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The Effect of CERDAS Teacher Competencies (Collaborative, Empathic, Responsive, Digital, Adaptive, and Spiritual) on Teacher Professional Performance and Work Discipline in Elementary Schools

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ABSTRACT

This study aims to examine the influence of CERDAS Teacher competencies, comprising Collaborative, Empathic, Responsive, Digital, Adaptive, and Spiritual dimensions, on teacher professional performance and work discipline in the era of educational transformation in elementary schools. This study employed a mixed-methods approach using a Sequential Explanatory Design, combining quantitative and qualitative data. Quantitative data were collected from 136 elementary school teachers using a Likert-scale questionnaire, followed by qualitative data collection through open-ended questions and in-depth interviews with 15 selected teachers to explain and deepen the quantitative findings. Quantitative data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS version 3.2 through outer and inner model evaluation, while qualitative data were analyzed thematically. The measurement model demonstrated satisfactory validity and reliability, with Average Variance Extracted (AVE) values ranging from 0.721 to 0.743 and Composite Reliability values ranging from 0.812 to 0.871. The structural model results revealed that SMART Teacher competencies had a positive and significant effect on teacher professional performance ($\beta = 0.513$; $t = 5.967$; $p = 0.001$) and work discipline ($\beta = 0.717$; $t = 12.782$; $p = 0.001$). Work discipline also had a positive and significant effect on teacher professional performance ($\beta = 0.356$; $t = 3.814$; $p = 0.001$). Qualitative findings further revealed that the Digital and Adaptive dimensions facilitated the transformation of teaching practices, while the Spiritual and Empathic dimensions strengthened teachers' internal commitment to discipline and professional responsibility. Collaboration through professional learning communities also supported pedagogical innovation and improved lesson planning. In conclusion, the integration of CERDAS Teacher competencies significantly strengthens both teacher work discipline and professional performance, with work discipline functioning as an important pathway linking teacher competencies to professional performance. These findings suggest that educational authorities and school administrators should develop integrated professional development programs that strengthen the six SMART dimensions to support sustainable educational transformation in elementary schools.

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INTRODUCTION

Education is a fundamental foundation of national development, and the quality of education is closely associated with the quality of teachers' professional practice (Pritiwanti et al., 2022). The ongoing transformation of education has substantially changed the demands placed on teachers. Rapid technological development, curriculum changes, and increasing expectations for high-quality education require teachers to continuously develop competencies and adopt learning practices that are effective, responsive, and adaptive (Sulistyosari et al., 2022). Consequently, teacher professionalism can no longer be understood solely in terms of mastery of subject matter and pedagogical techniques but also in relation to teachers' ability to respond to technological, social, emotional, and organizational changes in educational environments.

Despite these demands, the transition toward more transformative educational practices remains challenging. Some teachers continue to rely on conventional and teacher-centered instructional practices that are less responsive to changing educational contexts (Breidbach, 2024). Difficulties in adapting to technological developments and changes in educational paradigms further indicate that teacher competencies are not always aligned with the requirements of competency-based and digitally mediated learning (Hernández et al., 2019). These challenges are closely related to teacher professional performance and work discipline. Previous research has identified gaps between expected and actual teacher performance, while inadequate professional support may limit teachers' opportunities to develop their competencies (Munawir et al., 2023; Rizqa et al., 2024). Teacher performance may also be affected by insufficient motivation, limited access to relevant professional development, and inadequate recognition of teachers' professional efforts (Melati et al., 2023; Fitri et al., 2025; Ritonga, 2021). Thus, improving teacher performance requires more than technical training; it requires an approach that can simultaneously strengthen teachers' professional capacity, responsiveness to change, and internal commitment to their responsibilities.

Existing studies provide important evidence regarding individual dimensions of teacher development, but their contributions remain relatively fragmented. Research on educational transformation emphasizes teachers' ability to facilitate active participation and provide emotional support during learning (Owen et al., 2025). Other studies highlight the importance of emotional intelligence and human relationships in supporting teachers' effectiveness, while spirituality has been associated with teachers' values, commitment, and professional conduct (Khaqan & Redondo-Sama, 2024). Similarly, collaboration among teachers can strengthen professional learning and pedagogical innovation, particularly through teaching teams and professional learning communities; however, collaborative practices may not adequately address the demands of rapid technological and educational change (Mahfudhoh & Nuroh, 2024). Research on adaptive and responsive teaching further demonstrates the importance of teachers' ability to adjust instructional practices to changing student and educational needs (Wang & King, 2021). Collectively, these studies suggest that teacher effectiveness is multidimensional. Nevertheless, the existing literature tends to examine technological competence, collaboration, emotional competence, adaptability, or spirituality as relatively separate dimensions rather than examining how these dimensions may operate together to strengthen both professional performance and work discipline.

This fragmentation indicates an important research gap. First, studies focusing on teacher professional development have frequently emphasized technical or pedagogical competencies, whereas the relational, emotional, and spiritual dimensions of teachers' professional practice receive comparatively less integrated attention (Indrawan, 2019). Second, studies concerning educational technology and transformation tend to emphasize teachers' capacity to use digital tools and adapt to technological change, but do not necessarily explain how such competencies are connected with internal work discipline and professional responsibility. Third, research emphasizing emotional or spiritual aspects provides insight into teachers' interpersonal relationships and internal motivation, but these dimensions are rarely positioned within the same analytical framework as digital competence, adaptability, and collaboration. As a result, there remains limited empirical evidence concerning whether an integrated framework combining these dimensions can simultaneously explain teacher professional performance and work discipline in elementary schools. The present study addresses this gap by conceptualizing the six dimensions as an integrated set of teacher competencies rather than as isolated characteristics.

The theoretical foundation of this study is derived from the transformational leadership perspective developed by Bass (1990), particularly the principles of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Although originally developed to explain transformational leadership, these principles provide a relevant conceptual foundation for understanding transformative teacher practices. Teachers can function as transformational agents when they demonstrate exemplary professional behavior, motivate students and colleagues toward meaningful educational goals, encourage creativity and experimentation with new approaches, and provide individualized support based on learners' needs. From this perspective, teacher transformation involves not only changes in instructional techniques but also changes in interpersonal relationships, professional values, responsiveness, and commitment.

Building on this theoretical perspective, this study proposes the CERDAS framework, consisting of Collaborative, Empathic, Responsive, Digital, Adaptive, and Spiritual dimensions. The framework is designed as an integrated conceptualization of teacher competencies for educational transformation. The Collaborative dimension represents teachers' capacity to work with colleagues and participate in professional learning communities; the Empathic dimension reflects the ability to understand and respond to students' emotional and individual needs; the Responsive dimension emphasizes proactive responses to changes in curriculum, students, and educational conditions; the Digital dimension represents the ethical and effective use of digital technology to support learning; the Adaptive dimension concerns teachers' flexibility in adjusting instructional practices to changing circumstances; and the

Spiritual dimension emphasizes moral values, integrity, responsibility, and internal commitment in professional practice. These dimensions complement rather than replace the transformational principles proposed by Bass. Instead, CERDAS provides a contextualized framework for translating transformational principles into observable competencies relevant to teachers' daily professional practice.

The originality of the CERDAS framework lies in its holistic integration of technical, relational, adaptive, collaborative, and spiritual dimensions within a single model. Digital competence and adaptability address the technological and structural demands of educational transformation, while collaboration supports collective professional learning. Empathy and responsiveness strengthen the human and relational dimensions of teaching, whereas spirituality provides an internal moral foundation for professional responsibility and discipline. Therefore, CERDAS is positioned not merely as a collection of desirable teacher characteristics, but as an integrated competency framework through which teachers can respond to educational transformation while maintaining professional performance and work discipline. This conceptual integration is particularly relevant to elementary education, where teachers are required to simultaneously manage learning, respond to diverse student needs, collaborate professionally, utilize technology, and maintain consistent professional responsibilities.

The relevance of this integrated framework is also supported by the empirical patterns identified in the present study. The quantitative findings indicate that CERDAS teacher competencies have a positive and significant effect on teacher professional performance ($\beta = 0.513$; $t = 5.967$; $p < 0.001$) and work discipline ($\beta = 0.717$; $t = 12.782$; $p < 0.001$), while work discipline also has a positive and significant effect on professional performance ($\beta = 0.356$; $t = 3.814$; $p < 0.001$). The qualitative findings further indicate that the six dimensions operate as mutually reinforcing elements rather than independently. Digital, Adaptive, and Collaborative competencies facilitate technical and pedagogical transformation, whereas Spiritual, Empathic, and Responsive competencies provide a human and moral foundation for professional responsibility. The qualitative analysis also identified patterns of interaction among the dimensions, including Digital–Adaptive–Collaborative as an engine of technical transformation and Spiritual–Empathic–Responsive as a moral anchor for responsive professional practice. These findings strengthen the argument that teacher transformation should be understood as an integrated process rather than as the improvement of a single competency.

Based on this background and research gap, this study aims to examine the influence of CERDAS teacher competencies, comprising Collaborative, Empathic, Responsive, Digital, Adaptive, and Spiritual dimensions, on teacher professional performance and work discipline in elementary schools. Specifically, the study examines: (1) the effect of CERDAS teacher competencies on teacher professional performance; (2) the effect of CERDAS teacher competencies on teacher work discipline; and (3) the effect of teacher work discipline on professional performance. In addition, the qualitative phase explores how the six CERDAS dimensions are integrated in teachers' professional practices and how this integration helps explain the quantitative relationships. Through this approach, the study seeks to contribute an empirically grounded and theoretically informed framework for understanding teacher competencies in the context of sustainable educational transformation.

METHOD

This study employed a mixed-methods approach using a sequential explanatory design. Quantitative data were collected and analyzed in the first phase, followed by qualitative data collection and analysis to explain, contextualize, and deepen the quantitative findings regarding the mechanisms through which teacher competencies influence work discipline and performance in learning practices.

1. Population and Participant Selection

The quantitative target population comprised all 136 elementary school teachers who were active members of the Teacher Working Group (*Kelompok Kerja Guru* / KKG) across the administrative area. A census/total sampling technique was applied in the quantitative phase ($N = 136$). For the subsequent qualitative phase, participants were purposively selected based on the quantitative analysis results to gain a deeper understanding of the phenomena.

2. Research Variables and Operationalization

The conceptual and operational variables evaluated in the structural model consist of:

a. Exogenous Variable **(X):** CERDAS Teacher Competencies, measured across six primary dimensions: Collaborative, Empathic, Responsive, Digital, Adaptive, and Spiritual (incorporating pedagogical, personality, social, and professional competency aspects).
b. Intervening/Mediating Endogenous Variable (Z): Teacher Work Discipline, operationalized through indicator measures of attendance, adherence to working hours, and compliance with school rules.

c. Endogenous Variable (Y)**:** Teacher Performance, measured through instructional planning, classroom evaluation execution, and student guidance capability.

3. Instruments and Data Collection Procedures

a. Quantitative Instrument: Data were collected using a closed-ended survey consisting of 48 items scored on a 5-point Likert scale (ranging from 1 to 5). The items were adapted from validated measurement tools covering the six CERDAS dimensions, work discipline, and teacher performance. Prior to structural testing, instrument validity was evaluated using Pearson Product-Moment correlation ($r > r_{\text{table}}$) and internal reliability was confirmed using Cronbach's Alpha coefficient.

b. Qualitative Instrument: Qualitative data were gathered through open-ended questions distributed via Google Forms to explore teachers' views on CERDAS teacher engagement, practices in schools, and the steps required to maintain engagement while managing school responsibilities.

4. Data Analysis

Quantitative Analysis (PLS-SEM)

Quantitative analysis was conducted using SmartPLS (PLS-SEM), a variance-based structural equation modeling approach well-suited for ordinal Likert-scale data and sample sizes of limited scale ($N = 136$). The evaluation followed two main stages:

a. Measurement Model Evaluation (Outer Model):

1) *Convergent Validity:* Assessed via Outer Loading values (> 0.70) and Average Variance Extracted (AVE > 0.50).
2) *Discriminant Validity:* Evaluated by comparing the square root of AVE values against inter-construct correlations.
3) *Construct Reliability:* Confirmed with Composite Reliability and Cronbach's Alpha thresholds (> 0.70).

b. Structural Model Evaluation (Inner Model):

1) *Coefficient of Determination (R^2):* Evaluated to determine the proportion of variance explained in the endogenous constructs.
2) *Hypothesis Testing:* Evaluated using the bootstrapping method with 5,000 subsamples at a 5% significance level ($\alpha = 0.05$). Hypotheses were supported if t-statistic > 1.96 or p-value < 0.05.
3) *Mediation Analysis:* Evaluated through indirect effect analysis to examine whether Work Discipline (Z) significantly mediates the effect of SMART Teacher competencies (X) on Teacher Performance (Y).

Structural Research Hypothesis

Based on the theoretical framework and conceptual relationships described above, this study proposes the following hypotheses:

H_1 : CERDAS teacher competencies have a positive and significant effect on teacher professional performance in elementary schools.

H_2 : CERDAS teacher competencies have a positive and significant effect on teacher work discipline in elementary schools.

H_3 : Teacher work discipline has a positive and significant effect on teacher professional performance in elementary schools.

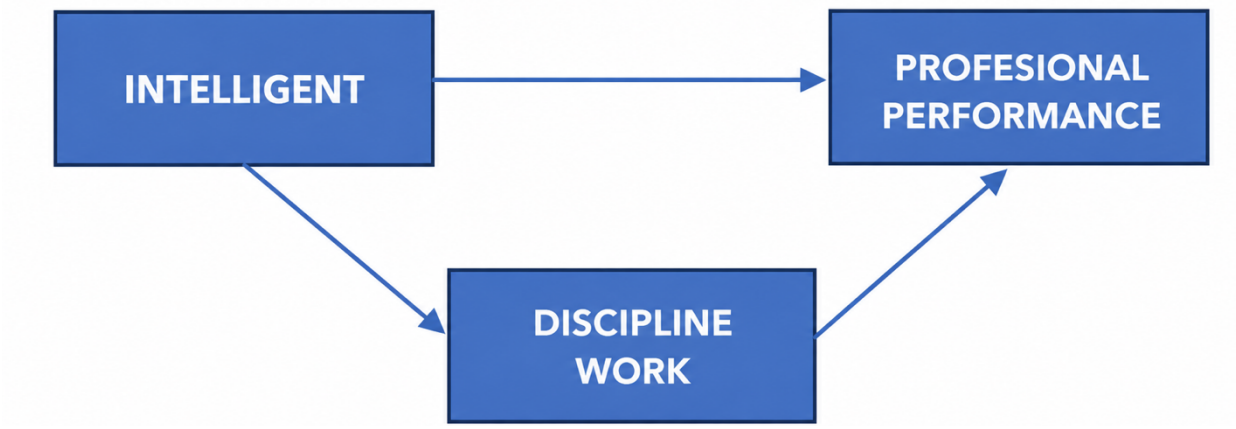


Figure 1. Research Model

RESULTS

Results of Quantitative Analysis and Hypothesis Testing

Hypothesis testing in this study was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) implemented via SmartPLS version 3.2. Evaluation of the PLS-SEM model followed the standard two-stage approach: evaluation of the measurement model (outer model) followed by evaluation of the structural model (inner model).

Outer Model Evaluation

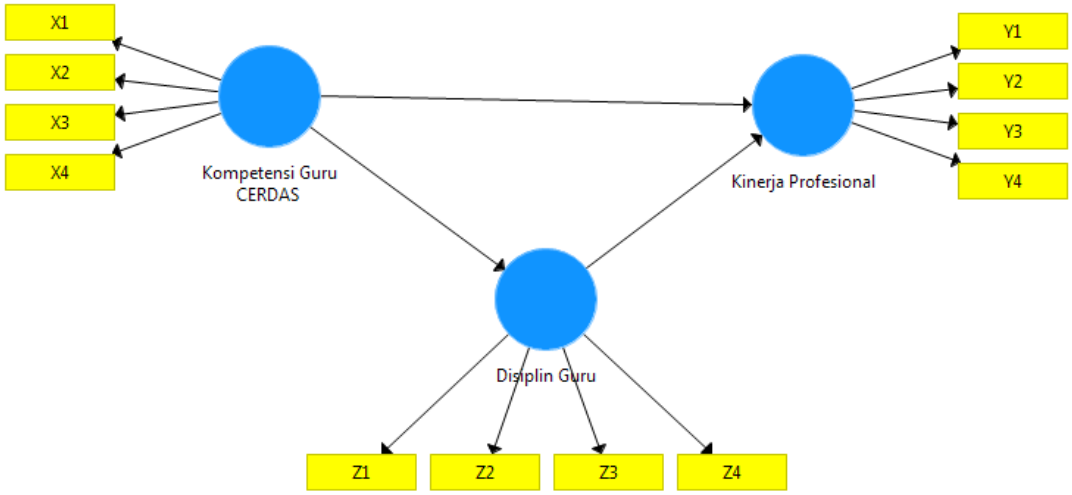


Figure 2. SEM Model Specifications
Source: Processed data (2026) PLS

Convergent Validity

Convergent validity was evaluated using indicator loading factors and the Average Variance Extracted (AVE) for each construct. Indicators with loading factors below the recommended threshold (> 0.70) were removed iteratively during initial estimation. As shown in Table 1, all retained indicators exhibited loading factors exceeding 0.80, while the AVE values for all constructs exceeded the required threshold of 0.50, confirming robust convergent validity.

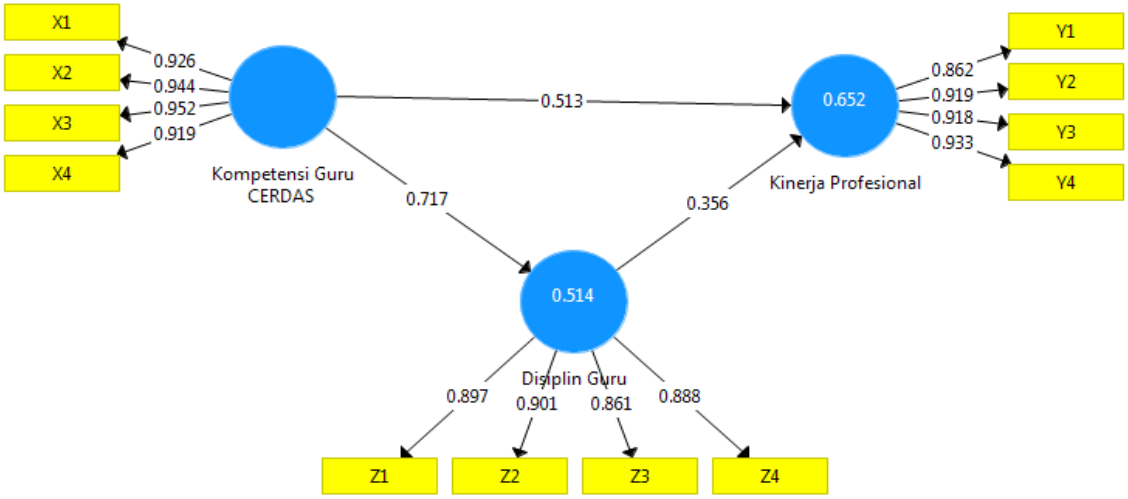


Figure 3. Results of the PLS SEM Model after being removed from the model
Source: Processed data (2026) PLS

Based on the PLS model estimation results in the Figure, it can be seen that all indicators in each construct are valid, so that testing can be continued to the next stage, namely the assessment of the AVE value for each construct. This is because in addition to looking at the indicator loading factor value, convergent validity must also be assessed from the AVE value of each construct. All constructs in the PLS model are declared to have met convergent validity if the AVE value of each construct is > 0.5. The complete AVE value for each construct can be seen in the following table:

Table 2. Loading Factor Values and AVE Values

Variables	Indicator	Loading Factor	AVE	Validity
SMART Teacher Competencies (X)	X1	0.926	0.721	valid
	X2	0.944		valid
	X3	0.952		Valid
	X4	0.919		Valid
Teacher Discipline (Z)	Z1	0.862	0.734	Valid
	Z2	0.819		Valid
	Z3	0.818		Valid
	Z4	0.833		Valid
Teacher Performance (Y)	Y1	0.897	0.743	Valid
	Y2	0.901		Valid
	Y3	0.861		Valid
	Y4	0.888		Valid

Source: Processed data (2026)

Based on the results of the PLS analysis in Table 2. above, the AVE value of all constructs has exceeded 0.5, this means that the discriminant validity criteria have been met for all constructs.

Descriminant Validity

Discriminant validity was established using the Fornell-Larcker criterion. A construct demonstrates adequate discriminant validity when the square root of its AVE (diagonal values) exceeds its correlations with all other constructs (off-diagonal values). As presented in Table 2, the square roots of AVE for constructs X (0.849), Y (0.862), and Z (0.857) were higher than their inter-construct correlation coefficients (0.712–0.735), satisfying the criteria for discriminant validity.

Table 3. Results of Decriminant Validity Test
Method Fornell Larcker

	X	Y	Z
X	0,798		
Y	0,732	0,897	
Z	0,735	0,712	0,823

Source: processed data (2026)

The results of the discriminant validity test in table 3 above show that all indicators and constructs in the PLS model have met the required discriminant validity criteria, for example, variable X1 has an AVE square root of 0.798, this AVE square root value is higher than the correlation of X1 with other constructs (0.732 and 0.733) so that it can be stated that the X1 construct has met the discriminant validity criteria with the Fornell Larcker method. Based on the results of the three discriminant validity testing methods, it can be concluded that the outer PLS model has met the required discriminant validity criteria.

Construct Reliability

Construct reliability was assessed using Cronbach's Alpha and Composite Reliability. Thresholds above 0.70 indicate satisfactory internal consistency. As reported in Table 3, all constructs demonstrated high reliability values, with Composite Reliability scores ranging from 0.812 to 0.871.

Table 4. Composite Reliability Test Results

	Cronbach's Alpha	Composite Reliability
X	0,812	0,871
Y	0,813	0,823
Z	0,743	0,812

Source: processed data (2026)

Based on the analysis results in table 4. above, the Cronbach's alpha and composite reliability values of all constructs have exceeded 0.7, which means that all constructs have met the required reliability, so it can be concluded that all constructs are reliable.

Hypothesis Testing and Path Coefficients
Hypothesis testing in this study starts from the results of direct influence testing and indirect influence testing.

Direct Effect Testing
Structural path significance was evaluated using a nonparametric bootstrapping procedure with 5,000 subsamples at a significance level of $\alpha = 0.05$. A hypothesis is supported when the t-statistic exceeds 1.96 and the p-value is less than 0.05. All proposed direct relationships demonstrated positive, statistically significant path coefficients ($p < 0.001$, $t > 1.96$). The quantitative results for direct paths are summarized.

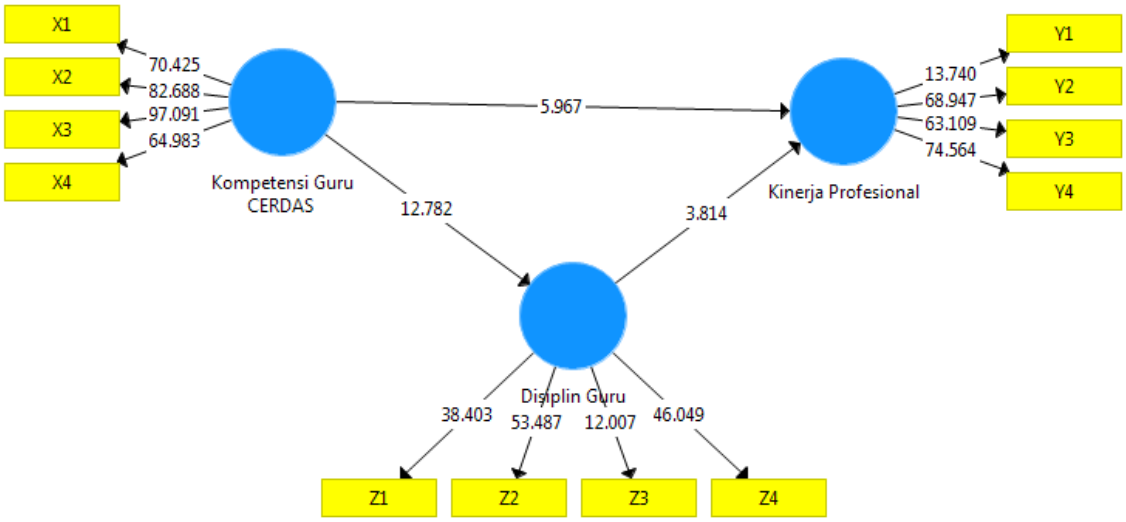


Figure 4. Hypothesis Testing Results
Source: Processed data (2026) PLS

The results of the significance test also reveal the direction of the relationship between exogenous and endogenous variables. This direction can be determined from the path coefficients for each path. If the path coefficient is positive, the exogenous influence on the endogenous is in the same direction; if the path coefficient is negative, the exogenous influence on the endogenous is in the opposite direction.

Table 7. Results of Direct Effect Testing

Nu	Path	Path Coefficient	T Statistics	P Value
1	X->Y	0,513	5.967	0,001
2	X -> Z	0,717	12.782	0,001
3	Z -> Y	0,356	3.814	0,001

Source: processed data (2026)

Based on the analysis results in the table above, it was found that several direct paths had insignificant p-values, while several indirect paths had significant p-values. This means that not all exogenous variables in the PLS model were proven to directly influence their endogenous counterparts. A further explanation of the test results is as follows:

1. Influence of CERDAS Competencies (X) on Professional Performance (Y)
The analysis reveals a positive and significant direct influence of the integration of CERDAS Teacher competencies on the achievement of Elementary School Teachers' Professional Performance. This is evidenced by a significant p-value of 0.001 obtained with a T-statistic of 5.967 and a positive path coefficient (β) of 0.513. Because the p-value is < 0.05 and the T-statistic is > 1.96, it is concluded that higher integration of **CERDAS** competencies significantly enhances professional performance.

2. Influence of CERDAS Competencies (X) on Work Discipline (Z)
There is a positive and significant direct influence of the integration of CERDAS Teacher competencies on the enforcement of Elementary School Teacher Work Discipline. The results indicate a significant p-value of 0.001 with

a T-statistic of 12.782 and a strong positive path coefficient (β) of 0.717. As the p-value is < 0.05 and the T-statistic is > 1.96, it is confirmed that CERDAS competencies integration is a significant determinant of teacher work discipline.

3. Influence of Work Discipline (Z) on Professional Performance (Y)

The testing results demonstrate a positive and significant direct influence of Elementary School Teachers' Work Discipline on the achievement of Professional Performance. A significant p-value of 0.001 was obtained with a T-statistic of 3.814 and a positive path coefficient (β) of 0.356. Since the p-value is < 0.05 and the T-statistic is > 1.96, it is concluded that stricter adherence to work discipline significantly optimizes teachers' professional performance.

Indirect Effect and Mediation Analysis

To evaluate the indirect mediating role of Work Discipline (Z) in the relationship between CERDAS Competencies (X) and Teacher Performance (Y), specific indirect effect bootstrapping was conducted. As presented in Table 5, the indirect path coefficient was statistically significant ($\beta = 0.255,\ t = 3.654,\ p = 0.001$). Combined with the significant direct effect ($\beta = 0.513$), these findings confirm that Work Discipline acts as a partial mediator in the structural model.

DISCUSSION

Interpretation of Quantitative Findings and Qualitative Integration

This section discusses the structural relationships between latent variables based on the results of hypothesis testing, which are deepened with qualitative data from interviews and open questionnaires, and contextualized with previous research.

Contribution of CERDAS Teacher Competencies to Professional Performance

The results of the quantitative analysis show that the integration of SMART Teacher competencies has a positive and significant relationship with teacher professional performance (β = 0.513; t = 5.967; p < 0.001). This finding indicates that the higher the level of internalization of the six dimensions of SMART (Collaborative, Empathic, Responsive, Digital, Adaptive, Spiritual) holistically, the more optimal the tendency to achieve teacher professional performance. This is in line with the study of Sinulingga et al. (2023) which stated that holistic competency integration encourages teachers to design innovative learning and facilitate students' emotional needs appropriately.

Qualitative data strengthen these findings by revealing the mechanisms by which these dimensions operate in practice. Teachers who score high on these dimensions*Digital* And *Adaptive*tend to find it easier to package abstract concepts into concrete forms through interactive media, which has a direct impact on the quality of instruction in the classroom. Furthermore, qualitative findings indicate a dimension*Collaborative*Acting as a catalyst for pedagogical innovation. Teachers active in learning communities (KKG) show improved quality of lesson planning. This supports the proposition that professional performance is determined not only by individual competencies but also by collaborative networks and the ability to adapt to change (Prasetyo et al., 2022; Selian et al., 2025).

The Role of CERDAS Teacher Competencies in Predicting Work Discipline

Path analysis showed a very strong and significant contribution of the CERDAS competency to work discipline (β = 0.717; t = 12.782; p < 0.001). This high path coefficient indicates that the CERDAS competency framework is a strong predictor of teacher disciplinary behavior. Qualitative findings deepened these results by revealing that teacher discipline does not arise solely from external monitoring mechanisms or sanctions, but rather from the internalization of values.*Spiritual* And *Empathic*.

One teacher stated, "I show up on time and prepare materials because I view this as*trust*(sacred belief), not because of fear of being reprimanded by the principal." This is in line with the view of Kamalia et al. (2022) that spiritual and emotional competence forms a moral awareness that encourages voluntary compliance with the rules. In addition, the dimensions*Adaptive*Helping teachers adapt to changes in schedules and curriculum without sacrificing discipline. Thus, strong work discipline is a manifestation of internal awareness fostered by the six CERDAS dimensions, especially the Spiritual dimension as a moral anchor.

The Relationship Between Work Discipline and Professional Performance: A Mediation Analysis

This study also found a positive and significant relationship between work discipline and professional performance (β = 0.356; t = 3.814; p < 0.001). This finding confirms the results of studies by Suwardi et al. (2026) and Hariyasasti et al. (2024) which stated that punctuality and administrative discipline are the foundation for instructional effectiveness. Qualitatively, teachers who are disciplined in managing time and preparing learning materials are able to create a structured and conducive learning environment. A fifth-grade teacher stated, "With the lesson plan that I prepared a

week in advance, I can focus on interacting with students rather than being busy looking for materials at the last minute." This shows that discipline is not merely procedural compliance, but rather a strategy to improve the quality of educational interactions.

More importantly, the path coefficient indicates that the effect of CERDAS competency on performance (0.513) is lower than its effect on discipline (0.717). This, supported by the test of indirect effects (as reported in the results section), indicates that work discipline operates as an important mediating mechanism. CERDAS competency does not immediately erupt into high performance; it first forms disciplined and consistent work behavior, which in turn accelerates the achievement of professional performance.

Critical Analysis and Alternative Interpretations of the CERDAS Framework

Although the integration of the CERDAS framework shows predominantly positive results, a more critical analysis is needed to understand the dynamics of its implementation on the ground, including potential obstacles and alternative interpretations.

The Digital Dimension Challenge: The Skills-Access Gap

Qualitative data reveals the existence of dualism in the dimensions*Digital*On the one hand, teachers with high digital competency (scores >4.00 on the Likert scale) are able to create learning innovations (e.g., using Canva or Quizizz) that increase student engagement. On the other hand, there is evidence of a potential barrier: unequal access to technology in students' homes. Teachers reported, "The challenge is that not all children have cell phones or data at home."

An alternative interpretation suggests that without the support of a well-developed educational ecosystem infrastructure, teachers' high digital competence may not contribute optimally to performance (overall student learning outcomes). This indicates the existence of external variables constraining the influence of the digital dimension on professional performance, which policymakers need to address.

Adaptability as a Process, Not Just an Ability

Qualitative analysis identified that the dimensions*Adaptive*is not a static ability, but rather a process consisting of three stages: (1) the resistance stage (resisting change), (2) the transition stage (starting to try new things with the support of colleagues), and (3) the transformation stage (internalizing change as part of professionalism). Teachers in the transformation stage showed the highest performance scores.

Although this dimension was mentioned as a moderator in previous drafts, formal testing was not conducted. However, qualitative data suggest that*Adaptive*act as*enabling factor* (supporting factors). Without adaptability, competence*Digital* or *Responsive*that teachers possess may become obsolete when faced with curriculum disruption or new technology.

Discipline: Spiritual Awareness vs. Bureaucratic Pressure

Although the dimensions*Spiritual*proven to be an anchor of internal discipline (through the concept of*trust*), alternative interpretations must consider the role of external factors. In a public environment, the attendance system*finger print*and binary e-performance also forces teachers to be administratively disciplined. Therefore, the strong relationship between CERDAS and Discipline (0.717) should not be interpreted solely as a result of spiritual awareness. It is likely a combination of intrinsic motivation (Spiritual-Empathic) and extrinsic compliance (Responsiveness to bureaucratic rules). This discussion provides a more balanced view that the CERDAS framework operates within the context of a formal system that already has its own control mechanisms.

Theoretical Contribution: CERDAS Framework in Educational Transformation

Rather than simply confirming previous research that often examines competencies separately, this study makes a theoretical contribution by offering the CERDAS framework as an integrated teacher competency model for the era of educational transformation. Theoretically, this framework broadens the understanding of teacher professionalism by integrating technical-pedagogical aspects (*Digital, Adaptive, Responsive, Collaborative*) with moral-personal aspects (*Spiritual, Empathic*). Qualitative analysis found a holistic integration pattern in which these dimensions reinforced each other:

1. By the way*Digital-Adaptive-Collaborative*become an engine of technical transformation.
2. By the way*Spiritual-Empathic-Responsive*serves as a moral anchor, ensuring that transformation is not only technical but also humanistic and with integrity.

This confirms that educational transformation in elementary schools requires a "whole" approach (*whole-teacher approach*Failure to integrate spiritual and empathetic dimensions in the development of digital and adaptive competencies risks producing teachers who are technically proficient but lack a devotional orientation, which can

ultimately weaken work discipline and long-term performance consistency. To show how qualitative findings confirm and deepen quantitative findings, the following integration matrix is presented:

CERDAS Dimension	Quantitative Findings	Quantitative Findings	Integration
Collaborative	Positive correlation with performance (r=0.589, p<0.01)	Collaboration through KKG and digital groups improves the quality of learning planning.	Quantitative proves influence, qualitative explains mechanism
Empathic	Positive correlation with student mentoring (r=0.612, p<0.01)	Empathetic teachers are able to detect non-academic learning barriers	Qualitative enriches understanding of How empathy works in the field
Responsive	Correlation with instructional responsiveness (r=0.574, p<0.01)	Responsive teachers demonstrate proactive and adaptive actions towards curriculum changes.	Qualitative provides concrete examples of responsiveness
Digital	Significant influence on performance (loading 0.919, AVE 0.721)	Digitalization is changing teaching methods, but faces access challenges.	Qualitative uncovers implementation challenges that are not detected quantitatively.
Adaptive	Highest correlation with performance (r=0.678, p<0.01)	Three stages of adaptation: resistance → transition → transformation	Qualitative explains the adaptation process, not just the results.
Spiritual	The highest correlation with discipline (r=0.713, p<0.01)	Spirituality internalizes discipline as a form of worship	Qualitative explanationWhyspirituality drives discipline

CERDAS Teacher Holistic Integration Pattern

In-depth qualitative analysis revealed that the six dimensions of CERDAS do not operate in isolation, but rather reinforce each other within an integrated system. Four integration patterns were identified:

From the thematic analysis of interviews and open-ended responses, four mutually reinforcing patterns of integration of the CERDAS dimensions were identified:

1. The Digital Adaptive Collaborative pattern becomes the engine of technical transformation, where teachers who are technologically savvy and flexible to change can more easily share good practices with their colleagues.
2. The Spiritual-Empathic-Responsive pattern functions as a moral anchor, making teacher responsiveness not merely technical but also humanistic and full of integrity.
3. 3Collaborative Spiritual patterns create a positive work culture that reduces conflict and increases collective discipline.
4. The Responsive-Adaptive pattern forms professional agility, making teachers continuously transform and be relevant to the demands of the times.

These patterns explain why the path coefficient from CERDAS to work discipline is larger (0.717) than to performance (0.513); discipline being an important mediating bridge, as indicated by the significant indirect effect.

CONCLUSION

The integration of CERDAS Teacher competencies (Collaborative, Empathic, Responsive, Digital, Adaptive, Spiritual) has been proven to have a direct positive and significant influence on improving the achievement of Elementary School teachers' Professional Performance. The integration of CERDAS Teacher competencies has a positive and significant impact on the professional performance of Elementary School teachers. This encourages teachers to be able to design innovative learning, master the class, and evaluate learning outcomes comprehensively so that the quality of education improves. The integration of CERDAS Teacher competencies has been proven to have a positive and significant influence on the enforcement of Elementary School teachers' Work Discipline in the field, teacher discipline has a positive relationship and significant influence on the performance of Elementary School teachers (SD). A high level of discipline will encourage teachers to work according to procedures and standards, thereby directly improving the quality of the teaching and learning process and student achievement. The following are specific points regarding this relationship. The higher the level of teacher discipline (such as punctuality in entering class, adherence to rules, and preparation of teaching materials), the more optimal their professional performance (evaluation, teaching, and student guidance) will be. Based on various studies at the Elementary School level, discipline has been proven to provide a strong and meaningful contribution to the effectiveness of learning in the classroom.

Discipline ensures that all the main tasks and functions (tupoksi) of teachers, from planning to evaluating learning, can be completed in an orderly and timely manner.

Suggestions

1. For the Department of Education and Elementary School Management:

It is recommended that teacher professionalism training modules be immediately developed that focus not solely on digital literacy but also holistically integrate the six dimensions of CERDAS. Training should address strengthening teachers' spirituality at work and their pedagogical empathy.

2. For Elementary School Teachers:

It is hoped that they will independently increase their collaborative capacity through active participation in inter-school Learning Communities (Kombel) and train their flexibility in adapting to digital technology to transform traditional classrooms into modern, enjoyable learning for students.

3. For School Principals:

It is recommended to create a work climate that supports the internalization of CERDAS values, such as providing time and space for teacher collaboration, emphasizing innovation, and serving as a role model in integrating spirituality and professionalism. Principals should also encourage the wise and adaptive use of technology, adapted to the local context.

4. For Further Researchers:

Considering the limited scope of the research area, further researchers are advised to replicate the CERDAS Teacher model with a wider population (across districts/provinces), using SEM-PLS analysis techniques with a larger sample size, and conducting longitudinal studies to observe the development of CERDAS integration over the long term.

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"**I.V.** and **S.U.** conceived the presented idea. **S.U.** developed the theory and performed the computations. **F.F.** verified the analytical methods. **I.V.** and F.F. encouraged **F.F.** to investigate specific aspects and supervised the findings of this work. All authors discussed the results and contributed to the final manuscript

AI DISCLOSURE STATEMENT

The author declares that artificial intelligence (AI) tools were used in a limited capacity to assist in language editing and improving the clarity of the manuscript. All ideas, analyses, and conclusions presented in this study are the original work of the author, who takes full responsibility for the content of this manuscript

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