The Influence of Digital Training, Digital Literacy and The Work Environment on Teachers Digital Competencies Which Impact Teacher Performance in the Era of Education Digitalization

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Abstract

In the era of educational digitalization, teachers' digital competence is very important to improve the quality of learning. This study aims to analyze the influence of digital training, digital literacy, and work environment on teachers' digital competence which has an impact on teacher performance in SMA and SMK Cahaya Sakti, East Jakarta. The research method used was quantitative with a path analysis approach and involved 44 respondents who were teachers at the institution. The results showed that digital training did not have a significant influence on teachers' digital competence, with a T-statistical value of 1.395 and a P-value of 0.082. On the other hand, digital literacy was proven to have a significant influence on digital competence (T-statistic 3.114, P-value 0.001) and the work environment also had a significant effect (T-statistic 1.926, P-value 0.027). Teachers' digital competence has a positive and significant effect on teacher performance (T-statistic 3.264, P-value 0.001). However, digital literacy and the work environment did not show a significant influence on teacher performance. Based on these findings, it is recommended that Cahaya Sakti High School and Vocational School improve digital training programs that are more focused and applicative, as well as integrate digital literacy in the teacher development curriculum. Additionally, it is important to create a work environment that supports educational technology innovation. With these measures, it is hoped that teachers' digital competence can be improved, which in turn will have a positive impact on their performance in the learning process. Further research is also needed to explore other factors that can affect digital competence and teacher performance

Keywords: Digital Training, Digital Literacy, Teacher Performance

INTRODUCTION

Educational Human Resources (HR) include teachers, education staff, school principals, supervisors, and all people involved in the implementation of education. Human resources are strategic assets that determine the quality of the process and

learning outcomes. The role of teachers as the main driver of learning is very important to determine students' abilities (Panjaitan & Hafizzah, 2025).

The digital world has brought major changes in the education system, especially in learning methods. The shift from conventional to digital learning encourages teachers to improve their digital skills (Silfya & Siagian, 2024). The development of information and communication technology (ICT) requires teachers to not only be able to operate technological devices, but also to be able to integrate them into the learning process. Teachers who are able to use technology well will have more opportunities to succeed in the classroom.

Teachers' digital engagement includes not only the technical ability to use digital devices, but also digital literacy, which is the ability to manage information critically and ethically (Pebriana et al., 2025). Therefore, it is important to examine how digital training, digital literacy, and the work environment impact teachers' digital competencies, especially in relation to teacher performance.

One of the strategic efforts to improve teachers' digital competence is digital training. This training includes the ability to use educational software, use media, and develop technology-based teaching materials. Well-designed training is able to significantly improve teachers' digital competence, make them more confident and successfully incorporate technology into the learning process.

Digital literacy is another important component in improving teachers' digital competence. Digital literacy includes technical abilities in addition to the ability to understand, analyze, and use digital information critically and creatively. In the context of education, digital literacy helps teachers filter out relevant information and use it effectively to help students learn (Achmadi et al., 2024).

In addition, a teacher's work environment greatly influences their digital skill development. A supportive work environment includes adequate technological infrastructure, stable internet access, and a work culture that encourages cooperation and innovation. Conversely, an unsupportive work environment can be a barrier for teachers to develop their digital skills (Ulfa et al., 2024).

Teachers' performance is directly correlated with their digital abilities. Teachers with good digital skills tend to be more creative in teaching methods, use technology better, and increase student engagement. Not only does student learning outcomes improve due to good teacher performance, but it also helps achieve overall educational goals (Ahyani et al., 2024).

The national agenda to accelerate digital transformation in the education sector is also related to the development of teachers' digital competencies. Through the Merdeka Learning program, the government emphasizes the use of technology to make learning more suitable and in accordance with the future. Therefore, improving teachers' digital capabilities has an impact on individual performance and the quality of national education (Hadiningrat et al., 2024).

In addition, building a supportive work environment is an important part of developing teachers' digital competencies. Schools must have technological

infrastructure, ongoing training, and a work environment that encourages innovation. Efforts to improve teachers' digital capabilities may not succeed without support.

Teachers' digital competence greatly affects their performance. Teachers who are able to use technology effectively will be better able to make the classroom more interactive and engaging. This will result in better learning outcomes and overall student satisfaction (Suyuti et al., 2023). More digital literacy not only teaches teachers technical skills, but also builds awareness of the importance of using technology in a moral way. In addition, digital literacy helps teachers use social media and other digital platforms to support education.

The availability of relevant software and hardware, easy access to training, and a work culture that supports innovation are all factors that shape a work environment that supports the development of digital skills (Nikmah et al., 2023). To build a technology-based learning ecosystem, these elements are essential.

This research has a scope that focuses on the influence of digital training, digital literacy and work environment on teachers' digital competence which has an impact on teacher performance in the era of educational digitalization in SMA-SMK Cahaya Sakti Jakarta Timur. This study aims to analyze the influence of digital training, digital literacy, and the work environment on teacher competence and performance at SMA-SMK Cahaya Sakti, East Jakarta.
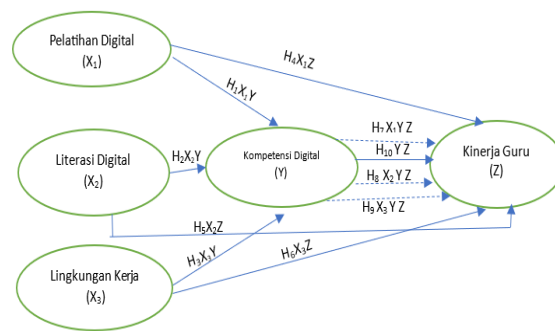
The subject of this study involves all teachers who teach at SMA-SMK Cahaya Sakti East Jakarta. There are 20 teachers at SMA Cahaya Sakti East Jakarta and 24 teachers at SMK Cahaya Sakti East Jakarta.

METHODS

This study uses a quantitative research method. According to Sugiyono (2022), quantitative research methods can be interpreted as research methods based on the philosophy of positivism, used to research on certain populations or samples, data collection using research instruments, data analysis is quantitative/statistical, with the aim of testing predetermined hypotheses.

The research model used is a causal model that measures the influence of independent variables on bound variables according to Alwy et al. (2024), which can be seen as follows:

Figure 1.
Research Model

Source : Processed by the researcher (2025)

This study uses quantitative analysis. To make analysis and understanding easier, the data that has been obtained will be presented in the form of a table. The SPSS, SEM PLS programs will be used to analyze the collected research data.

RESULTS AND DISCUSSION
A. Digital Training Overview (X1)

Digital training is very important in learning at SMA and SMK Cahaya Sakti East Jakarta because it helps increase students' access to various learning resources, prepare them for an all-digital world of work, and improve collaboration and communication skills through digital platforms. Additionally, technology allows for more creative and innovative learning, and can be tailored to individual needs, making it more effective.

Table 1.

Results of Indicator Analysis X1

Indicator X - 1	5	4	3	2	1	Sum	Weight	Index	Information
Training Frequency (X1.1)	11	26	6	1	0	44	179	4,1	Good
	25,00%	59,09%	13,64%	2,27%	0,00%	100%			
Training Duration (X1.2)	9	23	8	4	0	44	169	3,8	Good
	20,45%	52,27%	18,18%	9,09%	0,00%	100%			
Quality of Training Materials (X1.3)	14	25	5	0	0	44	185	4,2	Good
	31,82%	56,82%	11,36%	0,00%	0,00%	100%			
Relevance of Training (X1.4)	18	21	4	1	0	44	188	4,3	Excellent
	40,91%	47,73%	9,09%	2,27%	0,00%	100%			

Source : processed by researcher (2025)

From the data presented, the X1.4 indicator received the highest score with an index of 4.3 and was in the "Excellent" category which shows that this aspect received the most appreciation from respondents. This indicates that the digital training measured through this indicator has been well implemented and the benefits are felt by teachers at SMA and SMK Cahaya Sakti East Jakarta. Meanwhile, the X1.2 indicator has the lowest score

with an index of 3.8 and is in the "Good" category, which means that this aspect can still be further developed to achieve higher optimization.

Overall, a high index score in all indicators shows that Digital training at SMA and SMK Cahaya Sakti East Jakarta has been implemented effectively and efficiently, in the implementation of the learning process in the classroom. The results of the assessment showed that the majority of aspects of Digital Training at SMA and SMK Cahaya Sakti East Jakarta were in the "Good" category, with an index ranging from 3.8 to 4.3 with an average of 4.1 in the "Good" category.

B. Digital Literacy (X2)

Digital literacy is very important in supporting the learning process at SMA and SMK Cahaya Sakti East Jakarta because it allows them to utilize technology in delivering material more effectively and interestingly. By mastering digital literacy, teachers can access various learning resources, use online learning platforms, and communicate with students more efficiently (Hetilaniar et al., 2023). It also facilitates teachers in developing innovative learning methods, such as multimedia-based learning or online collaboration, which can increase student engagement and motivation.

Table 2.
Results of Indicator Analysis X2

Indicator X - 2	5	4	3	2	1	Sum	Weight	Index	Information
Ability to Access and Use Technology (X2.1)	17	25	2	0	0	44	191	4,3	Excellent
	38,6%	56,8%	4,5%	0%	0%	100%			
Creating and Collaborating in the Digital World (X2.2)	13	29	2	0	0	44	187	4,3	Excellent
	29,5%	65,9%	4,5%	0,0%	0,0%	100%			
Critical to Digital Information and Resources (X2.3)	12	25	7	0	0	44	181	4,1	Good
	27,3%	56,8%	15,9%	0,0%	0,0%	100%			
Digital Security Awareness (X2.4)	27	16	1	0	0	44	202	4,6	Excellent
	61,4%	36,4%	2,3%	0,0%	0,0%	100%			
Ethical Behavior in the Digital World (X2.5)	32	12	0	0	0	44	208	4,7	Excellent
	72,7%	27,3%	0,0%	0,0%	0,0%	100%			

Source : Data processed by researchers (2025)

From the data presented, the X2.5 indicator received the highest score with an index of 4.7 and was in the "Excellent" category which shows that this aspect received the most appreciation from respondents. This indicates that digital literacy measured through this indicator has been implemented well and the benefits are felt by teachers at SMA and SMK Cahaya Sakti East Jakarta. Meanwhile, the X1.2 indicator has the lowest score with

an index of 4.1 and is in the "Good" category, which means that this aspect can still be further developed to achieve higher optimization.

Overall, high index scores in all indicators show that Digital literacy in SMA and SMK Cahaya Sakti East Jakarta has been implemented well. In general, the results of the assessment show that the majority of aspects of Digital Literacy in SMA and SMK Cahaya Sakti East Jakarta are in the "Very Good" category, with an index ranging from 4.1 to 4.7 with an average of 4.4 in the "Very Good" category.

C. Gambaran Lingkungan Kerja (X3)

Lingkungan kerja yang mendukung sangat penting dalam pembelajaran di SMA dan SMK Cahaya Sakti karena dapat menciptakan suasana yang kondusif untuk belajar, meningkatkan motivasi, dan memfasilitasi interaksi yang positif antara siswa, guru, serta staf. Lingkungan yang aman, nyaman, dan penuh dengan sumber daya yang memadai memungkinkan siswa untuk lebih fokus dan produktif dalam belajar (Aprilianita, 2023). Selain itu, lingkungan yang mendukung juga dapat memupuk nilai-nilai disiplin, kerja sama, dan etika profesional yang esensial bagi kesiapan mereka memasuki dunia kerja.

Table 3.
Results of the X3 Indicator Analysis Test

Indicator X - 3	5	4	3	2	1	Sum	Weight	Index	Information
Supporting Facilities (X3.1)	12	25	6	0	1	44	179	4,1	Good
	27,27%	56,82%	13,64%	0,00%	2,27%	100,00%			
Managerial Support (X3.2)	12	28	4	0	0	44	184	4,2	Good
	27,27%	63,64%	9,09%	0,00%	0,00%	100,00%			
Working Atmosphere (X3.3)	20	21	3	0	0	44	193	4,4	Excellent
	45,45%	47,73%	6,82%	0,00%	0,00%	100,00%			

Source: Data processed by researchers (2025)

From the data presented in Table 3., it presents an overview of the Work Environment implemented at SMA and SMK Cahaya Sakti East Jakarta, based on the results of respondents' assessments of several indicators that have been determined. The X3.3 indicator received the highest score with an index of 4.4 and was in the "Excellent" category which shows that the aspect of the work atmosphere received the most appreciation from the respondents. This indicates that the work environment measured through this indicator has been created well and the benefits are felt by teachers at SMA and SMK Cahaya Sakti East Jakarta. Meanwhile, the X3.1 indicator has the lowest score with an index of 4.1 and is in the "Good" category, which means that this aspect can still be further developed to achieve higher optimization.

Overall, high index scores in all indicators show that the work environment at SMA and SMK Cahaya Sakti East Jakarta is good and supports the learning process. The

results of the assessment showed that the majority of aspects of the Work Environment at SMA-SMK Cahaya Sakti East Jakarta were in the "Good" category, with an index ranging from 4.1 to 4.4 with an average of 4.2 in the "Good" category.

D. Digital Competency Overview (X4)

Digital competence is very important for teachers at SMA and SMK Cahaya Sakti East Jakarta because it allows them to integrate technology in the learning process effectively and innovatively. By mastering digital competencies, teachers can utilize various digital tools and platforms to deliver material in a more engaging and interactive manner, increase student involvement, and facilitate learning evaluation (Guru Inovatif, 2024). Digital competencies support teachers in creating learning that is relevant to the demands of the times and improving the quality of teaching in schools

Table 4.
Results of Indicator Y Analysis Test

Indicator Y	5	4	3	2	1	Sum	Weight	Index	Information
Understanding Digital Information (Y1)	14	26	4	0	0	44	186	4,2	Good
	31,82%	59,09%	9,09%	0,00%	0,00%	100%			
Mastery of Digital Devices (Y2)	12	29	3	0	0	44	185	4,2	Good
	27,27%	65,91%	6,82%	0,00%	0,00%	100%			
Utilization of Digital Facilities (Y3)	21	21	2	0	0	44	195	4,4	Excellent
	47,73%	47,73%	4,55%	0,00%	0,00%	100%			
Use of Digital Media (Y4)	17	22	4	1	0	44	187	4,3	Excellent
	38,64%	50,00%	9,09%	2,27%	0,00%	100%			
Participation in Digital Training (Y5)	9	27	8	0	0	44	177	4,0	Good
	20,45%	61,36%	18,18%	0,00%	0,00%	100%			

Source : Data processed by researchers (2025)

From the data presented, in Table 4. presents an overview of the Work Environment carried out in SMA and SMK Cahaya Sakti East Jakarta with the Y3 indicator getting the highest score with an index of 4.4 and being in the "Very Good" category which shows that the aspect of the use of digital facilities has the most influence on digital competency indicators. This indicates that digital competence measured through the Digital Facility Utilization indicator has been well mastered by teachers at SMA and SMK Cahaya Sakti. Meanwhile, the Y5 indicator has the lowest score with an index of 4.0 and is in the "Good"

category, which means that this aspect can still be further developed to achieve higher optimization.

Overall, high index scores in all indicators show that the digital competence of teachers at SMA and SMK Cahaya Sakti East Jakarta is good and supports the learning process. The results of the assessment showed that the majority of aspects of the Work Environment at SMA and SMK Cahaya Sakti East Jakarta were in the "Good" category, with an index ranging from 4.0 to 4.4 with an average of 4.2 in the "Good" category.

E. Teacher Performance Overview (Z)

Teacher performance is very important in learning at SMA and SMK Cahaya Sakti East Jakarta because the quality of teaching provided directly affects students' understanding and development. Teachers who have good performance are not only able to convey material clearly and effectively, but can also inspire, motivate, and guide students to reach their best potential (Faizah & Wardhana, 2023). Optimal performance allows teachers to create a positive learning environment and support students' academic success and practical skills, especially in vocational schools that prepare them to enter the workforce.

Table 5.
Results of Indicator Z Analysis Test

Indicator Z	5	4	3	2	1	Sum	Weight	Index	Information
Use of Digital Platforms (Z1)	10	28	5	1	0	44	179	4,1	Good
	22,73%	63,64%	11,36%	2,27%	0,00%	100%			
Interactive Digital Content Development (Z2)	10	24	8	2	0	44	174	4,0	Good
	22,73%	54,55%	18,18%	4,55%	0,00%	100%			
Improving Teachers' Digital Competence and Creativity in Digital Learning (Z3)	16	24	4	0	0	44	188	4,3	Excellent
	36,36%	54,55%	9,09%	0,00%	0,00%	100%			

Source : data processed by researchers (2025)

From the data presented, Table 5 presents an overview of teacher performance carried out at SMA and SMK Cahaya Sakti East Jakarta. The Z3 indicator received the highest score with an index of 4.3 and was in the "Excellent" category which shows that the aspects of Improving Teachers' Digital Competencies and Creativity in Digital Learning have the most influence on the Teacher Performance indicators. This indicates that Teacher Performance as measured through the indicators of Improving Teachers' Digital Competence and Creativity in Digital Learning has been well mastered by teachers at SMA and SMK Cahaya Sakti East Jakarta. Meanwhile, the Z2 indicator has the lowest

score with an index of 4.0 and is in the "Good" category, which means that this aspect can still be further developed to achieve higher optimization.
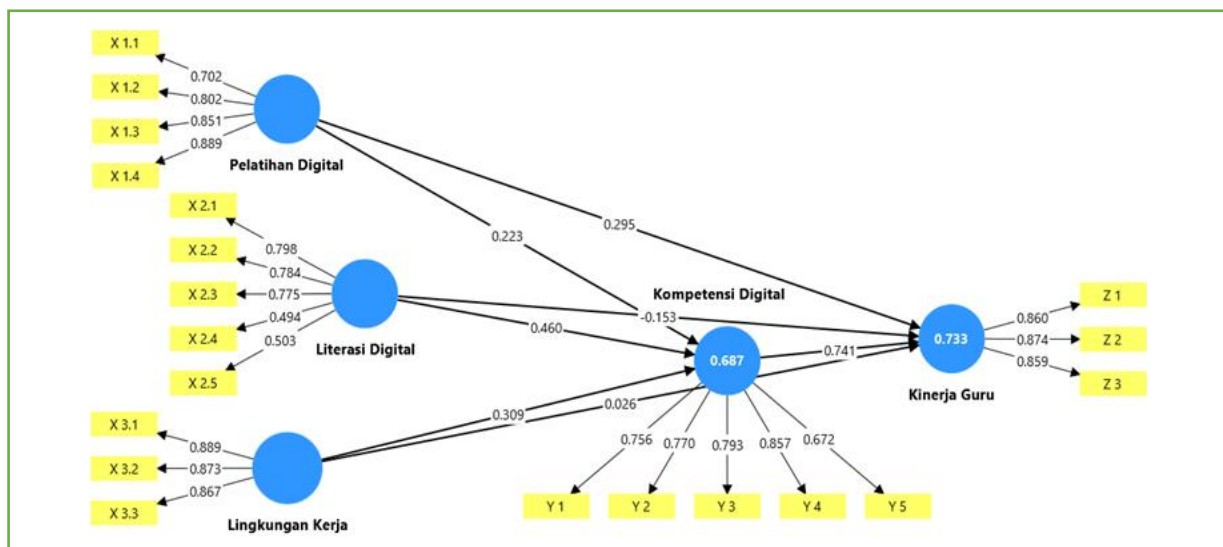
Overall, the results of respondents' assessment of several indicators that have been determined. In general, the results of the assessment show that the majority of aspects of the Work Environment at SMA and SMK Cahaya Sakti East Jakarta are in the "Good" category, with an index ranging from 4.0 to 4.3 with an average of 4.1 in the "Good" category.

The Influence of Digital Training, Digital Literacy and Work Environment on Teachers' Digital Competencies That Impact Teacher Performance in SMA and SMK Cahaya Sakti East Jakarta

1. *Structural Equation Modeling (SEM) Analysis*

This research was analyzed using the Structural Equation Model (SEM), using PLS (Partial Least Square) software 4. The first stage of Model Testing uses the PLS Algorithm method which provides the model output in Figure 2.

Figure 2.
PLS Algorithm output before testing

Source : Data processed by researchers (2025)

This measurement model can show how variables present latent variables to be measured. There are two stages in carrying out this outer model, namely the construct validity test which includes convergent validity and discriminant validity, and the reliability test which includes composite reliability and Cronbach' alpha.

2. Validity Test

The convergent validity test using the loading factor aims to determine whether the indicators in this study are valid for the latent variables assessed. An indicator is considered valid if the loading factor value is more than 0.7; If it is less, then the instrument is considered invalid. The test results in the first stage showed that some

statements in the digital literacy and digital competency variables had values below 0.7, so they needed to be deleted and retested. The test results showed that other indicators, such as digital training and work environment, had valid loading factor values.

After retesting in the second stage, all statements of digital training variables, digital literacy, work environment, digital competence, and teacher performance showed a loading factor value above 0.7, which means all indicators are valid. This shows that the indicators used successfully measure the correlation between the indicator score and the variable, thus supporting the validity of the measurement model construct. Thus, this research instrument can be relied on for further analysis of the relationship between the variables studied.

3. Average Variance Extracted (AVE)

After performing the above test and the variables are declared valid, the next test is to perform a convergent validity test by looking at the AVE value on each latent variable. The basis for decision-making in looking at the AVE value is the AVE value > 0.5.

Table 6.
Convergent Validity Test Using AVE

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Teacher Performance	0.831	0.834	0.899	0.748
Digital Competence	0.833	0.838	0.888	0.666
Work Environment	0.851	0.862	0.909	0.769
Digital Literacy	0.758	0.772	0.861	0.674
Digital Training	0.827	0.839	0.886	0.662

Source : SEM-PLS data to be released by 2025

Based on table 6., the Teacher Performance variable shows an Average Variance Extracted (AVE) value of 0.748, which means that the indicators used are able to explain about 74.8% of the variance of teacher performance. This value shows that the instrument used to measure teacher performance has a fairly strong convergent validity, indicating a high ability to represent the quality of the data. Meanwhile, the Digital Competency variable had an AVE value of 0.666, which explains 66.6% of the variance of the variable. Although lower than other variables, this value remains above the

threshold of 0.5, suggesting that the convergent validity of digital competencies is acceptable.

Furthermore, the variables of Work Environment and Digital Literacy each had an AVE value of 0.674, which shows that these indicators are able to explain 67.4% of the existing variances, and have excellent validity. The Digital Training variable also showed an AVE value of 0.662, which although the lowest, remained above the threshold of 0.5. From the results of this AVE validity test, it can be concluded that all latent variables tested are valid, with high convergent validity. This shows that the research instrument is quite accurate in measuring digital training, digital literacy, work environment, digital competence, and teacher performance at SMA and SMK Cahaya Sakti East Jakarta, so that it can be trusted for further analysis of the relationship between these variables.

4. Reliability Test

This construct reliability test is carried out to see the accuracy, consistency, and accuracy of the instrument in measuring constructs. In this study, the construct reliability test was carried out using the smartPLS application and can be done in two ways, namely by looking at composite reliability and cronbach' alpha.

Table 7.
Composite Reliability and Cronbach' Alpha Reliability Test

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Teacher Performance	0.831	0.834	0.899	0.748
Digital Competence	0.833	0.838	0.888	0.666
Work Environment	0.851	0.862	0.909	0.769
Digital Literacy	0.758	0.772	0.861	0.674
Digital Training	0.827	0.839	0.886	0.662

Source : SEM-PLS data to be released by 2025

Based on table 7, all variables in this study showed Cronbach's alpha and composite reliability values above 0.7. For the teacher performance variable, Cronbach's alpha value was 0.831 and composite reliability was 0.834, indicating that the teacher performance measurement instrument was very consistent and reliable. The digital competency variable also showed good results with Cronbach's alpha value of 0.833 and composite reliability of 0.838, indicating that this instrument can be used to measure digital competence consistently.

The work environment variable had the highest value with Cronbach's alpha of 0.851 and composite reliability of 0.862, indicating excellent internal consistency. Although the digital literacy variable had a slightly lower Cronbach's alpha of 0.758, a composite reliability value of 0.772 still showed good reliability. The digital training variable also showed good results with Cronbach's alpha value of 0.827 and composite reliability of 0.839. Overall, all variables in this study have excellent reliability, so they can be used to analyze the relationship between variables accurately and consistently.

5. Evaluation of Structural Models (Inner Model)

An external model evaluation was conducted to predict the reciprocal relationship between latent variables in the study using PLS-SEM, focusing on the coefficient of determination (R^2) value. R^2 measures how well a latent independent variable can explain the variability of a latent dependent variable, as well as indicates the predictive power of the model as a whole. The value of R^2 ranges from 0 to 1, where a higher value indicates a better model in explaining the variance. The criteria set state that an R^2 value above 0.67 indicates a good model, between 0.33 and 0.67 indicates a moderate model, and below 0.33 indicates a weak model. Therefore, the R^2 value obtained in this study provides an overview of the quality of the tested structural model.
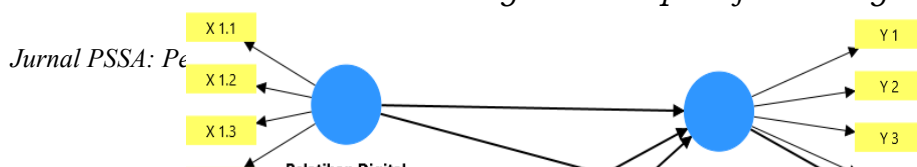
Table 8.
Test Results R – Square (R2) Adjusted

	R-square	R-square adjusted
Teacher Performance	0.700	0.669
Digital Competence	0.639	0.612

Source : SEM-PLS data to be released by 2025

Based on table 8., the teacher performance variable has an R^2 value of 0.700 and an adjusted R^2 of 0.669, indicating that the structural model used has good strength in explaining the variance of teacher performance. With an R^2 value above 0.67, this model falls into the good category, indicating that the teacher's performance variables can be significantly explained by independent variables in the model, so this study is reliable.

Meanwhile, the digital competency variable recorded an R^2 value of 0.639 and an adjusted R^2 of 0.612, indicating that this model is in the moderate category. While it may explain most of the variances of digital competencies, there are other factors that may not be fully represented, which may affect the results of the study. Overall, this structural model is effective in explaining the variance of latent variables tested, with teacher performance having an excellent model, while digital competence still needs improvement to explore the factors that influence further.

Figure 3.
PLS Algorithm output after testing

Source : SEM-PLS data processed by researchers 2025

6. Hypothesis Testing

Hypothesis testing is a statistical process used to make decisions about a statement or claim that is put forward The purpose of hypothesis testing is to test whether the data that has been collected provides sufficient evidence to support or reject the hypothesis. A relationship is considered significant if the p-value is smaller than the value of the t-table = 1.96 The significant level has been determined and in this study a significant of 0.05 is used. Significant path coefficients show that the relationship between independent and latent dependent variables has strong statistical support so that the proposed hypothesis is acceptable.

A. Direct Influence Hypothesis Test

Table 9.
Results of Direct Influence Hypothesis Test

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Significance
Digital Training -> Digital Competence	0.168	0.192	0.120	1.395	0.082	**Not Significant**
Digital Literacy -> Digital Competence	0.500	0.481	0.161	3.114	0.001	**Significant**
Work Environment -> Digital Competence	0.285	0.292	0.148	1.926	0.027	**Significant**
Digital Training -> Teacher Performance	0.345	0.328	0.180	1.910	0.028	**Significant**
Digital Literacy -> Teacher Performance	-0.110	-0.102	0.134	0.817	0.207	**Not Significant**
Work Environment -> Teacher Performance	0.094	0.119	0.144	0.654	0.257	**Not Significant**

Digital Competence -> Teacher Performance	0.610	0.595	0.187	3.264	0.001	Significant

Source : SEM-PLS data processed by the researchers 2025

Hypothesis Test 1 (H1) aims to test the influence of digital training (X1) on digital competence (Y). The results of the analysis showed an original sample value (O) of 0.168, with a T-value of 1.395 and a p-value of 0.082. A p-value higher than 0.05 indicates that the relationship between digital training and digital competence is not statistically significant. This indicates that although digital training has the potential to improve digital competence, its influence is not strong enough to be recognized in the analytical models used.

Hypothesis Test 2 (H2) tests the influence of digital literacy (X2) on digital competence (Y). The original sample (O) value obtained was 0.500, with a T-statistic of 3.114 and a p-value of 0.001, showing that digital literacy has a significant influence on digital competence. This indicates that a good mastery of digital literacy can improve teachers' digital competence, so that the learning process becomes more effective. These findings show the importance of developing digital literacy in education policy.

Hypothesis test 3 (H3) evaluates the influence of the work environment (X3) on digital competence (Y). The results of the analysis showed an original sample (O) value of 0.285, with a T-statistic of 1.926 and a p-value of 0.027, which shows that the work environment has a significant effect on teachers' digital competence. These findings confirm that a good work environment can improve digital competence, which in turn supports the quality of learning. Therefore, it is important for schools to create a conducive work environment.

Hypothesis Test 4 (H4) tested the influence of digital training on teacher performance (Z). The results of the analysis showed an original sample (O) value of 0.345, with a T-statistic of 1.910 and a p-value of 0.028, which shows that digital training has the potential to improve teacher performance. These findings confirm that digital training has a positive influence on teacher performance, so schools need to increase digital training to improve the quality of learning.

Hypothesis Test 5 (H5) examines the influence of digital literacy on teacher performance. The original sample value (O) for the influence of digital literacy was -0.110, with a T-statistic of 0.817 and a p-value of 0.207, indicating that this relationship was not statistically significant. This shows that while digital literacy is important, other factors such as pedagogical skills and teaching experience have more influence on teacher performance.

Hypothesis Test 6 (H6) evaluates the influence of the work environment on teacher performance. The results of the analysis showed an original sample (O) value of 0.094, with a T-statistic of 0.654 and a p-value of 0.257, which showed that the influence of the work environment on teacher performance was not significant. These findings suggest that while the work environment is important, other factors such as teaching methods and management support also contribute to teacher performance.

Hypothesis Test 7 (H7) evaluates the influence of digital competence on teacher performance. The results of the analysis showed an original sample (O) value of 0.610, with a T-statistic of 3.264 and a p-value of 0.001, which shows that digital competence has a significant influence on teacher performance. These findings confirm that good mastery of information and communication technology allows teachers to be more effective in managing learning, so it is important for educational institutions to support the development of teachers' digital competencies.

B. Indirect Influence Hypothesis Test

Table 10.

Indirect Influence Hypothesis Test Results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Signifikansi
Digital Training -> Digital Competence -> Teacher Performance	0.102	0.104	0.072	1.426	0.077	**Not Significant**
Digital Literacy -> Digital Competence -> Teacher Performance	0.305	0.297	0.152	2.008	0.022	**Significant**
Work Environment -> Digital Competence -> Teacher Performance	0.174	0.170	0.100	1.741	0.041	**Significant**

Source : SEM-PLS data processed by the researchers 2025

Hypothesis Test 8 (H8) tested the effect of digital training (X1) on teacher competence (Y) and teacher performance (Z). The results of the analysis showed an original sample value (O) of 0.102, with a T-statistic of 1.426 and a p-value of 0.077, which means that this relationship is not statistically significant. This shows that although digital training has the potential to improve teacher competence, its influence on teacher performance is not strong enough. Therefore, it is important to develop training programs that are more focused and appropriate to the needs of teachers.

Hypothesis Test 9 (H9) examines the influence of digital literacy (X2) on teacher competence (Y) and teacher performance (Z). The original sample value (O) was 0.305, with a T-statistic of 2.008 and a p-value of 0.022, indicating that digital literacy has a significant influence on digital competence. These findings confirm the importance of digital literacy in helping teachers use technology effectively in learning. Therefore, training programs should focus on developing relevant digital skills.

Hypothesis Test 10 (H10) evaluates the influence of the work environment (X3) on teacher competence (Y) and teacher performance (Z). The results of the analysis showed an original sample (O) value of 0.174, with a T-statistic of 1.741 and a p-value of 0.041, which shows that the work environment has a significant effect on teachers' digital competence. These findings show that a technology-enabled environment is essential for the development of digital competencies. Schools need to provide adequate infrastructure and create a culture that supports the use of technology in teaching.

Table 11.
Direct Hypothesis Test Results

Variable	Y	Z
X_1	Not Significant	Significant
X_2	Significant	Not Significant
X_3	Significant	Not Significant
Y	-	Significant

Source : SEM-PLS data processed by the the researchers 2025

The results of the hypothesis test showed that X_1 had a insignificant effect on Y, but had a significant effect on Z, which suggests that although X_1 does not affect Y, changes in X_1 can have an impact on Z. In contrast, X_2 and X_3 have a significant influence on Y, but not on Z, which means that both can affect Y directly but have no impact on Z. Finally, Y has a significant influence on Z, which suggests that changes in Y can affect Z in a measurable way. Thus, the factors that need to be considered to affect Z are X_1, whereas to affect Y, primary attention should be paid to X_2 and X_3.

Table 11.
Indirect Hypothesis Test Result

Variabel	Y
X_1 melalui Y	Not Significant
X_2 melalui Y	Significant
X_3 melalui Y	Significant

Source : processed by the researches 2025

The results of the hypothesis test show that X_1 through Y has no significant influence, meaning that changes in X_1 do not contribute significantly to Y. Conversely, X_2 and X_3 through Y show significant influence, which means that both have a clear and measurable impact on Y. These findings suggest that X_2 and X_3 are key factors that can affect Y, while X_1 does not make a strong enough contribution. Therefore, to increase Y, it is better to focus on the reinforcement of X2 and X3, while X_1 may need to be further reviewed in different contexts

CONCLUSION AND RECOMMENDATIONS
Conclusion

Based on data analysis on the influence of Digital Training, Digital Literacy, and Work Environment on the Digital Competence of teachers at SMA and SMK Cahaya Sakti East Jakarta, it can be concluded as follows:

1. Digital training did not show a significant influence on teachers' digital competence. The T-value is 1.395 and the P-value is 0.082. This means that while digital training has a positive impact, its influence is not strong enough. Therefore, this training needs to be evaluated and improved in terms of material, duration, and how it is implemented to be more effective.

2. Digital literacy has a significant influence on digital competence. With a T-statistic of 3.114 and a P-value of 0.001, this shows that if teachers are better at digital literacy, then their digital competence will also improve. Digital literacy is an important factor that needs to be improved to help teachers and students master technology better.

3. The work environment also has a significant effect on teachers' digital competence. The T-value is 1.926 and the P-value is 0.027. This shows that a good working atmosphere and supportive facilities can improve the digital capabilities of teachers and students. Therefore, it is important to create an environment that supports the development of digital skills in schools.

4. Digital competence has been proven to have a significant effect on teacher performance. With a T-statistic of 3.264 and a P-value of 0.001, this means that teachers who have better digital competencies tend to have higher performance. Improving teachers' digital competence will have a positive impact on the quality of teaching and learning.

5. Teacher performance is not significantly affected by digital literacy and the work environment. The T-statistical value for digital literacy was 0.817 and for the work environment 0.654, with a P-value of 0.207 and 0.257 respectively. This shows that while digital literacy and the work environment are important, they do not have a significant direct impact on teacher performance. Other factors, such as digital competence, are more influential in improving their performance.

6. Separately, digital training did not show a significant influence on teachers' digital competence. In contrast, digital literacy and the work environment have been proven to have a significant influence. It shows that improving digital literacy and creating a supportive work environment can help improve teachers' digital skills. Digital competence also has a significant effect on teacher performance.

7. Although digital training has no direct effect, digital literacy and work environment are essential to improve digital competence and teacher performance. Therefore, to improve teacher performance, it is necessary to focus on improving digital literacy and creating a more supportive work environment, as well as evaluating and improving digital training to be more effective.

Recommendations

SMA and SMK Cahaya Sakti East Jakarta consistently organize continuous digital training, which is not only theoretical but also practical and applicable. This training

includes various digital learning tools and platforms that are relevant to the needs of teachers in the digitalization era, and is adjusted to the teacher's initial ability level so that each participant can follow the process optimally. Training evaluations are also important to ensure that the programs run remain relevant and effective. In addition, digital literacy is systematically integrated into teacher professional development programs, given its large role in improving teachers' competence to face 21st century learning challenges. The curriculum includes training on cyber security, personal data protection, professional use of social media, and how to distinguish valid information from hoaxes.

School principals also play a role in creating a work environment that supports the application of technology in teaching and learning activities, by providing adequate digital infrastructure such as stable internet access and sufficient hardware. A work culture that encourages collaboration and innovation is essential, providing room for teachers to experiment with technology-based learning approaches. To encourage teachers to improve digital competence, this aspect should be included in the teacher performance assessment system, providing motivation to continue learning and developing themselves. The formation of a digital-based learning community is also recommended to share experiences and solutions to the challenges faced by teachers. Finally, the active role of stakeholders is needed in supporting digital transformation in education, including the provision of policies and budget allocations for the development of teachers' digital competencies, as well as ensuring accessibility for all teachers, especially in remote areas.

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