

The Effects of Training, Educational Technology, And Motivation on Teacher Performance: Evidence from Tenggara Seberang State Senior High School, Indonesia

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ABSTRACT

This study aims to determine the effects of training, learning technology, and work motivation on the performance of public senior high school teachers in Tenggara Seberang. Specifically, the study examines: (1) the effect of training on teacher performance, (2) the effect of learning technology on teacher performance, (3) the effect of work motivation on teacher performance, and (4) the simultaneous effect of training, learning technology, and work motivation on teacher performance. This research employed a quantitative descriptive method with an ex post facto approach. The population consisted of all teachers of public senior high schools in Tenggara Seberang, and the sample was determined using a saturated sampling technique. Data were collected through questionnaires measuring training, learning technology, work motivation, and teacher performance. The data were analyzed using multiple linear regression with SPSS version 26.0. The results revealed that training has a significant positive effect on teacher performance. Learning technology also significantly influences teacher performance. Furthermore, work motivation has a significant positive effect on teacher performance. Simultaneously, training, learning technology, and work motivation have a significant effect on teacher performance among public senior high school teachers in Tenggara Seberang. These findings indicate that improving teacher performance requires continuous training programs, effective utilization of learning technology, and efforts to enhance teachers' work motivation.

Keywords: training, learning technology, work motivation, teacher performance, public senior high school teachers

INTRODUCTION

Problem and Its Scope

Education plays a fundamental role in developing high-quality human resources and improving national competitiveness. Within the educational system, teachers are recognized as key agents in determining the quality of learning outcomes and student achievement. Effective teacher performance contributes significantly to the success of educational institutions by fostering productive learning environments, promoting student engagement, and supporting academic excellence. Therefore, improving teacher performance has become a major concern for educational policymakers and researchers.

Despite its importance, teacher performance remains a challenge in many educational institutions. Rapid technological advancement, changes in curriculum implementation, and increasing professional demands require teachers to continuously improve their competencies and instructional practices. However, variations in teacher performance are still evident, particularly in terms of instructional effectiveness, technology integration, and professional commitment. These conditions suggest that there are several factors influencing teachers' ability to perform effectively in their professional roles.

Previous studies have identified training, learning technology, and work motivation as important determinants of teacher performance. Training programs are designed to enhance teachers' professional competencies and pedagogical skills, enabling them to respond effectively to educational changes. Likewise, learning technology has become an essential component of modern education, allowing teachers to deliver more engaging and efficient learning experiences. Furthermore, work motivation serves as an internal driving force that encourages teachers to perform their duties responsibly and achieve organizational goals.

Several empirical studies have reported positive relationships between these variables and teacher performance. Studies by Pambreni et al. (2023), Girsang (2022), and Rahmawati (2021) found that training significantly improves teacher competence and performance. Similarly, research conducted by Kusumawati et al. (2023) and Ferdinan et al. (2024) demonstrated that learning technology positively influences teaching effectiveness and professional productivity. Meanwhile, Aisyah and Isma (2022), Eliyanto (2018), and Haeranah (2023) reported that work motivation significantly contributes to higher levels of teacher performance.

However, most previous studies have examined these variables separately or within different educational contexts. Limited research has simultaneously investigated the effects of training, learning technology, and work motivation on teacher performance in a single integrated model. Furthermore, empirical evidence regarding these relationships among public senior high school teachers in Tenggara Seberang remains scarce. This limitation indicates a research gap that requires further investigation.

Significance of the study

The significance of this study lies in its contribution to educational management literature by providing empirical evidence regarding the simultaneous effects of training, learning technology, and work motivation on teacher performance. The findings are expected to assist school administrators and policymakers in developing effective strategies to improve teacher performance and educational quality. Additionally, this study expands the existing body of knowledge by focusing on public senior high schools in Tenggara Seberang, an area that has received limited attention in previous research.

Statement of the Problem

The purpose of this study is to examine the effects of training, learning technology, and work motivation on teacher performance among public senior high school teachers in Tenggara Seberang.

Specifically, this study seeks to answer the following research questions:

1. Does training significantly affect teacher performance among public senior high school teachers in Tenggara Seberang?
2. Does learning technology significantly affect teacher performance among public senior high school teachers in Tenggara Seberang?
3. Does work motivation significantly affect teacher performance among public senior high school teachers in Tenggara Seberang?
4. Do training, learning technology, and work motivation simultaneously affect teacher performance among public senior high school teachers in Tenggara Seberang?

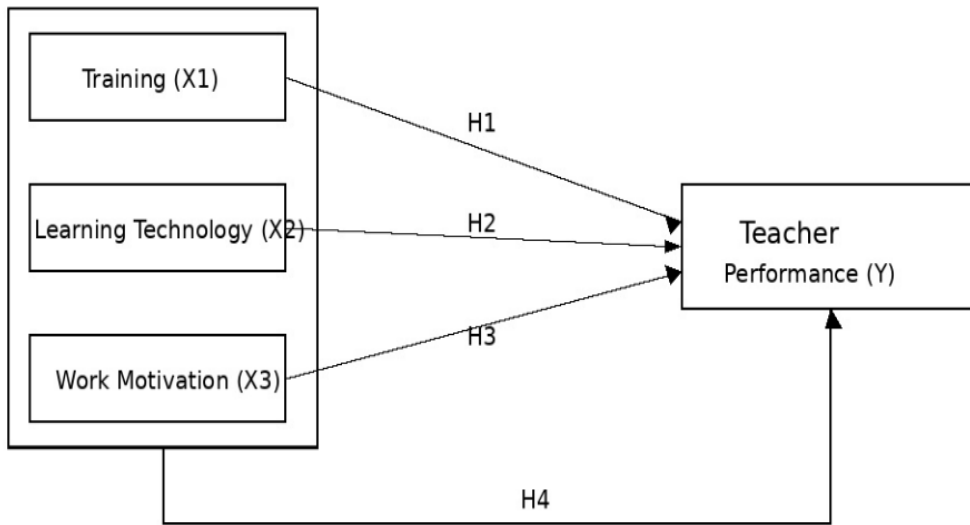
Hypothesis

H1: Training has a significant positive effect on teacher performance.

H2: Learning technology has a significant positive effect on teacher performance.

H3: Work motivation has a significant positive effect on teacher performance.

H4: Training, learning technology, and work motivation simultaneously have a significant positive effect on teacher performance.



the conceptual framework of this study, which examines the effects of training, learning technology, and work motivation on teacher performance. In this framework, training (X1), learning technology (X2), and work motivation (X3) serve as the independent variables, while teacher performance (Y) functions as the dependent variable.

Training (X1) is hypothesized to have a direct effect on teacher performance. Effective training programs enhance teachers' professional competencies, pedagogical skills, and instructional capabilities, thereby enabling them to perform their duties more effectively. This relationship is represented by the first hypothesis (H1).

Learning technology (X2) is also expected to influence teacher performance. The integration of technology into teaching and learning activities can improve instructional effectiveness, increase student engagement, and support innovative educational practices. Therefore, the relationship between learning technology and teacher performance is examined through the second hypothesis (H2).

Work motivation (X3) is proposed as another important determinant of teacher performance. Teachers with higher levels of motivation tend to demonstrate greater commitment, responsibility, and productivity in carrying out their professional tasks. This relationship is represented by the third hypothesis (H3).

Teacher Performance (Y) is defined as the level of effectiveness with which teachers perform their professional duties, including planning instruction, conducting teaching and learning activities, assessing student achievement, and fulfilling professional responsibilities. Higher levels of teacher performance indicate greater effectiveness in achieving educational objectives and supporting student learning outcomes.

In addition to the individual effects, this study also investigates the simultaneous influence of training, learning technology, and work motivation on teacher performance. The combined contribution of these three independent variables is examined through the fourth hypothesis (H4). This integrated framework provides a comprehensive understanding of the factors that contribute to improving teacher performance in public senior high schools in the Tenggara Seberang area.

METHODOLOGY

Research Design

This study employed a quantitative approach using an **ex post facto** research design. The ex post facto design was considered appropriate because the study examined the relationships among naturally occurring variables without manipulating the independent variables. The research focused on analyzing the effects of training, learning technology, and work motivation on teacher performance in public senior high schools within Tenggara Seberang District, Kutai Kartanegara Regency, East Kalimantan, Indonesia. The study was conducted during the 2025/2026 academic year.

Research Instrument

The research instrument consisted of a structured questionnaire designed to measure educational technology, work motivation, training, and teacher performance. The instrument was developed based on established theoretical frameworks and empirical studies in the fields of educational management and human resource development.

Educational technology was measured using indicators adapted from Purwanto (2017), including the availability of technological facilities, accessibility of digital learning resources, teachers' ability to utilize technology in the learning process, integration of technology into instructional activities, and the effectiveness of technology in supporting teaching and learning. These indicators were selected because they represent the extent to which technology facilitates instructional practices and contributes to teachers' professional effectiveness.

Work motivation was measured using indicators proposed by Hamzah (2017), consisting of intrinsic and extrinsic motivational dimensions. The intrinsic dimension included responsibility in carrying out tasks, goal orientation, achievement satisfaction, self-development, and commitment to work objectives. The extrinsic dimension included recognition, rewards, support from supervisors, appreciation from colleagues, and compliance with organizational expectations. These indicators were used to capture both personal and environmental factors that influence teachers' motivation in performing their professional duties.

Training was measured using indicators developed by Meithiana and Ansory (2018), including training objectives, trainer competence, training materials, training methods, and participant engagement. These indicators were employed to assess the effectiveness of training programs in improving teachers' knowledge, skills, and professional competencies required for educational activities.

Teacher performance was measured based on dimensions proposed by Mangkunegara (2017), including work quality, work quantity, responsibility, cooperation, and initiative. Work quality referred to the accuracy, thoroughness, and effectiveness of teachers' work outcomes. Work quantity represented productivity and timely completion of assigned tasks. Responsibility reflected accountability in fulfilling professional obligations. Cooperation assessed teachers' ability to collaborate with colleagues and contribute to organizational goals. Initiative referred to teachers' capability to independently solve problems and perform tasks without direct supervision.

The questionnaire employed a four-point Likert scale to measure respondents' perceptions of educational technology, work motivation, training, and teacher performance. The response categories consisted of Never (1), Rarely (2), Often (3), and Very Often (4). The use of a four-point scale was intended to eliminate the neutral option and encourage respondents to provide more decisive responses, thereby improving the instrument's ability to distinguish variations in respondents' perceptions and experiences.

Population of the Study

The target population consisted of all teachers employed in public senior high schools located in Tenggara Seberang. These schools were selected because they represent the main public secondary education institutions in the district. The population comprised 92 teachers actively engaged in teaching and learning activities during the period of data collection. The distribution of teachers included 17 teachers from SMA Negeri 1 Tenggara Seberang, 18 teachers from SMA Negeri 2 Tenggara Seberang, 16 teachers from SMA Negeri 3 Tenggara Seberang, and 41 teachers from SMA Negeri 1 Tenggara.

Sample

Considering that the population was relatively small and accessible, this study employed a saturated sampling technique (census sampling), whereby all members of the population were included as research respondents. Therefore, the sample consisted of all 92 teachers from the four public senior high schools in Tenggara Seberang. The use of saturated sampling was intended to enhance representativeness and provide a comprehensive understanding of the relationships among training, learning technology, work motivation, and teacher performance.

Validity and Reliability

The research instrument was developed based on indicators derived from previous studies and relevant theoretical frameworks concerning training, learning technology, work motivation, and teacher performance. Content validity was established through expert judgment to ensure the appropriateness of questionnaire items with the research objectives. Subsequently, empirical testing was conducted using the Pearson Product-Moment correlation technique to assess item validity. An item was considered valid when the calculated correlation coefficient exceeded the critical value at a significance level of 0.05.

Instrument reliability was evaluated using Cronbach's Alpha coefficient. A Cronbach's Alpha value greater than 0.60 indicated acceptable internal consistency and confirmed the suitability of the instrument for data collection.

Analysis and Interpretation of Data

Data were collected using a structured questionnaire consisting of closed-ended items. The questionnaire employed a four-point Likert scale ranging from 1 (**Never**) to 4 (**Very Often**) to measure respondents' perceptions regarding training, learning technology, work motivation, and teacher performance.

Prior to hypothesis testing, several classical assumption tests were conducted, including normality, linearity, multicollinearity, and heteroscedasticity tests. Normality was examined using the Kolmogorov–Smirnov test, while multicollinearity was assessed through Variance Inflation Factor (VIF) and tolerance values. Heteroscedasticity was tested using the Glejser method.

The collected data were analyzed using **IBM SPSS Statistics Version 26**. Descriptive statistics were used to summarize respondents' characteristics and research variables. Furthermore, multiple linear regression analysis was employed to examine the effects of training (X_1), learning technology (X_2), and work motivation (X_3) on teacher performance (Y). The regression model can be expressed as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

where Y represents teacher performance, X_1 denotes training, X_2 represents learning technology, X_3 denotes work motivation, α is the constant, β_1 – β_3 are regression coefficients, and ε is the error term.

Hypothesis testing was conducted using **t-tests** to determine the partial effects of each independent variable and an **F-test** to examine their simultaneous effect on teacher performance. The coefficient of determination (R^2) was also calculated to determine the proportion of variance in teacher performance explained by the independent variables. Statistical significance was established at the 0.05 level.

RESULTS

Prior to hypothesis testing, prerequisite analyses were conducted, including tests of normality, linearity, and multicollinearity. All statistical analyses were performed using IBM SPSS Statistics Version 26.0 for Windows.

Normality Test

The normality of the data was assessed using the One-Sample Kolmogorov–Smirnov test. The results indicated a significance value of **0.180**, which exceeded the threshold of 0.05. Therefore, the residual data were considered normally distributed, indicating that the normality assumption required for multiple linear regression analysis was satisfied.

Table 1. Normality Test Result

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		92
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	4.11635387
Most Extreme Differences	Absolute	.092
	Positive	.062
	Negative	-.092
Test Statistic		.092
Asymp. Sig. (2-tailed)		.053 ^c

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.

The findings confirm that the data met the assumption of normality and were suitable for further parametric statistical analysis.

Linearity Test

The linearity test was conducted to determine whether the relationships between the independent variables and teacher performance were linear. The results are presented in Table 2.

Table 2. Linearity Test Result

Variable	Sig. Value (Deviation from Linearity)	Criterion	Conclusion
X1 (Training)	0,215	>0,05	Linear
X2 (Learning Technology)	0,415	>0,05	Linear
X3 (Work Motivation)	0,142	>0,05	Linear

The significance values for all independent variables exceeded 0.05, indicating that the relationships between motivation, training, learning technology, and teacher performance were linear and met the requirements for multiple linear regression analysis.

Multicollinearity Test

The multicollinearity test was performed to examine whether strong correlations existed among the independent variables. Variance Inflation Factor (VIF) and tolerance values were used as indicators.

Table 3. Multicollinearity Test Result

Variable	Nilai (Variance Inflation Factor)	VIF Criterion	Tolerance Value	Tolerance Criterion	Conclusion
X1 (Training)	2,146	<10	0,466	<0,10	No Multicollinearity Detected
X2 (Learning Technology)	2,457	<10	0,407	<0,10	No Multicollinearity Detected
X3 (Work Motivation)	2,018	<10	0,496	<0,10	No Multicollinearity Detected

All VIF values were below 10 and tolerance values exceeded 0.10, indicating the absence of multicollinearity among the independent variables.

Hypothesis Testing

Hypothesis testing was conducted using multiple linear regression analysis to examine the effects of motivation, training, and learning technology on teacher performance.

Partial Effect Test (t-Test)

The t-test was employed to investigate the individual contribution of each independent variable to teacher performance. The results are presented in Table 4.

Table 4. Partial Effect Test Result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	27.638	3.019		9.156	<0.001
	X1 (Training)	-.483	.109	-.493	-4.425	<0.001
	X2 (Learning Technology)	-.471	.128	-.441	-3.694	<0.001
	X3 (Work Motivation)	1.075	.123	.946	8.754	<0.001

The findings indicate that motivation significantly affected teacher performance ($t = -4.667$; $p < 0.05$). The negative regression coefficient suggests an inverse relationship between motivation and teacher performance within the observed dataset.

Training also demonstrated a significant effect on teacher performance ($t = -2.211$; $p < 0.05$). The negative coefficient indicates that variations in training were significantly associated with teacher performance.

Meanwhile, learning technology showed a significant positive effect on teacher performance ($t = 10.454$; $p < 0.05$). This result suggests that greater utilization of learning technology was associated with improved teacher performance.

Therefore, **H1, H2, and H3 were accepted**, indicating that motivation, training, and learning technology significantly influenced teacher performance.

Simultaneous Effect Test (F-Test)

The simultaneous effect of motivation, training, and learning technology on teacher performance was examined using the F-test. The results are presented in Table 5.

Table 5. Simultaneous Effect Test Result

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	349.135	3	116.378	38.739	.000 ^b
	Residual	264.368	88	3.004		
	Total	613.503	91			
a. Dependent Variable: Y						
b. Predictors: (Constant), X3, X1, X2						

The F-test result showed that motivation, training, and learning technology simultaneously exerted a significant effect on teacher performance ($F = 38.739$; $p < 0.05$). Therefore, **H4 was accepted**, confirming that the independent variables jointly contributed to variations in teacher performance among public senior high school teachers in Tenggara Seberang.

Coefficient of Determination (R²)

The coefficient of determination was calculated to determine the explanatory power of the regression model. The results are presented in Table 6.

Table 6. Coefficient of Determination Result

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.754 ^a	.569	.554	1.73326
a. Predictors: (Constant), X3, X1, X2				

The coefficient of determination (R²) was **0.569**, indicating that **56.9%** of the variation in teacher performance could be explained by motivation, training, and learning technology. The remaining **43.1%** was influenced by other factors not included in the present study.

Overall, the findings demonstrate that learning technology, training, and motivation play important roles in explaining teacher performance among public senior high school teachers in Tenggara Seberang, with learning technology showing the strongest positive contribution to the regression model.

DISCUSSION

Influence of Work Motivation on Teacher Performance

The findings revealed that work motivation significantly influenced teacher performance among public senior high school teachers in Tenggara Seberang ($t = -4.667$; $p < 0.05$). These results indicate that motivational factors play an important role in shaping teachers' professional commitment, instructional effectiveness, and overall job performance. Although the regression coefficient was negative, the statistical significance confirms that motivation remains an important determinant of teacher performance within the observed context.

This finding is consistent with motivational theories proposed by Maslow and Herzberg, which emphasize that employees perform more effectively when their psychological and professional needs are fulfilled. Teachers who feel valued, secure, and supported are more likely to demonstrate stronger commitment toward achieving educational goals. In addition, intrinsic motivation, such as personal achievement and professional growth,

together with extrinsic motivation, including recognition and organizational support, contributes substantially to improving teacher performance.

The findings are also in line with previous studies that identified motivation as a significant predictor of teacher effectiveness, instructional quality, and educational outcomes (Hamzah, 2017; Mahdum et al., 2019; Collie & Perry, 2019). Motivated teachers tend to demonstrate greater adaptability to educational changes, engage more actively in professional development activities, and implement innovative teaching strategies. Therefore, educational institutions should create supportive working environments that strengthen teachers' motivational quality and professional engagement.

Influence of Training on Teacher Performance

The results demonstrated that training significantly influenced teacher performance ($t = -2.211$; $p < 0.05$). This finding highlights the importance of continuous professional development in enhancing teachers' competencies, pedagogical skills, and professional readiness.

Training provides opportunities for teachers to acquire updated knowledge, improve instructional practices, and adapt to evolving educational demands. Effective training programs help teachers develop both technical and pedagogical competencies required to deliver high-quality instruction. Furthermore, training encourages professional reflection and continuous improvement, enabling teachers to respond more effectively to classroom challenges.

These findings support previous studies emphasizing that well-designed professional development programs positively affect teacher competence and performance (Darling-Hammond et al., 2017; Baecher & Chung, 2020). Teachers who participate in relevant and practice-oriented training programs are more likely to implement innovative teaching methods and achieve higher levels of instructional effectiveness. Consequently, schools should prioritize sustainable and needs-based training initiatives to improve educational quality.

Influence of Learning Technology on Teacher Performance

Learning technology was found to have a significant positive effect on teacher performance ($t = 10.454$; $p < 0.05$). Among all independent variables, learning technology demonstrated the strongest contribution to teacher performance.

The integration of technology into teaching and learning processes enables teachers to access diverse educational resources, improve communication with students, and implement more flexible and engaging instructional strategies. Teachers who effectively utilize digital technologies are better equipped to support student learning and adapt to contemporary educational challenges.

This finding supports the view that technology serves as a critical component of modern educational practice. According to learning technology theory, technological tools facilitate the delivery, management, and evaluation of learning activities. Previous studies have similarly reported that educational technology enhances teaching effectiveness, learning accessibility, and instructional innovation (Ariani, 2019; Salsabila et al., 2020; Syamsuar & Reflianto, 2019). Therefore, strengthening teachers' technological competencies should become a strategic priority for educational institutions.

Joint Contribution of Work Motivation, Training, and Learning Technology to Teacher Performance

The simultaneous analysis revealed that work motivation, training, and learning technology collectively exerted a significant influence on teacher performance ($F = 38.739$; $p < 0.05$). The coefficient of determination ($R^2 = 0.569$) indicated that 56.9% of the variation in teacher performance could be explained by the combined effects of these three variables.

These findings suggest that teacher performance is not determined by a single factor but rather emerges from the interaction of motivational, professional, and technological dimensions. Motivation encourages teachers to perform their responsibilities effectively, training enhances their competencies, and learning technology provides tools that facilitate instructional innovation and efficiency.

The results support performance management theory, which emphasizes that employee performance is shaped by the interaction of individual, organizational, and developmental factors. Consequently, efforts to improve teacher performance should adopt a comprehensive approach that simultaneously strengthens motivation, expands professional development opportunities, and promotes the effective integration of learning technology.

Implications and Research Limitations

The findings have important implications for educational management and policy. School leaders should develop strategies that foster teacher motivation through recognition, supportive work environments, and opportunities for professional growth. In addition, continuous training programs should be aligned with teachers' professional needs and educational challenges. Investments in technological infrastructure and digital literacy development are equally important to support effective teaching and learning practices.

Despite its contributions, this study has several limitations. First, the use of self-report questionnaires may introduce response bias because the data relied entirely on respondents' perceptions. Second, the study did not employ data triangulation methods, which may affect the robustness of the findings. Third, the research was limited to public senior high schools in Tenggara Seberang, thereby restricting the generalizability of the results to other educational settings.

Future research is encouraged to incorporate additional variables such as leadership style, organizational climate, job satisfaction, and institutional support to obtain a more comprehensive understanding of factors influencing teacher performance. Longitudinal and mixed-method approaches may also provide deeper insights into the dynamic relationships among motivation, training, learning technology, and teacher performance.

CONCLUSION

This study examined the effects of work motivation, training, and learning technology on teacher performance in public senior high schools in Tenggara Seberang. The findings revealed that work motivation has a positive and significant effect on teacher performance. Teachers with higher levels of motivation tend to demonstrate greater commitment, responsibility, and effectiveness in carrying out their professional duties. Likewise, training was found to significantly improve teacher performance by enhancing pedagogical knowledge, professional competence, and instructional skills. Teachers who actively participate in relevant and continuous professional development programs are better equipped to adapt to educational changes and improve the quality of learning.

The results also showed that learning technology has a positive and significant influence on teacher performance. The integration of digital learning tools, online learning platforms, and technology-based instructional media enables teachers to deliver more effective, efficient, and innovative learning experiences. Furthermore, the simultaneous analysis demonstrated that work motivation, training, and learning technology collectively have a significant effect on teacher performance, explaining 57% of the variance in teacher performance. This finding indicates that teacher performance is influenced by a combination of personal, professional, and technological factors rather than by a single determinant.

Overall, the study confirms that improving teacher performance requires an integrated approach that combines motivational support, continuous professional development, and effective utilization of learning technology. These factors are essential for strengthening educational quality and supporting sustainable school improvement.

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