. Dreer B. Teachers' well-being and job satisfaction: the important role of positive emotions in the workplace. *Educational Stud.* 2024;50(1):61–77. <https://doi.org/10.1080/03055698.2021.1940872>.
38. Dreer B, Gouasé N. Interventions fostering well-being of schoolteachers: a review of research. *Oxf Rev Educ.* 2021. <https://doi.org/10.1080/03054985.2021.2002290>.
39. Dunn TJ, Baguley T, Brunsden V. From alpha to omega: A practical solution to the pervasive problem of internal consistency estimation. *Br J Psychol.* 2014;105(3):399–412. <https://doi.org/10.1111/bjop.12046>.
40. Dyer NG, Hanges PJ, Hall RJ. Applying multilevel confirmatory factor analysis techniques to the study of leadership. *Leadersh Q.* 2005;16(1):149–67. <https://doi.org/10.1016/j.leaqua.2004.09.009>.
41. Edmondson A. Psychological safety and learning behavior in work teams. *Adm Sci Q.* 1999;44(2):350–83. <https://doi.org/10.2307/2666999>.
42. Edmondson AC. Psychological safety, trust, and learning in organizations: A group-level lens. In: Kramer RM, Cook KS, editors. *Trust and distrust in organizations: Dilemmas and approaches*. New York: Russell Sage Foundation; 2004. pp. 239–72.
43. Enders CK, Tofighi D. Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychol Methods.* 2007;12(2):121–38. <https://doi.org/10.1037/1082-989X.12.2.121>.
44. Field A, Miles J, Field Z. *Discovering statistics using R*. London: Sage; 2012.
45. Ford TG, Olsen J, Khojasteh J, Ware J, Urlick A. The effects of leader support for teacher psychological needs on teacher burnout, commitment, and intent to leave. *JEA.* 2019;57(6):615–34. <https://doi.org/10.1108/JEA-09-2018-0185>.
46. Fornell C, Larcker DF. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *J Mark Res.* 1981;18(1):39–50. <https://doi.org/10.1177/002224378101800104>.
47. Forsyth PB, Adams CM, Hoy WK. *Collective trust: Why schools can't improve without it*. New York: Teachers College; 2011.
48. Fredrickson BL. The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *Am Psychol.* 2001;56(3):218–26. <https://doi.org/10.1037/0003-066X.56.3.218>.
49. Gelman A, Carlin JB, Stern HS, Dunson DB, Vehtari A, Rubin DB. *Bayesian data analysis*. 3rd ed. Boca Raton: CRC; 2013.
50. Gelman A, Hill J. *Data analysis using regression and multilevel/hierarchical models*. 1st ed. Cambridge University Press; 2006. <https://doi.org/10.1017/CBO9780511790942>. Accessed 24 May 2026.
51. Gelman A, Meng XL, Stern H. Posterior predictive assessment of model fitness via realized discrepancies. *Stat Sin.* 1996;6(4):733–60.
52. Goddard RD, Tschannen-Moran M, Hoy WK. A Multilevel Examination of the Distribution and Effects of Teacher Trust in Students and Parents in Urban Elementary Schools. *Elementary School J.* 2001;102(1):3–17. <https://doi.org/10.1086/499690>.
53. Goddard RD. Relational Networks, Social Trust, and Norms: A Social Capital Perspective on Students' Chances of Academic Success. *Educational Evaluation Policy Anal.* 2003;25(1):59–74. <https://doi.org/10.3102/01623737025001059>.
54. Gray C, Wilcox G, Nordstokke D. Teacher mental health, school climate, inclusive education and student learning: A review. *Can Psychol / Psychologie canadienne.* 2017;58(3):203–10. <https://doi.org/10.1037/cap0000117>.
55. Gray JA, Summers R. International professional learning communities: the role of enabling school structures, trust, and collective efficacy. *Int Educ J Comp Perspect.* 2015;14(3):61–75.
56. Gray P. *Free to learn: Why unleashing the instinct to play will make our children happier, more self-reliant, and better students for life*. New York: Basic Books/Hachette Book Group; 2013.
57. Gregersen T, Mercer S, MacIntyre P, Talbot K, Banga CA. Understanding language teacher wellbeing: An ESM study of daily stressors and uplifts. *Lang Teach Res.* 2023;27(4):862–83. <https://doi.org/10.1177/1362168820965897>.
58. Grewal R, Cote JA, Baumgartner H. Multicollinearity and Measurement Error in Structural Equation Models: Implications for Theory Testing. *Mark Sci.* 2004;23(4):519–29. <https://doi.org/10.1287/mksc.1040.0070>.
59. Hair JF, Black WC, Babin BJ, Anderson RE. *Multivariate data analysis*. 8th ed. Boston: Cengage Learning; 2019. https://eli.johogo.com/Class/CCU/SEM/_Multivariate%20Data%20Analysis_Hair.pdf
60. Hallam PR, Dulaney SK, Hite JM, Smith HR. Trust at ground zero: trust and collaboration within the professional learning community. In: Van Maele D, Forsyth PB, Van Houtte M, editors. *Trust and school life*. Dordrecht: Springer Netherlands; 2014. pp. 145–70. https://doi.org/10.1007/978-94-017-8014-8_7.
61. Hascher T, Waber J. Teacher well-being: A systematic review of the research literature from the year 2000–2019. *Educational Res Rev.* 2021;34:100411. <https://doi.org/10.1016/j.edurev.2021.100411>.
62. Heinla E, Kuurme T. The impact of school culture, school climate, and teachers' job satisfaction on the teacher-student relationship: a case study in four Estonian schools. *Res Papers Educ.* 2024;39(3):439–65. <https://doi.org/10.1080/02671522.2022.2150883>.
63. Ho JTS. Stress, health and leisure satisfaction: the case of teachers. *Int J Educational Manage.* 1996;10(1):41–8. <https://doi.org/10.1108/09513549610105353>.
64. Hockings C, Thomas L, Ottaway J, Jones R. Independent learning – what we do when you're not there. *Teach High Educ.* 2018;23(2):145–61. <https://doi.org/10.1080/13562517.2017.1332031>.
65. Holzer A, Daumiller M. Building trust in the classroom: perspectives from students and teachers. *Eur J Psychol Educ.* 2025;40(2):62. <https://doi.org/10.1007/s10212-025-00961-7>.
66. Hox JJ, Maas CJM, Brinkhuis MJS. The effect of estimation method and sample size in multilevel structural equation modeling. *Stat Neerl.* 2010;64(2):157–70. <https://doi.org/10.1111/j.1467-9574.2009.00445.x>.
67. Hox JJ, Moerbeek M, Van De Schoot R. *Multilevel analysis: techniques and applications*. 3rd ed. New York, NY: Routledge; 2017. <https://doi.org/10.4324/9781315650982>.
68. Hoy W. School characteristics that make a difference for the achievement of all students: A 40-year odyssey. *J Educational Adm.* 2012;50(1):76–97. <https://doi.org/10.1108/09578231211196078>.
69. Hoy WK, Tarter CJ, Kottkamp RB. *Open schools/healthy schools: Measuring organizational climate*. Newbury Park: Sage; 1991.
70. Hoy WK, Tarter CJ. Positive Psychology and Educational Administration: An Optimistic Research Agenda. *Educational Adm Q.* 2011;47(3):427–45. <https://doi.org/10.1177/0013161X10396930>.
71. Hoy WK, Tschannen-Moran M. Five Faces of Trust: An Empirical Confirmation in Urban Elementary Schools. *J School Leadersh.* 1999;9(3):184–208. <https://doi.org/10.1177/105268469900900301>.
72. Hoy WK. Faculty trust in colleagues: Linking the principal with school effectiveness. *J Res Dev Educ.* 1992;26(1):38–45.

73. Hoy WK. Faculty Trust: A Key to Student Achievement. *J School Public Relations*. 2002;23(2):88–103. <https://doi.org/10.3138/jspr.23.2.88>.
74. Hoyle RH, Gottfredson NC. Sample Size Considerations in Prevention Research Applications of Multilevel Modeling and Structural Equation Modeling. *Prev Sci*. 2015;16(7):987–96. <https://doi.org/10.1007/s11121-014-0489-8>.
75. Hu BY, Li Y, Wang C, Reynolds BL, Wang S. The relation between school climate and preschool teacher stress: The mediating role of teachers' self-efficacy. *JEA*. 2019;57(6):748–67. <https://doi.org/10.1108/JEA-08-2018-0146>.
76. Hussain S, Saba NU, Ali Z, Hussain H, Hussain A, Khan A. Job Satisfaction as a Predictor of Wellbeing Among Secondary School Teachers. *Sage Open*. 2022;12(4):21582440221138726. <https://doi.org/10.1177/21582440221138726>.
77. Keyes CLM. The Mental Health Continuum: From Languishing to Flourishing in Life. *J Health Soc Behav*. 2002;43(2):207. <https://doi.org/10.2307/3090197>.
78. Kish L. Survey sampling. New York: Wiley; 1965.
79. Kock N. Common method bias in PLS-SEM: A full collinearity assessment approach. *Int J e-Collaboration*. 2015;11(4):1–10. <https://doi.org/10.4018/ijec.2015100101>.
80. Kouhsari M, Chen J, Baniasad S. Multilevel analysis of teacher professional well-being and its influential factors based on TALIS data. *Res Comp Int Educ*. 2023;18(3):395–418. <https://doi.org/10.1177/17454999221143847>.
81. Kramer RM. Collective Trust within Organizations: Conceptual Foundations and Empirical Insights. *Corp Reput Rev*. 2010;13(2):82–97. <https://doi.org/10.1057/crr.2010.9>.
82. Kuznetsova A, Brockhoff PB, Christensen RHB. lmerTest Package: tests in linear mixed effects models. *J Stat Soft*. 2017;82(13). <https://doi.org/10.18637/jss.v082.i13>.
83. Lee VE. Using Hierarchical Linear Modeling to Study Social Contexts: The Case of School Effects. *Educational Psychol*. 2000;35(2):125–41. https://doi.org/10.1207/S15326985EP3502_6.
84. Little RJA. A Test of Missing Completely at Random for Multivariate Data with Missing Values. *J Am Stat Assoc*. 1988;83(404):1198–202. <https://doi.org/10.1080/01621459.1988.10478722>.
85. Liu L, Liu P, Yang H, Yao H, Thien LM. The relationship between distributed leadership and teacher well-being: The mediating roles of organisational trust. *Educational Manage Adm Leadersh*. 2024;52(4):837–53. <https://doi.org/10.1177/1741143221113683>.
86. Lüdtke D, Ben-Shachar M, Patil I, Waggoner P, Makowski D. performance: An R Package for Assessment, Comparison and Testing of Statistical Models. *JOSS*. 2021;6(60):3139. <https://doi.org/10.21105/joss.03139>.
87. Lüdtke O, Marsh HW, Robitzsch A, Trautwein U, Asparouhov T, Muthén B. The multilevel latent covariate model: A new, more reliable approach to group-level effects in contextual studies. *Psychol Methods*. 2008;13(3):203–29. <https://doi.org/10.1037/a0012869>.
88. Mascal B, Leithwood K, Straus T, Sacks R. The relationship between distributed leadership and teachers' academic optimism. *J Educ Admin*. 2008;46(2):214–28. <https://doi.org/10.1108/09578230810863271>.
89. McCallum F. Teacher and staff wellbeing: Understanding the experiences of school staff. In: Kern ML, Wehmeyer ML, editors. *The Palgrave handbook of positive education*. Cham: Springer International Publishing; 2021. pp. 715–40.
90. Mehta J, Fine S. *search of deeper learning: The quest to remake the American high school*. Cambridge: Harvard University Press; 2019.
91. Muthén BO, Satorra A. Complex Sample Data in Structural Equation Modeling. *Sociol Methodol*. 1995;25:267. <https://doi.org/10.2307/271070>.
92. Nakagawa S, Johnson PCD, Schielzeth H. The coefficient of determination R² and intra-class correlation coefficient from generalized linear mixed-effects models revisited and expanded. *J R Soc Interface*. 2017;14(134):20170213. <https://doi.org/10.1098/rsif.2017.0213>.
93. Niedlich S, Kallfaß A, Pohle S, Bormann I. A comprehensive view of trust in education: Conclusions from a systematic literature review. *Rev Educ*. 2021;9(1):124–58. <https://doi.org/10.1002/rev3.3239>.
94. Ozturk M, Wigelsworth M, Bagnall C. Conceptualising teacher wellbeing: A qualitative investigation with primary school teachers in England. *Teach Teacher Educ*. 2025;159:104989. <https://doi.org/10.1016/j.tate.2025.104989>.
95. Ozturk M, Wigelsworth M, Squires G. A systematic review of primary school teachers' wellbeing: room for a holistic approach. *Front Psychol*. 2024;15:1358424. <https://doi.org/10.3389/fpsyg.2024.1358424>.
96. Pakarinen E, Kiuru N, Lerkkanen MK, Poikkeus AM, Siekkinen M, Nurmi JE. Classroom organization and teacher stress predict learning motivation in kindergarten children. *Eur J Psychol Educ*. 2010;25(3):281–300. <https://doi.org/10.1007/s10212-010-0025-6>.
97. Peugh JL. A practical guide to multilevel modeling. *J Sch Psychol*. 2010;48(1):85–112. <https://doi.org/10.1016/j.jsp.2009.09.002>.
98. Podsakoff PM, MacKenzie SB, Lee JY, Podsakoff NP. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J Appl Psychol*. 2003;88(5):879–903. <https://doi.org/10.1037/0021-9010.88.5.879>.
99. Pustejovsky JE, Tipton E. Small-Sample Methods for Cluster-Robust Variance Estimation and Hypothesis Testing in Fixed Effects Models. *J Bus Economic Stat*. 2018;36(4):672–83. <https://doi.org/10.1080/07350015.2016.1247004>.
100. Raudenbush SW, Bryk AS. *Hierarchical linear models: Applications and data analysis methods*. 2nd ed. Thousand Oaks: Sage; 2002.
101. Ryan RM, Deci EL, editors. *Self-determination theory: basic psychological needs in motivation, development, and wellness*. Guilford Press; 2017. <https://doi.org/10.1521/978.14625/28806>.
102. Ryan RM, Deci EL. On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being. *Annu Rev Psychol*. 2001;52(1):141–66. <https://doi.org/10.1146/annurev.psych.52.1.141>.
103. Ryff CD, Singer B. The Contours of Positive Human Health. *Psychol Inq*. 1998;9(1):1–28. https://doi.org/10.1207/s15327965pli0901_1.
104. Sapp JE, Torre DM, Larsen KL, Holmboe ES, Durning SJ. Trust in Group Decisions: a scoping review. *BMC Med Educ*. 2019;19(1):309. <https://doi.org/10.1186/s12909-019-1726-4>.
105. Schwabsky N, Erdogan U, Tschannen-Moran M. Predicting school innovation: The role of collective efficacy and academic press mediated by faculty trust. *JEA*. 2019;58(2):246–62. <https://doi.org/10.1108/JEA-02-2019-0029>.
106. Seligman ME. *Flourish: A visionary new understanding of happiness and wellbeing*. New York: Simon and Schuster; 2011.
107. Sliwka A, Klopsch B, Beigel J, Tung L. Transformational leadership for deeper learning: shaping innovative school practices for enhanced learning. *JEA*. 2024;62(1):103–21. <https://doi.org/10.1108/JEA-03-2023-0049>.

108. Snijders TAB, Bosker RJ. Multilevel analysis: An introduction to basic and advanced multilevel modeling. 2nd ed. London: Sage; 2012.
109. Soykan A, Gardner D, Edwards T. Subjective wellbeing in New Zealand teachers: An examination of the role of psychological capital. *J Psychologists Counsellors Schools*. 2019;29(2):130–8. <https://doi.org/10.1017/jgc.2019.14>.
110. Sun J, Zhang R, Forsyth PB. The Effects of Teacher Trust on Student Learning and the Malleability of Teacher Trust to School Leadership: A 35-Year Meta-Analysis. *Educational Adm Q*. 2023;59(4):744–810. <https://doi.org/10.1177/0013161X231183662>.
111. Tarter CJ, Bliss JR, Hoy WK. School Characteristics and Faculty Trust in Secondary Schools. *Educational Adm Q*. 1989;25(3):294–308. <https://doi.org/10.1177/0013161X89025003005>.
112. Thode HC. Testing for normality. Boca Raton: CRC; 2002.
113. Thomas KJ, Moreira De Cunha J, Americo De Souza D, Santo J. Fairness, trust, and school climate as foundational to growth mindset: A study among Brazilian children and adolescents. *Educational Psychol*. 2019;39(4):510–29. <https://doi.org/10.1080/01443410.2018.1549726>.
114. Tian J, Zhang W, Mao Y, Gurr D. The impact of transformational leadership on teachers' job burnout: the mediating role of social-emotional competence and student-teacher relationship. *JEA*. 2022;60(4):369–85. <https://doi.org/10.1108/JEA-04-2021-0075>.
115. Tschannen-Moran M, Clement D. Fostering more vibrant schools. *Educ Leadersh*. 2018;75(3):28–33.
116. Tschannen-Moran M, Gareis C. Principals, trust, and cultivating vibrant schools. *Societies*. 2015;5(2):256–76. <https://doi.org/10.3390/soc5020256>.
117. Tschannen-Moran M, Gareis CR. Faculty trust in the principal: an essential ingredient in high-performing schools. *J Educ Admin*. 2015;53(1):66–92. <https://doi.org/10.1108/JEA-02-2014-0024>.
118. Tschannen-Moran M. Flourishing in vibrant schools. In: Zysberg L, Schwabsky N, editors. *The next big thing in education*. New York: Nova; 2020. pp. 1–14.
119. Tschannen-Moran M. The Interconnectivity of Trust in Schools. In: Van Maele D, Forsyth PB, Van Houtte M, editors. *Trust and School Life*. Dordrecht: Springer Netherlands; 2014. pp. 57–81. https://doi.org/10.1007/978-94-017-8014-8_3.
120. Tschannen-Moran M. *Trust matters*. San Francisco: Jossey-Bass; 2004.
121. Turner K, Thielking M. How teachers find meaning in their work and effects on their pedagogical practice. *Aust J Teach Educ*. 2019;44(9):70–88.
122. Van Maele D, Van Houtte M. The role of teacher and faculty trust in forming teachers' job satisfaction: Do years of experience make a difference? *Teach Teacher Educ*. 2012;28(6):879–89. <https://doi.org/10.1016/j.tate.2012.04.001>.
123. Van Maele D, Van Houtte M. Trust in school: a pathway to inhibit teacher burnout? *J Educ Admin*. 2015;53(1):93–115. <https://doi.org/10.1108/JEA-02-2014-0018>.
124. Vo DT, Allen KA, Kern ML. The use of positive psychology intervention to foster teacher wellbeing. In: Allen KA, Furlong MJ, Vella-Brodrick D, Suldo SM, editors. *Handbook of positive psychology in schools: Supporting process and practice*. 3rd ed. New York: Taylor and Francis; 2022. pp. 542–55.
125. Vo DT, Allen KA. A systematic review of school-based positive psychology interventions to foster teacher wellbeing. *Teachers Teach*. 2022;28(8):964–99. <https://doi.org/10.1080/13540602.2022.2137138>.
126. Von Der Embse N, Mankin A. Changes in Teacher Stress and Wellbeing Throughout the Academic Year. *J Appl School Psychol*. 2021;37(2):165–84. <https://doi.org/10.1080/15377903.2020.1804031>.
127. Wang J, Meng W, Xing Q, Moè A. Motivating and demotivating teaching styles: a comparison among planned, adopted, and perceived. *Soc Psychol Educ*. 2024;27(6):2993–3017. <https://doi.org/10.1007/s11218-024-09943-x>.
128. Waters L. A Review of School-Based Positive Psychology Interventions. *Australian Educational Dev Psychol*. 2011;28(2):75–90. <https://doi.org/10.1375/aedp.28.2.75>.
129. Watson D, Clark LA, Chmielewski M, Kotov R. The value of suppressor effects in explicating the construct validity of symptom measures. *Psychol Assess*. 2013;25(3):929–41. <https://doi.org/10.1037/a0032781>.
130. White HA. Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica*. 1980;48(4):817. <https://doi.org/10.2307/1912934>.
131. Whitener EM, Brodt SE, Korsgaard MA, Werner JM. Managers as Initiators of Trust: An Exchange Relationship Framework for Understanding Managerial Trustworthy Behavior. *Acad Manage Rev*. 1998;23(3):513. <https://doi.org/10.2307/259292>.
132. Wong Yho, Zhang P. Perceived School Culture, Personality Types, and Wellbeing among Kindergarten Teachers in Hong Kong. *Australasian J Early Child*. 2014;39(2):100–8. <https://doi.org/10.1177/183693911403900213>.
133. Xu Z, Yang F. The dual-level effects of authentic leadership on teacher wellbeing: the mediating role of psychological availability. *PR*. 2024;53(4):929–43. <https://doi.org/10.1108/PR-11-2021-0792>.
134. Yang C, Chan M, ki, Lin X, Chen C. Teacher Victimization and Teacher Burnout: Multilevel Moderating Role of School Climate in a Large-scale Survey Study. *J School Violence*. 2022;21(2):206–21. <https://doi.org/10.1080/15388220.2022.2041023>.
135. Yong Rhee K. Different Effects of Workers' Trust on Work Stress, Perceived Stress, Stress Reaction, and Job Satisfaction between Korean and Japanese Workers. *Saf Health Work*. 2010;1(1):87–97. <https://doi.org/10.5491/SHAW.2010.1.1.87>.
136. Zayim M, Kondakci Y. An exploration of the relationship between readiness for change and organizational trust in Turkish public schools. *Educational Manage Adm Leadersh*. 2015;43(4):610–25. <https://doi.org/10.1177/1741143214523009>.
137. Zhang LJ, Fathi J, Mohammaddokht F. Predicting Teaching Enjoyment from Teachers' Perceived School Climate, Self-Efficacy, and Psychological Wellbeing at Work: EFL Teachers. *Percept Mot Skills*. 2023;130(5):2269–99. <https://doi.org/10.1177/00315125231182269>.
138. Zheng X, Yin H, Liu Y. The Relationship Between Distributed Leadership and Teacher Efficacy in China: The Mediation of Satisfaction and Trust. *Asia-Pacific Edu Res*. 2019;28(6):509–18. <https://doi.org/10.1007/s40299-019-00451-7>.
139. Zhu C, Devos G, Li Y. Teacher perceptions of school culture and their organizational commitment and well-being in a Chinese school. *Asia Pac Educ Rev*. 2011;12(2):319–28. <https://doi.org/10.1007/s12564-011-9146-0>.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.