

Instructional Media Use, Teacher Competence, And Principal Performance As Predictors Of Elementary Teacher Performance: Evidence From Indonesia

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Abstract

Teacher performance is widely regarded as one of the most decisive school-level factors in learning quality, yet elementary schools in many developing-country systems continue to report inconsistent instructional media use, uneven teacher competence, and variable school leadership, prompting renewed attention to the factors that jointly sustain effective teaching. This study tested whether instructional media use, teacher competence, and principal performance jointly and individually predict elementary teachers' job performance. Using an ex post facto, associative quantitative design, data were collected via Likert-scale questionnaires from all 24 teachers (saturated sampling) at a public elementary school and analyzed with multiple linear regression in IBM SPSS Statistics 26. All three predictors significantly and positively predicted teacher performance: instructional media use ($B = 0.735$, $t = 3.550$, $p = .002$, standardized beta = .471), teacher competence ($B = 0.393$, $t = 2.475$, $p = .022$, standardized beta = .312), and principal performance ($B = 0.316$, $t = 2.597$, $p = .017$, standardized beta = .246). Instructional media use was the dominant predictor by both criteria. Together, the three variables significantly predicted teacher performance, $F(3, 20) = 90.887$, $p < .001$, explaining 93.2% of its variance ($R\text{-squared} =$

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.932; adjusted R-squared = .921). Diagnostic testing confirmed normally distributed residuals, no multicollinearity (tolerance > .19, VIF < 5.2 for all predictors), and no heteroscedasticity. The findings suggest that sustaining elementary teachers' job performance depends jointly on classroom-level resources, individual competence, and school leadership, with implications for teacher-development policy in comparable elementary school systems.

Keywords: Instructional Media; Teacher Competence; Principal Performance; Teacher Performance; Elementary Education.

INTRODUCTION

Teacher performance -- the effectiveness with which teachers plan, deliver, and evaluate classroom learning -- is widely regarded as one of the most decisive school-level factors in learning quality, since curriculum reform, improved teaching methods, better learning services, and adequate instructional materials all ultimately depend on the educators who implement them (Aminah, 2017). As competition among schools intensifies and families increasingly weigh instructional quality and teacher competence when choosing where to enroll their children (Lie et al., 2019), elementary schools in particular face growing pressure to sustain consistent teacher performance, since it is at this level that students' academic character and foundational skills first take shape.

Three factors are commonly identified as central to elementary teacher performance: the instructional media teachers use during lessons, teacher competence relative to the subjects and grade levels taught, and principal performance as the party responsible for school leadership and policy decisions. At a public elementary school in Makassar, Indonesia, preliminary observation found that instructional media were frequently prepared only partway through lesson time rather than beforehand, that several teachers were assigned to subjects outside their academic training background, and that lesson-planning documents -- daily activity plans, semester programs, and annual programs -- were often completed only when a supervisory visit was imminent rather than maintained as routine practice. This study therefore examined whether instructional media use, teacher competence, and principal performance -- individually and jointly -- predict elementary teachers' job performance.



LITERATURE REVIEW

Instructional Media and Teaching Quality

Instructional media are commonly classified by the channel through which they engage learners: human-mediated media that involve direct modelling and guided practice, print-based media such as books and printed materials, visual media such as photographs and illustrations that strengthen retention and interest, audio-visual media such as film and recordings that engage both sight and hearing, and computer-based digital media (Syahbani, 2013). Deliberate, well-prepared use of these media is theorized to improve lesson clarity and student engagement, and prior classroom-based evidence specifically links teachers' use of technology-based instructional media to stronger teaching performance (Rahmawati, 2024).

Beyond engagement, instructional media are understood as an integral component of curriculum delivery: well-chosen media help teachers translate abstract subject matter into forms students can observe, compare, and manipulate directly, which is theorized to be especially consequential at the elementary level, where learners rely heavily on concrete, sensory input to grasp new concepts (Azhar Arsyad, 2013). As schools increasingly integrate digital tools into everyday instruction, teachers' capacity to select and operate media appropriate to a given lesson -- rather than defaulting to a single familiar format -- has itself become a marker of instructional quality (Yaumi, 2018).

Teacher Competence Standards

Indonesia's national teacher-competence framework, established under Law No. 14 of 2005 on Teachers and Lecturers, specifies four competence domains: pedagogic competence, the ability to understand learners and plan, deliver, and evaluate instruction; personal competence, a stable, mature, and exemplary professional character; social competence, the ability to communicate effectively with students, colleagues, parents, and the community; and professional competence, broad and deep mastery of subject-matter content (Tim Cemerlang, 2007). Professional competence in particular has been linked to stronger student learning outcomes when teachers possess deep, current subject-matter mastery (Khairat, 2018), and prior school-based evidence similarly links overall teacher competence to stronger measured teacher performance (Chandra et al., 2014).



This framework is reinforced by Indonesia's teacher-certification policy, which formalizes competence as a professional standard teachers are expected to demonstrate and periodically renew rather than treating it as a fixed credential acquired once at the point of hiring (E. Mulyasa, 2013); consistent with this standard, teachers assigned to subjects or grade levels outside their academic training background -- as several teachers were at the study school -- are theorized to be at a structural disadvantage in meeting it (Kunandar, 2009).

Principal Performance and Teacher Performance

Principal performance is commonly assessed across the managerial functions principals carry out, the manner in which they execute their duties to achieve results, the commitment reflected in their demonstrated competence, and the school-level outcomes their leadership produces (Helmawati, 2014). Because principals set school policy, allocate resources, and supervise instructional practice, their performance is theorized to shape the conditions under which teachers work, and prior research on elementary schools has linked principals' leadership role, alongside work discipline and school culture, to measurably stronger teacher performance (Taufiq et al., 2023). Principal-development frameworks similarly treat managerial skill not as an innate trait but as a professional competency that can be deliberately cultivated, with direct consequences for how effectively a school's teaching staff is supported and supervised (Budi Suhardiman, 2012).

Teacher performance itself -- the outcome these three predictors jointly explain -- is commonly indexed through instructional planning, classroom and weekly learning-activity management, and learning-outcome assessment practices (Riduwan, 2015), and is increasingly treated in the literature as a construct schools must actively manage rather than assume, given its direct bearing on the quality of instruction students receive (Ahmad Susanto, 2016). Reflecting this view, prior research has characterized teacher performance as a composite outcome sensitive to a range of institutional supports rather than any single input, from instructional resources to leadership and working conditions (Supardi, 2016).

Research Hypotheses

Based on the foregoing review, this study tested four hypotheses: instructional media use positively and significantly predicts teacher performance (H1); teacher competence positively and significantly predicts teacher performance (H2); principal performance positively and



significantly predicts teacher performance (H3); and instructional media use, teacher competence, and principal performance jointly and significantly predict teacher performance (H4).

METHOD

Research Design and Participants

This study used an ex post facto, associative quantitative design, examining relationships among variables as they naturally occurred rather than through experimental manipulation (Hermawan & Amirullah, 2016). Data were collected in May-June 2026 at a public elementary school in Makassar, Indonesia. The study population comprised all teachers at the school, totaling 24 teachers; because a saturated sampling technique was applied, all 24 teachers in the population served as the study sample (Arikunto, 2010).

Instruments and Data Analysis

Four closed-ended, Likert-scale questionnaires measured instructional media use, teacher competence, principal performance, and teacher performance, supplemented by school documentation records (Sugiyono, 2018). Item validity was assessed through Pearson product-moment item-total correlation, with every item found valid, and reliability, assessed through Cronbach's alpha, likewise met the accepted threshold of .60 for all instruments (alpha = .721 for instructional media use, .817 for teacher competence, .819 for principal performance, and .853 for teacher performance). Prior to hypothesis testing, classical assumption testing covered residual normality (One-Sample Kolmogorov-Smirnov test), multicollinearity (tolerance and VIF), and heteroscedasticity (visual inspection of the standardized residual scatterplot). Hypotheses were then tested through multiple linear regression, evaluated via the t-test for each predictor's partial effect, the F-test for the simultaneous effect, the coefficient of determination (R-squared), and comparison of standardized beta coefficients to identify the dominant predictor, all computed in IBM SPSS Statistics 26.

RESULTS AND DISCUSSION

Classical Assumption Testing

Residuals were normally distributed: Kolmogorov-Smirnov significance values exceeded .05 for all four variables (instructional media use = .200, teacher competence = .162, principal



performance = .189, teacher performance = .200). Multicollinearity testing showed tolerance values of .194, .215, and .382 and VIF values of 5.158, 4.642, and 2.618 for instructional media use, teacher competence, and principal performance respectively; although these VIF values are visibly higher than is typical for a three-predictor model, reflecting the three variables' shared association with overall school quality, they remain within the accepted thresholds (tolerance > .10, VIF < 10). The standardized residual scatterplot showed no systematic pattern, indicating no heteroscedasticity.

Regression Results and Hypothesis Testing

Multiple linear regression, entering instructional media use (X1), teacher competence (X2), and principal performance (X3) simultaneously, is summarized in Table 1.

Table 1. Multiple Regression Coefficients

Variable	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	-5.924	2.091	-	-2.833	.010	-	-
Instructional Media Use (X1)	0.735	0.207	.471	3.550	.002	.194	5.158
Teacher Competence (X2)	0.393	0.159	.312	2.475	.022	.215	4.642
Principal Performance (X3)	0.316	0.122	.246	2.597	.017	.382	2.618

Table 2. Model Summary and Simultaneous (F) Test

R	R-squared	Adjusted R-squared	F	Df	Sig.
.965	.932	.921	90.887	3, 20	<.001

All three predictors significantly and positively predicted teacher performance (X1: $t = 3.550$, $p = .002$; X2: $t = 2.475$, $p = .022$; X3: $t = 2.597$, $p = .017$), supporting the first three hypotheses. Comparing standardized beta coefficients -- the appropriate metric for ranking predictors measured on different item scales -- instructional media use was the dominant predictor (beta = .471), followed by teacher competence (beta = .312) and principal performance



(beta = .246); the unstandardized coefficients point to the same ordering, so no correction to the dominance ranking was needed. Tested simultaneously, the three variables significantly predicted teacher performance, $F(3, 20) = 90.887$, $p < .001$ (Table 2), supporting the fourth hypothesis; the model explained 93.2% of the variance in teacher performance ($R\text{-squared} = .932$; adjusted $R\text{-squared} = .921$), leaving 6.8% attributable to factors outside the model.

DISCUSSION

Instructional media use's status as the dominant predictor is consistent with the view that well-prepared, appropriately matched media -- whether human-mediated, print-based, visual, audio-visual, or computer-based -- directly shape how clearly a lesson is delivered and how engaged students remain during it (Syahbani, 2013). Because media preparation occurs before and during every lesson a teacher delivers, its effect is immediate and cumulative in a way school-level or dispositional factors are not, plausibly explaining why it outweighed the other two predictors in this sample.

This finding is also consistent with evidence that teachers' use of technology-based instructional media specifically strengthens measured teaching performance (Rahmawati, 2024), and it reinforces the practical observation motivating this study: instructional media at the study school were often assembled only after class had begun rather than prepared in advance, a preparation gap this result suggests carries a measurable performance cost.

Teacher competence's significant contribution aligns with Indonesia's national competence framework, under which pedagogic, personal, social, and professional competence jointly define effective teaching practice (Tim Cemerlang, 2007); prior evidence that professional, subject-matter competence in particular supports stronger learning outcomes (Khairat, 2018) helps explain why teachers whose academic background did not match their teaching assignment were a specific concern at the study school.

More broadly, this result is consistent with prior school-based evidence linking overall teacher competence to measured teacher performance (Chandra et al., 2014), reinforcing competence -- alongside media use -- as a proximate, classroom-level determinant of how effectively teachers perform their duties.

Principal performance's significant, if comparatively smaller, effect is consistent with the view that principals shape teacher performance indirectly, through the managerial functions, policy decisions, and supervisory practices that define teachers' working conditions rather than



through direct classroom involvement (Helmawati, 2014). That its standardized effect was the smallest of the three predictors fits this more indirect causal pathway, and is consistent with prior elementary-school evidence in which principal leadership contributed to teacher performance alongside, rather than instead of, other classroom-level factors (Taufiq et al., 2023).

That all three predictors remained significant when entered jointly, together explaining 93.2% of the variance, supports treating instructional media use, teacher competence, and principal performance as complementary rather than substitutable levers for improving elementary teacher performance, consistent with the broader view that sustained teacher effectiveness depends on classroom-level resources, individual competence, and school leadership acting together (Lie et al., 2019).

CONCLUSION

This study found that instructional media use, teacher competence, and principal performance each significantly and positively predicted the job performance of elementary school teachers, both individually and jointly. Instructional media use was the dominant predictor, followed by teacher competence and principal performance, and the three variables together explained 93.2% of the variance in teacher performance. These findings support treating teacher performance as a jointly determined outcome shaped by classroom resources, individual competence, and school leadership, with implications for teacher-development policy in comparable elementary school settings.

RECOMMENDATIONS

School leaders and education authorities are encouraged to prioritize timely, well-matched instructional media preparation, targeted professional development aligned with teachers' academic backgrounds and subject assignments, and stronger principal supervisory practices, treating these as complementary rather than independent levers for improving teacher performance. Future research should extend this design with larger, multi-school samples and longitudinal designs capable of testing whether improvements in any one factor produce lasting gains in teacher performance over time.



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