

## Instructional Leadership for Digital Transformation: The Roles of School Culture and Teacher Commitment in Enhancing Teacher Performance

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### ABSTRACT

This study investigates the roles of school culture and teacher commitment in strengthening instructional leadership and enhancing teacher performance during digital transformation in schools. A quantitative correlational design was employed involving 250 teachers from various educational levels in Riau Province, Indonesia. Participants were selected using purposive sampling based on predetermined criteria, including a minimum of two years of teaching experience and active participation in professional development activities. Data were collected through a structured questionnaire using a five-point Likert scale and analyzed using Structural Equation Modeling (SEM) based on Partial Least Squares (PLS) with SmartPLS 4.0. The results revealed that school culture and teacher commitment have significant positive effects on instructional leadership. Furthermore, instructional leadership significantly improves teacher performance and serves as an important mediating variable linking school culture and teacher commitment to teacher performance. Bootstrapping analysis confirmed that all proposed hypotheses were supported, with strong statistical significance ( $p$ -value = 0.000). The measurement model demonstrated satisfactory levels of reliability and validity, meeting the required standards for convergent validity, discriminant validity, and composite reliability. These findings emphasize the importance of fostering a collaborative school culture, strengthening teacher commitment, and developing effective instructional leadership practices to support teacher performance in digitally transforming educational environments. The study contributes to the growing body of literature on educational leadership and digital transformation while providing practical implications for school leaders and policymakers seeking to improve teaching effectiveness, organizational performance, and sustainable educational development in the digital era.

**Keywords:** Instructional Leadership; Digital Transformation; School Culture; Teacher Commitment; Teacher Performance.

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## INTRODUCTION

The rapid advancement of digital technologies has transformed educational systems worldwide, requiring schools to adapt their instructional practices, organizational structures, and leadership approaches. In this context, instructional leadership has emerged as a critical factor in facilitating digital transformation and improving educational quality. Effective instructional leaders not only guide teaching and learning processes but also foster innovation, support teacher development, and create conditions that enable schools to respond successfully to technological changes. Previous studies have demonstrated that instructional leadership significantly contributes to teacher effectiveness, collective efficacy, and school improvement by providing strategic direction and instructional support (Liu, 2022; Nellitawati et al., 2024; Sucitra et al., 2024; Thien et al., 2023). As schools increasingly integrate digital technologies into teaching and learning, instructional leadership becomes essential in promoting teachers' readiness to embrace new pedagogical practices and sustain high levels of performance.

School culture represents another crucial element in achieving successful digital transformation. A positive school culture characterized by collaboration, trust, innovation, and shared values creates an environment where teachers are more willing to adopt technological innovations and engage in continuous professional development. Research suggests that organizational culture influences employee behavior, motivation, and performance across various contexts, including educational institutions (Kelebek & Töre, 2025; Laihad et al., 2025; Lesmana et al., 2020; Maharani et al., 2025). Within schools, a supportive culture can strengthen instructional leadership practices by facilitating communication, encouraging teamwork, and aligning organizational goals with educational innovations. Consequently, school culture serves as a strategic mechanism through which instructional leadership can promote teacher effectiveness in the digital era.

Teacher commitment is equally important in enhancing teacher performance during periods of educational change. Organizational commitment reflects teachers' emotional attachment, loyalty, and dedication to their schools and professional responsibilities. Committed teachers are more likely to engage in professional learning, adapt to technological advancements, and contribute positively to school improvement initiatives. Previous studies have highlighted the significant relationship between commitment, leadership, and teacher performance, emphasizing that committed teachers tend to demonstrate higher levels of motivation, collaboration, and instructional quality (Laihad et al., 2025; Nellitawati et al., 2024; Suyitno, 2022; Syuhasteti, 2020). Furthermore, instructional leadership can strengthen teacher commitment by establishing a shared vision, providing professional support, and fostering a sense of purpose among educators.

Although numerous studies have investigated the relationships among instructional leadership, organizational culture, commitment, and teacher performance, limited research has examined these variables within the broader context of digital transformation in schools. Existing studies have primarily focused on the direct effects of leadership on teacher outcomes or explored organizational culture and commitment as independent predictors of performance (Kurniawan et al., 2024; Maharani et al., 2025; Xin & Tahir, 2024). However, little attention has been given to understanding how school culture and teacher commitment function simultaneously as strategic mechanisms that connect instructional leadership with teacher performance in technology-enhanced educational environments. This gap is particularly evident in developing countries, where schools face increasing pressure to integrate digital technologies while maintaining educational quality and teacher effectiveness.

Therefore, this study aims to examine the role of instructional leadership in promoting teacher performance through the mediating influences of school culture and teacher commitment during digital transformation. By integrating these variables into a comprehensive framework, the study contributes to the growing body of knowledge on educational leadership and digital-era school management. The findings are expected to provide both theoretical and practical insights for policymakers, school leaders, and educational stakeholders seeking to strengthen teacher performance and foster sustainable school improvement in the context of digital transformation. In addition, this research responds to contemporary educational challenges by emphasizing the importance of leadership, organizational culture, and commitment as interconnected factors in achieving successful digital change within schools.

## **METHOD**

This study employed a quantitative approach with a descriptive-correlational design to examine the relationships among instructional leadership, school culture, teacher commitment, and teacher performance in the context of digital transformation in schools (Pranata, 2024). Data were collected using a structured questionnaire based on a five-point Likert scale to measure each latent construct included in the research model. The population consisted of teachers from various schools in Riau Province, Indonesia. A total of 250 teachers were selected through purposive sampling based on predetermined criteria, including a minimum of two years of teaching experience and active participation in professional development activities related to educational improvement and digital

learning initiatives. This sampling technique was employed to ensure that respondents possessed sufficient professional experience and exposure to school transformation processes relevant to the study objectives. Responses were measured using five categories ranging from Strongly Disagree (1) to Strongly Agree (5), enabling the assessment of teachers' perceptions regarding instructional leadership practices, school culture, organizational commitment, and performance outcomes.

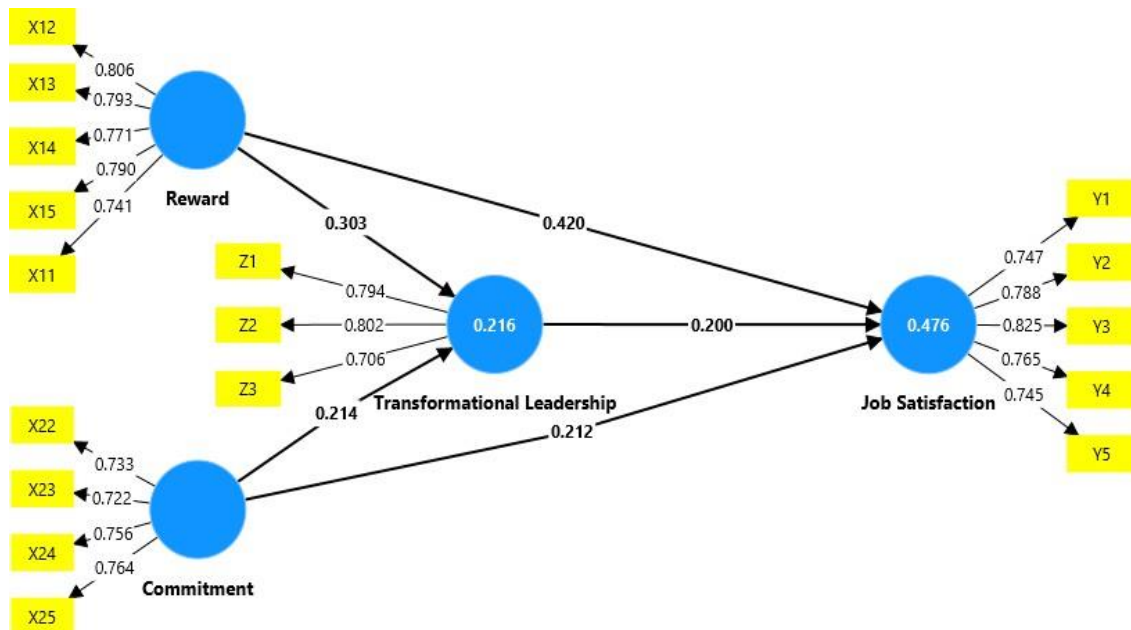
Data analysis was conducted using Structural Equation Modeling (SEM) based on Partial Least Squares (PLS) with SmartPLS 4.0 software, which is appropriate for testing complex causal relationships among latent variables and examining both direct and indirect effects (Pranata & Sinaga, 2023). The analysis consisted of three stages. First, the measurement model was assessed through convergent validity using Average Variance Extracted ( $AVE > 0.50$ ), discriminant validity, and reliability using Composite Reliability ( $CR > 0.70$ ) and Cronbach's Alpha. Second, the structural model was evaluated by examining path coefficients, t-statistics ( $> 1.96$ ), p-values ( $< 0.05$ ), and the coefficient of determination ( $R^2$ ) to determine the explanatory power of the proposed model. Finally, the overall model fit was assessed using the Standardized Root Mean Square Residual ( $SRMR \leq 0.08$ ), while predictive relevance was evaluated through the  $Q^2$  statistic. These procedures were conducted to ensure the validity, reliability, and predictive capability of the proposed framework linking instructional leadership, school culture, teacher commitment, and teacher performance in digitally transforming educational environments.

## FINDINGS AND DISCUSSION

### Findings

Research results show a significant relationship between reward, commitment, leadership transformation, and satisfaction work. Analysis using the Structural Equation Modeling (SEM) approach with PLS 4.0 software shows that each reward and commitment has its influence directly on leadership transformation, which in turn plays an important role as variable mediation in increasing satisfaction Work (See Figure 2).

The path coefficient value in this model indicates a fairly strong relationship between the research variables, with rewards having the largest direct influence on transformational leadership. In addition, organizational commitment also contributes significantly to building a positive relationship between transformational leadership and job satisfaction (Hardianto et al., 2024). This finding reinforces the importance of rewarding and increasing organizational commitment to creating a work environment that supports employee performance and well-being, especially in Riau Province's education context.



**Figure 2. PLS-SEM Results**

All constructs in the study Must fulfill Convergent Validity criteria with an AVE value above 0.50. This gives empirical proof that the indicators used can explain the variance construct in the study's significant and supportive validity tool measurement (Table 1).

**Table 1. Construct reliability and validity**

	Cronbach's alpha	Composite reliability		Average variance extracted (AVE)
		(rho_a)	(rho_c)	
Commitment	0.731638	0.73337	0.832171	0.553622
Job Satisfaction	0.832797	0.833792	0.882139	0.599866
Rewards	0.839702	0.842564	0.886203	0.609193
Transformational Leadership	0.753672	0.762686	0.812023	0.590936

Based on the analysis at Table 1, especially the results against Convergent Validity using Average Variance Extracted (AVE) values, all constructs in the study fulfill criteria validity that has been determined, namely AVE value  $\geq 0.50$ . The Commitment construct has an AVE value of 0.553, which indicates that more of the 55% variance indicator can explained by the construct This. The job satisfaction construct has an AVE value of 0.599, which indicates that the construct Is capable of explaining almost 60% variance in the indicators. While that, the Reward construct shows The AVE value is 0.609, which means more from 60% variance indicator can explained by the construct This (Eripuddin & Hardianto, 2018). Lastly, Transformational Leadership has an AVE value of 0.591, which also shows validity and adequate convergence.

High convergent validity This shows that indicators are used to measure every construct's own good fit in explaining its construction. With the AVE value above the threshold limit of 0.50 for all constructs, it can be concluded that the research model has good convergence. This shows that the construct used in the study Is capable of representing the concept being measured in a way that is accurate so that it can trusted for further analysis (Jalapang & Raman, 2020; Kelebek & Töre, 2025; Khalid & Ibrahim, 2025).

Based on the results of the HTMT analysis, it can be concluded that the research model fulfills Discriminant Validity criteria. This shows that constructs in the capable model are differentiated clearly so that each construct truly measures a unique concept without causing redundancy between constructs. Validity discriminant satisfied (Hardianto et al., 2024). This strengthens the reliability and validity of the research model in explaining the connection between variables.

**Table 2. Heterotrait-monotrait ratio (HTMT) - Matrix**

	Commitment	Job Satisfaction	Rewards
Job Satisfaction	0.695913		
Rewards	0.774134	0.752837	
Transformational Leadership	0.570908	0.632872	0.575432

Discriminant Validity Analysis was done using the mark Heterotrait-Monotrait Ratio (HTMT). The HTMT value is used to evaluate whether constructs measured in the model have clear differences from each other. Generally, the criteria for fulfilling discriminant validity is that the HTMT value must be  $\leq 0.90$  or, in several more literature tight,  $\leq 0.85$ .

The results show that all partners construct their own HTMT value that meets the criteria. Between Commitment and Job Satisfaction, the HTMT value is 0.695, indicating a relationship that can accepted and not too tall so that the construct can distinguished (Adolph, 2016). For the Reward and Job Satisfaction pair, the HTMT value is 0.753, which also meets the established criteria. Furthermore, the HTMT value between transformational leadership and the construct of others are also in threshold limits, namely 0.571 with commitment, 0.633 with job satisfaction,

and 0.575 with reward (Junaris, 2023; Laihad et al., 2025; Maharani et al., 2025). All marks This is far below the threshold limit maximum, which shows that every construct has adequate differences from the other.

Based on the results analysis reliability in Table 1, all constructs in the research model show good internal consistency, as indicated by Cronbach's Alpha and Composite Reliability (rho\_c) values. The Cronbach's Alpha value for every construct, namely commitment (0.732), Job Satisfaction (0.833), reward (0.840), and Transformational Leadership (0.754), all of which are on the top threshold, the minimum limit is 0.70, which indicates adequate internal consistency. In addition, the Composite Reliability value for every construct, namely commitment (0.832), Job Satisfaction (0.882), reward (0.886), and Transformational Leadership (0.812), also show excellent reliability Because on top criteria 0.70, even part big approach or exceeds 0.80. This result indicates that indicators on each construct can measure the concept in question consistently and accurately (Sulastri et al., 2024). Thus, all constructs in the research model can be considered reliable for analysis.

The bootstrapping results show all connections between variables own p- p-value = 0.000, which means the connection is significant in a way statistics at level 99% confidence ( $p \leq 0.01$ ). This indicates that the tested relationship between variable independence (Reward and commitment) with transformational leadership and between transformational leadership and job satisfaction have significant, very strong statistics.

Based on the results of the path coefficients analysis, all connections between variables in the research model are significant in those statistics with p-values = 0.000, and t-statistics are above the threshold limit. This shows that commitment and reward influence job satisfaction directly and indirectly through transformational leadership. Findings This supports the validity of the research model and provides empirical proof of the role of Reward, Commitment, and Transformational Leadership in increasing Job Satisfaction (See Table 3).

Based on Table 3. Path Coefficients. the analysis of the results, show that all connections between variables in the research model are significant in statistics. This is indicated by the p-value = 0.000 for every path, which means the connection is significant at the level of 99% confidence ( $p \leq 0.01$ ). In addition, the t-statistics value for all tracks exceeds the mark threshold limit of 1.96 (for a 95% confidence level), which increasingly strengthens the proof of significance connection.

In general details, the relationship between Commitment and Job Satisfaction has a coefficient track of 0.212 with a t-statistics value of 3.668, which indicates that the influence is positive and significant. The relationship between Commitment and Transformational Leadership is also significant, with a coefficient of 0.214 and t-statistics of 3.783. Furthermore, the reward has an Influence on Job Satisfaction with a coefficient path of 0.420 and a t-statistics value of 7.746, indicating a very significant Influence. The relationship between Reward and Transformational Leadership is also strong, with a coefficient of 0.303 and t-statistics of 5.908. Finally, Transformational Leadership significantly influences Job Satisfaction, with a coefficient of 0.200 and a t-statistics value of 4.392.

**Table 3. Path coefficients**

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
Commitment -> Job Satisfaction	0.212	0.212	0.058	3.668	0.000
Commitment -> Transformational Leadership	0.214	0.217	0.057	3.783	0.000
Reward -> Job Satisfaction	0.420	0.421	0.054	7.746	0.000
Reward -> Transformational Leadership	0.303	0.303	0.051	5.908	0.000
Transformational Leadership -> Job Satisfaction	0.200	0.201	0.046	4.392	0.000

The results of the Statistical Significance analysis of the path coefficients table show that

all connections between variables in the research model have significant influence in a statistical way. This is shown by the t-statistics values being far above the threshold limit of 1.96 for 95% confidence and the p-value = 0.000, which indicates significance at the level of 99% confidence.

This result shows that variable independence (Commitment and Reward) significantly influences the variable dependent (Job Satisfaction), both directly and through variable mediation (Transformational Leadership). This result provides empirical support for research models and strengthens the hypothesis that Reward, Commitment, and Transformational Leadership play important roles in increasing work satisfaction.

**Table 4. Coefficient of determination**

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )
Job Satisfaction	0.472	0.481	0.040	11.768
Transformational Leadership	0.213	0.219	0.039	5.501

The results of the Coefficient of Determination ( $R^2$ ) analysis in Table 4 show the extent to which the independent variables can explain the dependent variable in the research model. The  $R^2$  value provides a description of strength predictive models, where the higher its value, the more able the variable independent is to explain the variable dependent.

For the Job Satisfaction variable,  $R^2$  value = 0.472 indicates that 47.2% of the variance in Job Satisfaction can be explained by a combination of independent, namely Reward, Commitment, and Transformational Leadership. These values Are strong in the context study, which generally accepts  $R^2$  value in the range of 0.2 to 0.5 as moderate until substantial. With t-statistics value = 11.768, the relationship is significant in that statistics show that the model can predict job satisfaction.

Temporarily, for the Transformational Leadership variable,  $R^2$  value = 0.213 indicates that 21.3% of the variance in Transformational Leadership can explained by variables Independent Reward and Commitment. This value indicates moderate predictive strength in context. In connection with this, the t-statistics value = 5.501, which is significant.

Root Mean Square Residual (SRMR) analysis was used to evaluate the overall model fit as one of the important indicators. SRMR measures how far the model estimates the difference between the matrix observed and covariance. The higher SRMR value shows better model fit well, with threshold frequent limits used is  $\leq 0.08$  for models with good fit and  $\leq 0.10$  for a good model accepted. The following Table 5 shows the results of the SRMR analysis for the saturated model and estimated model based on the analyzed research data.

**Table 5. Root mean square residual (SRMR)**

	Original sample (O)	Sample mean (M)	95%	99%
Saturated model	0.072	0.050	0.054	0.055
Estimated model	0.072	0.050	0.054	0.055

The results of the Standardized Root Mean Square Residual (SRMR) analysis from the table show that the research model has good compatibility with the data. The SRMR values for the Saturated Model and Estimated Model are 0.072 below the threshold limit of 0.08. This indicates that the difference between the matrix observed and model-estimated covariance is relatively small, so the model can be considered in accordance with empirical data. The average SRMR value of 0.050 is an increasingly strengthened model fit. Based on the results, it can be

concluded that the model used can accurately reflect the connection between latent variables so that the valid model fit can be accepted. For analysis, more carry on.

## **Discussion**

The results provide strong empirical support for all proposed hypotheses, with all relationships demonstrating statistical significance ( $p = 0.000$ ) at the 99% confidence level. The findings indicate that reward positively influences instructional leadership by creating a motivating environment where teachers feel valued and encouraged to improve their instructional practices. This result is consistent with [Xin and Tahir \(2024\)](#) and [Elfira et al. \(2024\)](#), who emphasized that recognition and reward systems enhance leadership effectiveness, teacher satisfaction, loyalty, and dedication. Similarly, teacher commitment was found to significantly strengthen instructional leadership, as committed teachers are more willing to collaborate, support school improvement initiatives, and align with organizational goals. These findings support previous studies by [Smith \(2020\)](#) and [Nellitawati et al. \(2024\)](#), which highlighted the reciprocal relationship between commitment and leadership effectiveness in promoting educational improvement.

The study also confirms that instructional leadership has a significant positive effect on teacher job satisfaction. School leaders who inspire, support, and empower teachers create a positive working environment that enhances collaboration, innovation, and professional well-being. This finding is consistent with [Sisdiyanto \(2023\)](#), [Timang et al. \(2021\)](#), and [Hanum \(2024\)](#), who emphasized the importance of leadership in fostering motivation, loyalty, and employee satisfaction. In the context of digital transformation, effective instructional leadership enables teachers to adapt to educational change while maintaining high levels of engagement and performance. Consequently, leadership development programs should prioritize skills that support teacher well-being, professional growth, and organizational effectiveness.

Furthermore, the findings reveal that instructional leadership mediates the relationships between reward, commitment, and teacher job satisfaction. Rewards positively contribute to satisfaction through leadership practices that foster recognition, trust, and shared commitment, supporting the findings of [Sucitra et al. \(2024\)](#) and [Liu \(2022\)](#). Likewise, teacher commitment indirectly enhances job satisfaction through instructional leadership, reinforcing previous evidence that leadership strengthens organizational commitment and positive workplace behaviors ([Hidayati et al., 2023](#); [Kurniawan et al., 2024](#); [Lesmana et al., 2020](#); [Ambar et al., 2024](#)). These results suggest that school leaders and policymakers should integrate reward systems, strengthen teacher commitment, and promote effective instructional leadership as interconnected strategies to improve teacher satisfaction, performance, and the overall success of school digital transformation initiatives.

## **CONCLUSION**

This study confirms that instructional leadership plays a crucial role in enhancing teacher performance during digital transformation, both directly and through the mediating roles of school culture and teacher commitment. The findings demonstrate that a supportive school culture and strong teacher commitment significantly strengthen instructional leadership practices, which subsequently contribute to improved teacher performance. These results extend the literature on educational leadership by highlighting the interconnected roles of leadership, organizational culture, and commitment in fostering effective teaching within technology-enhanced learning environments. Practically, the study suggests that school leaders and policymakers should prioritize the development of instructional leadership capacities, cultivate collaborative and innovation-oriented school cultures, and strengthen teacher commitment through professional development, recognition, and organizational support. Such integrated strategies can promote sustainable school improvement and educational quality in the digital era. However, this study is limited by its cross-sectional design and its focus on teachers in Riau Province, which may restrict the generalizability of the findings. Future research is encouraged to employ longitudinal approaches, involve broader educational contexts, and explore additional mediating or moderating variables, such as teacher engagement, digital competence, and organizational innovation, to provide deeper insights into the

mechanisms that enhance teacher performance in digitally transforming schools.

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