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The Effect of Principals' Leadership and Learning Organization on Teachers' Innovative Work Behavior During the COVID-19 Pandemic

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Abstract: This research explores evidence of the conceptual model related to principals' leadership, learning organization, and teachers' innovative work behavior during the COVID-19 pandemic. This research applied a survey method in which participants employed selections through the purposive sampling technique. There were 1243 respondents in this sample. Subsequently, 1200 were then used to elicit further data. The data collection procedure was carried out online by distributing questionnaires to teachers in Indonesia via the Google Form application. The questionnaire was made based on theoretical studies, expert judgments, and readability assessments, where the analysis of research data employs the so-called path analysis with SMART PLS. The findings of this research evidence the following cases. First, principals' leadership has a positive and significant direct influence on teachers' innovative work behavior. Second, principals' leadership has a positive and significant direct influence on learning organizations. Third, learning organization has a positive and significant direct influence on the teachers' innovative work behavior. Fourth, principals' leadership through learning organization has a positive and significant indirect influence on the teachers' innovative work behavior. These findings support the notion that is improving teachers' innovative work behavior, especially during the COVID-19 pandemic, requires improvement of principals' leadership and the learning organization.

INTRODUCTION

Learning objectives may optimally be achieved if teachers are supported by innovative work behaviour (Hardianto et al., 2021). There have been various changes in learning practices that require teachers to have innovative work behaviour (Ismiantari & Muyana, 2021). Innovative work behavior is closely related to innovation (Sulistiowati, 2018), where innovation plays an important role in the organization (Windiarsih & Etikariena, 2018). Innovative work behavior determines the economy and the future of an organization (Khasanah & Himam, 2019). Therefore human resources in an organization should be considered the main focus (Wu et al., 2020). Innovative work behavior plays an important role in any organization (Dahiya & Raghuvanshi, 2022); innovative work behavior, both individually and in groups, is a solid foundation to enable continuous organizational performance (Carmeli et al., 2006). Innovative work behavior is a great support to gain more success in the organization (Pandey et al., 2019). Therefore innovative work behavior should be considered, including the

innovative work behavior of teachers in schools.

The need for teachers to have innovative work behaviors grows in number during the 21st century (Kovacs, 2017), especially when the education system is disrupted by the COVID-19 pandemic, which has created disruptions to nearly 1.6 billion students in more than 200 countries (Pokhrel & Chhetri, 2021). Most students study from home yet have various difficulties (Putra et al., 2020) when teaching and learning activities are accordingly carried out from home (Siahaan, 2020). Students, teachers, and parents encountered various obstacles during the pandemic, including mastery of technology, internet quota fees, mentoring children to study, communication between students, teachers, and parents, and unlimited working hours (Purwanto et al., 2020). Various changes in the learning process caused by the COVID-19 pandemic require teachers to have innovative work behavior.

Research on how to improve teachers' innovative work behavior (Montani et al., 2021), especially during the COVID-19 pandemic through various variables that influence it (Faulks et al., 2021), has been carried out (Choi et al., 2021). But this research based on the Indonesian perspective, in addition to new synthesis and indicators, different methods, and results, is a novelty in this field of research. Based on the study of concepts, theories, and the results of previous research, this research puts forward a conceptual model, namely the influence of principals' leadership and organizational learning on teachers' innovative work behavior and learning organization's being positioned as an intervening variable.

Teachers' innovative work behavior is defined as the behavior of teachers (Hosseini & Shirazi, 2021) to seek and implement new ideas to improve learning and make efforts, resulting in others' acceptance of these new ideas and methods (Nguyen et al., 2021). That definition refers to innovative work behavior as the ability to generate and implement new ideas (Newman et al., 2018), emphasizing individuals who intentionally implement new and useful ideas in an organization (Kang et al., 2016). Innovative work behavior includes initiating and implementing ideas (Jong & Hartog, 2010), referring to a deliberate effort to introduce ideas and apply them to work disseminated by individuals, groups, or organizations (Akram et al., 2020). Innovative work behavior refers to an effort to revive, introduce, adopt, and/or implement ideas, processes, products, or services that are new to the organization, which ultimately benefit individuals, teams, organizations, or the wider community (Kör et al., 2021).

Principals play an important role in preventing the transmission of the COVID-19 virus, organizing schools, assigning teachers and employees, and implementing school planning (Resmi & Hasanah, 2020). Principal leadership during the COVID-19 pandemic refers to the behavior of the principal in their leadership, which is strategically sensitive, unifying, and flexible in the context of school resource utilization (Ahmad, 2020). Principal leadership during COVID pandemic 19 is downsized to the principal's behavior in developing relational leadership, implementing and taking responsibility for the common good, and developing networking and collaboration (Thornton, 2021). Principal leadership establishes a work atmosphere that shapes teacher work motivation, strengthens organizations, strengthens communication, establishes work systems, inculcates positive thinking patterns, and realizes school quality assurance (Sumarjoa et al., 2021). Principal leadership must demonstrate the ability to understand policies, adapt policies, analyze problems, find alternative solutions to problems, and maintain high teacher performance during

the COVID-19 pandemic (Nurfatimah et al., 2021).

Learning organization refers to behaviors within the organization that encourage employees to perform better, be more engaged with their work, and support the emergence of various reforms. Changes and demands on learning in the era of the COVID-19 pandemic have forced schools to become learning organizations that become more involved in carrying out their functions (Baráth, 2015). Learning organization refers to the ability of schools to continue their performance at high levels by developing a learning culture, supporting each teacher's excellence, communicating openly, collaborating, supporting teachers to share experiences, and behaving without fear of failure (Skuncikiene et al., 2009). The figure who first coined the term Learning Organization was Sange, (1990) by revealed five things that build learning organizations: personal mastery, mental models, team learning, shared vision, and thought of systems (Situmorang, 2014).

A conceptual model was established based on the background and theoretical studies (Hair et al., 2017), as shown in Figure 1. The research, which is tested utilizing path analysis, outlines the following issues: (1) Is there a positive and significant direct influence of principals' leadership (PL) on teachers' innovative work behavior (IB)? (2) Is there a positive and significant direct influence of principals' leadership (PL) on learning organization (LO)? (3) Is there a positive and significant direct influence of learning organization (LO) on the teachers' innovative work behavior (IB)? (4) Is there a positive and significant indirect influence of principals' leadership (PL) through learning organization (LO) on the teachers' innovative work behavior (IB)?

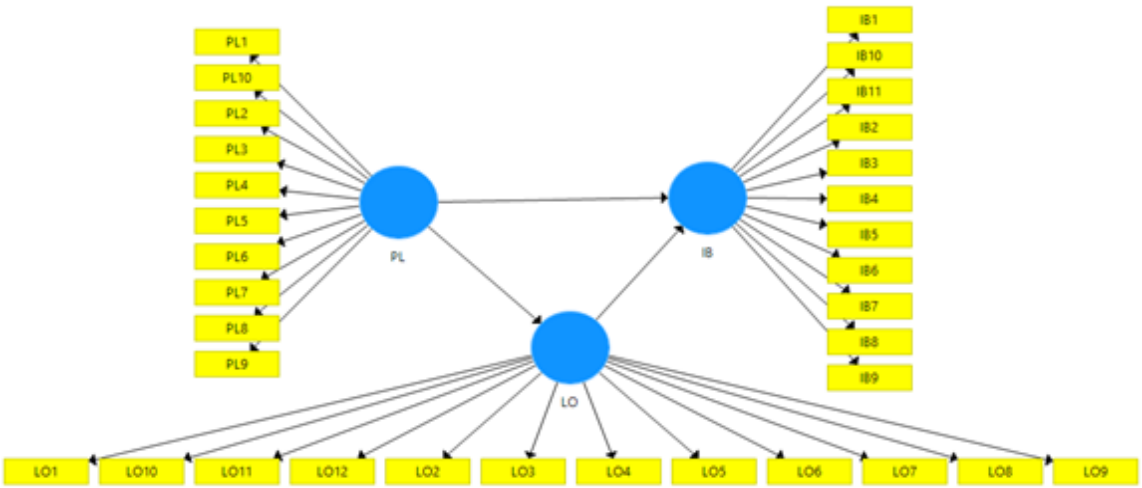

Figure 1. Research Conceptual Model

METHOD

This research tests the conceptual model utilizing path analysis (Sarwono, 2011). It was carried out over a survey method, followed by data analyses using statistics, and then presented descriptively (Tabatabaei & Ghorbi, 2014).

The participants in this research were selected through the purposive sampling technique (Etikan et al., 2016). Purposive sampling provides an opportunity for researchers to determine certain participants according to the research target (Etikan et al., 2016).

The research participants are teachers from Indonesia. This action involved 1243 respondents but used a sample of 1200. Data collection was

carried out online by distributing the instrument via the Google Form application.

The questionnaire was made based on the study of the theories and concepts (Zohrabi, 2013), principal leadership (PL), learning organization (LO), and innovative work behavior (IB). The researcher subsequently determined a synthesis of each research variable and then established indicators/statements so that the questionnaire met the criteria for content validity (Connell et al., 2018). The next steps were for the researcher to ask for experts' opinions (Akhmad et al., 2014) and conduct a readability test for ten teachers. After the questionnaire was corrected based on input from the teachers, the questionnaire was distributed to teachers in Indonesia.

The questionnaire consists of 10 indicators for the principal leadership variable (PL), including (PL1) collaborating, (PL2) the use of information and communication technology (ICT) in learning, (PL3) quality learning, (PL4) fun learning, (PL5) sharing teaching skills, (PL6) having creative ideas, (PL7) mapping school problems, (PL8) solving problems, (PL9) being a motivator for teachers, and (PL10) implementing the vision.

The questionnaire consists of 11 indicators for the teacher's innovative work behavior (IB), including (IB1) seeking new ideas, (IB2) implementing new ideas, (IB3) learning renewal, (IB4) loving challenges, (IB5) pioneering the use of ICT in learning, (IB6) mentoring other teachers, (IB7) making scientific papers, (IB8) working beyond the standard, (IB9) making various alternative learning methods, (IB10) reflecting in learning, and (IB11) struggling for others' acceptance of ideas/products.

The questionnaire consists of 12 indicators for the learning organization, including (LO1) producing creativity and learning innovation, (LO2) carrying out scientific processes, (LO3) discussing various ideas, (LO4) forming teamwork, (LO5) supervising schools, (LO6) implementing systems internal quality assurance, (LO7) training for teachers, (LO8) facilitating studies, (LO9) awarding achievements, (LO10) mutually beneficial collaboration, (LO11) school development, and (LO12) anticipating various changes.

Data collection was carried out in September 2021. Researchers provided five options of the Likert scale (Joshi et al., 2015) as responses to the questionnaire, ranging from strongly disagree to strongly agree. The respondents of this research are shown in Table 1.

Table 1. Demographics of Respondents

Variables	%
Region of Indonesia	
East	18.0
Central	24.5
West	57.5
Domicile	
Urban	54.6
Rural	45.4
Gender	
Male	27.1
Female	72.9
School Status	
Public	69.0
Private	31.0
School Level	
Primary	59.8
Junior	20.3
Senior	15.9
Others	4.0
Age	
< 30	18.0
31 – 40	39.9
41 – 50	24.6
> 50	17.5

The research data was analyzed using the SMARTPLS application (A. S. Hussein, 2015) with path analysis. Path analysis is a way to analyze the direct and indirect effects on the theoretical model being tested. Before analyzing the path, the researcher first made a model based on previous studies' concepts, theories, and results (Hamid, 2019). The conceptual model is tested using

statistical tests to obtain the final model (Hair et al., 2017). Before testing the statistical model, the researcher first tested the validity of the data, the reliability, and the normality of the data (Dan et al., 2018).

The value of the construct validity criteria on the outer loading for each latent variable is > 0.7 (Sudibjo & Prameswari, 2021). The value for measuring the reliability constructs if the value of Cronbach's Alpha, Rho A, and Composite Reliability shows > 0.7 (Hair et al., 2017).

The most important assumption test in SEM (Structural Equation Modeling) is the normality of the data, which is carried out using the critical skewedness ratio of + 2.58 (Hair et al., 2017) at a significance level of 0.05 (5%). The data can be normally distributed if the value of the critical skewedness ratio is below +2.58.

RESULT AND DISCUSSION

Derived from the test using SMARTPLS3 on partial least squares to see the validity of the research data, the results are illustrated in Figure 2.

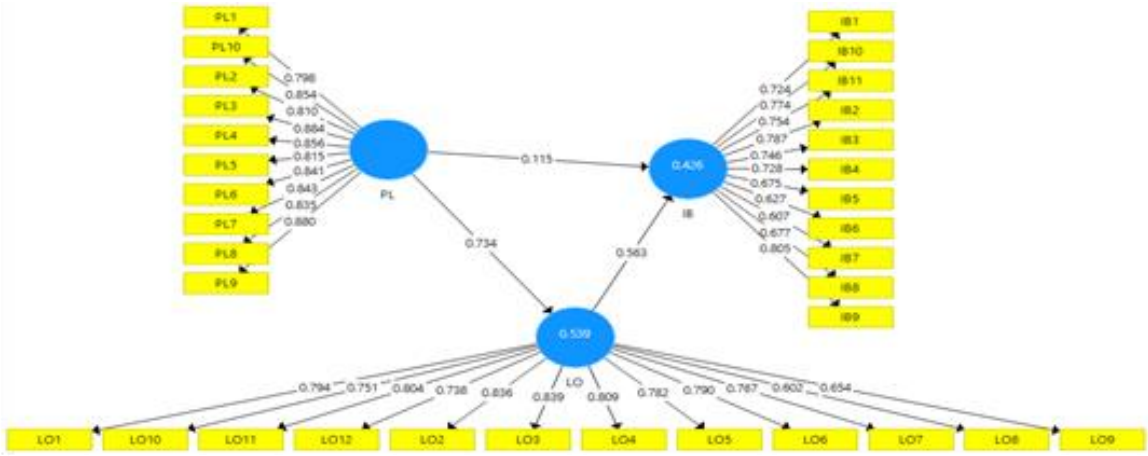

Figure 2. The Test Results of Construct Validity

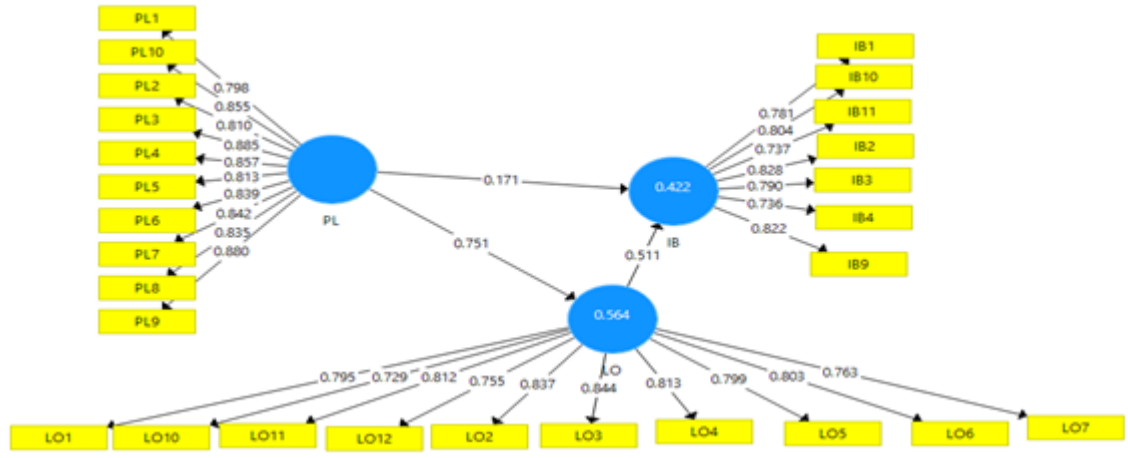

Figure 3. The Test Results of New Construct Validity

Figure 2 of this research reveals that the outer loading value of all items or indicators is > 0.5, whereas those of several items are < 0.7 (Hamid, 2019). The outer loading value limit of > 0.5 is still acceptable, provided that the validity of the research construct satisfies the requirements and the conceptual model is still fresh or being developed (Hamid, 2019). However, the researchers argue

that previous researchers have long developed the variables studied in this study, and therefore only an Outer Loading value of > 0.7 is used (Sudibjo & Prameswari, 2021). The same figure also indicates that several items have an outer loading value of < 0.7 at IB5 (pioneering the use of ICT in learning), IB6 (mentoring other teachers), IB7 (making scientific papers), IB8 (working beyond the standard), LO8 (facilitating studies), and LO9 (awarding achievements). The items with an outer loading value of < 0.7 are discarded or not used (Hair et al., 2017). The conceptual model has satisfied the requirements. Accordingly, this concludes that the relationship between the response items and the construction of the underlying latent variables has been fulfilled. The new research construct validity model is demonstrated in Figure 3.

Construct reliability refers to measuring the reliability of the latent variable construct. Values considered reliable must be above 0.70 (Hair et al., 2017), where construct reliability is considered similar to Cronbach Alpha. After fulfilling the requirements of construct validity, the next step is to analyze it.

Table 2. Construct Reliability Test Results

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
IB	0.897	0.899	0.919	0.618
LO	0.935	0.936	0.945	0.633
PL	0.954	0.955	0.961	0.709

Based on Table 2, the Cronbach's Alpha value for the latent variables of IB, LO, and PL indicates a value above 0.7, which means it has fulfilled the construct reliability requirements. The next step is to test internal consistency reliability to determine the capability of the indicators in measuring the latent construct (Hair et al., 2017). The measures for such assessment are composite reliability and Cronbach's alpha. Composite reliability values of 0.6 – 0.7 are considered good reliability, and the expected Cronbach's alpha value is above 0.7 (Hair et al., 2017). Table 2 indicates that all variables in this study have met internal consistency reliability. All of the constructs have Cronbach's Alpha values of > 0.7. Therefore all of these constructs are reliable. For example, Cronbach's Alpha of the latent variable IB is 0.897,> 0.7. Consequently, IB is reliable. In addition, other variables are of a value of > 0.7, making them all reliable. This research construct has indicated that there is no issue in measurement because, based on the table above, all constructs have satisfied the unidimensionality requirements (Hair et al., 2017), including the composite reliability value of > 0.7. For example, the composite reliability of the LO latent variable is 0.945, which is > 0.7. Therefore the LO variable is reliable. Like other variables with a value of> 0.7, all variables are reliable. This study satisfies convergent validity as the Average Variance Extracted (AVE) value has already exceeded 0.5 (Hair et al., 2017). The AVE value of 0.5 or more justifies the construct's appropriateness to explain 50% or more of the item variance. Based on Table 2, the AVE value for each variable is above 0.5. Therefore the IB, PL, and LO variables indicate zero issues in the measurement.

Before analyzing the path, the data must satisfy the normality test. The normality test results can be found in the Critical Ratio (CR) value of the skewness and kurtosis. Suppose the CR value is -2.58 to 2.58 (2.58) at a significance level of 1% (0.01). In that case, it can be concluded that the data are normally distributed in the case of both univariate and multivariate (Hair et al., 2017). Table 3 suggests that the IB, PL, and LO

variables have CR values with a range of -2.58 to 2.58 (2.58), which means that the data is normally distributed.

Table 3. The Test Results of Normality

	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
IB	0.000	0.219	-3.400	1.463	1.000	-0.272	-0.558
LO	0.000	0.208	-2.962	1.412	1.000	-0.085	-0.694
PL	0.000	0.201	-3.449	1.102	1.000	0.908	-1.124

To meet the model fit criteria, the following should be observed: the value for RMS Theta or Root Mean Square Theta should be < 0.102, the value for SRMR or Standardized Root Mean Square should be < 0.10 or < 0.08, and the value for NFI should be > 0. 9 (Hamid & Anwar, 2019). According to the fit model criteria, the value for RMS Theta or Root Mean Square Theta is 0.128, which is > 0.102, and the value for NFI is 0.844, which is < 0.9 (Rivera, 2015). Based on the two criteria for assessing the fit model, this model does not satisfy any. However, based on that for SRMR or Standardized Root Mean Square, the value is 0.056, which is < 0.10 and satisfies the criteria of a fit model.

Table 4. The Test Results of the Fit Model

	Saturated Model	Estimated Model
SRMR	0.056	0.056
d_ULS	1.192	1.192
d_G	0.643	0.643
Chi-Square	1068.650	1068.650
NFI	0.844	0.844
rms Theta	0.128	

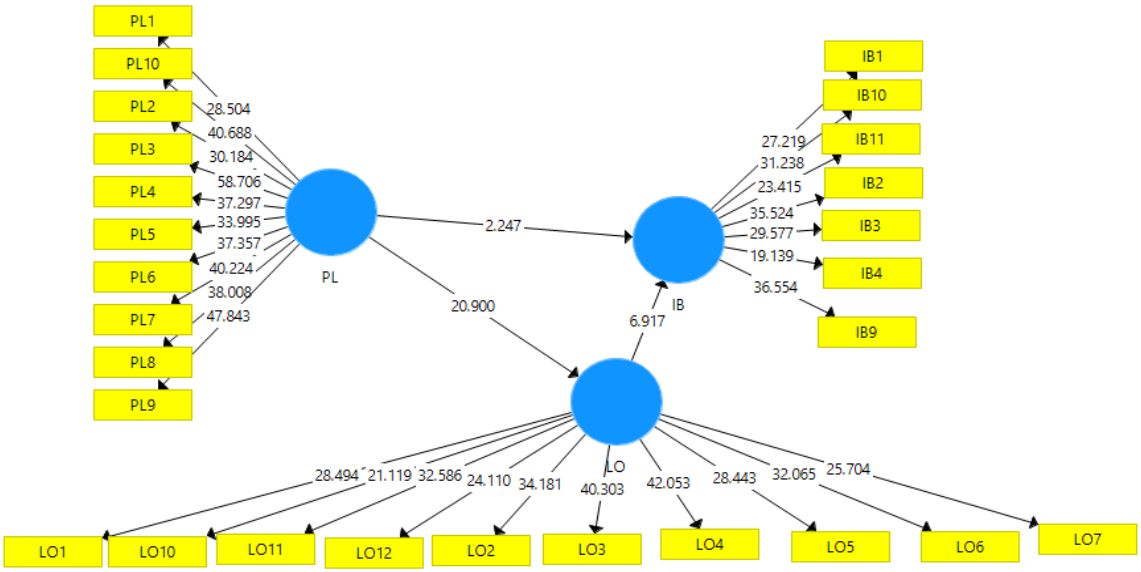

Figure 4. The Results of Model Testing Using Bootstrap

The research hypothesis test was carried out using the bootstrap resampling method on SMARTPLS (Hair et al., 2017). It allows the free distribution of data, requiring no assumption for a normal distribution. As to the statistical measurement, this research performed the t-test (Hair et al., 2017). Figure 4 illustrates the results of the t-test using the bootstrap method on SMARTPLS.

The t-test value can have a positive and significant effect if the value is > 1.96 (Hair et al., 2017). Based on the results of the bootstrap test, as illustrated in Figure 4, it was found that the value for the t-test on the effect of PL on IB was 2.247, that

is > 1.96, which means that the hypothesis that there is a direct positive and significant effect of PL on IB is accepted. The t-test value for the effect of PL on LO is 20.900, which is > 1.96, which means that the hypothesis states that there is a direct positive and significant effect of PL on LO is accepted. The t-test value for the direct effect of LO on IB is 6.917, which is > 1.96, which means that the hypothesis that a positive and significant direct effect of LO on IB is accepted. The t-test value of the indirect effect of PL on IB through LO is 6.347, which is > 1.96, which means that the hypothesis that states that there is a positive and significant indirect effect of PL on IB through LO is accepted.

Table 5. Summary of Hypothesis Testing

No	Hypothesis Formulation	Results	t-statis	p-values	Decision
1	Principals' leadership> Teachers' Innovative Work Behavior	0.171	2.247	0.013	Accepted
2	Principals' leadership> Learning Organization	0.751	20.900	0.000	Accepted
3	Learning organization> Teachers' Innovative Work Behavior	0.511	6.917	0.000	Accepted
4	Principals' leadership> Teachers' Innovative Work Behavior Through Learning Organization	0.384	6.347	0.000	Accepted

The quality of the structural model in Smart PLS can be assessed by calculating how big the R Square value is for each endogenous latent variable. The R-Square value of the principal's leadership variable is 0.029. This value explains that the principal's leadership contribution to teachers' innovative behavior is 2 %. The value of R Square for the learning organization variable is 0.261. The value of R Square explains that learning organization contributes to teachers' innovative behavior by 26 %. The R-Square value can be used for a goodness of fit assessment. The higher the Q-Square value, the better the model fits the data. The results of the calculation of the Q-Square value are as follows.

Q-Square
= 1 – [(1 – R 2 1) x (1 – R 2 2)
= 1 – [(1 – 0.026) x (1 – 0.261)
= 1 – (0.974 x 0.739)
= 1 – 0.719
= 0.280

Table 6. The R-Square Value

Construct	R-Square
Principals Leadership	0.026
Learning Organization	0.261

The instrument test results show that the three instruments used, namely the principal's leadership (PL), learning organization (LO), and the innovative work behavior of teachers, have met the requirements as valid and reliable instruments. Tested research instruments are very important in research (Brinkman, 2009). Instrument testing aims to ensure that the instruments used in the study have good validity and reliability (Ghazali, 2016). Validity and reliability are related to trust in research results (Zohrabi, 2013). Validity means that the instrument can measure what is being measured (Rahmawati, 2019), and the reliability coefficient above 0.9 indicates special (Mohamad et al., 2015).

This research evidences conceptually and statistically a direct positive and significant effect of principals' leadership (PL) on teachers' innovative work behavior (IB). Based on these findings, if the principal's leadership (PL) is improved, it will be able to increase the teacher's innovative work behavior (IB). This result ties well with previous studies that demonstrate that leadership affects teachers' innovative work behavior (Alheet et al., 2021), and

therefore, the principals' leadership must be strengthened to improve teachers' innovative work behavior (Khaola & Oni, 2020). Collaborative principal leadership (Choi et al., 2021), principal of integrity (Simons et al., 2011), creativity (Newman et al., 2018), and principal of transformative influence (Schleicher, 2017) improve the teacher's innovative behavior. This finding reinforces the findings of previous research that the principal plays a very important role (Nalda et al., 2020) in developing schools (Walker, 2021). The principal acts as a role model, performing supervising and mentoring, giving rewards and punishments, providing training, creating a work atmosphere, and giving freedom to innovate and be creative (Pangestu & Karwan, 2021), especially during the COVID-19 pandemic, where schools need their leadership (Harris, 2020).

This research evidences a direct positive and significant effect of learning organization (LO) on the teacher's innovative work behavior (IB). Based on these findings, if the learning organization (LO) improves, the innovative work behavior of teachers (IB) will also show improvement. This finding is consistent with previous research findings, which demonstrate that if the learning organization improves, it will increase innovative work behavior (Hussein et al., 2014). Characteristics of organizations that develop learning organizations include conducting training for employees (Bordeianu, 2015), sharing knowledge (İpek, 2019), anticipating the future (Faulks et al., 2021), performing creative and innovative actions (Recepoğlu, 2013), cooperating with and benefitting each other (Mu et al., 2021), establishing a pleasant environment (Savitry et al., 2021), forming a good sense of solidarity and self-confidence (Dan et al., 2018), and being able to resolve conflicts (Mu et al., 2021). All of these characteristics affect innovative work behavior in schools.

This research evidences that there is a positive and significant influence of principals' leadership (PL) on learning organization (LO) which means that if the principal's leadership improves, it will increase the learning organization (LO). If the principal succeeds in improving his leadership style, it is predictable that the atmosphere of the learning organization in the school will be better. This finding is of a similar pattern to the findings of previous research, which states that principals' leadership potentially improves learning organization (Kızıloğlu, 2021), and school principals potentially improve the quality of learning (Nurfatimah et al., 2021), in addition to transforming the schools (Nalda et al., 2020), and being able to motivate teachers to work optimally (Ahya et al., 2021; Sumarjoa et al., 2021).

This study suggests that the direct influence of learning organization (LO) is greater than the direct influence of leadership (PL) on the innovative work behavior of teachers (IB). Accordingly, if there is an action to improve the innovative work behavior of teachers, schools have limited resources. The improvement of innovative work behavior of teachers (IB) will be more effectively carried out through the variable learning organization (LO). Learning organization may potentially influence teachers' innovative work behavior through empowerment, learning dynamics and knowledge management (Prasetyo, 2012), ability to shape organizational culture (Park et al., 2014), sharing of knowledge (Akram et al., 2020), and improving the ability of organizational members to continue learning (Reese, 2018).

Innovative work behavior is substantially important (Wu et al., 2020) as it leads to better organizational performance (Jong & Hartog, 2010). Schools where teachers with innovative work behavior support will be able to carry out better learning (Johari et al., 2021), especially during the COVID-19

pandemic. This research confirms that through principal leadership and learning organization, innovative work behavior of teachers may potentially be improved towards teachers who are more capable of seeking ideas and implementing new ideas, making learning better, loving challenges (Oliveira et al., 2019), creating various alternative learning methods (Morad et al., 2021), doing reflection (Patterson et al., 2009), and struggling for the idea/product for others' acceptance (Middleton & Hall, 2021).

CONCLUSION

From the short review above, key findings emerge: (1) There is a positive and significant direct influence of principals' leadership on teachers' innovative work behavior; (2) There is a positive and significant direct influence of principals' leadership on learning organization; (3) There is a positive and significant direct influence of learning organization on the teachers' innovative work behavior; and (4) There is a positive and significant indirect effect of principals' leadership through learning organization on the teachers' innovative work behavior. Therefore, if the principals' leadership and the learning organization improve, the teachers' innovative work behavior may be strengthened. This research's implication is conclusive that improving teachers' innovative work behavior, especially during the COVID-19 pandemic, requires improvement of principals' leadership and the learning organization.

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