

Determinants Of High School Mathematics Teacher Performance Through Teacher's Innovative Behavior Intervening Variables

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Abstract

This study seeks to describe and measure Indonesian high school mathematics teachers' performance drives via intervening factors of innovative teacher conduct. The study adopted a quantitative technique by sending questionnaires to public and private high school mathematics instructors in Semarang city and Semarang regency. The hypothesis evaluation was carried out using Analysis of Moment Structures (AMOS) tool, and the data processing used the Structural Equation Model (SEM) analysis. The research findings revealed that school principal's transformational leadership, teacher's self-efficacy, and teacher's commitment were the determinants of teacher's effectiveness in teaching. In addition, the intervening elements of creative instructor behavior created good and large impacts on the learning process. On the other hand, the school atmosphere has no positive and significant impact on teacher's teaching performance.

Key words: Determinant teacher performance, teacher behavior, Intervening Variables.

I. BACKGORUND OF STUDY

Improving education quality in schools involves educated educators that can be seen from their performance in executing teaching-learning process. The quality of a teacher as an educator has a vital influence on many learning activities in schools. Duffy and Roehler in [Hasibuan \(2019: 150\)](#) observed that the learning process which can operate smoothly, have moral standards, and feel comfortable for students are the instructors' efforts to increase the quality of education via the implementation of the curriculum in the classroom. The teacher is one of a person who influences diverse activities of pupils. The issues that typically arise in school are that most of the instructors do not teach according to their educational background, are

indisciplined, careless in teaching, less focused, and not interested to make change to enhance the quality of the learning process and the environment. Based on the constitution of education authorities Number 21, 2016, encompassing the content of standard Elementary and Secondary School, mathematics is one of the major disciplines required for students at the secondary school level. Moreover, mathematics is a fundamental science that performs a crucial role in the process of human life. Furthermore, mathematics is utilized to construct other fields of science such as physics, chemistry, biology, engineering, and geography by applying the principles of calculus, algebra, geometry, and statistics in its development. Therefore, this research focuses on

mathematics learning by pupils at both the national and international levels.

The following table illustrates the average

national high school level examination scores for mathematics subjects in 2018 and 2019.

Table 1
Average National Examination Score for Mathematics Subjects 2018 and 2019
High School Level

Subjects	Average score of math National examination		Description
	2018	2019	
Language	35.31	37.53	increase 2.22
Natural Science	37.25	39.29	increase 2.04
Social Science	33.23	34.65	Increase 1.42

The average national high school mathematics exam scores for natural science, social science, and language majors increased. However, the results were still below the graduation threshold which is 55 (0-100 scale). In general, the ability to solve high-order thinking skills (HOTS) questions/problems was still low and needs

strengthening. The National Examination results are one of the reliable indicators of teacher performance. Therefore, it is necessary to promote teacher effectiveness using various efforts. At the international level, the senior high students' competence of mathematical literacy is tested by The Program for International Student Assessment (PISA).

Table 2
Development of PISA Study Results in Ability Category Senior high school Mathematics Literacy

Year	Indonesia ranking	The number of sample countries
2003	39	40
2006	38	41
2009	61	65
2012	64	65
2015	62	70
2018	73	79

The above table 2 demonstrates that Indonesian students' ability to solve issues through investigating topics, presenting answers, communicating, solving difficulties, and comprehending varied circumstances from 2003 until 2018 is still shallow. According to Wardono in (Afriyanti et al., 2018), high school mathematics instructors should continually utilize creative learning. PISA-based assessments should be undertaken to improve the results of PISA assessment. This explanation demonstrates why the results of Indonesian students' mathematical literacy courses are consistently in the lowest rankings because many high school mathematics instructors have not matched the requirements

of the 21st century which emphasise 4C and HOTS-based abilities (Afriyanti et al., 2018).

The phenomenon above illustrates that teacher performance is an essential aspect of education; additionally, they are a determinant of quality of education since the teacher is the person who most frequently interacts directly with students throughout the learning process. Therefore, teachers are a crucial component in education. Thus, the school should devote greater attention to the teacher who can improve performance. The presence of excellent performance in teachers will give a vital role in increasing the quality of the learning process so that improving performance is crucial as one of the school's

initiatives. Effective and efficient teacher performance in schools would develop students who have quality learning accomplishments through a quality learning process (Hasibuan, 2019). A teacher should carry out the learning process in the classroom and beyond the school. Besides, the teacher may carry out several additional duties, such as school administration, learning, guidance, and services to students and carry out multiple activities. In addition, other characteristics that impact teacher performance in this research include the principal's transformational leadership, teacher self-efficacy, teacher commitment, and school atmosphere. In the disruptive period, the changes that occur tend to proceed quickly.

Four things may impact teacher effectiveness, first is Transformational leadership. It is a perfect form of leadership to offer inspiration vision. Leaders must be able to recognize the existing condition and start to move ahead to confront the future. To be able to keep going, leaders need an exciting vision that promotes changes. Transformational leadership increases the organization's capacity to set its objectives and promote the development of learning practices improvements.

Second, Teacher self-efficacy is the teacher's belief in organizing and determining the actions required to effectively perform a teaching and educational assignment in a given environment (Tschannen-Moran et al., 1998). High teacher self-efficacy increases student learning outcomes (Nunn & Jants., 2009) because high-efficacy teachers have the tremendous psychological energy to commit all their resources and potential to improve teacher performance.

Third, Teacher commitment imparts information, power, and ideas to students. According to (Masaong, 2004), the work spirit of teachers is one measure of teacher commitment, teachers with high commitment are those who have high morale and vice versa.

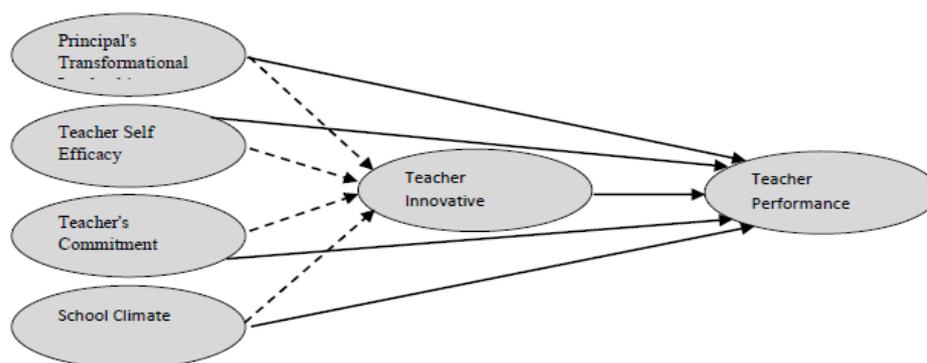
Fourth, a healthy school environment is primarily defined by the knowledge of internal school members to make schools a learning community or learning community (National School Climate Council, 2007). This school environment will inspire school members to establish a democratic process, notably teaching and learning and sharing information. It's thrilling to establish a favorable atmosphere to construct a learning community.

Based on the description above, this study discusses four problems: Based on the description above, this study discusses four problems:

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1. The principal's transformational leadership influences teacher performance through the intervening variable of innovative teacher behavior.
2. The influence of teacher self-efficacy on teacher performance through the intervening variable of innovative teacher behavior.
3. The influence of teacher commitment on teacher performance through the intervening variable of innovative teacher behavior.
4. The influence of school atmosphere on teacher performance through the intervening variable of innovative teacher behavior.

The purpose of using the inventive behavior of the teacher as the intervening variable is to assess the indirect influence of these characteristics on the teacher's performance. The role of innovative teacher behavior is projected to considerably contribute to moderating the impact of the principal's transformational leadership, teacher self-efficacy, teacher commitment, and school atmosphere on teacher performance. The framework for thinking about the connection between the variables analyzed may be seen in the following image.



Information:

1. Unbroken arrows: direct effect
2. Dotted arrow: indirect effect

Figure 1 Thinking Framework

II. RESEARCH METHOD

The research method in this study is a descriptive quantitative approach. The purpose here is to examine the features of a connection between endogenous factors and exogenous variables. This research was constructed utilizing a measurement model using a confirmatory factor analysis technique through AMOS (Ghozali, 2017). The rationale for choosing this strategy is that the researcher constructed the model, defined the number of latent variables and the link between one latent variable, and selected the indicator variables (observed). Beforehand, the covariance of the latent variable may be evaluated and the required parameters identified (Wiyanto, 2008).

This research population was all high school mathematics teachers, including public and private high schools in Semarang City and Semarang Regency. There are 97 public and private high schools in the Semarang with 363 teachers. Because of a significant population, this research employed a sample to reflect the population of 150 high school mathematics teachers.

Data were gathered through a basic random sampling approach in which the sample is picked randomly without respect to the existing strata in the population. The rationale for utilizing this technique is that the population is believed to be homogenous,

demonstrating that all samples have a minimum education level of Bachelor's degree. In addition, all of them teach mathematics at the high school level.

Data collection of this research is through delivering a link or a Google form link containing a research questionnaire to respondents via WhatsApp short messaging. Data were obtained from 150 respondents, 121 respondents returned the study questionnaire, and 29 did not send the research questionnaire back. Respondent profiles were differed based on school status, age, gender, education level, work position, and teaching tenure. Based on school status, 79 individuals are from public schools, while 42 people are from private schools. Based on age, 28 individuals are 48 - 52 years old, 25 people are 53 - 57 years old, and the remainder was in different age categories. For gender, 66 responses are female, and 55 respondents are male. At the education level, 100 respondents are undergraduate degrees, and 21 respondents have master's degrees. Based on job status, 95 respondents are permanent employees (68 public servants), while 26 respondents are non-permanent teachers. Twenty-four individuals have worked 25-29 years for teaching tenure, while 21 students have 30-34 years of teaching tenure.

III. RESULTS AND DISCUSSION

Exogenous and Endogenous Construct

The researcher employs confirmatory factor analysis to evaluate the effects of the principal's transformational leadership, teacher self-efficacy, teacher commitment, and school environment effects on teacher performance via the intervening variable of innovative teacher behavior. The utilization of the measurement stage of the indicators generates the latent variables in the research model. Confirmatory analysis was carried performed between exogenous and

endogenous constructs. This research model indicated there are four exogenous components (1) the principal's transformational leadership, (2) teacher self-efficacy, (3) teacher commitment, and (4) school atmosphere. The two endogenous constructs are teacher innovative behavior and teacher performance. The confirmatory test between exogenous constructs was done by covariate the four exogenous constructs. The following are the results of confirmation tests between exogenous constructions.

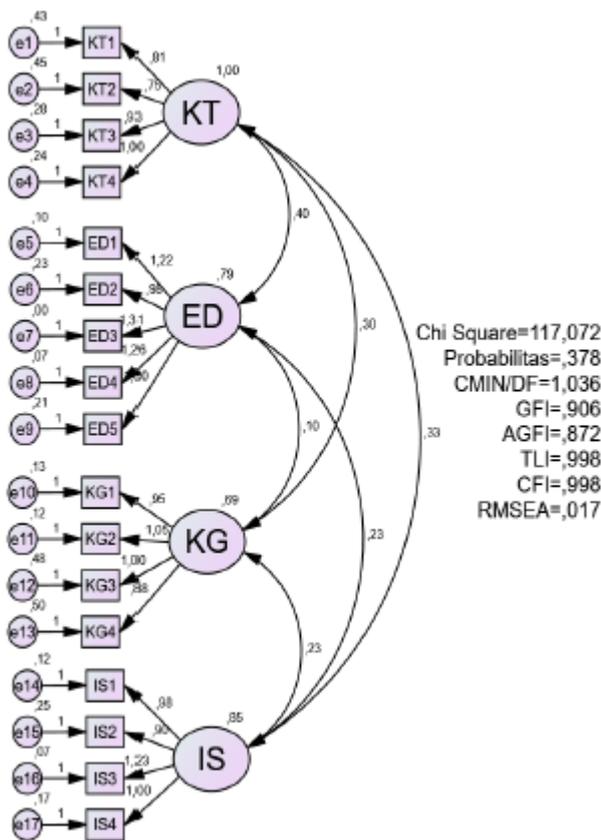


Figure 2 Confirmation Test Between Exogenous Constructs

The analysis of the confirmatory test between the exogenous constructs above is presented in the table below.

Table 3
Goodness of Fit Confirmation Test Between Exogenous Constructs

Goodness of Fit	Cut off Value	Result	Model Evaluation
Chi Square (df = 113)	Kecil (< 138,811)	117,072	Fit
Probability	≥ 0,05	0,378	Fit
CMIN/DF	≤ 2,00	1,036	Fit

GFI	$\geq 0,90$	0,906	Fit
AGFI	$\geq 0,90$	0,872	Marginal
TLI	$\geq 0,95$	0,998	Fit
CFI	$\geq 0,95$	0,998	Fit
RMSEA	$\leq 0,08$	0,017	Fit

The confirmation test findings between exogenous constructions indicated that the outcome chi-square value of 117.072 was less than the cut-off value of 138.811. The outcome of probability value 0.378 is more than Cut of Value 0.05. CMIN/DF of 1.036, GFI = 0.906, TLI = 0.998, CFI = 0.998, and RMSEA = 0.017, AGFI criterion of 0.872 is in the marginal criteria. According to

Ferdinand (2006), if most of them have fulfilled the goodness of fit criterion, then the entire model may be fit or good.

Confirmatory test between endogenous constructs by covariate two endogenous constructs with each other. The following are the findings of confirmation testing comparing endogenous structures.

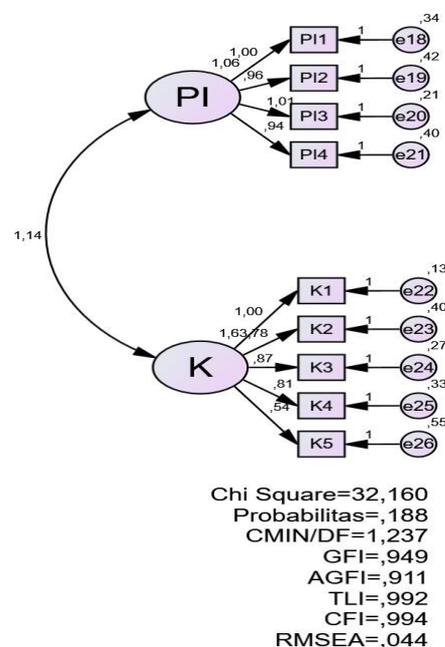


Figure 3 Confirmation Test between Endogenous Constructs

The goodness of fit analysis of the confirmatory test between the endogenous constructs is shown in the table below.

Table 4
Goodness of Fit Confirmation Test between Endogenous Constructs

Goodness of Fit	Cut off Value	Result	Model Evaluation
Chi Square (df = 26)	Kecil (< 38,885)	32,160	Fit
Probability	$\geq 0,05$	0,118	Fit
CMIN/DF	$\leq 2,00$	1,237	Fit
GFI	$\geq 0,90$	0,949	Fit
AGFI	$\geq 0,90$	0,911	Fit

TLI	$\geq 0,95$	0,992	Fit
CFI	$\geq 0,95$	0,994	Fit
RMSEA	$\leq 0,08$	0,044	Fit

The confirmation test findings between exogenous constructions indicated that the computed chi-square value of 32.160 was less than the cut of the value of chi-square of 38.885. The result of Probability is 0.044, which is larger than the cut of value 0.05. CMIN/DF of 1.237, GFI = 0.949, AGFI = 0.911, TLI = 0.992, CFI = 0.994, and RMSEA = 0.044 which match the fit requirements. From this conclusion, it may be stated that the model between endogenous constructs is a fit or excellent model.

A reliability test demonstrates the degree

to which a measuring device can give approximately the same findings when repeated measurements are done on the same item. The minimal reliability value and the dimensions/indicators comprising the latent variable approved are 0.70. While the variance extracted measure shows the number of variations from the hands eliminated by the created latent construct/variable. The allowable value of variance extract is a minimum of 0.50. The following are the findings of the computation of reliability construct and variance extracted.

Table 5
Reliability Construct and Variance Extracted

Variable		Std.Load	Std.Load ²	1-Std.Load ²	Reliability	Variance
Principal's Transformational Leadership	KT1	0,774	0,599	0,401	0,894	0,681
	KT2	0,738	0,545	0,455		
	KT3	0,885	0,783	0,217		
	KT4	0,892	0,796	0,204		
	Jml	3,289	2,723	1,277		
Teacher Self Efficacy	ED1	0,962	0,925	0,075	0,975	0,886
	ED2	0,876	0,767	0,233		
	ED3	0,998	0,996	0,004		
	ED4	0,975	0,951	0,049		
	ED5	0,890	0,792	0,208		
	Jml	4,701	4,432	0,568		
Teacher's Commitment	KG1	0,919	0,845	0,155	0,899	0,694
	KG2	0,922	0,850	0,150		
	KG3	0,759	0,576	0,424		
	KG4	0,710	0,504	0,496		
	Jml	3,310	2,775	1,225		
School Climate	IS1	0,936	0,876	0,124	0,957	0,849
	IS2	0,858	0,736	0,264		
	IS3	0,973	0,947	0,053		
	IS4	0,914	0,835	0,165		
	Jml	3,681	3,394	0,606		
Teacher Innovative Behavior	PI1	0,866	0,750	0,250	0,922	0,747
	PI2	0,835	0,697	0,303		
	PI3	0,914	0,835	0,165		
	PI4	0,840	0,706	0,294		
	Jml	3,455	2,988	1,012		
Kinerja Guru	K1	0,957	0,916	0,084	0,934	0,740
	K2	0,847	0,717	0,283		
	K3	0,907	0,823	0,177		
	K4	0,877	0,769	0,231		
	K5	0,689	0,475	0,525		
	Sum	4,277	3,700	1,300		

The calculation results demonstrate that

all latent variables may match the requirements of reliability construct and variance extraction.

The observed indicators may indicate the studied elements, and combined might show the presence of a unidimensionality.

Furthermore, the SEM assumption was tested, which consisted of (1) assessment of data normality, (2) evaluation of outliers, and (3) evaluation of multicollinearity and singularity. Estimation using maximum

likelihood needs the observed variables to fulfill the condition of multivariate normality. Therefore, normality analysis was carried out by monitoring the CR value for multivariate with a range of ± 2.58 at a significance level of 1 percent (Ghozali, 2014). (Ghozali, 2004). The following are the findings of testing the normality of the data.

Table 6
Data Normality Test Results

Variable	min	max	Skew	c.r.	kurtosis	c.r.
KG4	2,000	5,000	-,501	-2,250	-,944	-2,119
PI4	1,000	5,000	-,589	-2,643	-,538	-1,208
PI3	1,000	5,000	-,628	-2,820	-,517	-1,160
PI2	1,000	5,000	-,439	-1,973	-,924	-2,074
PI1	1,000	5,000	-,524	-2,351	-,937	-2,103
K5	1,000	5,000	-1,171	-5,258	,920	2,066
K4	1,000	5,000	-,378	-1,697	-,874	-1,961
K3	1,000	5,000	-,380	-1,707	-,999	-2,244
K2	1,000	5,000	-,369	-1,656	-,952	-2,138
K1	1,000	5,000	-,284	-1,277	-1,283	-2,881
IS1	1,000	5,000	-,538	-2,415	-,075	-,169
IS2	1,000	5,000	-,544	-2,441	-,108	-,243
IS3	1,000	5,000	-,639	-2,872	-,414	-,930
IS4	1,000	5,000	-,670	-3,011	,135	,303
KG1	2,000	5,000	-,384	-1,724	-,513	-1,153
KG2	1,000	5,000	-,519	-2,333	-,510	-1,145
KG3	1,000	5,000	-,623	-2,796	-,446	-1,001
ED1	1,000	5,000	-,368	-1,655	-,850	-1,909
ED2	1,000	5,000	-,181	-,811	-,627	-1,409
ED3	1,000	5,000	-,351	-1,574	-,823	-1,847
ED4	1,000	5,000	-,376	-1,690	-,801	-1,799
ED5	1,000	5,000	-,195	-,877	-,610	-1,369
KT1	2,000	5,000	-,301	-1,350	-1,075	-2,413
KT2	2,000	5,000	-,192	-,864	-1,116	-2,506
KT3	2,000	5,000	-,196	-,879	-1,202	-2,699
KT4	1,000	5,000	-,319	-1,430	-,980	-2,200
Multivariate					21,002	3,027

Based on the normality test, univariate findings were obtained where most of the data were normally distributed. Meanwhile, the multivariate value is 3.027. The number is over 2.58, meaning the data does not match the

requirements for normality, or the information is not commonly distributed in a multivariate fashion. The departure of the normality assumption data may be re-examined by utilizing a bootstrapping approach to do

resampling. If the estimated value is still the same as the estimated value without bootstrapping, then the research model without bootstrapping is still practical to utilize.

Bootstrapping employed in this research is Bootstrapping Maximum Likelihood (ML). The following is the output of the Bollen Stine bootstrap.

Table 7
Output Bollen-Stine

The model fit better in 137 bootstrap samples.
It fit about equally well in 0 bootstrap samples.
It fit worse or failed to fit in 363 bootstrap samples.
Testing the null hypothesis that the model is correct, Bollen-Stine bootstrap $p = .727$

In the model without bootstrap the value of chi-square = 287.869 with probability = 0.425. After bootstrapping is done, the Bollen Stine bootstrap probability's = 0.727, and this value is not significant at 5 percent. Therefore the model cannot be dismissed. Based on these findings, this research approach can still evaluate all research hypotheses.

Outliers are observations or data that

have distinctive features that seem quite different from other data and emerge in the form of extreme values, both for single variables and combinations (Haier et al., 1995: 57). The Mahalanobis Distance Test is used to detect if there are multivariate outliers. To compute the Mahalanobis distance based on the chi-square value at 26 degrees of freedom (number of indicators) at the level of $p < 0.001$ is $2(26; 0.001) = 54.052$ (based on the distribution table 2).

Table 8
Maximum Distance Mahalanobis Value

Observation number	Mahalanobis d-squared	p1	p2
73	44,027	,015	,840
8	42,383	,022	,757
49	42,268	,023	,530
4	41,811	,026	,377
21	40,799	,033	,358
112	40,755	,033	,208
29	39,898	,040	,210
50	39,495	,044	,160
56	39,446	,044	,088
18	38,953	,049	,076

The findings of data processing revealed that the maximum Mahalanobis distance is 44,797. This figure is still less than the two tables, which is 54,052, which shows that there are no multivariate outliers. Thus, it can be inferred that there is no outliers issue in the research data.

The determinant of the sample uses a

covariance matrix because of the combination variable. Therefore, a minimum determining value implies the existence of multicollinearity and singularity. Multicollinearity and singularity arise when the correlation value of independent variable indicators is > 0.9 (Ghozali, 2014). The sample moments test findings demonstrate that the correlation value between the various variable hands is not higher than 0.9. Therefore, it can

be stated that there is no multicollinearity and singularity in the data of this research.

After examining the amount of unidimensionality of the indicators from the latent variables validated by confirmatory factor analysis, the following is the entire Structural Equal Modeling (SEM) analysis

used to discover the structural link between the variables evaluated. Finally, to find out if the model built and explored in this work is a model that matches the population, a model's feasibility test (goodness of fit) is carried out. The following are the outcomes of the full assessment of the research model.

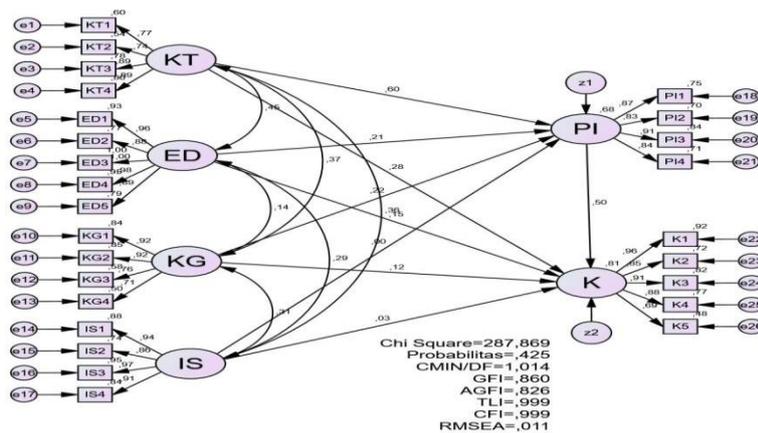


Figure 4 Full Testing of the Research Model

To find out whether the model established and explored in this study is by finding a model

that fits the population and a model's feasibility test (goodness of fit) that is carried out. The feasibility test findings on the research model developed in this study are shown in the table below.

Table 9
Results of the Feasibility Test of the Research Model

Goodness of Fit Index	Cut off Value	Hasil	Evaluasi Model
Chi Square (df = 284)	< 324,305	287,869	Fit
Probability	≥ 0,05	0,425	Fit
CMIN/DF	≤ 2,00	1,014	Fit
GFI	≥ 0,90	0,860	Marginal
AGFI	≥ 0,90	0,826	Marginal
TLI	≥ 0,95	0,999	Fit
CFI	≥ 0,95	0,999	Fit
RMSEA	≤ 0,08	0,011	Fit

Based on the model's feasibility test (goodness of fit), the computed chi-square value is 287.869, which is less than the chi-square table value of 324.305. The obtained significance value is 0.425, which is larger than 0.05. So it demonstrates that the model is

fit. This result is confirmed by additional criteria such as CMIN/DF of 1.014, TLI = 0.999, CFI = 0.999, and RMSEA = 0.011 which fulfill the fit requirements, but the criterion for GFI = 0.860 and AGFI = 0.826 are included in the marginal. According to

(Ferdinand, 2006), if most of them have fulfilled the goodness of fit criterion, then the entire model may be fit or good. The entire model hypothesis test findings suggest that this model is under the data or matches the data used in the research. The findings generated by the model follow the empirical data.

3.2 Confirmatory Analysis by Intervening teacher's innovative behavior

The confirmatory factor analysis findings by interfering in the teacher's innovative behavior from each variable were carried out by

assessing the values of the standardized regression weight and the Sobel test. First, the principal's transformative leadership was assessed using the standardized regression weight and the Sobel test. Second, the Sobel test value will be utilized to examine the significance of the mediating coefficient of the teacher's innovative behavior variable in mediating the influence of the four exogenous factors on teacher performance. The following is a table of standardized regression weights and a table of the results of the analysis of the impact data used to compute the intervening test using the Sobel test.

Table 10
Standardized Regression Weights: (Group number 1 - Default model)

PI	<--	K	,602
	-	T	
PI	<--	E	,206
	-	D	
PI	<--	K	,224
	-	G	
PI	<--	IS	-,003
	-		
K	<--	K	,283
	-	T	
K	<--	K	,117
	-	G	
K	<--	IS	,033
	-		
K	<--	E	,149
	-	D	
K	<--	PI	,503
	-		

Table 11
Results of Influence Data Analysis

Variable	Direct Effect	Indirect Effect	Total Effect
Principal's Transformational Leadership	0,283	0,303	0,586
Teacher Self Efficacy	0,149	0,104	0,253
Teacher Commitment	0,117	0,113	0,229
School Climate	0,033	-0,001	0,032
Teacher Innovative	0,503	0,000	0,503

Behavior

The findings of the hypothesis analysis above show the effect of the principal's transformational leadership on teacher

performance via the intervening variable of innovative teacher behavior positively and significantly. The following is the computation of the first intervening test using the Sobel test

Table 12
Calculation of the First Intervening Test with Sobel Test

Coefficient		Sa	Sb	Sab	t count	t table ($\alpha = 5\%$)
KT \rightarrow PI	PI \rightarrow K					
a	b					
0,602	0,503	0,093	0,126	0,090	3,369	1,968

From the results of testing using the Sobel test, acquired t count of 3.369. Therefore, t count = 3.369 is more significant than t table (1.968) with a significance level of 0.05. Therefore, the conclusion is that the mediation coefficient of 0.303 is demonstrated to be large and statistically signifies that teachers' innovative behavior positively and significantly mediates the influence of the principal's transformational leadership on teacher performance. Therefore, the sixth hypothesis may be accepted.

The previous research done by (Alamsyah, 2019) demonstrates that transformational leadership has a favorable and substantial influence on innovative behavior. Therefore, it might be an intervening

variable between transformative leadership on Human Resource performance. Purwanto et al. (2020: 24) also indicate in their study that organizational atmosphere has a favorable and substantial influence on employee performance directly and indirectly via the mediation of innovative work behavior. (Hidayati, 2019) also highlighted in her study that the more remarkable the employee's creative activity, the more employee performance would grow.

Second, the intervening test using the Sobel test suggests that Teacher self-efficacy on teaching performance via the intervening variable of innovative teacher behavior is positively and significantly.

Table 13
Calculation of the Second Intervening Test using Sobel Test

Coefficient		Sa	Sb	Sab	t hitung	ttabel ($\alpha = 5\%$)
ED \rightarrow PI	PI \rightarrow K					
a	b					
0,206	0,503	0,083	0,126	0,050	2,062	1,968

From the test findings using the Sobel test, the t-count is 2.062. Therefore, t arithmetic = 2.062 is more notable than t table

(1.968) with a significance level of 0.05. It demonstrates that the mediation coefficient of 0.104 is significant and statistically signifies

that teachers' innovative behavior positively and significantly mediates the influence of teacher self-efficacy on teacher performance. Therefore, it confirms that the seventh hypothesis may be accepted.

The research on teacher self-efficacy by (Berliana & Arsanti, 2018) indicated that self-efficacy has a positive and significant influence on performance via inventive work behavior factors, which plays a part in finishing a task. The more the individual's self-efficacy in producing new ideas for his job, the better the subsequent performance. Furthermore, innovative work behavior may become a mediator variable in the influence of self-efficacy on performance. (Desiana, 2018)

Table 14

Calculation of the Third Intervening Test with Sobel Test

Coefficient						
KG → PI	PI → K	Sa	Sb	Sab	t hitung	ttabel (α = 5%)
a	b					
0,224	0,503	0,094	0,126	0,056	2,000	1,968

The test employs the Sobel test, got t count of 2,000, which is more than t table (1.968) with a significance level of 0.05. the result is the mediation coefficient of 0.113 is significant. Statistically, teachers' innovative behavior positively and significantly modulates the impact of teacher dedication on teacher performance. It demonstrates that the eighth hypothesis may be accepted.

(Wahyuni et al., 2021) research regarding teacher commitment on teacher performance indicated that organizational learning and organizational commitment directly impact lecturers' innovative behavior. Strengthening organizational knowledge and organizational commitment will boost creative behavior. (Berliana & Arsanti, 2018) also

Table 15

Calculation of the Fourth Intervening Test with Sobel Test

Koefesien						
IS → PI	PI → K	Sa	Sb	Sab	t hitung	ttabel (α = 5%)
a	b					
-0,003	0,503	0,077	0,126	0,040	-0,038	1,968

indicated in her research that self-efficacy positively promotes employee performance via innovation as an intervening variable that functions as an interaction effect of self-efficacy on employee performance. The poor skill and self-efficacy reflect the trouble in finishing the task, which is viewed as low on actual work outcomes. Meanwhile, if the ability and behavior are excellent enough, self-confidence is also reasonably good so that it can sustain good performance.

Third, teacher commitment on teacher performance via the intervening variable of innovative teacher behavior positively and significantly compared to the third intervening test using the Sobel test.

highlighted in their study that innovative work behavior has a good influence on teacher performance. The greater the inventive work behavior developed, the better the final performance. Teachers at the school are eager to seek new work techniques, create ways to solve a problem, produce new things in a job, and adopt creative ideas into work practices. Creative activity should be promoted by constantly pursuing chances for growth and change.

Fourth, The result of the calculation of the intervening test using the Sobel test indicates that school atmosphere on teacher performance via the intervening variable of innovative teacher behavior is positively and significantly.

The test findings using the Sobel test show that the t count is -0.038 , which is smaller than the t table (1.968) with a significance level of 0.05 . It demonstrates that the mediation coefficient of -0.001 is demonstrated to be negligible and statistically means that teachers' innovative behavior negatively and insignificantly mediates the effect of school atmosphere on teacher performance. It illustrates that the ninth hypothesis cannot be accepted or rejected.

The results of this study contradict research by (Alamsyah, 2019), which suggests that organizational climate has a positive and significant effect on innovative behavior. Thus, innovative behavior can be an intervening variable between the corporate atmosphere and HR performance. The following contradiction is a study by (Purwanto et al., 2020), which reveals that organizational climate has a good and significant effect on employee performance directly and indirectly through the mediation of innovative work behavior.

V. CONCLUSION

Based on the results of the research and discussion above, this study concludes that: (1) The principal's transformational leadership affects teacher performance through the intervening variable of innovative teacher behavior positively and significantly. (2) Teacher self-efficacy promotes teacher performance through intervening behavioral variables teacher innovativeness positively and significantly. (3) Teacher commitment affects teacher performance through the intervening variable of innovative teacher behavior positively and significantly. (4) School atmosphere affects teacher

performance through intervening variable teacher innovative behavior negatively and insignificantly.

REFERENCES

1. Afriyanti, Ice, Wardono, and Kartono. 2018. "Pengembangan Literasi Matematika Mengacu PISA Melalui Pembelajaran Abad Ke-21 Berbasis Teknologi." PRISMA, Prosiding Seminar Nasional Matematika 1: 608–17.
2. Alamsyah, Dzikri. 2019. "Model Kinerja SDM Berbasis Kepemimpinan Transformasional Dan Iklim Organisasi Melalui Perilaku Inovatif Sebagai Variabel Intervening (Study UMKM Di Kota Semarang)."
3. Berliana, Vera, and Tutuk Ari Arsanti. 2018. "Analisis Pengaruh Self-Efficacy, Kapabilitas, Dan Perilaku Kerja Inovatif Terhadap Kinerja." Jurnal Maksipreneur: Manajemen, Koperasi, dan Entrepreneurship 7(2): 149.
4. EkaDesiana, Nofi. 2018. "Pengaruh Efikasi Diri Terhadap Kinerja Karyawan Melalui Inovasi Sebagai Variabel Intervening (Studi Pada Divisi Sekretariat Dan Humas Pdam Surya Sembada Kota Surabaya)." Jurnal Ilmu Manajemen (JIM) 7(2).
5. Ghozali, I. 2017. "Model Persamaan Struktural Konsep dan Aplikasi Program AMOS 24." Semarang: Badan Penerbit Universitas Diponegoro. Hair, J. F. et al. 1995. "Multivariate Data Analysis With

- Reading.” Fourth Edition. New Jersey: Prentice Hall.
6. Hasibuan, Abdul Aziz. 2019. “Analisis Faktor-Faktor Peningkatan Kinerja Guru Dalam Upaya Pencapaian Kualitas Proses Pembelajaran Di Sekolah.” *Al Amin: Jurnal Kajian Ilmu dan Budaya Islam* 5(1): 49–58.
7. Hidayati, Nur. 2019. “Pengaruh Kepemimpinan Transformasional Terhadap Kinerja Karyawan Dengan Perilaku Inovatif Sebagai Variabel Intervening.”
8. Masaong, A. Karim. 2004. “Keterkaitan antara Semangat Kerja Guru dengan Perilaku Kepemimpinan Kepala Sekolah.” *Jurnal Pendidikan dan Kebudayaan Tahun ke-10* 049: 523-555
9. National School Climate Council. 2007. “The School Climate Challenge: Narrowing the Gap Between School Climate.” *Research and School Climate Policy. Practice Guidelines and Teacher Education Policy.*
10. Nunn, G. D., & Jantz, P. B. 2009. “Factors within Response to Intervention Implementation Training Associated with Teacher Efficacy Beliefs.” *Education* 129: 599-607
11. Purwanto, Agus, Masduki Asbari, Mirza Prameswari, et al. 2020. “Dampak Kepemimpinan, Budaya Organisasi Dan Perilaku Kerja Inovatif Terhadap Kinerja Pegawai Puskesmas.” *Jurnal Ilmu Kesehatan Masyarakat* 9(01): 19–27.
12. Purwanto, Agus, Masduki Asbari, Laksmi Mayesti Wijayanti, and Choi Chi Hyun. 2020. “The Impacts of Leadership and Culture on Work Performance in Service Company and Innovative Work Behavior as Mediating Effects.” *Journal of Research in Business, Economics, and Education* 2(1): 283–91.
13. Tschannen-Moran, M., Hoy, A. W., & Hoy, W. K. 1998. “Teacher Efficacy: Its Meaning and Measure.” *Review of Educational Research* 68: 202- 248.
14. Wahyuni, Wati, BedjoSujanto, and SupadiSupadi. 2021. “The Mediating Role of Organizational Learning in the Relationship Between Organizational Commitment and Lecturer Innovative Behavior.” *JRTI (Jurnal Riset Tindakan Indonesia)* 6(1): 1–8.
15. Wijanto, Setyo. 2008. “Structural Equation Modelling dengan Lisrel 8.8. Yogyakarta: Graha Ilmu.