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ORGANIZATIONAL CAPABILITY AND PRIMARY SCHOOL PERFORMANCE: PERCEIVED STUDENT ENGAGEMENT AND MOTIVATION IN INDONESIA

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ABSTRACT: Indonesian primary schools show uneven performance despite similar resources. This study contributes a cross-level resource-conversion model in which principal-perceived student engagement mediates the association between organizational capability and institutional performance, while principal-perceived learning motivation conditions that association. Survey data from 218 principals were analyzed with partial least squares structural equation modeling. Organizational capability was positively associated with engagement and performance, and engagement partially mediated the capability-performance relationship. Learning motivation showed a small, borderline negative interaction with capability, providing preliminary evidence consistent with resource substitution. The study therefore places the engagement-mediated pathway at the center of its contribution and treats motivation as a provisional boundary condition. Principals and district offices should diagnose student motivational conditions when designing capability-building interventions rather than assume uniform engagement returns.

Keywords: Organizational Capability; Principal-Perceived Student Engagement; Institutional Performance; Principal-Perceived Learning Motivation; Resource-Based View

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INTRODUCTION

Indonesia operates one of the largest primary education systems in the world, with close to 150,000 primary schools and more than 24 million pupils. Over the past decade, national policy has shifted responsibility for quality from district offices to the school itself. School-based management, the Merdeka Belajar reform, and the Education Report Card (Rapor Pendidikan) now hold principals accountable for measurable institutional outcomes. Yet the outcomes of this shift remain uneven. Schools that receive similar operational funds, similar staffing ratios, and similar training programs report markedly different levels of accreditation, learning quality, and stakeholder trust. The puzzle is therefore not whether schools possess resources, but why comparable resources produce unequal institutional performance. Comparative evidence shows that leadership and school organization influence outcomes mainly through indirect pathways that shape teaching, climate, and learning conditions (Day et al., 2016; Gümüş et al., 2018; Kwan, 2020; Leithwood et al., 2020; Tan et al., 2024).

Research on school effectiveness offers two connected explanations. One stream treats organizational capability, meaning a school's capacity to coordinate people, routines, and infrastructure, as a source of performance differences. Another treats student engagement as a proximal process through which school conditions relate to educational outcomes. Existing leadership research already connects organizational conditions with student outcomes through mediated pathways (Leithwood et al., 2020; Liebowitz & Porter, 2019; Robinson, 2019). What remains less clear is whether principal-perceived aggregate engagement serves as the school-level conversion mechanism between capability and institutional performance, and whether principal-perceived aggregate motivation changes the strength of that association. The unresolved issue is therefore how a school-level capability relates to a school-level perception of student engagement under different motivational conditions.

The central issue concerns cross-level resource substitution. Organizational capability consists of school-controlled routines that structure opportunities for engagement. Learning motivation originates with students and is not controlled by the school. This study therefore treats principal-perceived aggregate motivation as an external human-resource condition that may alter the marginal value of school routines, rather than as an organizational resource. When this perceived motivational condition is high, capability may contribute less additional structure to engagement because both provide partly overlapping support for sustained participation. This prediction is consistent with a stakeholder-sensitive RBV in which value creation depends on resources held across organizational boundaries (Barney, 2018) and with evidence that motivational interventions depend on the learning context (Lazowski & Hulleman, 2016; Reeve et al., 2020).

This study makes three contributions. First, it centers the engagement-mediated association between organizational capability and institutional performance, which provides the model's strongest mechanism-based contribution. Second, it extends a stakeholder-sensitive RBV by examining whether an organization-controlled capability interacts with a student-held motivational condition across the school boundary. Third, it tests a small negative interaction as a provisional boundary condition rather than presenting it as a general substitution framework. The study thus explains how organizational capability may be converted into school performance and identifies a motivational condition that may qualify that conversion.

THEORETICAL OVERVIEW

The resource-based view (RBV) explains performance differences between organizations by differences in the resources they control and, in their ability, to deploy those resources. Its central claim is that resources create value only when an organization bundles and mobilizes them through routines. A school that owns qualified teachers, a library, and digital devices does not perform well by ownership alone. It performs well when its routines convert those assets into learning activity. The RBV locates persistent performance differences in valuable resource bundles and the organizational processes used to exploit them (Barney, 2018; Hitt et al., 2016).

We adopt the RBV as the grand theory for two reasons. First, it distinguishes resources from capabilities, which clarifies why schools with similar inputs can report different outcomes. Second, stakeholder-sensitive RBV recognizes that value creation can depend on resources held

beyond the organization's formal control (Barney, 2018). Organizational capability is a school-controlled bundle of routines. Student motivation remains a student-held condition. The model does not absorb motivation into the school's resource stock; it tests whether principals' aggregate perceptions of that external condition alter the marginal association between capability and engagement. Principal-perceived student engagement is the school-level mechanism through which these conditions are associated with institutional performance. Later RBV scholarship also stresses that capabilities act through organizational processes and must be distinguished from the resources they deploy (Schilke et al., 2018; Salvato & Vassolo, 2018; Teece, 2018).

Conceptual clarification of the constructs

Organizational capability refers to the capacity of a school to coordinate human resources, instructional routines, infrastructure, and information systems toward shared goals. The construct describes routines, not stocks. It captures whether a school plans, allocates, monitors, and adapts. This process definition follows capability research that treats coordinated routines as mechanisms through which resources generate outcomes (Schilke et al., 2018; Salvato & Vassolo, 2018).

Student engagement refers at the individual level to students' behavioral, emotional, and cognitive involvement in learning activities. It includes classroom participation, task persistence, and attachment to school (Reeve et al., 2020; Wong et al., 2025). This study does not directly measure individual students. It operationalizes principal-perceived aggregate student engagement as a school-level assessment of the prevailing participation and involvement of the student body. All theoretical and empirical claims therefore concern this perceived school-level aggregate. Institutional performance refers to the degree to which a school achieves its educational and administrative targets. It includes learning outcomes, accreditation status, program completion, and stakeholder satisfaction. Learning motivation refers at the individual level to a student's internal drive to learn and sustain effort. The study does not directly observe that psychological state. Principals assess the prevailing motivation of the student body, so the empirical construct is principal-perceived aggregate learning motivation at the school level. This distinction limits inference to principals' school-level perceptions rather than individual student motivation (Alamer & Alrabai, 2022; Lazowski & Hulleman, 2016; Reeve et al., 2020).

Organizational capability and student engagement

The RBV suggests that capability creates value through the activity it enables. In schools, coordinated schedules, appropriate staff deployment, maintained learning spaces, and attendance monitoring may lower barriers to student participation. These routines should therefore be positively associated with principals' aggregate perceptions of student engagement. Longitudinal and synthesis evidence also links structured, supportive learning environments with stronger engagement and competence beliefs (Erdem & Kaya, 2024; Tao et al., 2024).
H1. Organizational capability is positively associated with principal-perceived aggregate student engagement.

Organizational capability and institutional performance

Capability may also be associated with performance through administrative processes that do not require student participation, including accreditation preparation, budget management, and relationships with parents and district offices. The RBV treats coordinated routines as a potential source of performance differences. Leadership research likewise indicates that school outcomes are associated with coordinated instructional and organizational conditions rather than leadership behavior in isolation (Day et al., 2016; Leithwood et al., 2020).
H2. Organizational capability is positively associated with institutional performance.

Student engagement and institutional performance

Higher student engagement is associated with stronger attendance, task completion, and academic performance. At the school level, principals' aggregate perceptions of these behaviors may align with institutional outcomes observed by accreditation bodies and parents. From an RBV

perspective, perceived engagement represents the point at which school resources appear to become realized value. Meta-analytic and cross-national evidence connects student engagement with achievement and broader academic performance (Konold et al., 2018; Wong et al., 2024).
H3. Principal-perceived aggregate student engagement is positively associated with institutional performance.

The mediating role of student engagement

H1 and H3 imply an indirect association: capability is related to the conditions for engagement, and engagement is related to performance. This sequence matches the RBV argument that resources reach outcomes through deployment rather than possession. Because H2 also predicts a direct association, principal-perceived student engagement should account for part, but not all, of the capability-performance relationship. This indirect-effect logic accords with school leadership research in which organizational conditions mediate more distal leadership relationships with student outcomes (Leithwood et al., 2020; Liebowitz & Porter, 2019).
H4. Principal-perceived aggregate student engagement mediates the association between organizational capability and institutional performance.

The moderating role of learning motivation

A complementarity argument predicts that motivation strengthens the value of school inputs. A substitution argument predicts a negative interaction when two conditions perform partly overlapping functions. Organizational capability structures the learning environment, whereas motivation supplies student-held drive. If principals perceive motivation as high across the student body, additional capability may show a weaker association with perceived engagement. If they perceive motivation as low, students may depend more on school routines. We therefore test whether the interaction is negative and interpret such a pattern as evidence consistent with, rather than proof of, resource substitution. Reciprocal classroom evidence shows that contextual support and engagement influence one another, so this prediction remains conditional rather than automatic (Tao et al., 2024). The conversation hence lead to the hypothesis construction, as well as compiled to the research model as in Figure 1.
H5. Principal-perceived aggregate learning motivation negatively moderates the association between organizational capability and principal-perceived aggregate student engagement, such that the association is weaker when perceived motivation is high.

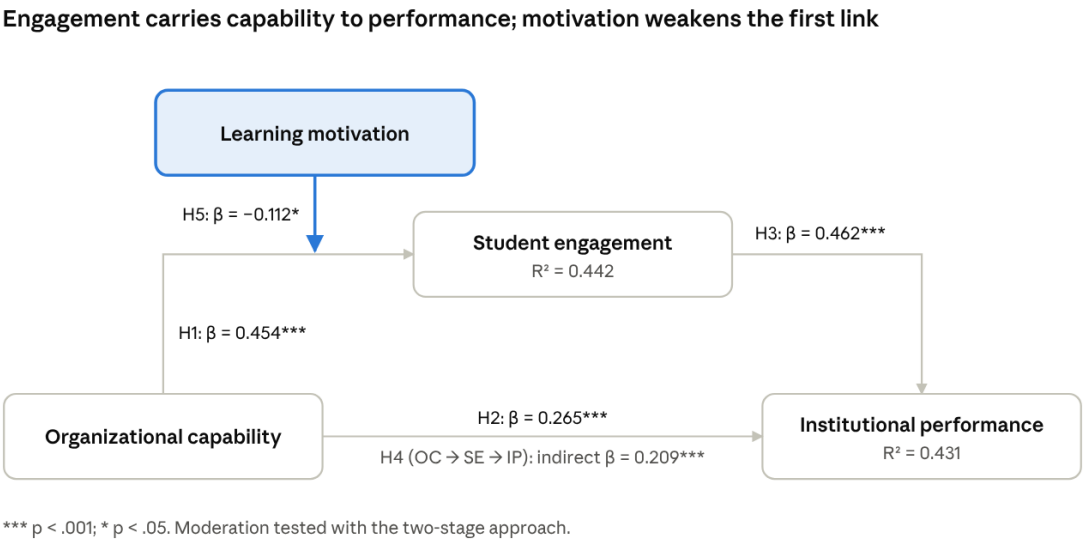


Figure 1. Research model with estimated paths (n = 218)

Organizational capability is associated with institutional performance directly and indirectly through principal-perceived aggregate student engagement, while principal-perceived aggregate learning motivation moderates the capability-engagement association.

RESEARCH METHODS

This study uses a cross-sectional, explanatory survey design. The unit of analysis is the school, and the principal is the key informant. Principals can report school routines and institutional outcomes, but their reports of student engagement and motivation remain aggregate perceptions rather than direct observations of students. We analyze the data with partial least squares structural equation modeling (PLS-SEM) for three reasons. First, the study aims to explain variance in endogenous constructs rather than confirm a covariance structure. Second, the model contains an interaction term, which PLS-SEM estimates without strong distributional assumptions. Third, PLS-SEM performs well with moderate samples and non-normal Likert data. Current guidance recommends PLS-SEM when research emphasizes explanation and prediction, provided that its use and results are reported transparently (Hair et al., 2019).

Population, sampling frame, and sample size

The population consists of principals of public and private primary schools (Sekolah Dasar) in four provinces of Sulawesi: South Sulawesi, West Sulawesi, Southeast Sulawesi, and Central Sulawesi. We drew the sampling frame from the national basic education database (Dapodik) in January 2025. The frame listed 9,846 primary schools. We applied proportionate stratified random sampling, with province and school status (public or private) as strata, and selected 300 schools.

We determined the minimum sample size a priori with G*Power 3.1. For the most complex regression in the model, student engagement has three predictors (organizational capability, learning motivation, and their interaction). With a medium effect size ($f^2 = 0.15$), $\alpha = .05$, and power = .95, the required minimum is 119 cases. The inverse square root method, with a minimum expected path of 0.20 at the 5% level, requires 155 cases. The final sample of 218 exceeds both thresholds. The inverse square root method provides a power-oriented minimum-sample assessment tailored to PLS-SEM path models (Kock & Hadaya, 2018).

Data collection ran from 3 February to 30 April 2025. We sent a formal letter to each district education office and obtained permission before contacting schools. Trained enumerators then delivered a paper questionnaire and a QR-code link to an identical Google Forms version. Each principal received an information sheet and a consent form. We sent two reminders, at two and four weeks after first contact.

Of the 300 principals contacted, 231 returned a questionnaire (77.0%). We removed 13 cases: seven had more than 15% missing responses, and six showed straight-lining across all items. The final dataset contains 218 complete cases, a usable response rate of 72.7%. Remaining missing values (below 1% of all data points) were replaced by item means. We compared early and late respondents (first 25% versus last 25%) on all items with independent t-tests and found no significant differences (all $p > .10$), which suggests that non-response bias is limited. Table 1 reports the respondent profile.

Table 1. Respondent profile (n = 218)

Characteristic	Category	n	%
Gender	Male	128	58.7
	Female	90	41.3
Age	Under 45 years	41	18.8
	45–54 years	109	50.0
	55 years and above	68	31.2
Tenure as principal	Under 5 years	87	39.9
	5–10 years	92	42.2
	Over 10 years	39	17.9
School status	Public	171	78.4
	Private	47	21.6
School location	Urban	94	43.1
	Rural	124	56.9
Accreditation	A	82	37.6
	B	109	50.0
	C	27	12.4

Measurement instrument

All constructs are reflective and use a five-point Likert scale (1 = strongly disagree; 5 = strongly agree). We adapted items from established school management and engagement scales and wrote them in English. Two bilingual education researchers translated the items into Bahasa Indonesia, and a third researcher back-translated them. A panel of three experts in educational management rated content validity; all items reached an item-level content validity index of 0.83 or higher. We pilot-tested the instrument with 30 principals who did not enter the main sample and revised the wording of four items. Multidimensional engagement measures require careful content coverage because behavioral, emotional, cognitive, and agentic components are related but nonidentical (Reeve et al., 2020; Wong et al., 2025). The initial instrument contained 17 items. We deleted two items during measurement assessment because their loadings fell below 0.60 (SE2 = 0.52; LM3 = 0.48). Table 2 lists the retained items.

Table 2. Constructs and retained items

Construct	Code	Item (principal reports on own school)
Organizational capability	OC1	Our school has staff whose competences match their assigned tasks.
	OC2	Our school plans programs based on evaluation data.
	OC3	Our school allocates resources according to program priorities.
	OC4	Our school monitors and adjusts its programs regularly.
Principal-perceived student engagement	SE1	Students actively participate in classroom activities.
	SE3	Students complete learning tasks on time.
	SE4	Students show enthusiasm for school activities.
	SE5	Students take part in extracurricular programs.
Institutional performance	IP1	Our school achieves its annual learning targets.
	IP2	Our school meets national education standards.
	IP3	Our school receives positive evaluations from parents.
	IP4	Our school completes its planned programs.
	IP5	Our school has improved its Education Report Card indicators.
Principal-perceived learning motivation	LM1	Most students show a strong desire to learn without being told.
	LM2	Most students keep trying when learning tasks become difficult.

Control of common method bias

Because one informant reports all constructs, we used procedural and statistical remedies. Procedurally, we guaranteed anonymity, separated the constructs into different sections, and mixed the order of items within sections. Statistically, we ran Harman's single-factor test and a full collinearity assessment. The single factor explained 32.4% of the variance, below the 50% threshold. All full collinearity variance inflation factors (VIFs) ranged from 1.38 to 2.41, below the 3.3 threshold. Common method bias is therefore unlikely to threaten the results. Procedural separation and statistical diagnostics are consistent with established recommendations for limiting common method bias (Jordan & Troth, 2020).

Analytical procedure

We estimated the model in SmartPLS 4.1.0.9. The PLS algorithm used the path weighting scheme, a maximum of 3,000 iterations, and a stop criterion of 10^{-7}. Indicators were standardized. Inference relied on bootstrapping with 10,000 subsamples, percentile confidence intervals, two-tailed tests, and $\alpha = .05$.

We followed a two-step assessment. In the measurement model, we required indicator loadings ≥ 0.70 (with loadings between 0.60 and 0.70 retained when composite reliability and AVE were adequate), Cronbach's alpha and composite reliability (ρA and ρC) ≥ 0.70, average variance extracted (AVE) ≥ 0.50, and heterotrait–monotrait ratios (HTMT) below 0.90 with bootstrapped upper confidence bounds below 1. In the structural model, we required inner VIFs below 3.0, and we report path coefficients, t-values, p-values, coefficients of determination (R^2), effect sizes (f^2), and predictive relevance through PLSpredict (10 folds, 10 repetitions). HTMT offers a more sensitive discriminant-validity test than traditional criteria in variance-based SEM (Rönkkö & Cho, 2022).

We tested mediation (H4) through the bootstrapped specific indirect effect and classified its type by comparing direct and indirect effects. We tested moderation (H5) with the two-stage approach. Stage one estimated the latent variable scores of organizational capability and learning motivation. Stage two used their product as the interaction term, together with both main effects, to predict student engagement. The full dataset and the SmartPLS project file are available from the corresponding author on reasonable request. Bootstrapped indirect effects support contemporary mediation testing, while interaction terms require explicit construction and interpretation procedures (Becker et al., 2018; Nitzl et al., 2016). Predictive assessment follows PLSpredict guidance (Shmueli et al., 2019).

RESULTS AND DISCUSSION

The measurement model meets the criteria for indicator reliability, internal consistency, and convergent validity, with one qualified exception for learning motivation. Table 3 reports the results. Thirteen of 15 loadings exceed 0.70. Two institutional performance items (IP3 = 0.679; IP5 = 0.669) fall between 0.60 and 0.70. We retain them because the construct reaches ρC = 0.841 and AVE = 0.514, and because their deletion would narrow the content domain of performance. All outer VIFs range from 1.212 to 3.205, below the threshold of 5.

Principal-perceived learning motivation requires a cautious judgment. Its Cronbach's alpha (0.590) and ρA (0.615) fall below 0.70, whereas ρC (0.827) and AVE (0.706) exceed their thresholds. For the two retained items, alpha implies an inter-item correlation of approximately 0.418 and an equivalent Spearman-Brown coefficient of 0.590. The loadings exceed 0.79, but these results do not remove the weakness of a two-item moderator. We therefore retain the construct for this analysis, treat its reliability as a limitation, and interpret the moderation finding as provisional. Very short scales require broader validity evidence because alpha is strongly affected by item count (Cho, 2016).

Discriminant validity meets the liberal HTMT criterion, but one result warrants caution. Table 4 shows that the HTMT ratio between principal-perceived learning motivation and institutional performance is 0.894. This value falls below 0.90 but exceeds the conservative 0.85 threshold and therefore signals possible construct overlap. Its bootstrapped 95% upper bound (0.97) remains below 1, which supports empirical distinction under the inferential criterion without

eliminating the concern. The interaction term shows low HTMT ratios with all constructs (0.116-0.216).

Table 3. Measurement model assessment

Construct	Item	Loading	VIF	Cronbach's α	ρA	ρC	AVE
Institutional performance	IP1	0.760	1.547	0.763	0.765	0.841	0.514
	IP2	0.751	1.503				
	IP3	0.679	1.351				
	IP4	0.721	1.457				
	IP5	0.669	1.287				
Perceived motivation	LM1	0.883	1.212	0.590	0.615	0.827	0.706
	LM2	0.795	1.212				
Organizational capability	OC1	0.713	1.388	0.854	0.860	0.903	0.701
	OC2	0.876	2.891				
	OC3	0.895	3.205				
	OC4	0.852	2.129				
Perceived engagement	SE1	0.763	1.471	0.761	0.761	0.847	0.581
	SE3	0.764	1.424				
	SE4	0.774	1.626				
	SE5	0.749	1.523				

Table 4. Heterotrait–monotrait ratios (HTMT)

Construct	IP	LM	OC	SE
Institutional performance (IP)	—			
Perceived learning motivation (LM)	0.894	—		
Organizational capability (OC)	0.678	0.693	—	
Perceived student engagement (SE)	0.812	0.768	0.750	—
LM × OC	0.157	0.138	0.116	0.216

Structural model

The structural model shows no collinearity problem: all inner VIFs range from 1.00 to 1.71. The model explains 44.2% of the variance in principal-perceived student engagement ($R^2 = 0.442$; adjusted $R^2 = 0.434$) and 43.1% of the variance in institutional performance ($R^2 = 0.431$; adjusted $R^2 = 0.426$), indicating moderate explanatory power. Positive Q^2predict values for engagement (0.36) and performance (0.27) indicate out-of-sample predictive relevance. Because prediction errors were not compared with a benchmark model, these values do not establish superior predictive performance. The standardized root mean square residual (SRMR = 0.071) falls below 0.08.

Table 5 reports the hypothesis tests. Confidence intervals derive from the bootstrap standard errors. Organizational capability was positively associated with principal-perceived student engagement (H1) with a medium effect and with institutional performance (H2) with a small effect. Principal-perceived student engagement was positively associated with institutional performance (H3) with a medium effect. These results support the proposed resource-deployment sequence without establishing temporal causality.

The mediation analysis supports H4. The bootstrapped specific indirect effect (0.209) is significant, and its confidence interval excludes zero. The direct effect (0.265) also remains significant and has the same sign. This pattern supports complementary partial mediation: organizational capability is associated with institutional performance both directly and indirectly

through principal-perceived student engagement. The bootstrap evidence, rather than the descriptive variance-accounted-for ratio, provides the basis for this conclusion.

Table 5. Structural model and hypothesis tests

Hypothesis	Effect	β	t-value	p-value	f²	Decision
H1	OC → SE	0.454	8.643	< .001	0.27	Supported
H2	OC → IP	0.265	4.260	< .001	0.09	Supported
H3	SE → IP	0.462	7.019	< .001	0.27	Supported
H4	Specific indirect effect: OC → SE → IP	0.209	5.670	< .001	—	Supported
H5	LM × OC → SE	–0.112	1.974	.048	0.03	Supported

Note. H4 reports the bootstrapped specific indirect effect. The learning-motivation main effect is included because the moderation model requires both constituent terms. SE and LM denote principal-perceived school-level aggregates.

The moderation analysis provides limited support for H5. The interaction term is negative (β = -0.112, p = .048, f² = 0.03), and its confidence interval ends close to zero. The estimated conditional association between capability and engagement declines from 0.566 at one standard deviation below the mean of perceived learning motivation to 0.454 at the mean and 0.342 at one standard deviation above the mean. Figure 2 displays this pattern. The result is consistent with resource substitution, but its small magnitude, borderline significance, and reliance on a two-item moderator preclude a definitive claim.

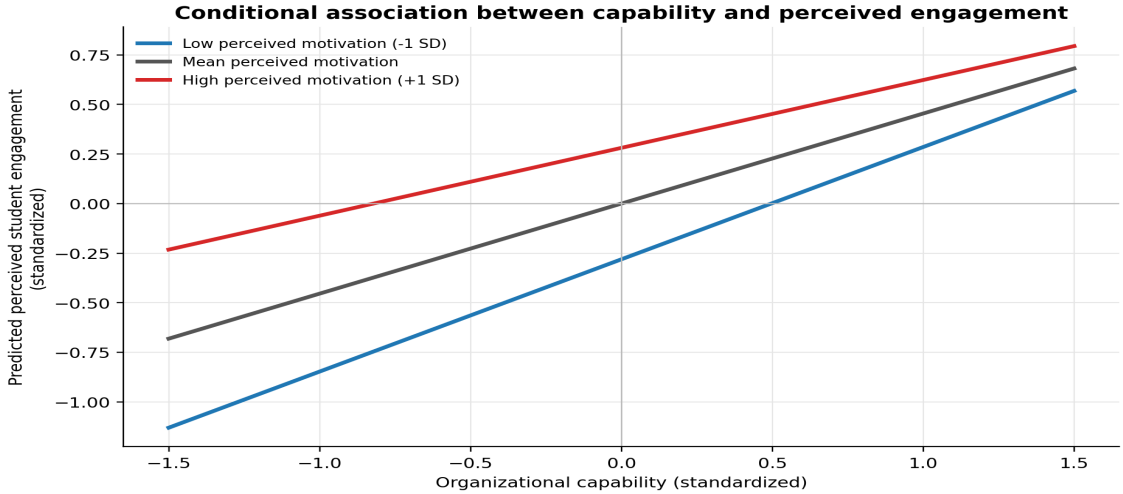


Figure 2. Model Interaction Pattern

Note. Predicted standardized scores use βOC = 0.454, βLM = 0.281, and βOC×LM = -0.112. The plotted conditional slopes are 0.566, 0.454, and 0.342 at low, mean, and high perceived motivation, respectively.

DISCUSSION

The findings place the engagement-mediated pathway at the center of the paper's contribution. Organizational capability was associated with institutional performance both directly and indirectly through principal-perceived aggregate student engagement. This pattern suggests that school routines may relate to performance partly through the engagement principals observe across the student body. The negative interaction adds a narrower qualification: the capability-engagement association may weaken where principals perceive learning motivation as higher. This interpretation fits evidence that leadership relates to learning through organizational and instructional mediators (Liebowitz & Porter, 2019; Tan et al., 2024), but the moderation result should remain secondary to the stronger mediation evidence.

The positive associations of capability with engagement (H1) and performance (H2) support the RBV claim that coordinated routines matter through their deployment. The significant indirect effect provides the stronger mechanism-based result. It indicates that principal-perceived student engagement partly accounts for the association between capability and institutional

performance, while the remaining direct effect leaves room for other processes. Models limited to a direct capability-performance path may therefore omit an important school-level mechanism. This interpretation aligns with the RBV proposition that capabilities matter through the processes in which they are deployed (Barney, 2018; Hitt et al., 2016).

The remaining direct effect may reflect administrative processes such as accreditation preparation, budget management, or stakeholder relations. The study did not measure separate instructional and institutional channels, so these explanations remain theoretical interpretations rather than empirical findings. Future research should model and measure these channels directly before concluding that accreditation and learning quality can diverge through different capability pathways.

Principal-perceived student engagement shows the strongest structural association with institutional performance ($\beta = 0.462$). This result identifies perceived aggregate engagement as the model's conversion point between school capability and reported institutional outcomes. It does not establish that engagement is an organizational property or that principals directly cause it. The finding instead shows that principals' assessments of school routines, student involvement, and performance covary in a pattern consistent with resource conversion. Engagement research likewise treats student participation as a multidimensional developmental process linked to academic progress (Korpershoek et al., 2020; Reeve et al., 2020).

The negative moderation in H5 is consistent with a substitution account, but it does not displace complementarity as a general framework. The conditional association between capability and perceived engagement declines from 0.566 at low perceived motivation to 0.342 at high perceived motivation. This pattern suggests that school routines and student-held motivation may provide partly overlapping support for engagement. Evidence that teacher-provided structure predicts engagement and achievement supports this contextual interpretation (Tao et al., 2024). The small interaction and weak moderator measurement require restraint.

These propositions extend stakeholder-sensitive RBV by locating relevant resources across the school boundary: capability sits with the organization, while motivation sits with students. The empirical evidence remains preliminary because the interaction is small ($f^2 = 0.03$), its p-value (.048) is close to the threshold, and the moderator contains only two items. Interaction estimates can also be sensitive to construction choices and statistical power (Becker et al., 2018; Kock & Hadaya, 2018). Replication with direct student reports, stronger measures, and longitudinal data is necessary before treating substitution as a general school-resource principle.

The findings support cautious diagnostic implications for principals and district offices. Principals can monitor student engagement as a school-level diagnostic alongside learning and accreditation indicators, while recognizing that principal ratings should be checked against student and teacher evidence. School development plans can connect capability-building activities with explicit engagement indicators. The significant indirect effect justifies attention to this link, although the present design cannot establish that managerial intervention causes later engagement gains.

CONCLUSION AND FURTHER STUDY

Organizational capability was associated with Indonesian primary-school performance both directly and indirectly through principal-perceived aggregate student engagement. This engagement-mediated pathway provides the study's most defensible contribution. Principal-perceived learning motivation showed a small negative interaction with capability, which offers preliminary evidence consistent with resource substitution rather than proof of a general substitution framework. The findings support diagnosing motivational conditions when designing capability-building interventions, while stronger measures and longitudinal multi-informant data remain necessary for causal and individual-level conclusions.

The study has five limitations. First, the cross-sectional design cannot establish causal or temporal order; longitudinal or panel data should test whether capability precedes engagement and performance. Second, principals report all constructs. The student variables are therefore principal-perceived school-level aggregates, not direct measures of individual motivation or engagement, and individual-level inferences would risk an ecological error. Future studies should combine principal, teacher, and student reports with administrative performance data. Third, perceived learning motivation uses two items with alpha and ρA below 0.70; a longer validated

scale is needed before the moderation result can carry substantial theoretical weight. Fourth, the sample covers four Sulawesi provinces, which limits generalization to other Indonesian regions. Fifth, the moderation effect is small and close to the significance threshold.

ETHICAL DISCLOSURE

The Research Ethics Committee of the authors' institution reviewed and approved this study. The study followed the principles of the Declaration of Helsinki for research involving human participants. All principals received written information on the study's purpose, procedures, and their right to withdraw at any time without consequence. Each participant gave written or electronic informed consent before completing the questionnaire. The questionnaire collected no names or school identifiers, and the research team stored the data on a password-protected drive accessible only to the authors.

CONFLICT OF INTEREST

The authors declare no conflict of interest. The authors received no specific funding for this research, and no funding body influenced the design, data collection, analysis, interpretation, or reporting of the study.

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