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Determinant Factors Influencing the Competency of Science Teachers in Aceh Province, Indonesia

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Abstract: Teacher competence is one of the critical elements in the success of education in Indonesia. This study aims to analyze the determinant factors influencing the competence of science teachers in the Province of Aceh, Indonesia, with a focus on the impact of academic supervision, work motivation, and infrastructure facilities on teacher competence and its implications for organizational support. The research method employed is a quantitative approach using questionnaires and Structural Equation Modelling Partial Least Square (SEM-PLS) analysis. The research sample consists of 116 high school teachers from three districts in Aceh. The results indicate that academic supervision and infrastructure facilities have a significant influence on organizational support, while work motivation does not have a significant impact. Organizational support, in turn, has a positive and significant influence on teacher competence. These findings suggest that improving the quality of academic supervision and the availability of infrastructure facilities can enhance organizational support, which subsequently contributes to the improvement of teacher competence. This study provides practical contributions to the development of educational policies, particularly in supporting the enhancement of teacher competence through the optimization of supervision, motivation, and facilities.

Keywords: Academic Supervision; Facilities and Infrastructure; Organizational Support; Teacher Competency; Work Motivation.

Introduction

Teacher competency is one of the critical elements in the success of education in Indonesia. Teacher competency encompasses pedagogical, professional, social, and personal abilities that educators must possess to carry out the teaching and learning process effectively. However, several surveys indicate that teacher competency in various regions of Indonesia still needs improvement. According to a report by the Ministry of Education and Culture (Karnadi, 2019), more than 40% of teachers have not yet met optimal competency standards. Additionally, organizational support, such as recognition, supervision, and career development, is often considered inadequate to support the enhancement of teacher competency. This phenomenon highlights the need for strategic interventions to address the situation (Muchsin & Hamdi, 2021).

Teacher competency significantly influences student learning outcomes, making it a primary focus in improving the quality of education. As stated by (Westley, 2011), the quality of teaching significantly impacts student achievement. Teacher competency is one of the most critical factors affecting student performance (Hattie, 2008). Organizational support plays a vital role in creating a productive and conducive work environment. Supportive organizations enhance teacher motivation, foster innovation, and reduce work-related stress (Robbins, S. P., & Judge, 2022). Therefore,

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addressing these two variables is a strategic step toward creating quality education.

Various studies have shown that academic supervision, work motivation, and the availability of facilities significantly correlate with teacher competency. Academic supervision positively contributes to the development of pedagogical competence (Sanoto et al., 2021). Work motivation has also been identified as a key factor in enhancing teachers' dedication and engagement in teaching activities (Layek & Koodamara, 2024). Adequate facilities facilitate the implementation of effective learning processes (Ndirangu & Udoto, 2011). However, there is still a research gap regarding how these three variables collectively influence teacher competency and their impact on organizational support.

Most previous studies have only focused on the individual influence of each variable on teacher competency without considering its impact on organizational support. For instance, academic supervision has been shown to enhance teacher competency, but its specific effect on organizational support has not been thoroughly assessed (Nisa' et al., 2021). Conversely, another study Sinambela, (2021) found that organizational support is more influenced by policy factors and work culture, without linking it to teacher competency. Therefore, this study aims to fill this gap by examining the simultaneous influence of these three variables on teacher competency and their implications for organizational support.

Based on the aforementioned phenomena, the influence of academic supervision, work motivation, and facilities on teacher competency needs to be analyzed comprehensively. Herzberg's Motivation Theory (1959) explains that intrinsic motivational factors, such as effective supervision and work recognition, can enhance individual performance. Additionally, the Systems Theory by Sanda, (2011) emphasizes that the availability of adequate resources (facilities) will affect the quality of output, in this case, teacher competency. However, challenges in implementing consistent supervision, low work motivation, and inadequate facilities remain significant obstacles.

Based on preliminary studies conducted by the researcher, the main issue with academic supervision in Aceh Province is the lack of intensity and quality of supervision. In several regions of Aceh, academic supervision by school supervisors is often conducted with minimal frequency and less effective quality. This is due to the limited number of supervisors compared to the number of teachers who need to be supervised, especially in remote areas. Educational supervision often faces geographical constraints, as Aceh has remote and hard-to-reach areas. Supervision tends to be administrative rather than focused on professional development, thus having little impact on teacher competency.

The primary issue related to teacher work motivation in Aceh Province is the low morale, particularly in remote areas. Teachers in these regions face various challenges, such as high workloads and limited incentives. This situation is further exacerbated by the lack of facilities in rural areas, which directly affects their motivation. Additionally, internal conflicts within the school environment, including less harmonious relationships among colleagues, also contribute to the decline in teacher work motivation in the region.

The educational infrastructure in Aceh Province, particularly in remote areas, remains highly limited. Schools often lack basic facilities such as adequate classrooms, modern learning tools, laboratories, and internet access. Although improvements have been observed since the implementation of special autonomy, the distribution of educational infrastructure remains uneven. This issue is further exacerbated by budget constraints at the regional level and the slow implementation of policies from the central government, resulting in the suboptimal fulfillment of educational facility needs.

Teacher competency in Aceh Province continues to face various challenges, particularly in meeting pedagogical and professional standards. One of the primary obstacles is the limited ability of teachers to integrate technology into the learning process. Senior teachers, in particular, often struggle to adapt to modern teaching methods. Furthermore, teacher training programs remain insufficient, preventing the comprehensive development of competencies from being achieved optimally.

Organizational support for teachers in Aceh Province is still relatively minimal, especially in terms of sustainability. Programs such as professional training, performance-based rewards, and career development have not been effectively implemented, particularly in regions with budgetary limitations. Additionally, a work culture that tends to emphasize formality often hinders the implementation of innovative development programs. The lack of appreciation for outstanding teachers also contributes to their low organizational loyalty.

This study holds a unique position by holistically examining how academic supervision, work motivation, and educational infrastructure influence teacher competency and their impact on organizational support. Through this approach, the findings are expected to provide practical contributions to educational policy development, particularly in supporting the

enhancement of teacher competency through the optimization of supervision, motivation, and facilities.

Method

The research method used is a quantitative approach using questionnaires and Structural Equation Modelling Partial Least Square (SEM-PLS) analysis. SEM-PLS is used in this study because it can predict and explain latent variables from testing on theory, and can determine the influence of various variables on an object simultaneously. The researcher conducted a main test by distributing questionnaires. The technique for determining the sample size from a population uses the Slovin formula (Consuelo, 1993). The Slovin formula is as follows:

$$n = \frac{N}{1+N\ (e^2)} \quad (1)$$

Thus, the total sample that will be used in this research amounts to 116 respondents.

Tabel 1. Variables and Indicators used in the research

Variabel Laten	Indicator
Academic Supervision (X_1)	Supervision Planning
	Supervision Implementation
	Evaluation and Follow-Up
	Professional Support
Work Motivation (X_2)	Intrinsic Needs
	Extrinsic Needs
	Commitment to Goals
	Job Engagement
Facilities-Infrastructure (X_3)	Availability of Basic Facilities
	Condition of Facilities
	Technological Support
	Facility Maintenance
Organizational Support (Z)	Performance Recognition
	Training and Development
	Resource Availability
	Teacher-Organization Relationship
Teacher Competency (Y)	Pedagogical Competency
	Professional Competency
	Social Competency
	Personality Competency

Source : (Glickman, C. D., Gordon, S. P., & Ross-Gordon, 2001), (Robbins, S. P., & Judge, 2022). (Permendikbud no 20 tahun 2016, 2016). (Rhoades & Eisenberger, 2002). (Peraturan Menteri Pendidikan Nasional Nomor 16/2007, 2007).

The main analysis requirements testing is conducted to ensure that the measurement tools used are suitable for measurement (valid and reliable). Testing with PLS begins with testing the measurement model (outer model) to test the construct validity and reliability of the instrument. Validity testing is performed to measure the ability of research instruments to measure what should be measured (Cooper, D.R., dan Schindler, 2006). Construct validity testing in PLS reflective indicator model is carried out through convergent validity, discriminant validity, and average variance extracted (AVE) tests. Reliability testing is used to measure the consistency of the measurement tool in measuring concepts or can also be used to measure the consistency of respondents in answering instruments. An instrument is considered reliable if a person's answers to statements are consistent or stable over time. Reliability testing in PLS can use the composite reliability and Cronbach's alpha methods (Abdillah & Hartono, 2015).

Result and Discussion

The population of respondents in this study consists of all high school (SMA) teachers in Aceh Province, with the sample distributed across three districts, namely Bireuen District, Pidie Jaya District, and Pidie District, who teach Science subjects (Chemistry, Biology, and Physics). The following is the distribution of high school teachers in Aceh Province:

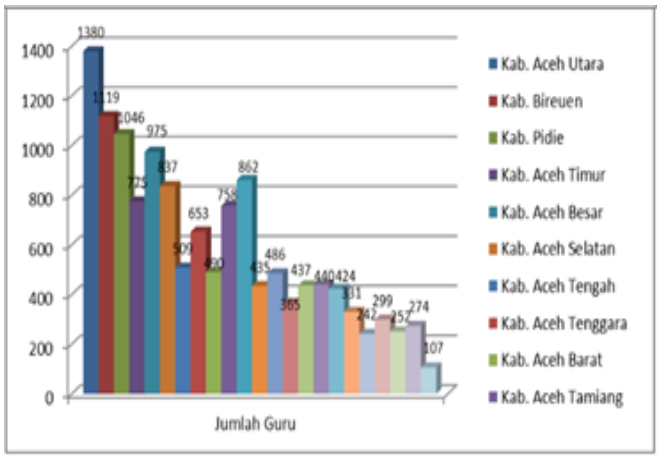

Figure 1. Distribution of High School Teachers in Aceh Province

Testing the Measurement Model (Outer Model)
Convergent Validity

The convergent validity value is the loading factor value on latent variables with their indicators. Convergent validity is assessed based on the correlation between item score/compound score and construct score calculated with PLS. A reflective measure is considered high if it correlates more than 0.70 with the construct to be measured. Below is a table of loading factors for each indicator calculated using PLS.

Table 2. Validity test in the Measurement Model (Outer Model) testing

Loading Factor Value	
Indicator	After Elimination
SA1	0.894
SA3	0.862
SA4	0.821
MK2	0.930
MK3	0.712
MK4	0.963
SP1	0.948
SP2	0.963
SP3	0.731
SP4	0.921
DO2	0.825
DO3	0.833
DO4	0.828
KG1	0.769
KG2	0.827
KG3	0.831
KG4	0.828

Source: Primary Data Analysis, 2024

The results of the instrument testing can be presented through Table 2 below regarding the validity test. Based on Table 2, it can be seen that there are several indicators in latent variables with loading factor values below 0.7. These indicators cannot be used because their loading factor values are < 0.7, so they need to be eliminated (Astekar et al., 2015). An indicator is considered valid or acceptable when the loading factor value is > 0.7, after which subsequent instrument tests can be continued.

Composite Reliability and Cronbach's Alpha

In addition to the construct validity test, a construct reliability test is also conducted, measured by composite reliability and Cronbach's alpha of the block of indicators measuring the construct. The following are the results of composite reliability and Cronbach's alpha testing from Smart PLS:

Table 3. Composite Reliability and Cronbach's Alpha

Variabel	Cronbach's Alpha	Composite Reliability
Academic Supervision	0.835	0.894
Work Motivation	0.839	0.906
Facilities-Infrastructure	0.916	0.941
Organizational Support	0.773	0.868
Teacher Competency	0.815	0.878

Source: Primary Data Analysis, 2024

A construct is considered reliable if it has a composite reliability value above 0.70 and a Cronbach's alpha above 0.70. The output results from Smart PLS in the table above indicate that all constructs have composite reliability values above 0.70 and Cronbach's alpha values above 0.70. Therefore, it can be concluded that the constructs exhibit good reliability (Bahri, S., & Zamzam, 2021).

Testing the Structural Model (Inner Model)

The structural model is evaluated using R-squared for dependent variables and the path coefficient values for independent variables, which are then assessed for significance based on the t-statistic values of each path.

R-Squared

Changes in the R-squared value can be used to assess the impact of specific independent latent variables on dependent latent variables to determine whether they have substantive effects.

Table 4. R-Squared Values

Variabel	R Square	R Square Adjusted
Organizational Support	0.479	0.465
Teacher Competency	0.967	0.966

Source: Primary Data Analysis, 2024

Based on the table above, the Adjusted R-Squared values for each equation are all above 40 percent (0.4).

- An Adjusted R-Squared value of 0.465 indicates that the independent variables in this equation can explain the dependent variable (Organizational Support) by 46.5 percent, with the remaining 53.5 percent explained by other variables outside the model.
- An Adjusted R-Squared value of 0.966 indicates that the independent variables in this equation can explain the dependent variable (Teacher Competency) by 96.6 percent, with the remaining 3.4 percent explained by other variables outside the model.

In summary, the model for Teacher Competency has a very high explanatory power, while the model for Organizational Support also demonstrates a moderate level of explanatory power, with both exceeding the 40 percent threshold.

Stone-Geisser Q-Square Test (Predictive Relevance)

The Stone-Geisser Q-square test assesses predictive relevance and the t-test along with the significance of the structural path coefficient parameters. The Q-square measures how well the observed values are produced by the model and its parameters. A Q-square value greater than 0 indicates that the model has predictive relevance, while a Q-square value less than 0 indicates that the model lacks predictive relevance.

Table 5. Stone-Geisser Q-square test

	SSO	SSE	Q^2 (=1-SSE/SSO)
Academic Supervision	348,000	348,000	
Facilities and Infrastructure	464,000	464,000	
Organizational Support	348,000	242,365	0.211
Teacher Competency	464,000	187,702	0.413
Work Motivation	348,000	348,000	

Source: Primary Data Analysis, 2024

A Q-square value greater than 0 indicates that the model has predictive relevance.

VIF Values

Table 6. VIF Values

VIF	Organizational Support	Teacher Competency
Academic Supervision	1.075	1.110
Facilities and Infrastructure	1.202	1.855
Work Motivation	1.221	1.256
Organizational Support		1920

Source: Primary Data Analysis, 2024

Based on the VIF values in the table above, there are no VIF values less than 10, indicating that there are no multicollinearity issues. This fact is supported by the absence of correlations among the independent variables. The VIF value should be less than 10; values exceeding 10 indicate the presence of collinearity among constructs (Sarstedt et al., 2020).

Hypothesis Testing

To test the hypothesis, the t-statistic values generated from the PLS output are compared with the t-table values. The PLS output represents the estimation of latent variables, which are linear aggregates of indicators. The testing criteria with a significance level (α) of 5% for one-tailed tests (positive/negative effects) are determined as follows:

From the results of the t_{table} and $t_{calculated}$, the comparison can be observed as follows:

- If $t_{calculated} > t_{table}$ (1.64) then H_0 is rejected, and H_1 is accepted.
- If $t_{calculated} < t_{table}$ (1.64) then H_0 is accepted, and H_1 is rejected.

To examine the significance of the influence between variables for one-tailed tests, the criteria are as follows:

- If prob.value sig/2 < 0.05, then there is a significant effect.
- If prob.value sig/2 > 0.05, then the effect is not significant.

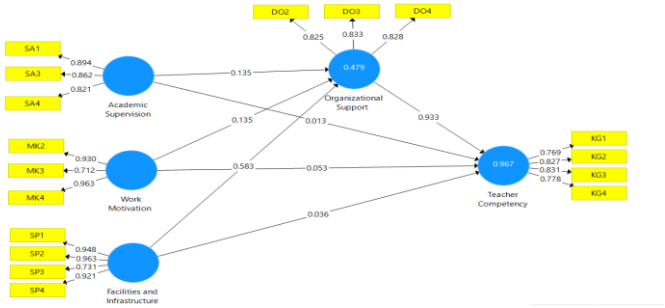

Figure 2. PLS Modeling Path Diagram

The results of the regression equation indicate that Organizational Support is positively influenced by Academic Supervision (0.135), Work Motivation (0.135), and Facilities and Infrastructure (0.583), suggesting that these variables contribute significantly to the level of Organizational Support. Furthermore, Teacher Competency is influenced by several factors, including Academic Supervision (0.013), Work Motivation (0.053), Facilities and Infrastructure (0.036), and Organizational Support (0.933). Moreover, the analysis reveals that Organizational Support has the greatest impact on enhancing Teacher Competency, followed by Facilities and Infrastructure, which is related to the availability and adequacy of these resources.

Table 7. Average Variance Extracted (AVE) Values

Variabel	Average Variance Extracted (AVE)	Conclusion
Academic Supervision	0.739	Valid
Facilities and Infrastructure	0.802	Valid
Work Motivation	0.906	Valid
Organizational Support	0.687	Valid
Teacher Competency	0.643	Valid

Source: Primary Data Analysis, 2024

From the figure and table above, it can be observed that the AVE values are above 0.5. This indicates that all latent variables used in this study are valid as they meet the minimum AVE criteria (Ghozali, 2014). Furthermore, looking at the cross-loading results, each indicator has also shown higher values for its respective latent variable compared to the indicators of other variables. The testing continues by examining the results of Cronbach's alpha and composite reliability.

Table 8. Reliability Test

Variabel	Cronbach's Alpha	Composite Reliability	Conclusion
Academic Supervision	0.835	0.894	Reliabel
Facilities and Infrastructure	0.916	0.941	Reliabel
Work Motivation	0.839	0.906	Reliabel
Organizational Support	0.773	0.868	Reliabel
Teacher Competency	0.815	0.878	Reliabel

Source: Primary Data Analysis, 2024

Table 8. Reliability Test indicates that all tested variables demonstrate high reliability. The Cronbach's Alpha values for each variable Academic Supervision (0.835), Facilities and Infrastructure (0.916), Work Motivation (0.839), Organizational Support (0.773), and Teacher Competency (0.815) are all above the minimum threshold of 0.7, indicating strong internal consistency. Additionally, the Composite Reliability values for each variable exceed 0.8, with Facilities and Infrastructure achieving the highest value of 0.941. This confirms that all variables are reliable and suitable for further analysis. Therefore, it can be concluded that the research instruments used in this study possess adequate consistency and reliability to measure the intended constructs effectively.

Observing the t-statistic and P-value is essential during hypothesis testing. The table below presents the results of the hypothesis testing conducted in this study.

Table 9. Results of Bootstrapping Path Coefficient Analysis

Direct Effect	Path Coef.	T-Stat.	P-Values	Conclusion
AS -> OS	0.045	3.029	0.003	Significant
AS -> TC	0.013	0.958	0.338	Not Significant
FI -> OS	0.051	11.403	0.000	Significant
FI -> TC	0.022	1.626	0.105	Not Significant
OS -> TC	0.025	37.005	0.000	Significant
WM -> OS	0.100	1.356	0.176	Not Significant
WM -> TC	0.027	1.954	0.051	Not Significant

Source: Primary Data Analysis, 2024

Based on Table 9, it can be stated that not all hypotheses in this research are accepted. The results showing a p-value below 0.05 or equal to 0.05 demonstrate that the variables have a significant effect.

The Effect of Academic Supervision on Organizational Support

Academic supervision has a positive and significant effect on organizational support, with a path coefficient of 0.045, T-Statistic of 3.029, and P-Value of 0.003. This indicates that the improvement in the quality of academic supervision is directly proportional to the increase in organizational support perceived by teachers. Effective academic supervision can enhance teachers' trust and positive perceptions of the support provided by the organization. According to research published in the Instructional Development Journal, good academic supervision contributes to improving teacher performance through increased organizational support (Nikmah et al., 2022). Additionally, other studies show that effective academic supervision can boost teachers' work motivation, which in turn strengthens their perception of organizational support (Nisa' et al., 2021). Therefore, the implementation of high-quality academic supervision becomes a key factor in strengthening organizational support for teachers.

The Effect of Academic Supervision on Teacher Competence

The relationship between academic supervision and teacher competence shows a path coefficient of 0.013, T-Statistic of 0.958, and P-Value of 0.338, which is not significant. This indicates that academic supervision does not have a direct and significant effect on improving teacher competence. Although academic supervision aims to enhance teaching quality, these results suggest that other factors may play a more significant role in improving teacher competence. Previous research also found that academic supervision has an insignificant effect on teacher competence, emphasizing the importance of other factors such as professional training and teaching experience in enhancing competence (Irawan et al., 2018). Therefore, in addition to academic supervision, other approaches such as comprehensive professional development programs are needed to effectively improve teacher competence.

The Effect of Facilities and Infrastructure on Organizational Support

Facilities and infrastructure have a positive and significant effect on organizational support, with a path coefficient of 0.051, T-Statistic of 11.403, and P-Value of 0.000. This indicates that the availability and quality of adequate facilities and infrastructure in the school environment can enhance teachers' perceptions of the support provided by the organization. Adequate facilities enable teachers to perform their duties more effectively, which in turn increases job satisfaction and positive perceptions of organizational support. International research has shown that a work environment supported by adequate facilities significantly contributes to teacher satisfaction and performance, ultimately strengthening organizational support (Gharamah & Noordin, 2017). Thus, investment in improving school facilities and infrastructure becomes a crucial strategy for strengthening organizational support for teachers.

The Effect of Facilities and Infrastructure on Teacher Competence

The relationship between facilities and infrastructure and teacher competence shows a path coefficient of 0.022, T-Statistic of 1.626, and P-Value of 0.105, which is not significant. This indicates that the availability of facilities and infrastructure does not have a direct and significant effect on improving teacher competence. Although adequate facilities are important for supporting the learning process, these results suggest that other factors such as professional training, teaching experience, and intrinsic motivation may play a more significant role in enhancing teacher competence.

Previous research also found that while adequate facilities are important, they do not directly influence teacher competence without being supported by other factors such as training and professional development (Sutrisno et al., 2023). Therefore, in addition to providing adequate facilities and infrastructure, other efforts such as professional development programs are needed to effectively improve teacher competence.

The Effect of Organizational Support on Teacher Competence

Organizational support has a positive and significant effect on teacher competence, with a path coefficient of 0.025, T-Statistic of 37.005, and P-Value of 0.000. This indicates that the higher the support provided by the organization, the greater the improvement in teacher competence. Organizational support can include the provision of resources, opportunities for professional development, and a conducive work environment, all of which contribute to enhancing teacher competence. International research has shown that strong organizational support is positively associated with improved teacher competence and performance, as it provides them with the necessary resources and motivation to grow (Kim et al., 2016). Therefore, educational organizations must ensure that they provide adequate support to teachers to encourage the improvement of their competence.

The Effect of Work Motivation on Organizational Support

Work motivation has a path coefficient of 0.100, T-Statistic of 1.356, and P-Value of 0.176, which is not significant. This indicates that work motivation does not have a direct and significant effect on teachers' perceptions of organizational support. Although work motivation is important for individual performance, these results suggest that other factors may play a more significant role in shaping teachers' perceptions of organizational support. Previous research also found that work motivation does not have a direct and significant effect on perceptions of organizational support, emphasizing the importance of other factors such as organizational culture and leadership in shaping these perceptions (Darolia et al., 2010). Therefore, in addition to improving work motivation, organizations must focus on other aspects to enhance teachers' perceptions of organizational support.

Table 10. Testing of Mediation/Intervening Variables

Indirect Effect	Koef	T-Stat	P-Values	Conclusion
AC->OS->TC	0.043	2.936	0.003	Significant
FI->OS->TC	0.054	10.104	0.000	Significant
WM->OS->TC	0.090	1.401	0.162	Not Significant

Source: Primary Data Analysis, 2024

The analysis results show that academic supervision has an indirect effect on teacher competence through organizational support, with a path coefficient of 0.043, T-Statistic of 2.936, and P-Value of 0.003, which is significant. This indicates that organizational support acts as a mediator that strengthens the relationship between academic supervision and teacher competence. According to research by (Singerin, 2021), effective academic supervision can enhance organizational support by creating a more supportive work environment, which ultimately impacts the improvement of teacher competence. Therefore, improving academic supervision accompanied by organizational support can be an effective strategy for enhancing the quality of teaching.

Facilities and infrastructure have a significant indirect effect on teacher competence through organizational support, with a path coefficient of 0.054, T-Statistic of 10.104, and P-Value of 0.000. This indicates that the availability of adequate facilities and infrastructure can enhance organizational support, which in turn impacts the improvement of teacher competence. A study conducted by (Nurbayani et al., 2024) found that good facilities and infrastructure can increase teacher job satisfaction and work motivation, thereby strengthening their perception of organizational support and enhancing their professional performance. Therefore, investment in quality facilities and infrastructure can be a crucial factor in improving teacher competence through increased organizational support.

Work motivation does not have a significant indirect effect on teacher competence through organizational support, with a path coefficient of 0.090, T-Statistic of 1.401, and P-Value of 0.162. This indicates that although work motivation is important for individual performance, this factor is not strong enough to improve teacher competence through organizational support. According to (Alimmudin, 2022), work motivation is more effective in improving teacher competence when supported by other factors such as professional development opportunities and a conducive work environment. Therefore, in addition to enhancing work motivation, organizations need to strengthen other factors that more directly contribute to improving teacher competence.

Conclusion

This study concludes that academic supervision and infrastructure facilities have a significant influence on organizational support, while work motivation does not have a direct and significant impact. Organizational support, on the other hand, has a positive and significant

influence on teacher competence. This indicates that improving the quality of academic supervision and the availability of infrastructure facilities can enhance teachers' perceptions of organizational support, which ultimately contributes to the improvement of teacher competence. These findings underscore the importance of the role of organizational support in enhancing teacher competence, as well as the need for a holistic approach that includes effective academic supervision, adequate provision of facilities, and comprehensive professional development programs. This study provides practical implications for educational policymakers to strengthen organizational support and improve teacher competence through strategic interventions focused on enhancing the quality of supervision and educational facilities.

Author Contributions

Muchsin contributed to conceptualizing the study, developing the product, analyzing the data, and writing the article. Mulyadi, as the supervisor of research activities up to article writing, conducted reviews and editing.

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Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

References

Abdillah, W., & Hartono, J. (2015). Alternatif Structural Equation Modeling (SEM) Dalam Penelitian Bisnis. In *Yogyakarta* (pp. 1–310).

Alimmudin, A. (2022). The Effect of Teacher Competence, Work Discipline and Work Motivation on Teacher Performance. *International Journal of Social Science And Human Research*, *05*(06), 2422–2427. https://doi.org/10.47191/ijsshr/v5-i6-67

Astekar, M., Kumar, V., Kaur, P., Singh, N., Sidhu, G., & Devi, A. (2015). The study of inheritance analysis and evaluation of lip prints in individuals. *Journal of Forensic Dental Sciences*, *7*(1), 49. https://doi.org/10.4103/0975-1475.150309

Bahri, S., & Zamzam, F. (2021). *Model Peneitian Kuantitatif Berbasis Sem-Amos. Pengujian dan Pengukuran Instrumen*. Deepublish.

Cooper, D.R., dan Schindler, P. . (2006). *Metode Riset Bisnis*. PT Media Global Edukasi.

Darolia, C. R., Kumari, P., & Darolia, S. (2010). Perceived Organizational Support, Work Motivation, and Organizational Commitment as determinants of Job Performance. *Journal of the Indian Academy of Applied Psychology*, *36*(1), 69–78.

Gharamah, A. A., & Noordin, M. F. (2017). Impacts of organizational culture, support and IT infrastructure on knowledge management success: An empirical study in Islamic Country, Saudi Arabia. *Proceedings - 6th International Conference on Information and Communication Technology for the Muslim World, ICT4M 2016*, 19–23. https://doi.org/10.1109/ICT4M.2016.16

Ghozali, I. (2014). *Structural Equation Modeling Metode Alternatif dengan Partial Least Square (PLS) Edisi 4*. Universitas Diponegoro, Semarang.

Glickman, C. D., Gordon, S. P., & Ross-Gordon, J. M. (2001). Supervision and instructional leadership: A developmental approach. In *Allyn & Bacon/Longman Publishing, a Pearson Education Company,*. https://doi.org/10.1016/B978-0-08-044894-7.00454-1

Hattie, J. (2008). Visible learning: A synthesis of over 800 meta-analyses relating to achievement. In *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement*. https://doi.org/10.4324/9780203887332

Irawan, D., Wahyudin, A., & Yanto, H. (2018). The moderating influence of the academic supervision of Teacher competencies and commitment towards organizational of Teacher performance. *Educational Management*, *7*(1), 65–70. http://journal.unnes.ac.id/sju/index.php/eduman

Karnadi, K. (2019). Perbandingan Kurikulum Pendidikan Dasar Dan Menengah Di Indonesia Ditinjau Dari Segi Desain, Metodologis, Dan Evaluasi, 1968Â€“2006. *Jurnal Teknodik*, 121–131. https://doi.org/10.32550/teknodik.v12i2.410

Layek, D., & Koodamara, N. K. (2024). Motivation, work experience, and teacher performance: A comparative study. *Acta Psychologica*, *245*(March), 104217. https://doi.org/10.1016/j.actpsy.2024.104217

Muchsin, M., & Hamdi, H. (2021). Analysis of Student's Creativity Value and Process Skills through Learning Strategies Guided Inquiry. *Jurnal Serambi Ilmu*, *22*(1), 98–109. https://doi.org/10.32672/si.v22i1.2486

Ndirangu, M., & Udoto, M. O. (2011). Quality of learning facilities and learning environment: Challenges for teaching and learning in Kenya's public universities. *Quality Assurance in Education*, *19*(3), 208–223. https://doi.org/10.1108/09684881111158036

Nikmah, N., Saputra, W., & Latif, A. (2022). Pengaruh Supervisi Akademik Dan Budaya Organisasi Sekolah Terhadap Kinerja Guru. *Jurnal Al-Kifayah: Ilmu Tarbiyah Dan Keguruan*, *1*(1), 77–93. https://doi.org/10.53398/ja.v1i1.127

Nisa', N. Z., Sunandar, S., & Miyono, N. (2021). Pengaruh Supervisi Akademik Dan Iklim Organisasi Sekolah Terhadap Motivasi Kerja Guru Sekolah Menengah Pertama Di Kecamatan Kedung Kabupaten Jepara. *Jurnal Manajemen Pendidikan (JMP)*, *9*(2), 234–248. https://doi.org/10.26877/jmp.v9i2.8114

Nurbayani, S., Nyoman, N., & Martini, P. (2024). The Effect Of Leadership Style , Human Resources Compe- Tence , Facilities And Infrastructure On Teacher Perfor- Mance Through Job Satisfaction As An Intervening Varia- Ble (Study at Public Junior High Schools in Bondowoso Regency). *3*(3), 814–831.

Peraturan Menteri Pendidikan Nasional Nomor 16/2007. (2007). Tentang Standar Kualifikasi Akademik dan Kompetensi Guru. *Jakarta: BNSP*, *вы12у*(235), 245. http://digilib.unila.ac.id/4949/15/BAB II.pdf

Permendikbud no 20 tahun 2016. (2016). Standar Kompetensi Lulusan No. 20 Tahun 2016. *Kemendikbud*, *3*(2), 1–8.

Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: A review of the literature. *Journal of Applied Psychology*, *87*(4), 698–714. https://doi.org/10.1037/0021-9010.87.4.698

Robbins, S. P., & Judge, T. A. (2022). Organizational Behavior. In *New York: Pearson*. http://scioteca.caf.com/bitstream/handle/123456789/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y%0Ahttp://dx.doi.org/10.1016/j.regsciurbeco.2008.06.005%0Ahttps://www.researchgate.net/publication/305320484_Sistem_Pembetungan_Terpusat_Strategi_MelestarI

Sanda, M.-A. (2011). Leadership and "Tipping" in Workplace Transformation: A Critical Review. *International Journal of Business and Social Science*, *2*(5), 18–22. https://www.diva-portal.org/smash/record.jsf?pid=diva2%3A975396&dswid=7136

Sanoto, H., Soegito, A., & Negeri Semarang, U. (2021). Pengaruh Supervisi Akademik Terhadap Peningkatan Kompetensi Guru di Daerah 3T (Terdepan, Terpencil, Tertinggal) The Effect of Academic Supervision Towards The Improvement of Teachers' Competency in 3T Area (Frontier, Outermost, and Least Developes). *Scholaria: Jurnal Pendidikan Dan Kebudayaan*, *11*(2), 166–172. https://ejournal.uksw.edu/scholaria/article/view/4845

Sarstedt, M., Ringle, C. M., & Hair, J. F. (2020). Handbook of Market Research. In *Handbook of Market Research* (Issue July). https://doi.org/10.1007/978-3-319-05542-8

Sinambela, E. A. (2021). Motivasi Kerja Dan Dukungan Organisasi Serta Pengaruhnya Terhadap Komitmen Organisasi. *Jurnal Baruna Horizon*, *4*(1), 34–42. https://doi.org/10.52310/jbhorizon.v4i1.55

Singerin, S. (2021). The Impact of Academic Supervision on Teacher Pedagogical Competence and Teacher Performance: The Role Moderating by Teacher Efficacy. *International Journal of Elementary Education*, *5*(2), 496. https://doi.org/10.23887/ijee.v5i3.34072

Sutrisno, S., Hayati, H., Saputra, N., Arifin, S., & Kartiko, A. (2023). The Influence of The Head of Madrasah and Infrastructure Facilities on The Quality of Education Through Teacher Competence. *Tafkir: Interdisciplinary Journal of Islamic Education*, *4*(2), 274–288. https://doi.org/10.31538/tijie.v4i2.423

Westley, K. E. (2011). Teacher quality and student achievement. *Teacher Quality and Student Achievement*, *8*(1), 1–215. https://doi.org/10.14507/epaa.v8n1.2000