



The Effect of Digital Literacy, Innovative Work Behavior, and Interpersonal Communication on Teachers Performance at Madrasah Aliyah

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Abstract: Education has a crucial role in the advancement of a country. The disparity in the quality of education can be attributed not only to the educational process, but also to the subpar performance of teachers as educators. The objective of this study is to ascertain the impact of digital literacy, innovative work behaviour, and interpersonal communication on teacher performance. This study use statistical survey methodology to authenticate its conclusions. The Partial Least Squares Structural Equation Model (PLS-SEM) was employed by the researchers. The Serang City area in Indonesia is home to a collective of 19 public elementary schools. The research sample comprised 19 school administrators and 81 state elementary school teachers in Serang City, Banten, Indonesia. We implemented the sampling process using a stochastic technique. PLS path modelling is employed in data analysis. The research findings indicate a significant impact of innovative work behaviour, digital literacy, and interpersonal communication on teacher effectiveness, with a p-value of less than 0.05 for each relationship. The research findings hold considerable ramifications for school principals seeking to enhance teacher effectiveness.

Keywords: digital literacy; innovative work behavior; interpersonal communication; teachers performance;

Pengaruh Literasi Digital, Perilaku Kerja Inovatif, dan Komunikasi Interpersonal Terhadap Kinerja Guru Madrasah Aliyah

Abstrak: Pendidikan merupakan salah satu faktor penting dalam pembangunan suatu bangsa. Tinggi rendahnya mutu pendidikan tidak hanya disebabkan oleh proses pendidikannya saja tetapi juga dapat dipengaruhi oleh rendahnya kinerja guru sebagai pendidik. Tujuan penelitian ini adalah untuk mengetahui pengaruh literasi digital, perilaku kerja inovatif, dan komunikasi interpersonal terhadap kinerja guru. Penelitian ini menggunakan metodologi survei statistik untuk memvalidasi temuannya. Peneliti menggunakan Partial Least Squares Structural Equation Model (PLS-SEM). Terdapat total populasi 19 sekolah dasar negeri yang berlokasi di wilayah Kota Serang, Indonesia. Sampel penelitian terdiri dari 19 kepala sekolah dan 81 guru sekolah dasar negeri di Kota Serang, Banten, Indonesia. Mekanisme pengambilan sampelnya dengan pendekatan acak. Analisis data menggunakan pemodelan jalur PLS. Hasil penelitian menunjukkan bahwa terdapat pengaruh perilaku kerja inovatif terhadap kinerja guru ($p < 0,05$), perilaku kerja inovatif terhadap kinerja guru ($p < 0,05$), literasi digital terhadap kinerja guru ($p < 0,05$), dan komunikasi interpersonal terhadap kinerja guru ($p < 0,05$). Temuan penelitian ini juga mempunyai implikasi signifikan bagi kepala sekolah yang ingin meningkatkan kinerja guru.

Kata kunci: literasi digital; perilaku kerja inovatif; komunikasi interpersonal; kinerja guru.

1. Introduction

A nation's progress is greatly influenced by education. Inadequate instructional performance can have an impact on student learning just as much as any other factor in the educational process. A person's performance can be defined as the results and attitude shown when tasked with and completed within a given time limit. Both academics and policymakers have long recognised teachers as vital partners in students' formal education (Alexander et al., 2017). In the

field of education, the relationship between teachers and students plays a key role in helping students learn and grow as individuals (Guilherme, 2019). Therefore, in an effort to improve education in Indonesia, the government has made teacher reform a top priority (Allen et al., 2018). The calibre of educators in Indonesia remains subpar, encompassing deficiencies in competence, knowledge, and pedagogical proficiency (Rosser & Fahmi, 2018). This is a result of the discrepancy and substandard calibre

of educators (Kanya et al., 2021). Teachers have a crucial role in creating an engaging classroom climate that motivates students to actively participate in their own education, thus any decline in their quality can have far-reaching consequences (McKnight et al., 2016).

Several prior studies pertaining to the present research (Bidin et al., 2022; Dharma, 2022; Melianah et al., 2021; Phytanza & Burhaein, 2020; Sary, 2023; Setyawan et al., 2022; Silalahi et al., 2022; Susilawati et al., 2021). According to the previous research explanation provided, it is evident that the changes happening in the environment necessitate an enhancement in digital literacy, innovative work behaviour of teachers, and interpersonal communication to achieve the desired teacher performance for the quality of teaching in Madrasah Aliyah schools. The novelty of this research lies in the incorporation of theoretical framework through a comprehensive evaluation of existing literature. The objective of this study is to determine the impact of digital literacy, innovative work behaviour, and interpersonal communication on teacher effectiveness at Madrasah Aliyah. The aim of the study is to examine the impact of Digital literacy, Innovative Work Behaviour, and Interpersonal communication on teacher performance. The guiding premise for this investigation is as follows:

1. H1: There is a positive correlation between digital literacy on innovative work behaviour.
2. H2: There is a positive correlation between Innovative Work Behaviour on teacher performance.
3. H3: There is a direct correlation between digital literacy on teacher performance.
4. H4: There is a positive correlation between interpersonal communication on teacher performance.

2. Method

In order to verify its results, this study used a statistical survey methodology. To calculate the values of the latent variables and make predictions, the researchers used PLS-SEM. (Hair et al., 2017). The research models used in the study were incorporated into Smart PLS, and SEM was applied.

A public elementary school in Serang City, Banten Province, Indonesia, was the site of the inquiry. Nineteen elementary schools serve the residents of Indonesia's Serang City district. Nineteen principals and eighty-one primary school teachers from Serang City, Banten, Indonesia, made up the research sample. The

sampling process was constructed using a random approach. Dissect the methods used to collect information from questionnaire surveys. Through WhatsApp, the researchers distributed a digital survey (Google Form) to all school principals, who in turn distributed it to the specified teachers and principals. The research was carried out between February and December 2023.

For this investigation, the questionnaire serves as the primary data collection tool. Researchers gathered information and data by distributing surveys. A Likert scale survey provided the data used in the inquiry. Using a scale from one to five, respondents to a survey can express their level of agreement using the Likert scale. Google Form URLs allow respondents to quickly access surveys. One hundred people were supposed to make up the study's sample. Included in the questionnaire are questions and comments for each of the evaluation areas, as well as a list of names of respondents. PLS path modelling was utilised to evaluate the data due to its capacity to estimate all model parameters simultaneously, setting it apart from regression analysis.

3. Result and Discussion

A total of 81 teachers and 19 principals from 19 different public primary schools in Serang City, Banten Province, Indonesia, participated in the current research. Included in the responder profile are demographic details pertaining to schooling, such as gender, tenure, and educational history. Table 1 displays the demographic information of the respondents.

All the data in the questions is provided in numerical format. Curran et al. (1996) If the skewness statistic is less than 2 and the kurtosis statistic is less than 7, then the data is considered to have a normal distribution. Table 2 displays the item-level descriptive statistics for all constructs, including skewness, kurtosis, standard deviation, and mean. The information gathered here sheds light on how stable the structures are. According to the descriptive statistics analysis, the (DL2) condition had the lowest DL variability and average values of 1.227 and 3.990, respectively. Conversely, with a mean of 4.440 and a standard deviation of 0.875, the (DL1) condition had the most variability and average of the conditions. Serang City's elementary schools are now using a servant leadership model. There was a 1.122 standard deviation (SD) and a mean value of 3.960 for the teacher performance variable (TP1) in TP1. Contrarily, (TP2) peaked at 4.250 with a standard deviation of 0.921.

Table 1. Profile of the respondent

Information	N	Percentage
Gender		
Male	79	79%
Female	21	21%
Total	100	100%
Teachers		
Male	70	70%
Female	11	11%
Total	81	81%
Principals		
Male	9	9%
Female	10	10%
Total	19	19%
Background of Education (Principals)		
Bachelor	15	15%
Magister (Master)	4	4%
Total	19	19%
Background of Education (Teachers)		
Bachelor	70	70%
Magister (Master)	11	11%
Total	81	81%
Age (Principals)		
23-30		
31-40	10	10%
41-55	9	9%
Total	19	19%
Age (Teachers)		
23-30	8	8%
31-40	50	50%
41-55	23	23%
Total	81	81%
Working Period (Principals)		
< 5 Years		
10-20 Years	8	8%
20-30 Years	11	11%
Total	19	19%
Working Period (Teachers)		
< 5 Years		
10-20 Years	70	70%
20-30 Years	11	11%
Total	81	81%

All of the aforementioned research highlight the value of face-to-face interaction for educators. The mean and standard deviation values of the IC dimensions (IC5) were all over the place. With a mean of 3.980 and a standard deviation of 1.039, IC3 had the best distribution. A result of 4.060 for the average and 1.047 for the variability indicated that IC4 had the highest levels of variability. Improving the abilities of stakeholders, including educators, can help boost

employee commitment to their jobs. Noteworthy is the fact that the third TP dimension has the lowest mean value at 3.960 and the lowest standard deviation at 1.122. While both the standard deviation and the TP dimension have values of 0.875, the TP dimension with the greatest average value is 4.440. This study's findings suggest that higher expectations for digital literacy among educators can improve both the quantity and quality of student learning.

Concept validity, both discriminant and convergent, is checked by the measuring model. When assessing the validity and reliability of a measurement model, it is important to take into account three signs of convergent validity: composite reliability (CR), outer loadings, and average variance extracted (AVE). We may rely on the results of the tests, as demonstrated in Table 3 and Figure 2. All sixteen items have outside loadings between 0.700 and 0.955, indicating a strong link between the conceptual and measured variables. These external loadings above the 0.50 cutoff and are thus statistically significant at the 0.05 level. Due to outer loadings below the 0.50 criteria, seven items DL3, DL5, IWB3, IWB5, IC3, TP3, and TP4 were omitted from the analysis. Furthermore, the AVE values (ranging from 0.613 to 0.786) were found to be greater than the threshold of 0.50, according to the results. Determined in order to evaluate the reliability of a measurement system. According to Adeleke et al. (2018), two of the most widely used reliability coefficients in psychometrics are Cronbach's alpha and CR. This value is greater than 0.70 according to Henseler et al. (2016) Table 3 shows that all of the structures are present. Both CR and Cronbach's alpha are shown over the previously defined threshold of 0.70.

In order to determine the test's discriminant validity, the Fornell-Larcker Criterion was used. This method determines the correlation between latent ideas by squaring the average variance extracted (AVE). When compared to other latent constructs, a latent construct should be able to explain a greater amount of the variability observed in its own indicator. According to Fornell & Larcker F. (1981), it is logical to assume that the square root of the average variance extracted (AVE) for each construct will be higher than the AVE correlations seen between latent constructs. Since the idea blatantly exhibits empirical uniqueness, it possesses sufficient ability to discern between various variables. Based on the results, it appears that the study model has sufficient validity and reliability for the concept. results of tests undertaken to measure convergent and discriminant validity.

Table 2. Statistical Description and Assessment of Normality

Statistic Descriptive					Normality Indicator		
Construct	Item	Mean	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
DL	DL1	4.440	1.000	5.000	0.875	2.293	-1.630
	DL2	3.990	1.000	5.000	1.277	-0.389	-0.976
	DL3	4.000	1.000	5.000	1.275	-0.051	-1.074
	DL4	4.050	1.000	5.000	1.203	-0.341	-0.972
	DL5	4.210	1.000	5.000	1.098	0.904	-1.349
IWB	IWB1	3.960	1.000	5.000	1.122	0.072	-0.913
	IWB 2	4.250	1.000	5.000	0.921	0.553	-1.069
	IWB 3	4.020	1.000	5.000	1.157	-0.275	-0.904
	IWB 4	4.140	1.000	5.000	1.010	0.348	-0.996
	IWB 5	4.050	1.000	5.000	1.220	-0.405	-0.970
IC	IC1	4.050	1.000	5.000	1.226	0.361	-1.082
	IC2	4.020	1.000	5.000	1.049	-1.098	-0.780
	IC3	3.980	1.000	5.000	1.039	0.196	-0.828
	IC4	4.050	2.000	5.000	1.062	-0.842	-0.712
	IC5	4.060	2.000	5.000	1.047	-0.829	-0.705
TP	TP1	4.440	1.000	5.000	0.875	2.293	-1.630
	TP2	3.990	1.000	5.000	1.277	-0.389	-0.976
	TP3	3.960	1.000	5.000	1.122	0.072	-0.913
	TP4	4.250	1.000	5.000	0.921	0.553	-1.069
	TP5	4.050	1.000	5.000	1.126	0.361	-1.082
	TP6	4.020	1.000	5.000	1.049	-1.098	-0.780
	TP7	4.050	2.000	5.000	1.062	-0.842	-0.712
	TP8	4.060	2.000	5.000	1.047	-0.829	-0.705

Table 3. Convergent Validity

Construct	Item Code	Outer Loading	Cronbach's Alpha	CR	AVE
DL	DL1	0.855	0.725	0.833	0.626
	DL2	0.808			
	DL4	0.704			
IWB	IWB1	0.822	0.701	0.826	0.613
	IWB2	0.755			
	IWB4	0.770			
IC	IC1	0.951	0.904	0.935	0.786
	IC2	0.700			
	IC4	0.916			
	IC5	0.955			
TP	TP1	0.722	0.935	0.949	0.760
	TP2	0.942			
	TP5	0.928			
	TP6	0.732			
	TP7	0.934			
	TP8	0.939			

This study used a structural model more precisely, an inner model to examine the consequences of interaction. Structural model evaluations consist of testing hypotheses regarding the significance of variables (as indicated by t-values and confidence interval width) and the relative relevance of endogenous and exogenous variables (as evaluated by R2). The bootstrap method was employed to ascertain t-values and standard errors. Here, we'll take an average of 5,000 randomly selected samples.

At the very least, a statistically significant correlation exists between IWB and TP (t=5.398). A confidence interval for the association is shown to vary from 0.112 to 0.574 in Figure 2 and Table 4. Using these numbers, we can see that a TP of 0.131 is connected with an IWB reduction of one standard deviation. We are thus unable to draw the conclusion that H2 is correct. There is a meaningful positive association between DL and TP, as shown by a t-value of 6.193 and a standardised beta coefficient of 0.487. From 0.340 to 0.615, the confidence intervals for the connection can be shown in Figure 2 and Table 4. A correlation coefficient of 0.487 suggests a favourable relationship between TP and DL in this set of data. As the standard deviation of DL increases by one unit, TP increases by 0.487 units.

Table 4. Discriminant validity is assessed using the Fornell-Larcker criterion

	SC	SL	TP	WL
DL	0.783			
IWB	0.764	0.791		
IC	0.617	0.504	0.872	
TP	0.602	0.487	0.887	0.993

A positive link between DL and teacher performance (H3) can be acknowledged based on the statistical study. By showing a positive association between IC and TP ($\beta = 0.974$, $t = 69.354$), the findings finally prove Hypothesis 4 (H4). Additional data with confidence intervals between 0.947 and 1.002 provide credence to this finding. Every time the TP is 0.947, the data reveal that the IC rises by one standard deviation.

As a statistic, R2 indicates how well the independent variables in the PLS-path modified model explain the dependent variable's variability. Around 58.4 percent of the variations are DL-specific, suggesting a moderate association between the two according to the structural model's standard errors. If SL could explain about 23.8% of the variation in WL, it would indicate that there is no correlation between IC and DL either. Incorporating all types of TP, the overall impact of DL and IC is 98.6%. Models that did well in the second blind test (Q2) may have also predicted endogenous components. The values indicate that DL is 0.179, TP is 0.740, and DL is 0.308. The model shows positive predictive relevance when the Q2 value is greater than 0, according to Hair et al. (2017).

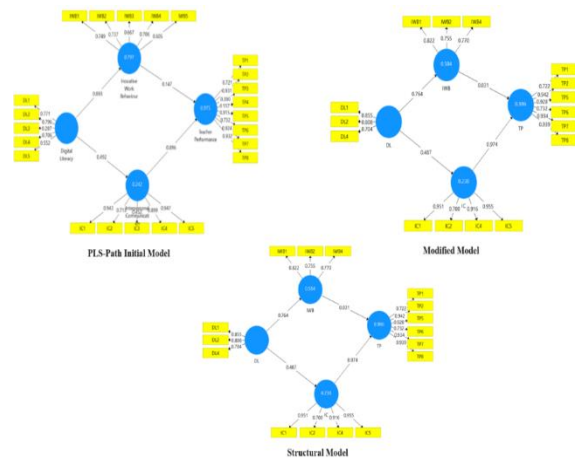


Figure 2. PLS-Path Initial Model, Modified Model and Structural Model

Figure 2 and Table 5 show that there is a correlation between DL and IWB, with confidence intervals ranging from 0.702 to 0.798. The statistical investigation confirms the close relationship between the variables, as shown by the high levels of significance ($\beta = 0.764$, $t = 32.077$). According to the findings, a one-standard-deviation increase in DL is accompanied by an identical one-standard-deviation increase in IWB.

Table 5. Hypotheses

Hypotheses Path	Std. Beta	Std. Error	t-Value	Bias	Confidence Interval		Decision	
					Bias Corrected			
H1	DL -	0.764	0.024	32.077	0.011	0.702	0.798	Accepted
H2	IWB -	0.131	0.072	5.398	0.002	0.112	0.574	Accepted
H3	DL ->	0.487	0.071	6.193	0.008	0.340	0.615	Accepted
H4	IC -	0.974	0.014	69.354	0.002	0.947	1.002	Accepted

Four research hypotheses are presented in this study. Examining how Madrasah Aliyah teachers' levels of digital literacy, innovative work behaviour, and interpersonal communication affect their performance is the main goal of this study. Several important findings have been produced by this investigation. Innovative work behaviour has an effect on teachers' performance, as the first hypothesis shows. In agreement with the results of (Henny et al., 2019), Research has shown that digital literacy moderates the relationship between innovative activity on the job and performance. Employees' innovative work behaviour has a greater effect on their performance when their level of digital literacy is higher.

The effect of IWB on teachers' performance is the subject of the second hypothesis. Innovative work behaviour is significantly correlated with teacher performance, according to the research. The results of this study agree with those of earlier research done by (Johari et al., 2021; Rahmawati et al., 2020; Sofiyani et al., 2022). The research findings indicate that there is a favourable and substantial impact of innovative work behaviour on teacher performance. A teacher possessing a creative growth mentality holds the belief that through dedication, diligent effort, and feedback from others, he may enhance his skills. Thirdly, there is a strong association between teachers' performance and their use of digital literacy, according to the hypothesis on the effects of digital literacy on education. The results of this study agree with those of previous research done by (Dharma, 2022; Sangra Dempo et al., 2023; Sary, 2023), offer compelling evidence that digital literacy exerts a substantial impact on teacher effectiveness. In order to achieve successful classroom management and sustained learning outcomes, the presence of appropriate information technology infrastructure is essential for the development of digital literacy (Muntu et al., 2023). The results pertaining to the fourth research hypothesis indicate a strong and statistically significant correlation between interpersonal communication and teacher performance. This finding aligns with other research that demonstrates the impact of interpersonal communication on teacher effectiveness ((Purwaningratri, 2022; Sari & Suriansyah, 2019; Susanti, 2021; Zainie et al., 2023). Communication is a ubiquitous action undertaken by all individuals, as it fulfils the inherent social needs of human beings. The impact of effective communication on an individual's performance is significant, as it serves as a means for the management process to convey

information and foster comprehension (Suriansyah, 2014).

The results of this study provide new light on how teachers' levels of digital literacy, innovative practices on the job, and interpersonal communication affect their effectiveness in the classroom. School administrators who are seeking to improve their teachers' performance will also benefit greatly from this study's conclusions. This can be achieved by equipping teachers with digital literacy skills to effectively navigate the global landscape of education and by offering ample opportunities for teachers to cultivate their own competencies. By doing so, educators will be better equipped to educate students and foster the development of highly skilled graduates.

4. Conclusion

The primary objective of this study is to ascertain the impact of Digital Literacy, Innovative Work Behaviour, and Interpersonal Communication on the Performance of Madrasah Aliyah Teachers. The results of the hypothesis testing indicate that there are significant relationships between various factors. Specifically, digital literacy has an impact on innovative work behaviour, innovative work behaviour affects teacher performance, digital literacy also affects teacher performance, and interpersonal communication is linked to teacher performance.

Presently, students expect their professors to possess the ability to use technology proficiently within the classroom. professors who possess expertise in this domain are more inclined to cultivate students' capacity for critical, creative, and innovative thinking. Teachers have a responsibility to provide students with knowledge and skills, ensuring that they are well-prepared to compete globally after they graduate. Additional investigation into the influence of innovative work behaviour and interpersonal communication on the performance of Madrasah Aliyah teachers can be conducted across many educational levels in Indonesia, extending beyond primary schools.

This research has multiple challenges. A notable constraint is the limited sample size, which is restricted by the relatively brief duration of the research and solely concentrates on public elementary school education. This research was confined to a total of fourteen public elementary schools situated in Serang City, within the province of Banten, Indonesia. The generalizability of these findings to other public schools may be limited. This research is

specifically focused on educators and school principals employed in state primary schools situated in Serang City.

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