



Journal of Educational Sciences

Journal homepage: <https://jes.ejournal.unri.ac.id/index.php/JES>



P-ISSN
2581-1657
E-ISSN
2581-2203

The Dominant Role of Teachers' Social Capital in Shaping School Well-Being: A Regression Analysis of Muhammadiyah Schools in Karanganyar

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ARTICLE INFO

Article history:

Received: 17 Sept 2026

Accepted: 28 Sept 2026

Available Online: 05 Oct 2026

Keywords:

Academic Supervision,
Islamic Elementary School,
Multiple Regression,
School Well-Being,
Teacher Social Capital

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Article Doi:

<https://doi.org/10.31258/jes.10.10.p.400-417>

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ABSTRACT

School well-being is a critical precondition for sustaining education quality in madrasah institutions shaped by Islamic values and Muhammadiyah's organizational culture. This study empirically examines the partial and simultaneous effects of principals' academic supervision and teachers' social capital on school well-being among 86 teachers at Muhammadiyah Islamic elementary schools (Madrasah Ibtidaiyah) in Matesih Subdistrict, Karanganyar Regency, and identifies which factor is more dominant. A quantitative correlational approach with an ex post facto design and total sampling technique was employed. Data were collected through validated and reliable Likert-scale questionnaires, then analyzed using multiple linear regression after classical assumption tests were satisfied. Both variables were partially significant, but when tested simultaneously, only teacher social capital remained significant ($\beta = 0.739$; $p = 0.000$), while academic supervision became non-significant ($\beta = 0.104$; $p = 0.190$). Together, both predictors explained 63.1% of the variance in school well-being ($F = 73.560$; $p = 0.000$). These findings confirm the dominance of teacher social capital, likely due to overlapping variance between predictors. Strengthening school well-being in madrasah settings therefore requires deliberate investment in trust, networks, and reciprocity among teachers, not merely formal supervision.

1. Introduction

School well-being has received growing scholarly attention because academic achievement alone no longer suffices to reflect the quality of an educational institution (Konu & Rimpelä, 2002). The 2024 Teaching and Learning International Survey (TALIS), released by the OECD (2025) The findings indicate that teacher work-related stress remains high due to heavy workloads, ongoing policy changes, and inadequate professional support. Therefore, effective

school leadership and constructive supervisory practices are considered crucial for fostering a healthy and supportive learning environment. Beyond structural support from school leaders, the relational dimension among teachers, particularly social capital, has also been highlighted as an important foundation for well-being. Social capital refers to collective resources that emerge from trust, social networks, shared norms, and reciprocity (Coleman, 1988; Putnam, 2020), which have been shown to contribute to professional development, workplace adaptation, and the quality of teaching and learning. (Beausaert & Kyndt, 2023; Demir, 2021). Teachers' perceptions of social capital have also been shown to be associated with collaborative attitudes, with commitment and the quality of interpersonal interactions serving as the primary predictors (Özbilen & Çekiç, 2022), while collaborative practices facilitated through professional learning communities have strengthened teaching competencies and literacy skills in primary schools (Triningsih et al., 2025), and collegial work climate has been associated with job satisfaction, organizational commitment, and teacher well-being (Collie, 2023; Veldman et al., 2013).

The principal academic supervision is a regulatory mandate covering the planning, implementation, and evaluation of teaching and learning (Permendikbud Nomor 6 Tahun 2018; Permendiknas Nomor 12 Tahun 2007). Systematic supervision practices have been shown to enhance teaching standards (Lastini et al., 2024), and, when data driven, to support targeted leadership decisions (Fatimah et al., 2025), pedagogical competence (Nikmah et al., 2025), instructional quality (Ridiyawati et al., 2025), and work discipline (Trihandayani et al., 2025). Yet field practice does not always match these ideals. Wahyuni et al. (2025) found supervision often remains administratively oriented and is perceived as compliance rather than professional development, whereas Khamdiyah et al. (2026) showed that structured, reflective, and collaborative supervision enhances lesson planning and instructional variety. Within the Muhammadiyah context, teacher capacity initiatives such as guidance and counseling programs across Surakarta and the wider Solo Raya region (Prayitno et al., 2020; Wulandari et al., 2020) have focused on technical and individual capacity building without strengthening interpersonal networks or collaborative social capital. A parallel pattern appears in the social capital literature, where interpersonal interaction quality shapes organizational climate and motivation (Najib Komarudin, 2023), and networks, norms, and trust function as strategic assets for education quality (Syafina & Ahmad, 2022), although many schools still contend with seniority based cultures, limited collaborative opportunities, and insufficient time for shared reflection that constrain professional learning communities (Pratama & Mahfudhoh, 2021).

This condition is mirrored at Muhammadiyah Madrasah Ibtidaiyah schools in Matesih District, Karanganyar Regency, an Islamic, Muhammadiyah affiliated setting with distinctive organizational characteristics. Preliminary observation and informal interviews revealed that academic supervision remained periodic and insufficiently systematic, with limited constructive feedback and discomfort among teachers during classroom observation. Relationally, a psychological gap separated senior and junior teachers: junior teachers were reluctant to voice

opinions, senior teachers resisted new perspectives, and meetings tended toward a one-way format that limited participation. Although Islamic values and Muhammadiyah's organizational culture are cultivated through habituation strategies for religious and moral development (Sholikah et al., 2025), and are expected to foster a warm relational climate, consistent with evidence that character education strengthening supports a conducive school climate elsewhere in Muhammadiyah schools (Permadi & Achadi, 2025), and that disciplinary strategies among prospective Madrasah Ibtidaiyah teachers foster an orderly learning environment (Samiha & Fauzi, 2025), the preliminary findings above suggest that this ideal is not yet fully realized in practice. Elsewhere, effective principal teacher communication has been shown to support well-being more than supervision frequency itself (Kartikasari & Hidayat, 2024), supervision has been linked to teachers' work discipline and commitment (Karmini & Suniasih, 2022), and unmanaged interpersonal conflict has been identified as a source of stress that undermines teaching quality (Walef et al., 2023).

Conceptually, well-being combines the meanings of being and being well, referring to how individuals experience and evaluate their lives through the predominance of positive emotions, the relative absence of negative emotions, and overall life satisfaction (Chasanah, 2023). When applied to the school context Konu & Rimpelä (2002) describe well-being as the outcome of four reinforcing dimensions, namely school conditions, social relationships, self-fulfillment, and health status, while Hascher (2007) adds that it is shaped by positive affect, self-perception, and warm relationships, and Diener et al. (1984) with PERMA theory Seligman (2018) similarly emphasize cognitive, affective, and relational elements that, for teachers, may manifest as flow during teaching (Csikszentmihalyi, 2009).

Academic supervision is conceived as an ongoing professional service that develops teacher competence and treats teachers as active participants rather than objects of evaluation (Fauzi et al., 2022; Sergiovanni & Starratt, 2007), with functions spanning professional development, motivation, quality assurance, and curriculum development (Sianipar et al., 2025; Wibowo et al., 2025), a ideally guided by scientific (Saifuddin Helmi et al., 2025), democratic (Raharjo, 2023), and humanistic and continuous principles (Soro et al., 2023), delivered through directive, collaborative, or nondirective approaches depending on teacher maturity (Glickman et al., 2014), using a clinical supervision model (Cogan, 1972; Goldhammer, 1969) built on pre-observation, observation, and post-observation cycles (Acheson & Gall, 2003; Martinez et al., 2016).

Social capital is understood as an aspect of social structure that facilitates collective action (Coleman, 1988), later expanded by Putnam (2020) into bonding social capital, which strengthens solidarity within homogeneous groups, and bridging social capital, which connects different groups for cross group collaboration, with contemporary definitions treating it as a relational resource distinct from individually based human capital (Claridge, 2022; OECD, 2025). Taken together, prior studies have generally treated academic supervision and teacher social capital as separate predictors of teacher outcomes, and quantitative regression based evidence testing both simultaneously remains scarce, particularly

in religiously oriented madrasah settings shaped by a strong Muhammadiyah organizational culture. No study to date appears to have empirically compared the relative statistical contribution of academic supervision against teacher social capital in predicting school well-being, nor identified, at the dimensional level, which facet of teacher social capital, whether trust, networks, shared norms, or reciprocity, contributes most strongly within a Muhammadiyah madrasah context.

This gap leaves an incomplete empirical basis for prioritizing intervention, since without knowing which factor dominates, school leaders risk investing in supervision reforms whose marginal benefit for well-being may be limited. Based on this framework, three hypotheses are formulated: principal academic supervision has a positive and significant effect on school well-being (H1); teachers social capital has a positive and significant effect on school well-being (H2); and both simultaneously have positive and significant effects on school well-being (H3).

The present study addresses this gap and offers novelty in three respects: it simultaneously tests both predictors using multiple regression rather than examining them in isolation; it quantifies each predictor effective and relative contribution, together with a dimension level description of the strongest facet of teacher social capital; and it situates this evidence within Muhammadiyah Madrasah Ibtidaiyah schools in Karanganyar, a setting rarely examined this way. Accordingly, this study aims to empirically examine the partial and simultaneous effects of principal academic supervision and teachers social capital on teachers school well-being in Muhammadiyah Madrasah Ibtidaiyah schools in Matesih District, Karanganyar Regency, and to identify which of the two predictors, and which dimension of teacher social capital, contributes most strongly to shaping school well-being.

2. Methodology

Research Design and Participants

This study employed a quantitative correlational approach aimed at empirically examining the strength and direction of relationships among variables, rather than merely describing them (Creswell, 2014; Sugiyono, 2019). An ex post facto research design was employed because the data were collected after the events had occurred, without manipulating the research variables. The primary analysis used multiple linear regression to examine the effects of academic supervision (X1) and teachers' social capital (X2) on school well-being (Y), both partially and simultaneously.

The study population comprised 86 active teachers at Muhammadiyah Madrasah Ibtidaiyah schools in Matesih District, Karanganyar Regency. Given the relatively small population size, a saturated sampling technique was employed, whereby the entire population was included as respondents (Sugiyono, 2019). This strategy

minimizes sampling selection bias while providing a comprehensive representation of the phenomenon under investigation.

Research Instruments

The research instrument was developed in the form of a five-point Likert-scale questionnaire based on the framework of Glickman et al. (2014) and Sergiovanni & Starratt (2007) for academic supervision (27 initial items across three dimensions); a synthesis of Coleman (1988) and Putnam (2020) which was further enriched Beusaert & Kyndt (2023); Demir (2021) and Özbilen & Çekiç (2022) for teachers' social capital (24 initial items across four dimensions); and the framework Konu & Rimpelä (2002) for school well-being (36 initial items across four dimensions). The pilot test was conducted with 32 teachers outside the study population in Mojogedang District, who had comparable characteristics. Item validity was assessed using the Pearson Product-Moment correlation with the total score, while internal consistency was evaluated using Cronbach's Alpha, with a threshold of 0.70 (Ghozali, 2018). The results showed that the X1 instrument retained 26 valid items ($\alpha = 0.867$), the X2 instrument retained 22 valid items ($\alpha = 0.904$), and the Y instrument retained 32 valid items ($\alpha = 0.944$). Overall, all three instruments demonstrated reliability ranging from reliable to highly reliable.

Data Collection

Data were collected through a self-administered questionnaire (*self-report*) distributed directly to each madrasah included in the study population. Each variable was measured using a five-point response scale ranging from "Strongly Disagree" to "Strongly Agree" (scores 1–5), with the scoring direction adjusted for favorable and unfavorable items. This direct distribution approach was adopted to increase respondent participation and ensure that the data obtained were more complete and representative.

Data Analysis

Data analysis was conducted in several stages, beginning with descriptive statistics and prerequisite tests, including normality tests using the Kolmogorov–Smirnov and Shapiro–Wilk tests, linearity testing through deviation from linearity, multicollinearity testing using Tolerance and VIF, and heteroscedasticity testing using the Glejser test. These were followed by hypothesis testing through multiple linear regression, partial *t*-tests, a simultaneous *F*-test, and the Adjusted R^2 coefficient of determination, following the recommendations of (Hair et al., 2019), as well as calculating the effective and relative contributions of each predictor. The total score for each variable was categorized using guidelines based on the ideal mean and ideal standard deviation (Uswatun Khasanah & Asyhari, 2021). All data analyses were conducted using SPSS version 25 at a 5% significance level.

It should be noted that the cross-sectional design employed in this study does not permit purely causal inferences. Therefore, the regression coefficients are interpreted as controlled statistical associations rather than evidence of cause-and-

effect relationships in the experimental sense. This represents a methodological precaution commonly emphasized in studies of mediation and conditional processes (Hayes, 2013) and in a mixed-methods design that combines quantitative and qualitative evidence (Creswell & Poth, 2023).

3. Results and Discussion

The main data were collected in 2026 after the pilot testing, validity testing, and reliability assessment had been completed. The final questionnaires were administered directly to active teachers at Muhammadiyah Madrasah Ibtidaiyah schools in Matesih District, Karanganyar Regency, using a self-administered format. A saturated sampling technique was employed, resulting in 86 usable responses from the entire study population. The final instruments comprised 26 valid items for academic supervision (X1), 22 items for teacher social capital (X2), and 32 items for school well-being (Y). Before presenting the descriptive and inferential findings, Tables 1–3 summarize the main dimensions and representative items of the three instruments.

Table 1. Main Dimensions and Representative Items of the Academic Supervision Instrument (X1)

Dimension		Representative Item
Supervision Planning		“The principal systematically prepares an academic supervision program at the beginning of each semester.”
Classroom Visit		“The principal conducts classroom visits directly according to the established schedule.”
Implementation		
Post-Supervision Feedback		“The principal provides specific feedback on the results of classroom observations.”

Table 2. Main Dimensions and Representative Items of the Teacher Social Capital Instrument (X2)

Dimension		Representative Item
Trust		“I feel safe sharing my teaching difficulties with my colleagues.”
Social Network		“I actively participate in teacher working groups (KKG) or similar forums.”
Shared Norms		“Teachers at my school have a shared agreement on professional standards.”
Reciprocity		“Teachers at my school routinely help one another (ta'awun) in carrying out their duties without expecting personal rewards.”

Table 3. Main Dimensions and Representative Items of the School Well-Being Instrument (Y)

Dimension		Representative Item
Having (School Conditions)		“The physical facilities at my school support effective teaching.”
Loving (Social Relationships)		“I feel a sense of belonging among my colleagues at school.”
Being (Self-Fulfillment)		“I have opportunities to develop my professional skills at school.”
Health (Health Status)		“I rarely feel physically or mentally exhausted because of my work.”

General Overview of the Research Data

The research data were collected from 86 active teachers at Muhammadiyah Islamic Elementary Schools in Matesih District. Descriptive statistics, as shown in Table 4, indicated a mean score of 107.69 (SD = 7.62) for academic supervision, 86.81 (SD = 6.41) for teachers' social capital, and 125.63 (SD = 8.52) for school well-being. The close correspondence between the mean and median values across the three variables indicates relatively symmetrical distributions. These descriptive statistics provide an overview of the central tendency and variability of the three research variables before further analysis using multiple regression.

Table 4. Descriptive Statistics of the Research Variables

Statistics	Academic Supervision (X1)	Teacher Social Capital (X2)	School well-being (Y)
N	86	86	86
Mean	107,69	86,81	125,63
Median	106,00	86,00	125,00
Deviation Std.	7,62	6,41	8,52
Min–Maks Score	87–130	74–107	105–151

Source: Primary Data Analysis, 2026.

The categorization results, as shown in Table 5, indicate that 73.3% of teachers rated the principal's academic supervision in the very high category, while the remaining 26.7% were in the high category, with none of the respondents falling into the moderate or lower categories. A similar pattern was observed for teacher social capital, with 38.4% of respondents in the very high category and 61.6% in the high category. For school well-being, 38.4% of respondents were in the very high category, 60.5% in the high category, and 1.2% in the moderate category. The concentration of scores in the upper categories suggests limited variability in the observed responses, particularly for academic supervision. Such a restricted distribution may reduce the statistical variation available for examining the relationship between academic supervision and school well-being and may be considered in interpreting the regression results (Lakes, 2013).

Table 5. Categorization of Research Variable Levels (%)

Category	X1	X2	Y
Very High	73,3	38,4	38,4
High	26,7	61,6	60,5
Moderate	0,0	0,0	1,2
Low / Very Low	0,0	0,0	0,0

Source: Results of Primary Data Analysis, 2026.

At the dimension level, as shown in Table 6, the supervision planning dimension recorded the highest mean score for X1 (4.21), whereas classroom visit implementation had the lowest mean score (4.08), indicating that administrative and planning aspects were perceived more positively than direct classroom practices. For X2, the trust dimension recorded the highest mean score (4.04), while shared norms had the lowest mean score (3.86), suggesting that interpersonal trust among teachers was perceived more positively than agreement on shared professional standards. For Y, the social relationship dimension (loving)

recorded the highest mean score (4.05), whereas health status (health) had the lowest mean score (3.83). These findings provide a descriptive overview of the relative strengths and lower-rated dimensions of academic supervision, teacher social capital, and school well-being before the regression analysis.

Table 6. Mean Scores by Dimension (1–5 Scale)

Variable		Highest-Rated Dimension	Average	Lowest-Rated Dimension	Average
Academic Supervision (X1)	Supervision Planning		4,21	Classroom Visit Implementation	4,08
Teacher Social Capital (X2)	(Trust)		4,04	Shared Norms (Shared Norms)	3,86
School well-being (Y)	Social Relationships (Loving)		4,05	Health Status (Health)	3,83

Source: Results of Primary Data Analysis, 2026.

Analysis Assumption Tests

All four prerequisite tests were satisfied, as shown in Table 7. The residuals were normally distributed according to both the Kolmogorov–Smirnov test (Sig. = 0.200) and the Shapiro-Wilk test (Sig. = 0.958). The relationships between X1–Y and X2–Y were both linear, with Sig. values for deviation from linearity of 0.117 and 0.570, respectively. No multicollinearity was detected (Tolerance = 0.707; VIF = 1.415 for both predictors), and no heteroscedasticity was detected based on the Glejser test (Sig. = 0.135 for X1 and 0.957 for X2 (Ghozali, 2018). These results indicate that the assumptions required for the subsequent multiple regression analysis were satisfied.

Table 7. Summary of Analysis Assumption Tests

Test	Statistic/Value	Criterion	Description
Normalitas (K-S / Shapiro-Wilk)	Sig. 0,200 / 0,958	Sig. > 0,05	Normal
Linearitas X1–Y	Sig. 0,117	Sig. > 0,05	Linier
Linearitas X2–Y	Sig. 0,570	Sig. > 0,05	Linier
Multikolinearitas	Tolerance 0,707; VIF 1,415	Tol. > 0,10; VIF < 10	Not Detected
Heteroskedastisitas (Glejser)	Sig. 0,135 / 0,957	Sig. > 0,05	Not Detected

Source: SPSS data analysis, 2026.

Hypothesis Testing: The Dominance of Teacher Social Capital

The zero-order correlation analysis, as shown in Table 8, indicates that, when examined separately, both predictors were significantly and positively correlated with school well-being: X1 with Y ($r = 0.504$) and X2 with Y ($r = 0.795$). The two predictors were also moderately positively correlated with each other ($r_{X1-X2} = 0.542$). This intercorrelation between the predictors is important for interpreting the subsequent multiple regression results, as the variance in school well-being associated with academic supervision may partly overlap with the variance associated with teacher social capital.

Table 8. Zero-Order Correlation Matrix Among Variables

Relationship	r	Sig.	Description
X1 with Y	0,504	0,000	Positif, significant
X2 with Y	0,795	0,000	Positif, significant, strong
X1 with X2	0,542	0,000	Positif, significant

Source: Results of Primary Data Analysis, 2026.

The multiple regression results, as shown in Table 9, resulted in the following regression equation: $\hat{Y} = 27.884 + 0.116X1 + 0.982X2$. Although the coefficient for X1 was positive (0.116), it was not statistically significant ($t = 1.322$; Sig. = 0.190; $\beta = 0.104$). In contrast, X2 had a statistically significant coefficient ($t = 9.418$; Sig. = 0.000; $\beta = 0.739$). The difference in the standardized beta coefficients indicates that teacher social capital had a stronger unique association with school well-being than academic supervision when both predictors were included simultaneously in the regression model.

Table 9. Multiple Linear Regression Coefficients

Variable	B	Beta (β)	t	Sig.
Constant	27,884	–	3,140	0,002
Academic Supervision (X1)	0,116	0,104	1,322	0,190
Teacher Social Capital (X2)	0,982	0,739	9,418	0,000

Source: SPSS data analysis, 2026.

The simultaneous test, as shown in Table 10, indicated that the two predictors jointly had a statistically significant association with school well-being ($F = 73.560$; Sig. = 0.000; F-table = 3.11 at $df = 2$ and 83).

Table 10. F-Test (ANOVA) Results

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Regression	3947,221	2	1973,610	73,560	0,000
Residual	2226,872	83	26,830	–	–
Total	6174,093	85	–	–	–

Source: SPSS data analysis, 2026.

The coefficient of determination, as shown in Table 11, showed an Adjusted R^2 of 0.631. This means that the regression model explained 63.1% of the variance in school well-being, while the remaining 36.9% was associated with factors outside the model. These factors may include transformational leadership, organizational culture, workload, or school committee support, although they were not examined in the present study.

Table 11. Coefficient of Determination (Model Summary)

R	R Square	Adjusted R Square	Std. Error of the Estimate
0,800	0,639	0,631	5,180

Source: SPSS data analysis, 2026.

The effective and relative contribution calculations, as shown in Table 12, further illustrate the difference in the contributions of the two predictors. The total effective contribution was 63.99%, which was approximately consistent with the

R^2 value of 63.9%. Teacher social capital contributed 58.75% on an effective basis and 91.81% on a relative basis, whereas academic supervision contributed 5.24% effectively and 8.19% relatively. These results indicate that the effective contribution of teacher social capital was substantially larger than that of academic supervision, with an approximate contribution ratio of 11:1.

Table 12. Effective Contribution (EC) and Relative Contribution (RC)

Variable	Beta	r (zero-order)	EC (%)	RC (%)
Academic Supervision (X1)	0,104	0,504	5,24	8,19
Teacher Social Capital (X2)	0,739	0,795	58,75	91,81
Total	–	–	63,99	100,00

Source: Results of Primary Data Analysis, 2026.

Why Does Social Capital Dominate? An Analysis of the Underlying Mechanisms

The partial non-significance of academic supervision should not be interpreted as evidence that supervision is irrelevant to school well-being, as its zero-order correlation is statistically significant ($r = 0.504$). Rather, this finding is more appropriately understood as an instance of predictor redundancy, because X1 and X2 are moderately strongly correlated ($r = 0.542$). When both predictors are entered simultaneously into the model, a substantial portion of the information provided by academic supervision in explaining school well-being is already represented by teacher social capital (Ghozali, 2018). The linearity assumption remained satisfied in the main study data (Sig. = 0.117), ruling out the possibility that the loss of significance of X1 was attributable to an incorrect functional form of the model. This finding therefore makes overlapping variance the primary candidate explanation.

The second explanation is psychometric in nature: the extreme concentration of X1 scores in the upper category (73.3% in the very high category and 0% in the moderate or lower categories) narrowed the variation in academic supervision scores across respondents. This restriction-of-range condition systematically reduces the variable's discriminating power and limits its generalizability (Lakes, 2013). When nearly all teachers perceive academic supervision as being implemented effectively, the statistical analysis has limited "room to maneuver" to detect whether small variations in supervision scores are genuinely associated with variations in school well-being.

This interpretation is consistent with recurring patterns in the supervision literature, in which predominantly administrative supervision tends to have limited significant effects and is less likely to be perceived by teachers as professional development (Wahyuni et al., 2025); The effectiveness of supervision is determined far more by how it is implemented, its measurability, continuity, and the timeliness of feedback than by the mere presence or absence of supervision activities themselves (Lastini et al., 2025) Effective communication between principals and teachers, rather than the mere frequency of supervision, is an essential prerequisite for school well-being (Kartikasari & Hidayat, 2024). In other words, academic supervision appears to contribute to teacher well-being

only when it succeeds in fostering relationships of trust, precisely overlapping with the domain of teacher social capital.

In contrast, the dominance of teacher social capital ($\beta = 0.739$; EC = 58.75%) is highly consistent with the three theoretical pathways outlined in the literature, particularly the fulfillment of the need for relatedness in Self-Determination Theory (Ryan & Deci, 2000), the function of social capital as a psychological buffer against work-related stress (OECD, 2023; Skaalvik & Skaalvik, 2018) and its contribution to teachers' collective efficacy (Donohoo, 2017; Leithwood, 2004). This finding also echoes evidence that social capital functions as a source of social support that sustains the well-being of both teachers and school principals (Beausaert & Kyndt, 2023), the role of social capital in professional learning (Demir, 2021), and the importance of integrating a holistic approach that fosters a mental health-friendly environment (Minsih et al., 2024). At the dimensional level, the high scores for teacher trust and reciprocity (Table 3) are consistent with the high score for the social relationships (*loving*) dimension of school well-being. This alignment is also evident in findings highlighting the importance of interpersonal relationship quality for teachers' job satisfaction throughout their careers (Veldman et al., 2013). It is also consistent with the emphasis that productive teacher communities are grounded in trust and collaboration rather than merely in formal structures or programs (Vangrieken et al., 2017).

Nevertheless, the significant F-test result ($F = 73.560$) and the Adjusted R^2 of 63.1% indicate that academic supervision does not entirely lose its relevance. Rather, it remains an integral component of the support system for school well-being, consistent with the view that academic supervision operates alongside other resources rather than functioning as a standalone factor (Glickman et al., 2014) and that its impact is most optimal when accompanied by the strengthening of teachers' collaborative competencies (Susanto et al., 2025), and with findings showing that transformational leadership by madrasah principals, oriented toward relationship-based human resource development, has been effective in fostering character development in Muhammadiyah elementary schools (Prasetyo et al., 2025). This perspective is further reinforced by findings showing that the development of high-quality schools is determined not solely by formal leadership styles, but also by how leadership fosters relationships throughout the school environment (Minsih et al., 2019), and by the emphasis that the collective benefits of networks and trust are optimized only when supported by institutional structures that facilitate them (Putnam, 2020). The well-being of elementary school communities has also been shown to be more effectively achieved when school principals manage resources while simultaneously fostering comprehensive collaboration, rather than relying solely on formal leadership competencies (Kurniyanti et al., 2025).

This pattern of relationships suggests a potential mediation mechanism, whereby part of the influence of academic supervision on school well-being is transmitted through teacher social capital (Hayes, 2013). However, this study did not formally test this mechanism; therefore, this conclusion remains hypothetical and should be

confirmed through path analysis or structural equation modeling in future research.

Read through the lens of social capital theory, this dominance appears theoretically coherent rather than incidental. Coleman (1988) frames social capital as a resource embedded in relationships that enables collective action, while Putnam (2020) further distinguishes bonding ties, which consolidate trust within a close, homogeneous group, from bridging ties, which connect across groups. In the present sample, teacher social capital most plausibly operates through bonding mechanisms: trust and reciprocity among a relatively stable teaching staff within a single madrasah. Mapped onto (Konu & Rimpelä, 2002) four-dimensional model, this bonding-type social capital corresponds most directly to the loving dimension of school well-being, social relationships, which recorded the highest mean score among the well-being dimensions (Table 6) and aligns with trust, the highest-rated dimension of teacher social capital (Table 6). Academic supervision, by contrast, is structurally closer to the having dimension, formal school conditions and administrative arrangements, which is necessary but less proximally tied to the relational experience that teachers report as central to their well-being. This dimensional correspondence offers a substantive, theory-based explanation for why teacher social capital's statistical dominance is not merely a psychometric artefact of restricted supervision variance, but also a reflection of which construct sits conceptually closer to teachers' lived experience of well-being at school.

Comparison with Previous Studies and Contextual Implications

These results both align with and diverge from prior evidence. Consistent with Kartikasari & Hidayat (2024), who found that the quality of principal teacher communication mattered more for well-being than the frequency of supervisory activity, and with Beausaert & Kyndt (2023), who identified social support as a central resource for the well-being of both teachers and principals, the present findings reinforce the view that relational rather than procedural resources are the stronger lever for well-being outcomes. The pattern also echoes Veldman et al. (2013), who linked interpersonal relationship quality to career long job satisfaction, and Vangrieken et al. (2017), who argued that productive teacher communities rest on trust and collaboration rather than on formal structures alone.

At the same time, the findings diverge from studies in which academic supervision emerged as the stronger or sole significant factor, such as Nikmah et al., (2025) and Ridiyawati et al. (2025), both of which examined supervision's contribution to pedagogical competence or instructional quality rather than to well-being as an outcome. This divergence suggests that academic supervision may matter more for competence oriented outcomes, whereas relational, trust based resources matter more for affective, well-being oriented outcomes, a distinction that has received little explicit attention in the Indonesian supervision literature. The divergence may also reflect the specific character of the Muhammadiyah Madrasah Ibtidaiyah in Matesih: as a single, religiously grounded institution where teachers interact daily within a shared moral and organizational

culture (Sholikah et al., 2025), the conditions for bonding social capital, long tenure, shared religious commitment, and a compact staff, are arguably more conducive than in the larger or more bureaucratic school systems examined in prior supervision centred studies. This contextual contrast indicates that the dominance of teacher social capital documented here should not be generalized uncritically to all school types, but it does suggest that madrasah leaders in similarly close-knit, values based institutions may gain more from cultivating collegial trust and reciprocity than from intensifying formal supervision alone.

4. Conclusion

The This study concludes that both principals' academic supervision and teacher social capital are positively associated with school well-being when examined separately. However, when the two variables are tested simultaneously, only teacher social capital remains a significant predictor, whereas the unique contribution of academic supervision becomes non-significant because much of the information it provides is already represented by teacher social capital. Simultaneously, the two variables remain jointly significant predictors of school well-being, with a relatively strong explanatory power, indicating that they operate as an interconnected system, although their relative contributions differ substantially.

Teacher social capital, reflected in trust, social networks, shared norms, and reciprocal relationships among teachers, emerged as a substantially more dominant factor than academic supervision in shaping school well-being in the madrasah ibtidaiyah context examined in this study. This finding indicates that strengthening school well-being in madrasahs cannot rely solely on improving formal supervision mechanisms, regardless of how well such programs are designed. Rather, it needs to be accompanied by sustained investment in building trust, collaborative networks, shared norms, and a culture of mutual support among teachers. Madrasah principals are therefore encouraged to continue implementing academic supervision in a scheduled and reflective manner while deliberately providing space and time for professional interaction among teachers beyond formal supervision forums. Future research is recommended to incorporate other relevant variables, examine the potential mediating role of teacher social capital in the relationship between academic supervision and school well-being, and expand the geographical coverage and sample size to enhance the generalizability of the findings.

Acknowledgement

The authors would like to express their sincere gratitude to the principals and teachers of Muhammadiyah Islamic Elementary Schools in Matesih District, Karanganyar Regency, for their participation and support throughout the research data collection process. The authors also extend their sincere appreciation to Dr. Fitri Puji Rahmawati, S.Pd., M.Hum., M.Pd., and Dr. Murfiah Dewi Wulandari, M.Psi., as academic supervisors, for their guidance, direction, valuable feedback,

and support throughout the research process and the preparation of this article. The authors also gratefully acknowledge all parties who contributed to the completion of this study.

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How to cite this article:

Fatimah, H., Rahmawati, F.P., & Wulandari, M.D (2026). The Dominant Role of Teachers' Social Capital in Shaping School Well-Being: A Regression Analysis of Muhammadiyah Schools in Karanganyar. *Journal of Educational Sciences*, 10(10), 400-417.