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Instructional Leadership and Adaptive Performance: A Sequential Mediation Model Involving Psychological Empowerment and Collective Efficacy among Philippine Educators

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ABSTRACT

Educational change requires educators to adapt to evolving pedagogical, technological, and organizational demands. This cross-sectional study examined associations among instructional leadership, psychological empowerment, perceived collective efficacy, and adaptive performance among 401 educators recruited through convenience sampling from three public and private schools in Sulu Province, Philippines. Partial least squares structural equation modeling showed no significant direct association between instructional leadership and adaptive performance. Instructional leadership was nevertheless indirectly associated with adaptive performance through psychological empowerment, perceived collective efficacy, and the theoretically specified sequence involving both variables. The coefficient for the indirect association through perceived collective efficacy was numerically larger than those for the other indirect pathways, although the differences between indirect effects were not formally tested. The findings are consistent with the hypothesized indirect-association model but do not establish mediation as a temporal or causal process. Because the data were cross-sectional, self-reported, and nonprobability-based, the results apply to the participating educators and should not be generalized to Philippine educators as a whole.

Keywords: adaptive performance, instructional leadership, perceived collective efficacy, Philippine educators, psychological empowerment, sequential mediation model, Sulu

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INTRODUCTION

Contemporary education systems call for rapid and responsive practices that meet ever-changing learner needs, organizational demands, and emerging technology trends. This requires that teachers, in addition to performing traditional educational roles, reshape their practices if their prior conduct fails to yield desired results (Krishan, 2026; Da Paixão, 2026). Adaptive performance is increasingly critical in education due to the need for teachers to be effective when their methods are no longer sufficient; new technology emerges; and the status quo is disrupted by novel approaches (Sankar, 2025). It entails acquiring new competencies, altering strategies, responding to novel situations, adapting to new policies, and finding alternate solutions.

Adaptive performance is particularly crucial for Philippine educators amid reform processes, digitalization efforts, and attempts to address persistent learning inadequacies. Philippine teachers have witnessed significant changes triggered by curriculum reforms, the adoption of innovative pedagogies, and the introduction of new technologies. Recent reforms have targeted classroom decongestion, foundational skills, and improved learning packages, as reflected in the MATATAG curriculum (Galang, 2021; Department of Education [DepEd], 2023). At the same time, the country's educational outcomes remain far from desirable, as revealed by the Programme for International Student Assessment (PISA), with Filipino learners performing below the international average in reading, mathematics, and science (OECD, 2023; Acido & Caballes, 2024). These inconsistencies require that schools and teachers respond in a manner that enables learners to acquire competencies relevant to the current and future demands of society.

While teachers enact classroom-level changes, their capacity to adapt is shaped partly by the work environment in which they operate. Instructional leadership is particularly relevant because it concerns leadership practices directed toward teaching and learning, including the coordination, monitoring, support, and development of teachers' instructional work. Recent research increasingly recognizes instructional leadership as an antecedent of teacher attitudes and behaviors whose associations may involve more proximal correlates such as teacher efficacy and professional learning (Alanoğlu, 2021; Hosseingholizadeh et al., 2023).

These indirect associations appear pertinent to adaptive performance because leadership may establish conditions for change while teachers interpret those conditions and decide how to respond. Psychological empowerment offers one theoretically relevant individual-level appraisal. It reflects teachers' perceptions of the meaningfulness of their work, competence, discretion in decision making, and impact on student learning (Ahmed & Malik, 2019; Bhattacharya & Narad, 2024). Instructional support and opportunities for professional judgment may therefore be associated with both stronger empowerment perceptions and greater adaptability (Wang, 2024; Sankar, 2025). The present cross-sectional design, however, cannot determine whether empowerment temporally transmits an effect of leadership.

Adaptive performance also unfolds in professional communities where teachers exchange information and coordinate instructional responses. Collective efficacy denotes a group's shared belief in its collective capacity, but the present study measured individual teachers' perceptions of that shared capability. Instructional leadership may be associated with such perceptions by fostering common instructional goals, collaboration, professional learning, and experiences of collective mastery (Cansoy et al., 2022; Karakose et al., 2024). Teachers who view their faculty as capable may also perceive greater access to shared strategies and support when responding to change. These propositions justify examining perceived collective efficacy as a correlate within the hypothesized indirect-association model, not as a school-level property or a demonstrated causal mechanism.

Existing studies offer limited evidence concerning how psychological empowerment and perceived collective efficacy are jointly associated with adaptive performance. Adaptive performance remains underexamined as an outcome in instructional-leadership research, and prior work has more often considered empowerment and collective efficacy separately. The present study therefore evaluates direct and specific indirect associations among these constructs, including a theoretically proposed ordering in

which psychological empowerment precedes perceived collective efficacy. This ordering is provisional and is not the only plausible representation of their relationship.

Social cognitive theory provides the principal basis for the proposed ordering by distinguishing personal, proxy, and collective agency while recognizing reciprocal influence among personal beliefs, behavior, and environmental conditions (Bandura, 1986, 1997). Psychological empowerment represents an individual's appraisal of meaning, competence, self-determination, and impact. Such appraisals may encourage participation in joint problem solving and professional collaboration, creating opportunities to observe collective mastery and form judgments about faculty capability. Perceived collective efficacy may then be associated with adaptive performance by shaping expectations about whether colleagues can coordinate effective responses to unfamiliar demands. Equally, collective efficacy could strengthen individual empowerment, and both may develop concurrently. The model therefore tests one theory-informed covariance pattern rather than establishing that psychological empowerment must temporally precede perceived collective efficacy.

The study is situated in three accessible schools in Sulu Province, where educators work amid curriculum reform, digitalization, and persistent learning challenges. This localized setting provides an opportunity to examine whether the proposed associations appear among the participating educators. It does not permit claims about all educators in Sulu, the southern Philippines, or the Philippines. Although both public and private schools participated, school sector was not analyzed as a moderator or grouping variable; no conclusions are therefore drawn about sector differences.

Accordingly, this study examines whether instructional leadership is associated directly with adaptive performance and indirectly through psychological empowerment and perceived collective efficacy. It also evaluates a theoretically specified sequential indirect association involving both variables. Throughout the paper, these estimates are interpreted as associations consistent with the hypothesized model rather than as evidence that either variable temporally mediates or transmits an effect.

The study makes a bounded contribution by extending instructional-leadership research to adaptive performance and by evaluating personal and collectively referenced agency beliefs within one structural model. It also provides evidence from educators in three schools in Sulu, a context represented less often in the literature. The contribution is therefore analytic and context-specific: it identifies covariance patterns that warrant replication with longitudinal, multilevel, and more representative designs.

LITERATURE REVIEW

Research Framework and Hypotheses

The framework is anchored primarily in social cognitive theory, which distinguishes personal, proxy, and collective agency and emphasizes reciprocal relations among personal factors, behavior, and environmental conditions (Bandura, 1986, 1997). Instructional leadership is treated as a contextual condition associated with teachers' exercise of agency. Psychological empowerment represents an individual-level appraisal of meaning, competence, self-determination, and impact. Perceived collective efficacy represents an individual teacher's judgment about the faculty's shared capability; because only three schools were sampled and no aggregation evidence was available, it is not modeled as a school-level construct. Adaptive performance represents an agentic response to changing work demands. The framework thus links an environmental condition with personal and collectively referenced beliefs that may covary with adaptation, while allowing reciprocal and alternative sequences.

The placement of psychological empowerment before perceived collective efficacy is theory-informed but provisional. Empowered teachers may exercise greater agency in joint problem solving, which can expose them to collective mastery information used to judge faculty capability. Perceived collective efficacy may then be associated with adaptation because confidence in colleagues' coordinated capability can support information sharing, mutual assistance, and responses to unfamiliar demands. Social cognitive

theory does not require a strictly one-way sequence: perceived collective efficacy may strengthen psychological empowerment, both beliefs may develop simultaneously, and adaptive teachers may evaluate leaders and colleagues more positively. The cross-sectional analysis estimates whether the observed covariance pattern is consistent with the proposed ordering; it cannot establish temporal precedence or rule out these rival explanations.

Instructional Leadership and Adaptive Performance

Instructional leadership focuses on those leadership roles and responsibilities that directly concern teaching and learning, such as setting instructional goals, monitoring instruction, and providing feedback and guidance to staff members to improve their instructional practices (Vogel, 2018; Yaacob & Ishak, 2023). Leadership studies in the field of education increasingly recognize the indirect and conditional relationships between instructional leadership and teachers' efficacy, professional learning, commitment, and other outcomes of interest (Cansoy et al., 2022; Hosseingholizadeh et al., 2023; Thien & Hallinger, 2026). In turn, various components of instructional leadership may empower educators and provide them with the resources required to adapt to emerging situations and demands.

Adaptive performance refers to the extent to which individuals effectively adjust their behavior and maintain performance in response to changing, uncertain, or unfamiliar work demands. It involves modifying one's behaviors, strategies, and competencies to meet evolving requirements and cope with novel situations in the work environment (Charbonnier-Voirin & Roussel, 2012; Hissink et al., 2025). Recent research continues to emphasize the importance of adaptive performance in dynamic work environments, where employees must respond flexibly to uncertainty, technological change, and emerging work requirements (Stasielowicz, 2025; Zeng et al., 2025). This capacity is particularly relevant in educational settings, where educators are increasingly required to respond to changing instructional demands, adopt new technologies and pedagogical approaches, and adjust their practices to unfamiliar or uncertain circumstances (Behera et al., 2025; Hauk, 2026). Accordingly, adaptive performance provides a useful framework for understanding educators' capacity to remain effective as their professional and instructional environments change. Recent studies provide related evidence regarding the role of instructional leadership in facilitating effective responses to educational change and disruption. Dhandapani and Kaur (2024) identified shared and adaptive instructional leadership as important for maintaining teacher morale, fostering resilience, and creating supportive learning environments during and after periods of uncertainty. More recently, Dhandapani and Kaur (2026) found that principals' instructional guidance, collaborative decision-making, and adaptive planning supported instructional continuity and strengthened educational resilience during crises. Although educational resilience is conceptually distinct from educators' adaptive performance, these findings suggest that instructional leadership can establish conditions that help educators respond effectively to changing and unfamiliar professional demands. Hence,

H1: Instructional leadership is positively related to educators' adaptive performance.

Instructional Leadership, Psychological Empowerment, and Collective Efficacy

Psychological empowerment is a theoretically relevant correlate in the proposed indirect pathway between instructional leadership and adaptive performance. Contemporary conceptualizations emphasize educators' perceptions of competence, autonomy, meaning, and impact within the work environment. Instructional leadership may be associated with these appraisals by clarifying instructional goals, acknowledging teachers' expertise, involving them in instructional decision making, and supporting professional learning (Ağalday & Bozan, 2026; Al-Thani et al., 2026).

Collective efficacy refers to a faculty's shared belief in its collective capacity to achieve educational goals and address instructional challenges (Anderson et al., 2023; Cansoy et al., 2022). In this study,

however, it is operationalized as each teacher's perception of that shared capability. By establishing instructional goals, coordinating effort, and facilitating collaborative learning, instructional leadership may be associated with more favorable individual perceptions of collective efficacy (Cansoy et al., 2022; Thien & Hallinger, 2026).

Psychological empowerment may also be associated with collective efficacy. Educators who perceive themselves as competent, autonomous, and capable of influencing their work may participate more actively in shared decision-making, professional collaboration, and collective learning. Such interactions provide opportunities for teachers to observe colleagues' capabilities and successful joint efforts, thereby contributing to shared judgments about the faculty's collective capacity (Anderson et al., 2023). Thus, the following hypotheses are proposed:

H2: Instructional leadership is positively related to educators' psychological empowerment.
H3: Instructional leadership is positively related to educators' collective efficacy.
H4: Psychological empowerment is positively related to educators' collective efficacy.

Psychological Empowerment, Collective Efficacy, and Adaptive Performance

Psychological empowerment is expected to be positively related to adaptive performance because adaptation requires both capability and perceived agency. Feelings of competence, autonomy, meaning, and impact may give educators the confidence and discretion to modify their work behaviors in response to changing demands. Recent research on teachers emphasizes the importance of psychological empowerment and related psychological resources in enabling educators to respond effectively and flexibly to changing professional demands (Al-Thani et al., 2026; Li et al., 2026). Relatedly, Khotimah et al. (2026), through a meta-analysis of 105 studies, concluded that teachers' professional competence depends on the combined contribution of organizational support, efficacy beliefs, and professional capacity, emphasizing the importance of supportive conditions and perceived capability in educators' performance.

Similarly, perceived collective efficacy may be associated with adaptive performance. Educators often modify instructional practices through consultation, shared techniques, discussion of student needs, and coordinated responses to emerging challenges (Anderson et al., 2023; Battal & Demirkasımoğlu, 2026). Teachers who judge their faculty as collectively capable may therefore also report greater capacity to respond to change. The following hypotheses are proposed:

H5: Psychological empowerment is positively related to educators' adaptive performance.
H6: Collective efficacy is positively related to educators' adaptive performance.

Hypothesized Indirect Associations

The preceding arguments suggest that instructional leadership may be related to adaptive performance indirectly through psychological empowerment and perceived collective efficacy. These variables are treated as intervening constructs in the statistical model, but the cross-sectional estimates cannot demonstrate temporal mediation or causal transmission (Karakose et al., 2026; Thien & Hallinger, 2026).

Instructional leadership may be associated with psychological empowerment by strengthening educators' perceptions of competence, autonomy, meaning, and impact. Psychological empowerment, in turn, may support adaptive performance by enabling teachers to exercise professional judgment and flexibility when circumstances change. Instructional leadership may also be associated with collective efficacy by fostering shared goals, professional collaboration, and collective learning, which can strengthen teachers' beliefs in their faculty's capability to address instructional challenges (Ağalday & Bozan, 2026; Berkovich, 2026).

The model also specifies a sequential indirect association. Instructional leadership may be associated with psychological empowerment; empowered teachers may engage more actively in collaborative activity that informs perceptions of faculty capability; and perceived collective efficacy may be associated with adaptive performance. This ordering follows the personal-to-collective agency argument developed above, but reciprocal, simultaneous, and reverse sequences remain plausible. The following hypotheses therefore concern associations consistent with the specified structural model rather than temporal mediation (Liu et al., 2026; Yan & Peng, 2026):

H7: Instructional leadership has a positive specific indirect association with educators' adaptive performance through psychological empowerment.
H8: Instructional leadership has a positive specific indirect association with educators' adaptive performance through perceived collective efficacy.
H9: Instructional leadership has a positive sequential indirect association with educators' adaptive performance through psychological empowerment and perceived collective efficacy, in that specified order.

RESEARCH METHOD

Participants of the Study

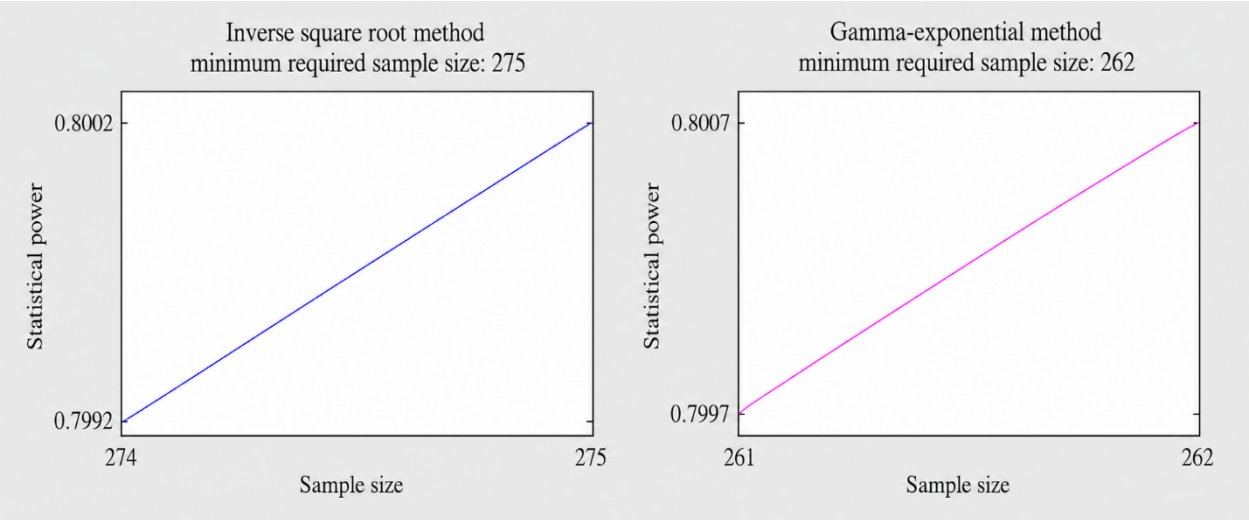
The study employed a cross-sectional quantitative design to examine associations among instructional leadership, psychological empowerment, perceived collective efficacy, and adaptive performance. The sample comprised educators from three participating schools in Sulu Province. Because demographic and professional information such as age, sex, teaching experience, school level, subject area, and employment status was not collected, the sample can be characterized only by professional eligibility and institutional setting. This omission prevents subgroup analysis and limits assessment of who produced the observed relationships.

A nonprobability convenience sampling approach with purposive eligibility criteria was employed. The study involved three participating schools located in Sulu Province, southern Philippines. The schools were included based on their accessibility and willingness to participate. Eligibility was limited to educators currently employed in the participating schools during the data-collection period. A total of 500 invitations were distributed from January to March 2026. Of these, 401 yielded usable responses, corresponding to a usable-response proportion of 80.2%. The remaining 99 invitations did not result in records included in the final analysis. Because the schools and respondents were not randomly selected from complete sampling frames, the findings apply specifically to the participating educators and should not be interpreted as statistically representative of all educators in Sulu Province or the southern Philippines.

Sample-size adequacy for detecting structural associations was assessed using the inverse square root and gamma-exponential methods proposed by Kock and Hadaya (2018). Using a minimum anticipated path coefficient of .15, a significance level of .05, and statistical power of .80, the procedures indicated minima of 275 and 262, respectively (Figure 1). The achieved sample of 401 exceeded both estimates. This result concerns statistical power only: it does not offset selection bias, increase the number of sampled schools, or make the convenience sample representative of educators in Sulu or elsewhere.

This approach is preferable to relying on the traditional “10-times rule,” which has been criticized for producing imprecise sample-size estimates in PLS-SEM. Both the inverse square root and gamma-exponential methods provide more systematic estimates of statistical power and minimum sample requirements (Kock & Hadaya, 2018).

Figure 1
Results of Inverse Square Root and Gamma-Exponential Methods



Data Collection and Ethical Considerations

Ethical approval was obtained from the Mindanao State University-Sulu Institutional Review Board before participant recruitment and data collection. Data were collected through a secure electronic questionnaire from January to March 2026. The first page of the questionnaire presented the purpose of the study, the nature of participation, the expected time required, the types of questions asked, and the intended academic use of the findings. Participants indicated their informed consent electronically before accessing the survey items.

Participation was voluntary. Educators were informed that choosing not to participate, declining to answer a question, or discontinuing the questionnaire before submission would involve no penalty and would not affect their employment, professional evaluation, or relationship with their school or the researchers. School administrators assisted only in facilitating access to potential respondents and were not informed about who accepted or declined the invitation. No coercive incentives were offered, and participants completed the questionnaire individually.

Confidentiality was protected by collecting responses for research purposes only and reporting findings in aggregate form. The dataset used for analysis did not contain names or other direct personal identifiers. Access to the electronic response file and analytical dataset was restricted to the research team through password-protected storage. Data were not shared with participating school administrators in individually identifiable form. Participants could withdraw before submitting the questionnaire; after anonymous submission, removal of an individual response was not assured because the record could no longer be linked reliably to a particular participant. The data will be retained securely for the period required by institutional policy and then permanently deleted using appropriate secure-disposal procedures.

Measures

Data were collected using a structured electronic self-report questionnaire comprising reflective measures of instructional leadership, psychological empowerment, perceived collective efficacy, and adaptive performance. Items were drawn from established instruments and adapted by replacing general workplace referents with school- and educator-appropriate terminology. Perceived collective efficacy items

asked individual educators to judge their faculty's collective capability; consequently, the construct is interpreted at the individual perception level in this study.

Instructional leadership was adapted from the Principal Instructional Management Rating Scale (PIMRS) developed by Hallinger and Murphy (1985), psychological empowerment from Spreitzer's (1995) Psychological Empowerment Scale, perceived collective efficacy from the 12-item Collective Teacher Efficacy Scale developed by Goddard (2002), and adaptive performance from the Adaptive Performance Scale developed by Charbonnier-Voirin and Roussel (2012). The adapted questionnaire was reviewed by three experts to assess the clarity, relevance, and contextual appropriateness of the items and was subsequently pilot-tested with 30 participants. Following expert review and pilot testing, 15 items were retained for instructional leadership, 10 for psychological empowerment, 12 for perceived collective efficacy, and 10 for adaptive performance, resulting in a 47-item measurement instrument for the four constructs.

All items were rated on a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree). Following the main data collection, the reflective measurement model was evaluated in WarpPLS 8.0. Indicator reliability was assessed using standardized outer loadings. Consistent with commonly recommended PLS-SEM guidance, a loading of approximately .70 or higher was used as the criterion for indicator retention because a loading near .70 indicates that the construct explains approximately 50% of the indicator's variance (Hair et al., 2022). Indicators that did not meet this threshold were removed during measurement-model assessment. Consequently, seven of the 15 instructional-leadership indicators, two of the 10 psychological-empowerment indicators, six of the 12 perceived-collective-efficacy indicators, and four of the 10 adaptive-performance indicators were removed. The final measurement model contained 28 indicators: eight for instructional leadership, eight for psychological empowerment, six for perceived collective efficacy, and six for adaptive performance. Although loading-based removal improved indicator reliability, the substantial reduction may have narrowed the content represented by the adapted measures. The findings therefore refer specifically to the retained indicator sets and should not be interpreted as evidence that every dimension of the original instruments was represented equally.

Data Analysis

Data were analyzed using partial least squares structural equation modeling (PLS-SEM) in WarpPLS 8.0. A composite-based approach was used to estimate the direct and specific indirect associations simultaneously. All four constructs were modeled reflectively. The dataset contained complete responses for all 401 cases; therefore, no missing-data replacement, imputation, or casewise deletion was required. Standard errors and p values for the direct and indirect coefficients were generated automatically by WarpPLS using its default Stable3 procedure. Stable3 calculates stable standard errors, which the software uses with the corresponding coefficients to calculate p values, without generating bootstrap resamples (Kock, 2025). Accordingly, no bootstrap confidence intervals were calculated. Statistical significance was evaluated at $\alpha = .05$.

The reflective measurement model was evaluated using indicator loadings, Cronbach's alpha, composite reliability, average variance extracted (AVE), the Fornell-Larcker criterion, and the heterotrait-monotrait ratio of correlations (HTMT2). A conservative threshold of .85 was used to assess HTMT2, with values below this level indicating adequate discriminant validity.

Following measurement-model assessment, standardized path coefficients, Stable3 standard errors, p values, effect sizes, and specific indirect effects were examined. APC, ARS, AARS, and AVIF were treated as descriptive WarpPLS quality and collinearity indices; their significance does not establish that the specified model is uniquely correct. Because the original full-collinearity output was not preserved, construct-level full-collinearity VIFs were approximated from the rounded latent-variable correlation matrix. These approximations were interpreted cautiously and not treated as proof that common method

variance was absent. No out-of-sample predictive assessment or public-versus-private multigroup comparison was conducted.

Specific indirect associations were estimated for IL → PE → AP, IL → perceived CE → AP, and IL → PE → perceived CE → AP. WarpPLS generated the standardized indirect coefficients, Stable3 standard errors, and p values reported in Table 5. Statistical significance was determined from the software-generated p values at α = .05. No bootstrap confidence intervals were computed. Because the study used cross-sectional data, statistically significant indirect coefficients were interpreted as associations consistent with the specified structural model rather than evidence of temporal or causal mediation. The magnitudes of the indirect coefficients were described separately because no formal contrast test comparing them was conducted.

RESULTS

Model Fit and Quality Indices

Table 1 summarizes the WarpPLS indices. APC was .31 (p < .001), ARS was .36 (p = .002), AARS was .36 (p = .002), and AVIF was 1.51. Using the rounded latent-variable correlation matrix, reconstructed full-collinearity VIFs were approximately 2.03 for instructional leadership, 1.17 for psychological empowerment, 2.80 for perceived collective efficacy, and 1.98 for adaptive performance. Values below 3.30 reduce concern about severe full collinearity but do not demonstrate that common method variance was absent. In particular, the strong IL-perceived CE association may partly reflect shared rater perspective, overlapping evaluative content, or a general positive response tendency. The indices also do not establish that the proposed ordering is superior to rival models.

Table 1

Model Fit and Quality Indices of the Structural Model

Index	Coefficient	Recommended criterion	Assessment
Average path coefficient (APC)	.31, $p < .001$	$p \leq .05$	Satisfied
Average R-squared (ARS)	.36, $p = .002$	$p \leq .05$	Satisfied
Average adjusted R-squared (AARS)	.36, $p = .002$	$p \leq .05$	Satisfied
Average block VIF (AVIF)	1.51	≤ 5.00; ideally ≤ 3.30	Ideal

Note. APC = average path coefficient; ARS = average R-squared; AARS = average adjusted R-squared; AVIF = average block variance inflation factor.

Measurement Model

Table 2 presents standardized loadings of .72 to .93 for the 28 retained indicators. These values support indicator reliability within the reduced measurement model. They do not, by themselves, establish that the reduced indicator sets preserve the full conceptual domains of the source instruments. Because 19 of the 47 administered indicators were deleted after data collection and the archived files do not contain the complete deletion record or item wording, conclusions about content preservation remain limited.

Internal consistency reliability was also established. Composite reliability coefficients were .95 for all four constructs, while Cronbach's alpha coefficients ranged from .79 to .89. These values exceeded the commonly recommended minimum criterion of .70, indicating satisfactory internal consistency among the indicators measuring each construct. The relatively high CR coefficients should nevertheless be interpreted together with the indicator loadings and other evidence of construct validity rather than as a standalone indicator of measurement quality. This multidimensional approach to measurement-model assessment is consistent with contemporary PLS-SEM reporting recommendations (Shela et al., 2023; Zhang et al., 2026).

AVE values ranged from .72 to .75, exceeding .50 and supporting convergent validity for the reduced indicator sets. Taken together, the retained-item loadings, reliability coefficients, and AVE provide favorable evidence for the reduced measurement model. This evidence must be balanced against the substantial post hoc item deletion and the unavailable item-level documentation needed to evaluate construct coverage.

Table 2

Reliability and Convergent Validity

Construct/Item	Loading
Instructional Leadership: *CR* = 0.95; *CA* = 0.82; *AVE* = 0.73	
IL1	0.85
IL2	0.90
IL3	0.88
IL4	0.92
IL5	0.74
IL6	0.81
IL7	0.92
IL8	0.78
Psychological Empowerment: *CR* = 0.95; *CA* = 0.89; *AVE* = 0.72	
PE1	0.79
PE2	0.90
PE3	0.84
PE4	0.88
PE5	0.72
PE6	0.91
PE7	0.85
PE8	0.87
Collective Efficacy: *CR* = 0.95; *CA* = 0.79; *AVE* = 0.75	
CE1	0.86
CE2	0.90
CE3	0.89
CE4	0.93
CE5	0.87
CE6	0.72
Adaptive Performance: *CR* = 0.95; *CA* = 0.84; *AVE* = 0.75	
AP1	0.83
AP2	0.87
AP3	0.84
AP4	0.91
AP5	0.85
AP6	0.90

Note. CR = composite reliability; *CA* = Cronbach's alpha; *AVE* = average variance extracted. Standardized loadings are reported for the retained indicators of each construct.

Discriminant Validity

Discriminant validity was initially assessed using the Fornell-Larcker criterion. The square roots of AVE were .85 for instructional leadership, .85 for psychological empowerment, .86 for perceived collective efficacy, and .87 for adaptive performance. Each exceeded the corresponding latent-variable correlations, which ranged from .19 to .71.

Discriminant validity was further evaluated using HTMT2. As shown in Table 3, the HTMT2 coefficients ranged from .58 to .74. The highest coefficient was observed between psychological

empowerment and adaptive performance (.74), followed by psychological empowerment and perceived collective efficacy (.71). All coefficients were below the conservative threshold of .85, providing additional evidence that the four constructs were empirically distinct (Henseler et al., 2015).

Table 3

Discriminant Validity Using the Fornell-Larcker Criterion and HTMT2

Construct	1	2	3	4
1. Instructional Leadership	.85			
2. Psychological Empowerment	.19	.85		
3. Collective Efficacy	.71	.30	.86	
4. Adaptive Performance	.51	.37	.68	.87
HTMT2 Matrix				
Construct	IL	PE	CE	AP
Instructional Leadership	—			
Psychological Empowerment	.62	—		
Perceived Collective Efficacy	.58	.71	—	
Adaptive Performance	.67	.74	.69	—

Note. In the Fornell-Larcker matrix, diagonal elements in bold represent the square roots of AVE and off-diagonal elements represent latent-variable correlations. HTMT2 = heterotrait-monotrait ratio of correlations. All HTMT2 coefficients were below the conservative threshold of .85.

Direct Structural Relationships

Table 4 reports the direct associations. H1 was not supported: instructional leadership was not significantly associated with adaptive performance (β = .050, SE = .050, p = .159, effect size = .008). H2-H6 were supported in the specified model. The largest coefficients were observed for instructional leadership with perceived collective efficacy (β = .660, SE = .043, p < .001) and perceived collective efficacy with adaptive performance (β = .570, SE = .044, p < .001). Because all constructs were reported by the same respondents at one time, shared method, conceptual overlap, and general evaluative tendencies may have contributed to these associations.

Perceived collective efficacy was positively associated with adaptive performance (β = .570, SE = .044, p < .001), supporting H6. Its coefficient and effect size were larger numerically than those for psychological empowerment with adaptive performance. These magnitudes describe the estimated model; they do not constitute a formal test that one relationship is statistically stronger than another.

Table 4

Direct Structural Relationships and Hypothesis Testing

Hypothesis	Relationship	β	SE	p	Effect size	Decision
H1	IL → AP	.050	.050	.159	.008	Not supported
H2	IL → PE	.260	.048	< .001	.068	Supported
H3	IL → CE	.660	.043	< .001	.459	Supported
H4	PE → CE	.150	.049	.001	.029	Supported
H5	PE → AP	.190	.048	< .001	.047	Supported
H6	CE → AP	.570	.044	< .001	.377	Supported

Note. IL = instructional leadership; PE = psychological empowerment; CE = perceived collective efficacy; AP = adaptive performance; β = standardized path coefficient; SE = standard error generated using the WarpPLS Stable3 procedure.

Specific Indirect Associations

Table 5 and Figure 2 report three positive specific indirect coefficients: through psychological empowerment (β = .049, Stable3 SE = .019, p = .005), through perceived collective efficacy (β = .376, Stable3 SE = .040, p < .001), and through the specified sequence of psychological empowerment followed by perceived collective efficacy (β = .022, Stable3 SE = .009, p = .007). Each software-generated p value was below .05, supporting H7, H8, and H9 within the specified statistical model. No bootstrap confidence intervals were calculated. The perceived-collective-efficacy coefficient was numerically largest, but differences among the indirect coefficients were not formally tested. These estimates are consistent with the hypothesized indirect-association model; they do not establish temporal transmission or exclude reverse, reciprocal, or omitted-variable explanations.

Table 5

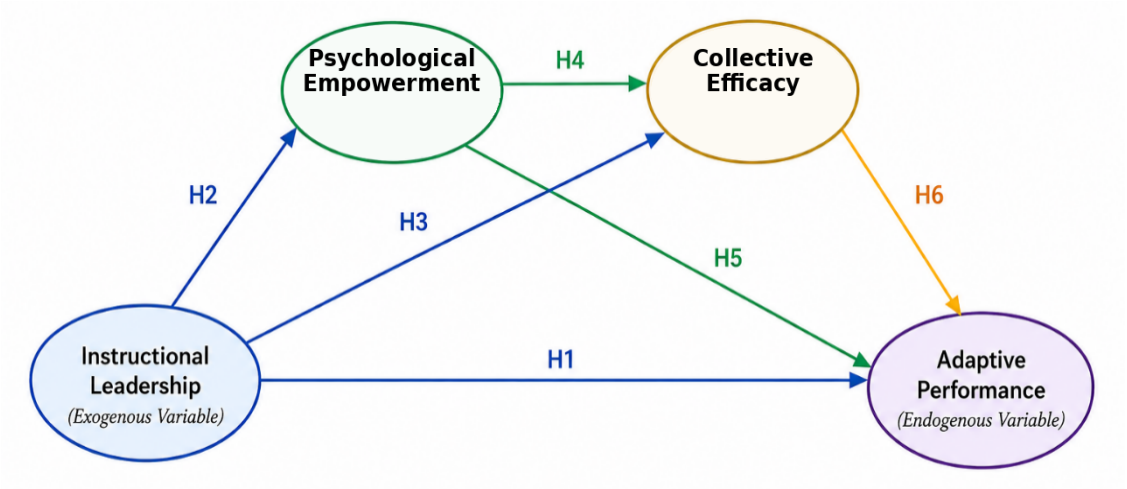
Specific Indirect Associations and Hypothesis Testing

Hypothesis	Indirect pathway	β	SE	p	Decision
H7	IL → PE → AP	.049	.019	.005	Supported
H8	IL → CE → AP	.376	.040	< .001	Supported
H9	IL → PE → CE → AP	.022	.009	.007	Supported

Note. IL = instructional leadership; PE = psychological empowerment; CE = perceived collective efficacy; AP = adaptive performance; β = standardized indirect coefficient; SE = standard error generated using the WarpPLS Stable3 procedure.

Figure 2

The Specified Structural Model



DISCUSSION

Instructional Leadership and Adaptive Performance: An Indirect Relationship

The direct association between instructional leadership and adaptive performance was not statistically significant, whereas all three specific indirect associations were statistically significant based on the coefficients, Stable3 standard errors, and p values generated by WarpPLS. These results are consistent with a model in which instructional leadership, psychological empowerment, perceived collective efficacy, and adaptive performance are linked through indirect associations. They do not

demonstrate that psychological empowerment or perceived collective efficacy temporally transmitted a causal effect. The coefficient through perceived collective efficacy was numerically larger than the other indirect coefficients, but no formal comparison among indirect coefficients was conducted.

The nonsignificant direct association does not imply that instructional leadership is unimportant. Instead, it is consistent with a broader perspective in which school leadership is related to teacher outcomes through proximal processes. Leadership can establish goals, provide guidance, facilitate professional learning, and create conditions conducive to adaptation, but teachers' own psychological resources and professional interactions are more immediate correlates of adaptive performance. Previous studies likewise report indirect relationships between instructional leadership and teacher outcomes through collective efficacy and professional learning (Cansoy et al., 2022; Hosseingholizadeh et al., 2023).

Specifically, adaptive performance may rely more on proximal processes than other forms of teacher performance. The recent extant literature has increasingly linked leadership and empowerment-related processes to adaptive performance, suggesting that employees' agency to respond to situational demands is integral to their ability to exhibit adaptive performance (Kim & Yoon, 2025; Sankar, 2025). Thus, while instructional leadership can provide resources and guidance, the ability to adapt to new circumstances, such as the increased use of technology in instruction or students' evolving needs, likely relies on teachers' professional empowerment.

The significant indirect pathway through psychological empowerment further suggests that teachers' professional agency is relevant to the leadership-adaptation relationship. Leadership practices that provide instructional support, recognize expertise, encourage participation, and create opportunities for development may be associated with stronger empowerment-related perceptions (Schermuly et al., 2022; Wang, 2024; Liu et al., 2026). In turn, empowered teachers may be better positioned to exercise the judgment and flexibility required when instructional demands change.

Perceived Collective Efficacy in the Estimated Model

Instructional leadership was strongly associated with individual teachers' perceptions of collective efficacy, which were in turn positively associated with adaptive performance. The corresponding indirect coefficient was numerically larger than the coefficient through psychological empowerment alone. This pattern identifies the perceived-collective-efficacy pathway as prominent within the estimated covariance structure, but it does not establish that it is statistically stronger because the difference between indirect effects was not formally tested.

The pattern is consistent with prior work linking collective teacher efficacy to instructional leadership, teacher commitment, and professional learning (Cansoy et al., 2022; Hosseingholizadeh et al., 2023; Thien et al., 2023). The present study adds context-specific evidence that individual teachers' perceptions of faculty capability covary with instructional leadership and adaptive performance among participants from three schools in Sulu.

Many instructional-leadership practices are collective in orientation. Shared goals, curriculum coordination, professional learning, and collaborative problem solving may provide information about what a faculty can accomplish together (Dewitt & Nelson, 2026; Anderson et al., 2023; Çoğaltay & Boz, 2022). However, the strong IL-perceived CE relationship may also be inflated by common rater perspective, similarly favorable evaluations of school conditions, or conceptual overlap. The reconstructed full-collinearity VIFs do not eliminate this possibility. Multi-source and time-separated designs are needed to determine how much of the association reflects substantive relations rather than shared method.

The Theoretically Specified Sequential Association

Psychological empowerment was positively associated with perceived collective efficacy, and the sequential indirect coefficient from instructional leadership through psychological empowerment and

perceived collective efficacy to adaptive performance was positive in the specified model. This result is consistent with, but does not verify, the proposed personal-to-collective agency ordering.

Psychological empowerment and collective efficacy are conceptually related but distinct. Psychological empowerment concerns educators' perceptions of meaning, competence, self-determination, and impact in their own professional roles, whereas collective efficacy concerns their perceptions of what teachers in the school can accomplish together. The sequential result is therefore theoretically meaningful, but its temporal interpretation must remain cautious: because all variables were measured at one point in time, the study cannot establish that psychological empowerment necessarily develops before collective efficacy in practice.

One plausible explanation is that psychologically empowered teachers may contribute more actively to professional collaboration, shared decision-making, and collective problem solving. These interactions expose teachers to colleagues' expertise and provide experiences from which shared capability beliefs can develop (Demir & Kalman, 2025; Anderson et al., 2023). This interpretation is consistent with the significant structural association observed between psychological empowerment and collective efficacy, while recognizing that reciprocal relationships are also possible.

Taken together, the results justify examining psychological empowerment and perceived collective efficacy jointly. Perceived collective efficacy occupied a central position in the estimated model, but it was measured as an individual perception, the direction of relationships remains uncertain, and the relative magnitudes of indirect effects were not statistically compared.

The study contributes to instructional-leadership research by extending attention to adaptive performance and evaluating several specific indirect associations in one model. The findings identify theory-relevant covariance patterns for further testing; they do not establish intervening causal mechanisms.

The findings also contribute to adaptive performance research by highlighting psychological and social correlates of adaptation among educators. Psychological empowerment and collective efficacy were each positively associated with adaptive performance, suggesting that teachers' capacity to respond to change may depend not only on individual competence but also on perceived agency and the professional resources available through colleagues.

Finally, individual teachers' perceptions of collective capability were associated with both instructional leadership and adaptive performance. Because the analysis did not aggregate responses or establish within-school agreement, the construct must not be interpreted as a verified school-level property. Multilevel research involving many schools should test school-level collective efficacy directly.

The Practical Implications

For school leaders, the findings suggest that supporting educators' adaptive performance may require attention to both professional empowerment and collective capability. Rather than relying solely on directives, instructional leaders may create conditions that give teachers meaningful opportunities to exercise professional judgment, participate in instructional decisions, develop new competencies, and contribute to school improvement. These practices may strengthen the psychological resources associated with adaptation.

The relatively large coefficients involving perceived collective efficacy suggest that leaders may consider examining structures that support collective mastery and collaboration, such as shared instructional goals, collaborative lesson planning, professional learning communities, peer observation, mentoring, and team-based problem solving. These are cautious practice implications suggested by associations in three schools, not interventions whose effectiveness was demonstrated by this study.

For educational leaders in the participating schools, the findings identify teacher agency and perceptions of faculty capability as potentially relevant during periods of change. Broader policy conclusions are not warranted because the schools and educators were selected nonrandomly, demographic information was not collected, and public-private differences were not analyzed.

The Limitations and Future Directions

Several limitations should guide interpretation of the findings. First, the cross-sectional design does not establish temporal precedence or causation. The directional paths represent a theoretically specified covariance structure, not evidence that instructional leadership preceded psychological empowerment, that empowerment preceded perceived collective efficacy, or that either construct produced adaptive performance. Reverse and reciprocal relationships remain plausible. Longitudinal, cross-lagged, or time-separated designs should therefore test the proposed ordering against rival sequences.

Second, all constructs were measured through the same electronic self-report questionnaire at one point in time. The strong association between instructional leadership and perceived collective efficacy may partly reflect common rater perspective, general positivity, or overlapping evaluative content. Reconstructed full-collinearity VIFs ranged from approximately 1.17 to 2.80, but this diagnostic cannot establish the absence of common method variance. Future studies should separate measurements over time and combine teacher reports with principal ratings, peer assessments, observations, or administrative indicators.

Third, convenience recruitment with purposive eligibility criteria was limited to three schools in Sulu Province. The 401 usable responses represented 80.2% of 500 invitations, but a high usable-response proportion does not remove selection bias or make the sample statistically representative. In addition, age, sex, teaching experience, school level, subject area, employment status, and other professional characteristics were not collected. The sample therefore cannot be described or compared across these characteristics, and the findings should not be generalized beyond the participating educators without replication.

Fourth, teachers were nested within only three schools, while the analysis was conducted at the individual level. Perceived collective efficacy must therefore be interpreted as an individual teacher's perception of faculty capability rather than a verified school-level property. Fifth, 19 of 47 indicators were removed because their outer loadings did not meet the literature-supported .70 criterion. Although the retained measurement model demonstrated satisfactory reliability, convergent validity, Fornell-Larcker results, and HTMT2 coefficients, the substantial reduction may have narrowed the content coverage of the adapted constructs. Finally, the standard errors and p values for the indirect associations were generated using the WarpPLS Stable3 procedure, and bootstrap confidence intervals were not calculated. Future studies should retain complete item-level documentation, evaluate conceptual coverage alongside statistical criteria, replicate the indirect associations using bootstrap confidence intervals, compare rival structural orderings, and sample enough schools for multilevel analysis.

CONCLUSION

This study examined associations among instructional leadership, psychological empowerment, perceived collective efficacy, and adaptive performance among 401 educators in three schools in Sulu Province. Instructional leadership was not directly associated with adaptive performance, whereas the three specific indirect associations were statistically significant based on the Stable3 standard errors and p values generated by WarpPLS. The coefficient through perceived collective efficacy was numerically largest, but differences among the indirect coefficients were not formally tested. The Fornell-Larcker and HTMT2 results supported discriminant validity among the constructs. Nevertheless, substantial indicator reduction, cross-sectional common-source measurement, nonprobability sampling, and the highly localized setting require cautious interpretation. Longitudinal, multilevel, multi-source, and more representative studies should replicate these associations and evaluate indirect effects using complementary inference procedures.

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