The Effect of Transformational Leadership and Teacher Motivation on Teacher Innovation in Secondary Schools

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ABSTRACT

This study aims to examine the influence of transformational leadership and teacher motivation on teacher innovativeness in secondary schools. In the face of the rapid transformation in education during the Industrial Revolution 4.0 era, teacher innovativeness has become a crucial factor for improving the quality of education and meeting the demands of 21st-century learning. Using a mixed-methods approach, the research began with qualitative exploration through interviews with school principals in 11 schools to identify factors affecting teacher innovativeness. The findings were validated by experts and used to construct a research model, which was then tested quantitatively with 205 teachers in private high schools in Bogor using PLS-SEM analysis.

The results demonstrate that both transformational leadership and teacher motivation have a significant and positive effect on teacher innovativeness. The dimension of intellectual stimulation in leadership and intrinsic motivation—particularly intellectual curiosity and enthusiasm—were found to be the strongest contributors. Discriminant validity tests using Fornell-Larcker and HTMT ratios confirmed the reliability of the constructs. Despite the high level of awareness and willingness to innovate among teachers, challenges remain in the implementation of innovative practices due to time constraints, administrative burdens, and limited flexibility within school systems.

This study concludes that the synergy between transformational leadership and teacher motivation fosters a conducive environment for innovation. Recommendations include strengthening transformational leadership practices, nurturing intrinsic teacher motivation, and developing supportive policies for school innovation. Future research is suggested to incorporate additional variables such as organizational climate and teacher self-efficacy using longitudinal methods to better understand the dynamics of teacher innovativeness over time.

Keywords: transformational leadership, teacher motivation, teacher innovativeness, educational innovation, mixed-method research.

INTRODUCTION

The rapid developments in the world of education in the era of the Industrial Revolution 4.0 have created significant challenges for teachers and educational institutions. Massive technological changes, globalization, and the demands of 21st-century competencies have pushed the world of education to adapt quickly and constantly create innovation. Teachers, as the spearhead in the learning process, are faced with the need to increase their innovation in creating learning strategies that are interesting, adaptive, and relevant to the times. Therefore, the development of teacher innovation has become one of the key factors in creating quality education that is able to compete at a global level (Zhu & Huang, 2023).

Improving teacher innovation cannot be separated from the leadership role of the principal and the motivation of the teacher himself. Previous research shows that transformational leadership is one of the main factors that can increase teacher innovation (Bass & Riggio, 2006). Transformational leadership is a leadership style that focuses on providing motivation, inspiration, and support for subordinates to exceed their expectations in performance and creativity (Colquitt et al., 2019). In the context of education, transformational leadership means that the principal or educational leader is able to provide a clear vision, create a conducive work climate, and encourage teachers to try new and more innovative learning methods (McShane & Von Glinow, 2018).

In addition to leadership factors, work motivation also plays an important role in increasing teacher innovation. High motivation will encourage teachers to dare to take risks, create creative learning methods, and explore more effective learning approaches (Li et al., 2019). Teachers who have high intrinsic motivation tend to be more innovative and dare to try new things because of the encouragement from within themselves. On the other hand, teachers with low motivation tend to carry out routine tasks without trying to make updates in the learning process (Manzoor et al., 2019).

The Importance of Transformational Leadership in Education

Transformational leadership in education is a leadership approach that is able to motivate teachers to go beyond personal interests for the sake of a common goal, namely creating quality education that is relevant to the needs of learners (Bass & Riggio, 2006). According to Robbins and Judge (2019), transformational leadership has four main dimensions that contribute directly to increasing teacher innovation, namely:

1. Idealized Influence - Leaders become role models and provide positive examples in the work environment. Principals who have ideal influence are able to instill positive values in the school community and motivate teachers to improve performance and creativity.

2. Inspirational Motivation - Leaders provide a clear vision and are able to mobilize followers to work together to achieve set goals. This inspirational motivation is able to create an encouragement for teachers to innovate in learning (McShane & Von Glinow, 2018).

3. Intellectual Stimulation - Leaders encourage followers to think critically, creatively, and innovatively in solving problems. Principals who provide intellectual stimulation are able to improve teachers' ability to create more interesting and effective learning (Bakker et al., 2023).

4. Individualized Consideration - Leaders pay special attention to the individual needs and potential of each teacher. This allows teachers to feel valued and motivated to continue to develop and innovate (Kinicki & Fugate, 2016).

According to research by Sunardi, Sunaryo, and Laihad (2019), there is a positive relationship between transformational leadership and teacher innovation. This means that the better teachers' perceptions of transformational leadership in schools, the higher the level of teacher innovation. The same results were reported in a study by Pramono, Notosudjono, and Tukiran (2022), which found that transformational leadership had a direct and significant positive effect on teacher innovation.

Research by Deng et al. (2023) shows that transformational leadership that is carried out effectively is positively related to teacher performance and creativity. Teachers who feel supported by leaders tend to be more willing to take risks in learning and strive to create continuous innovation.

Other research by Lee et al. (2023) also confirms that leaders who are able to manage interpersonal relationships well and instill confidence in teachers will create a work environment that encourages creativity and innovation. In the context of education, transformational leadership not only focuses on administrative management, but also creates a work atmosphere that supports collaboration and creativity.

Teacher Motivation as a Driver of Innovation

Work motivation is an internal factor that encourages teachers to achieve higher performance and create innovation in learning (Kinicki & Fugate, 2016). Teachers' work motivation can come from intrinsic or extrinsic motivation. Intrinsic motivation comes from within the teacher, such as satisfaction in teaching and the drive to make a positive contribution to students. In contrast, extrinsic motivation comes from external factors such as recognition, rewards, and support from the principal (Lai et al., 2020).

Research by Manzoor et al. (2019) shows that high work motivation has a positive correlation with teacher performance and innovation. Teachers who are highly motivated will be more courageous in trying new learning methods and more creative in conveying material to students. Work motivation also increases teachers'

endurance in facing challenges and pressures in the learning process (Jiatong et al., 2022).

Work motivation is also influenced by the organizational climate and support from the work environment. A study by Ozdemir & Cakalci (2022) found that the support of the principal, collaboration between teachers, and a positive work climate play a role in increasing teachers' motivation to innovate. Teachers who feel supported and appreciated will be more motivated to develop innovative and effective learning strategies.

Teacher Innovativeness in the Context of Education

Teacher innovativeness refers to the ability of teachers to create or adopt new ideas, methods, or strategies in the learning process (Lin, 2022). Innovative teachers are able to create a pleasant learning atmosphere, increase student participation, and create learning that is relevant to technological developments and student needs.

According to Vidergor (2023), teacher innovativeness is influenced by three main factors:

1. Leadership support - Principals who are able to provide support and trust to teachers tend to create an innovative work climate.

2. Intrinsic and extrinsic motivation - Teachers who have internal drive and receive recognition from their work environment tend to be more creative in designing learning.

3. Positive work environment - Collaboration between teachers and support from the work environment increase teachers' confidence in trying new learning methods (Suharyati et al., 2016).

Research by Berkovich & Hassan (2023) shows that principals who apply a transformational approach are able to increase teacher innovation by creating a work environment that supports creativity and self-development.

In this study, there are two research questions: 1) What approaches can be used to increase teacher innovation in secondary schools? 2) What is the impact of transformational leadership and teacher motivation on teacher innovation in secondary schools?

METHOD

The researchers used the mixed method, which is a combination of the qualitative exploratory research approach and the quantitative descriptive research approach. Exploratory qualitative research was conducted in the initial stage to explore information about the innovativeness of teachers in schools. At this stage, researchers conducted interviews with 11 schools and school principals as informants. The results of the interviews were then communicated to two experts to develop a research constellation.

Population and Sampling Technique

According to (Sugiyono, 2010), population is a generalization area consisting of objects or subjects that have certain qualities and characteristics determined by researchers to be studied and then conclusions are drawn. The population is not only people, but also objects and other natural objects. The population is also not just the number of objects/subjects studied, but includes all the characteristics/properties of the subjects or objects under study. After the research constellation was obtained, the researchers continued with quantitative research on 205 permanent teachers from the foundation spread across private high schools in Bogor.

Sampling Technique

The quantitative research stage is a continuation of the qualitative research that has been carried out previously which aims to test the Keinovatifan constellation model that has been built and to prove the research hypothesis. To measure these construct variables, a survey method was carried out on respondents, in this case the unit of analysis was a foundation in a private high school in West Jakarta in order to obtain natural empirical data.

In the POP-SDM method, the quantitative research stage is the model test (*Model Test*) stage, in which data

analysis is carried out from the results of the quantitative research. The determination of the number of research samples in the quantitative stage uses the *proportional random sampling* technique based on the Taro Yamane Formula. A sample is a part of the number and characteristics that represent and are owned by the population. In this study, the *error rate* and *confidence level* used is 5%. The following is the Taro Yamane formula (Sugiyono, 2017).

Based on the Taro Yamane formula, the number of samples in this study is: n = 423 / 1+423(0.05)2 = 205 (rounded). The research unit of analysis is the Permanent Foundation Teacher (GTY), and the sampling technique is based on the *multistage random sampling* method or gradual grouping of samples, namely (1) random selection of sample schools per sub-district in Bogor City; and (2) random selection of teacher samples (respondents) at each selected school using the *proportional random sampling* technique.

Data Collection Technique

Before collecting research data, the researcher conducted a trial of the research instrument consisting of 40 questions to 30 teachers. The collected data was then tested for validity and reliability. Research data was collected using a questionnaire distribution technique to respondents. The questionnaire, as a research instrument in a quantitative approach, collected respondents' opinions on statements provided by the researcher regarding habits or behaviors, feelings, attitudes, beliefs, values, perceptions, personality, and experiences of respondents or participants in accordance with the variables being studied. The variables studied were Teacher Creativity (Y), Transformational Leadership (X_1), and Teacher Motivation (X_2).

Research Instrument Validity Test

The validity test of the research instrument uses the Pearson Product Moment correlation method, which is carried out by correlating the scores of each question item with the total score, (Riyanto, 2013). The question item is declared valid if the calculated correlation coefficient (r count) is greater than (r table), (Riduwan, 2009).

Instrument Reliability Test

The reliability test of the research instrument uses the Alpha Cronbach formula. It is carried out on valid questions to measure the level of consistency or stability of the research instrument, with the minimum criterion of a reliability coefficient greater than 0.70. If the calculated value of the reliability coefficient is > 0.70, it is concluded that the question is reliable.

Instrument Worksheet

Statements in the instrument are arranged based on the dimensions/indicators of teacher motivation variables, namely (1) using technology, (2) managing technology, (3) assessing technology and (4) understanding technology with the following instrument writing criteria: (1) The respondent is the unit of analysis (research subject), namely the Permanent Teacher of the Foundation at GTY at a Private High School in Bogor City. (2) Assessment using a rating scale, with a rating of 5 being the highest and 1 the lowest, with the categories: (5) SA (Strongly Agree), (4) A (Agree), (3) DA (Dissagree), (2) UA (Uncertain), (1) UAD (Strongly Disagree). (3) The number of statement items is 40, consisting of 35 positive statements and 5 negative statements.

Table 1. Test the research instruments

Research Variable Instruments	Number of Questions			Reliability
	Initial	Valid	Invalid	
Teacher Innovation	40	36	4	0.970
Transformational Leadership	40	32	8	0.940
Teacher Motivation	40	35	5	0.970

Descriptive Statistical Analysis

Descriptive statistical analysis is a statistical phase in which the research results are described and analysed for a given group without making or drawing conclusions about larger groups (Setyaningsih, 2021, p. 16). In this study, descriptive statistics include: highest value, lowest value, number of classes, class interval, mean, median, mode, measure of dispersion or variability using standard deviation and score range. In addition, frequency tables and histogram graphs are also displayed. Data analysis in this study uses the Partial Least Square (PLS-SEM) method because the model constructed is the result of exploratory research.

Validity and Reliability Test of Instruments

To obtain information in the form of empirical data in quantitative research, quality instruments are needed, namely instruments that must be valid and reliable (Creswell, 2008; Sugiyono, 2017; Putri & Wahyudy, 2020). The following are the validity and reliability tests carried out in this study.

Data Validity Test

The validity test is intended to measure the accuracy of an instrument as an indicator measuring tool. An instrument is said to be valid if it can be used to measure what it is supposed to measure (Sugiyono, 2017). A valid instrument has a high validity coefficient, and vice versa, an invalid instrument has a low validity coefficient. In this study, there are two techniques used for the validity test, namely (1) Pearson product moment correlation technique to calculate the validity of Likert scale instruments; and (2) point biserial correlation technique to calculate the validity of dichotomous scale test instruments with rough numbers using the Pearson product moment correlation technique formula.

Data Reliability Test

The reliability test is carried out to determine whether the questions are reliable or not. Reliability shows the level of dependability and reliability means that it can be trusted and relied on (Arikunto, 2006). The level of reliability is indicated by a value called the reliability coefficient, which ranges from 0-1. In this study, the measurement of data reliability for interval data types uses the Alpha Cronbach method. The decision criteria are as follows:

If $r_{hitung} > r_{tabel}$, then the question item is reliable

If $r_{hitung} < r_{tabel}$, then the question item is not reliable

Statistical Hypothesis

Hypothesis testing is used to explain the level of real influence between the independent variable and the dependent variable. Hypothesis testing in the SmartPLS application is carried out on the structural model with the *bootstrapping* method by examining the t-statistic value and the probability value (p-value). The test results by looking at the t-values, using a two-way (*two-tailed test*) test criterion are > 1.65 (for a significance level of 10%), > 1.96 (for a significance level of 5%), and > 2.58 (for a significance level = 1%). In SmartPLS, the *level of p-value* used is 95%, so the influence between the two exogenous and endogenous variables is concluded to be significant if the p-value is <0.05. The hypothesis analysis is that H_1 is accepted and H_0 is rejected when the t-statistic is >1.96.

RESULT AND DISCUSSION

Result

Uji Discriminant Validity

The discriminant validity in this study was tested using the Fornell-Larcker Criterion approach to ensure that each construct used has clear differences from other constructs in the model. Discriminant validity is considered

to be achieved when the square root value of the Average Variance Extracted (AVE) of a construct is greater than the correlation of that construct with other constructs.

Based on the results of the analysis, it was obtained that the square root of the AVE for the teacher's lack of innovation construct was 0.748, for transformational leadership it was 0.780, and for teacher motivation it was 0.764. These values are placed on the diagonal in the correlation matrix and are proven to be higher than their correlation values with other constructs that are outside the diagonal. For example, the correlation between teacher innovativeness and transformational leadership is recorded at 0.734, while the correlation between teacher innovativeness and teacher motivation is 0.747. Meanwhile, the correlation between transformational leadership and teacher motivation is 0.549.

Thus, all constructs in this study have met the discriminant validity criteria based on the Fornell-Larcker approach. This shows that each latent variable in the model consistently measures different concepts, so there are no problems of overlap or redundancy between constructs. These results strengthen the validity of the structural model used in this study and support the validity of the relationships between the variables that are analysed further.

Table 3.1. Discriminant Validity – Fornell Larcker Criterion

Variable	**Teacher Innovativeness**	**Transformational Leadership**	**Teacher Motivation**
Innovativeness	0.748		
Transformational Leadership	0.734	0.780	
Teacher Motivation	0.747	0.549	0.764

Table 3.1 shows the results of the discriminant validity test using the Fornell-Larcker Criterion. This test aims to ensure that each construct in the research model has good discriminant validity, that is, it is able to distinguish itself from other constructs. In this table, the diagonal values highlighted in yellow show the square root of the *Average Variance Extracted* (AVE) for each variable, while the off-diagonal values represent the correlation between the constructs in the research model.

Based on the Fornell-Larcker principle, discriminant validity is fulfilled when the square root of the AVE (diagonal value) is greater than the correlation between constructs (off-diagonal value). From the table above, it can be seen that all diagonal values are higher than the correlation values between other constructs in the same column, for example, for the Teacher Ineffectiveness construct, the AVE square root value is 0.748, which is higher than its correlation with other constructs such as Transformational Leadership (0.734). The same is true for other constructs, such as Transformational Leadership (0.780) and Teacher Motivation (0.764).

Thus, it can be concluded that discriminant validity has been fulfilled in this research model, because each construct has a greater AVE root square value than the correlation with other constructs. This shows that each variable in the study has clear differences from one another and can be relied upon to measure the intended concept.

Table 3.2 Heterotrait Monotrait Ratio (HTMT)

Variable	**Teacher Innovativeness**	**Transformational Leadership**
Innovativeness		
Transformational Leadership	0.760	
Teacher Motivation	0.760	0.463

Table 3.2 shows the results of the discriminant validity test using the *Heterotrait-Monotrait Ratio* (HTMT). The HTMT test is used to assess whether a construct in the research model can be clearly distinguished from other

constructs. HTMT calculates the average ratio of *heterotrait-heteromethod* correlation to *monotrait-heteromethod* to assess the extent to which discrimination between constructs is achieved.

The data in the table above displays the value which is the HTMT ratio between different constructs. To fulfill discriminant validity based on the HTMT criterion, the obtained value must be below a certain threshold, usually 0.85 (some literature also mentions a looser limit, which is 0.90). All HTMT values are below 0.85, for example the relationship between Teacher Innovativeness and Transformational Leadership is 0.760, and the relationship between Teacher Innovativeness and Organizational Commitment is 0.745. Likewise, the relationship between Technology Literacy and other variables, which is in the range of 0.464 to 0.523, is still within acceptable limits.

Thus, the results of this HTMT analysis show that discriminant validity has been met in the research model, because no value exceeds the threshold. This indicates that each construct in the research model has clear differences and there is no high multicollinearity between the tested variables.

The results showed that transformational **leadership and teacher** motivation contribute significantly to increasing **teacher innovation**. This finding is in line with previous studies that emphasize the importance of leadership and motivation as the main drivers of innovative behaviour in the context of education (Bass & Riggio, 2006; Li et al., 2019).

The **innovativeness of teachers**, as an endogenous variable in this study, is in the high category with an average score of 162.50. The most dominant indicators are the ability of teachers to *improve the quality* of *learning* (4.24) and *self-development* (4.15). This indicates that teachers in general have the awareness and willingness to innovate, especially in an effort to improve the quality of the teaching and learning process. However, the indicator of *implementing innovation* received the lowest score (3.88), indicating that in practice, there are still challenges in the application of innovation in the field. This finding is in line with Lin's (2022) opinion that innovation in education requires not only ideas, but also structural support and a supportive organizational culture.

Table 3.3. Average Teacher Non-Innovativeness Indicators

Teacher Non-Innovativeness Indicators	Average Score
Improving the quality of learning	4,24
Self-development	4,15
Generating innovative ideas	4,02
Implement Innovation	3,88

One of the factors that significantly influences teachers' lack of innovation is the **transformational leadership of the school principal**. With an average score of 144.53, teachers' perceptions of transformational leadership style tend to be high. The dimension of *intellectual stimulation* was the most prominent indicator (4.05), indicating that principals encourage teachers to think critically, question old assumptions, and explore new approaches to learning. This reinforces the argument of Zhu and Huang (2023) that transformational leaders create a safe space for teachers to innovate.

However, the *individual attention* dimension received the lowest score (3.76), which indicates that the personal attention of the principal to the specific needs of teachers can still be improved. This low score can have an impact on teachers' perceptions of the support they receive, which in turn affects their courage to take innovative risks (Cheng et al., 2023).

Table 3.3. Transformational Leadership Dimensions

Indicators of Transformational Leadership	Average Score
Intellectual Stimulation	4,05

Inspirational Motivation	3,95
Ideal Influence	3,85
Individual Attention	3,76

On the other hand, **teacher motivation** also plays an important role in encouraging innovation. With an average score of 156.81 and a mode of 175, it can be seen that most teachers have a very high level of motivation. The highest indicators are *intellectual curiosity* (4.51) and *enthusiasm* (4.50), indicating that intrinsic motivation is the main driver of teachers' behavior in carrying out their duties. This is in line with Robbins and Judge's (2019) theory that intrinsic motivation is more durable and has a direct impact on initiative and creativity at work.

Interestingly, the *compensation* indicator received the lowest score (3.85), which shows that teachers are not solely motivated by financial incentives. On the contrary, job satisfaction and personal achievement are a strong foundation for building a spirit of innovation. These findings support the research of Manzoor et al. (2019), which states that a work environment supported by inspirational leadership and intrinsic work ethic will create a sustainable innovative atmosphere.

Tabel 3.4 Teacher Motivation Indicators

Teacher Motivation Indicators	**Average Score**
Intellectual Curiosity	4,51
Intellectual Curiosity	4,50
Responsibility	4,38
Compensation	3,85

Furthermore, in answering the research focus that emphasizes a *synergistic approach*, these findings show that the combination of **transformational leadership** and **teacher motivation** is able to create a stronger influence on non-innovativeness than if each stands alone. Teachers who are in a visionary and supportive leadership environment, and have high intrinsic motivation, tend to be more courageous in taking initiative, trying new strategies, and developing learning models that are more relevant to the needs of the times. Jiatong et al. (2022) state that the combination of motivating leadership and the emotional involvement of teachers creates a solid foundation for the growth of sustainable educational innovation.

However, this study also found that the implementation of innovation by teachers still faces obstacles, such as lack of time, administrative burden, and lack of room for experimentation in the school system. Therefore, in addition to strengthening leadership and motivation, more flexible school policies are needed to support innovative practices in the classroom.

Tabel 3.5 Hypothesis Testing Direct Effect

Hypothesis	**Path Coefficient**	**T Statistic**	**95% Confidence Interval**		**p-value**
			Lower Bound	**Upper Bound**	
H1. $X_1 \rightarrow Y$	0.327	5.390	0.208	0.445	0.000
H2. $X_2 \rightarrow Y$	0.319	4.569	0.185	0.46	0.000

Hypothesis testing was carried out to determine the direct effect of the independent variable on the dependent variable, namely teacher innovativeness (Y). Based on Table 3.5, the hypothesis proposed in this study shows significant results, as indicated by a *p-value* of 0.000, which is below 0.05 on all relationship paths.

The first hypothesis (H1), which states that transformational leadership (X1) affects teacher innovativeness (Y),

shows a path coefficient value of **0.327** with a *t-statistic* value of **5.390**. The 95% confidence interval for the path coefficient is in the range of 0.208 to 0.445. This shows that the effect is positive and statistically significant, so that H1 is accepted.

Furthermore, in the second hypothesis (H2), namely the effect of teacher motivation (X2) on teacher innovativeness (Y), a coefficient value of **0.319** was obtained with a *t-statistic of* **4.569**. The confidence interval range shows a lower bound of 0.185 and an upper bound of 0.460. These results indicate that teacher motivation has a significant and positive effect on teacher innovativeness.

Overall, the results of this test show that the two independent variables in the model—transformational leadership and teacher motivation—contribute positively and significantly to increasing teacher innovation. Among these independent variables, the greatest influence is shown by transformational leadership, followed by teacher motivation. These findings reinforce the importance of inspirational leadership and internal motivation as the foundation for creating an innovative learning environment.

The results of this study prove that the synergy between transformational **leadership and teacher motivation** is able to create psychological and organizational conditions that are conducive to the growth of teacher innovation. Therefore, the formation of transformational principals and the strengthening of motivational factors in teachers need to be a major concern in policies to improve the quality of education.

CONCLUSION

This study aims to analyze the effect of transformational leadership and teacher motivation on teacher innovativeness in schools. Based on the results of data analysis and discussion, it can be concluded that transformational **leadership and teacher motivation have a positive and significant effect on teacher** innovativeness.

Transformational leadership has been proven to make the greatest contribution to increasing teachers' innovativeness, especially through the dimension of intellectual stimulation that encourages teachers to think creatively and try new learning approaches. Meanwhile, teacher motivation—especially intrinsic motivation in the form of curiosity and enthusiasm—also plays an important role in encouraging teachers to continue to develop and innovate in the learning process.

In general, the synergy between inspiring leadership and teachers' internal motivation creates a work environment that is conducive to the growth of innovative ideas. This shows that teachers' lack of innovation is not only influenced by personal factors, but also by the organizational climate and support from leaders who are able to empower their subordinates.

Based on the research findings, there are several recommendations that can be used as a reference by stakeholders in the education sector:

1. **For principals**, it is advisable to continue developing a transformational leadership style, especially in terms of providing personal support to teachers and creating space for the exploration of new ideas without fear of failure.

2. **For teachers**, it is important to continue maintaining and developing intrinsic motivation through the strengthening of the values of professionalism, a spirit of lifelong learning, and involvement in innovative learning communities.

3. **For policy makers**, it is necessary to design leadership training programs for principals and strengthen work motivation for teachers, in order to create strong synergy in building a culture of innovation in schools.

4. **For further researchers**, it is advisable to expand the study by adding other variables such as organizational climate, teacher self-efficacy, or job satisfaction, as well as using a longitudinal approach to see the development of teacher ininnovation over time.

With the right strategy implementation, it is hoped that teacher ininnovation as an important element in improving the quality of education can continue to grow and have a positive impact on student learning outcomes.

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REFERENCES

1. Bakker, A. B., Hetland, J., Kjellevold Olsen, O., & Espevik, R. (2023). Daily transformational leadership: A source of inspiration for follower performance? European Management Journal, 41(5). https://doi.org/10.1016/j.emj.2022.04.004
2. Bass, B. M., & Riggio, R. E. (2006). Transformational leadership (2nd ed.). Lawrence Erlbaum Associates Publishers. https://doi.org/10.4324/9781410617095
3. Berkovich, I., & Hassan, T. (2023). Principals' digital transformational leadership, teachers' commitment, and school effectiveness. Education Inquiry. https://doi.org/10.1080/20004508.2023.2173705
4. Cheng, P., Liu, Z., & Zhou, L. (2023). Transformational Leadership and Emotional Labor: The Mediation Effects of Psychological Empowerment. International Journal of Environmental Research and Public Health, 20(2). https://doi.org/10.3390/ijerph20021030
5. Jiatong, W., Wang, Z., Alam, M., Murad, M., Gul, F., & Gill, S. A. (2022). The Impact of Transformational Leadership on Affective Organizational Commitment and Job Performance: The Mediating Role of Employee Engagement. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.831060
6. Jumini, J. (2023). Development of Teacher Innovativeness Instruments in the Face of Educational Innovation. Ideguru: journal Karya Ilmiah Guru, 8(2), 247–256. https://doi.org/10.51169/ideguru.v8i2.523
7. Lee, C. C., Yeh, W. C., Yu, Z., & Lin, X. C. (2023). The relationships between leader emotional intelligence, transformational leadership, and job performance: A mediator model of trust. Heliyon, 9(8). https://doi.org/10.1016/j.heliyon.2023.e18007
8. Li, H., Sajjad, N., Wang, Q., Ali, A. M., Khaqan, Z., & Amina, S. (2019). Influence of transformational leadership on employees' innovative work behaviour in sustainable organizations: Test of mediation and moderation processes. Sustainability (Switzerland), 11(6). https://doi.org/10.3390/su11061594
9. Lin, Q. (2022). The relationship between distributed leadership and teacher innovativeness: Mediating roles of teacher autonomy and professional collaboration. Frontiers in Psychology, 13, 948152. https://doi.org/10.3389/fpsyg.2022.948152
10. Lyubykh, Z., Gulseren, D., Turner, N., Barling, J., & Seifert, M. (2022). Shared transformational leadership and safety behaviours of employees, leaders, and teams: A multilevel investigation. Journal of Occupational and Organizational Psychology. https://doi.org/10.1111/joop.12381
11. Manzoor, F., Wei, L., Nurunnabi, M., Subhan, Q. A., Shah, S. I. A., & Fallatah, S. (2019). The

impact of transformational leadership on job performance and CSR as mediator in SMEs. Sustainability (Switzerland), 11(2). https://doi.org/10.3390/su11020436

12. Murray, W. C., & Holmes, M. R. (2021). Impacts of employee empowerment and organizational commitment on workforce sustainability. Sustainability, 13(6). https://doi.org/10.3390/su13063163
13. Nguyen, D., Pietsch, M., & Gümüş, S. (2021). Collective teacher innovativeness in 48 countries: Effects of teacher autonomy, collaborative culture, and professional learning. Teaching and Teacher Education, 106, 103463. https://doi.org/10.1016/j.tate.2021.103463
14. Özgenel, M. (2021). The effect of quality of work life on organizational commitment: A comparative analysis on school administrators and teachers. Elementary Education Online, 20(1). https://doi.org/10.17051/ilkonline.2021.01.018
15. Parlar, H., & Cansoy, R. (2017). Examining the relationship between teachers' individual innovativeness and professionalism. International Education Studies, 10(8), 1–11. https://doi.org/10.5539/ies.v10n8p1
16. Pramono, E., Notosudjono, D., & Tukiran, M. (2022). The Influence of Transformational Leadership and Self-Efficacy on Teacher Innovation in Banten Province. Journal Muara Ilmu Ekonomi Dan Bisnis, 6(2). https://doi.org/10.24912/jmieb.v6i2.22098
17. Robbins, S. P., & Judge, T. A. (2019). Organizational Behaviour (18th ed.). Pearson International Edition, Prentice Hall.
18. Shao, H., Fu, H., Ge, Y., Jia, W., Li, Z., & Wang, J. (2022). Moderating Effects of Transformational Leadership, Affective Commitment, Job Performance, and Job Insecurity. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.847147
19. Suharyati, H., Thamrin, A., & Rubini, B. (2016). Relationship between Organizational Culture, Transformational Leadership, Working Motivation to Teacher's Innovativeness. International Journal of Managerial Studies and Research, 4(3). https://doi.org/10.20431/2349-0349.0403005
20. Suhendar, A., Retnowati, R., & Ikhsan. (2022). Increasing Teacher Innovativeness Through Strengthening Self-Efficiency And Visionary Leadership. Journal Manajemen Pendidikan, 10(2). https://doi.org/10.33751/jmp.v10i2.5853
21. Sunardi, S., Sunaryo, W., & Laihad, G. H. (2019). Enhancing Innovation Through the Development of Transformational Leadership and Self-Efficacy. Journal Manajemen Pendidikan, 7(1).
22. Zhu, J., & Huang, F. (2023). Transformational Leadership, Organizational Innovation, and ESG Performance: Evidence from SMEs in China. Sustainability (Switzerland), 15(7). https://doi.org/10.3390/su15075756