



Journal of Education, Teaching, and Learning is licensed under
A [Creative Commons Attribution-Non Commercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/).

Analysis Of The Effectiveness Of Google Workspace For Education Training On The Improvement Of Teachers' Digital Competence

Rina Wati¹⁾, Jonni Mardizal²⁾✉, M. Giatman³⁾, Hansi Effendi⁴⁾

¹⁾ Universitas Negeri Padang, Padang, Indonesia
E-mail: rinawati2182@gmail.com

✉ ²⁾ Universitas Negeri Padang, Padang, Indonesia
E-mail: jonni.mardizal@ft.unp.ac.id

³⁾ Universitas Negeri Padang, Padang, Indonesia
E-mail: giatman@ft.unp.ac.id

⁴⁾ Universitas Negeri Padang, Padang, Indonesia
E-mail: hans_79@ft.unp.ac.id

✉ Correspondence Author

Keywords: Google Workspace for Education; digital competence; teacher training; educational technology; school digitalization

© **Copyright:** 2023. Authors retain copyright and grant the JETL (Journal of Education, Teaching and Learning) right of first publication with the work simultaneously licensed under a [Creative Commons Attribution License](https://creativecommons.org/licenses/by-nc/4.0/)

Abstract

In the era of educational digital transformation, enhancing teachers' digital competence has become a critical challenge. This study investigates the effectiveness of Google Workspace for Education training in improving the digital competence of teachers at SMA Negeri 11 Padang, a school preparing to become a Google Reference School. A quantitative descriptive method was employed, involving 40 teachers as respondents through a structured questionnaire. Data were analyzed using descriptive statistics, normality and linearity tests, and Pearson correlation. The results reveal a strong positive correlation ($r = 0.891$, $p < 0.001$) between the training and teachers' digital competence, indicating that the training significantly improves their ability to utilize digital tools for teaching, collaboration, and classroom management. Furthermore, the training content, methods, and teacher engagement were found to play critical roles in shaping effective outcomes. These findings support the notion that structured and pedagogically aligned training is essential for equipping educators with relevant digital skills. It is concluded that Google Workspace training serves as an effective strategic intervention for advancing digital teaching competence in secondary education.

INTRODUCTION

The rapid evolution of information and communication technology (ICT) has fundamentally reshaped the landscape of education. In the digital era, integrating technology into teaching and learning processes is not only an option but a necessity (Budnyk et al., 2021). Educational institutions are expected to equip students with 21st-century skills, including digital literacy,

collaboration, and adaptability. In this context, teachers play a central role as facilitators of digital learning, requiring them to master digital tools and platforms to deliver effective, engaging, and transformative instruction. However, many teachers still face significant challenges in adapting to digital teaching, particularly due to limited digital competence and insufficient training (Garzón Artacho et al., 2020; Peters et al., 2022).

To address these challenges, professional development programs targeting digital competence are increasingly recognized as vital (Rubach & Lazarides, 2025). Among the available platforms, Google Workspace for Education has emerged as a leading solution offering a suite of cloud-based tools designed to support teaching, collaboration, and content delivery. Tools such as Google Classroom, Docs, Drive, and Meet provide teachers with the infrastructure to implement digital classrooms efficiently. Yet, the success of these tools depends largely on the extent to which teachers are equipped and trained to utilize them meaningfully.

Numerous studies have highlighted the benefits of Google Workspace in improving educational processes. For example, Valverde-Berrocoso et al., (2021) found that workshops and structured training significantly enhance teachers' technological and pedagogical skills. Other studies have demonstrated increased teacher satisfaction, classroom interactivity, and student engagement following the implementation of Google tools. While these studies emphasize the importance of training, they often focus on generic outcomes such as tool mastery or general digital literacy, lacking a specific focus on strategic school transformation initiatives such as the Google Reference School program.

This study identifies a critical gap in the literature. There is limited research examining how Google Workspace training contributes not just to individual competence, but also to institutional readiness specifically in schools preparing to become certified Google Reference Schools. Existing research often neglects the institutional context in which digital competence must be applied, and there is a paucity of studies that link training effectiveness to broader school-level transformation goals (Nadrljanski et al., 2022; Yurina et al., 2022).

The novelty of this study lies in its dual focus: first, on evaluating the effectiveness of Google Workspace for Education training in enhancing individual teachers' digital competence; second, on assessing how this improvement supports SMA Negeri 11 Padang's strategic goal of becoming a Google Reference School. Unlike previous research, this study examines the training as a strategic intervention aligned with institutional digitalization targets, not merely as a technical capacity-building effort.

By focusing on SMA Negeri 11 Padang a school formally designated as a Google Reference School candidate this research offers a unique contribution to the discourse on educational digital transformation. It provides empirical data on how targeted training can bridge the digital competence gap among teachers, thereby enabling the school to fulfill its mandate of digital excellence. The study contextualizes teacher training within a broader school improvement framework, positioning digital competence as both a personal and institutional asset.

This study aims to analyze the effectiveness of Google Workspace for Education training in improving teachers' digital competence and to explore how this improvement contributes to the school's readiness as a Google Reference School. The findings are expected to inform policy-makers, school leaders, and training providers about the strategic design of teacher professional

development programs in the era of educational digitalization (Alferez-Pastor et al., 2023; Kassymova et al., 2023).

METHODS

This research employed a quantitative descriptive approach to examine the effectiveness of Google Workspace for Education training on improving teachers' digital competence. The study was conducted at SMA Negeri 11 Padang, which has been designated as a candidate for the Google Reference School program. The choice of location was intentional, as the school is actively pursuing digital transformation. The study focused on evaluating how training interventions affected the digital capabilities of teachers in the context of this institutional goal.

The population in this study consisted of 61 teachers at SMA Negeri 11 Padang. Using total sampling, all members of the population were included as research respondents. Data were collected through a structured questionnaire based on a Likert scale with four options: Always, Often, Sometimes, and Rarely. The instrument covered two main variables: training effectiveness (X) and digital competence (Y). The indicators for training included content relevance, instructional methods, duration, participation, satisfaction, and supporting facilities, while the indicators for digital competence encompassed digital classroom management, collaboration, communication, digital teaching materials, innovation, digital confidence, and integration.

To ensure the reliability and validity of the instrument, expert validation was conducted with three education technology experts. The validity of questionnaire items was tested using Pearson product-moment correlation, while reliability was measured using the KR-21 formula. Descriptive statistics were used to describe the distribution of scores, and inferential statistics were applied to examine the relationship between the two variables. Normality and linearity tests were performed prior to the Pearson correlation test to validate the assumptions required for analysis.

RESULT AND DISCUSSION

This study aimed to determine the effect of Google Workspace for Education training on teachers' digital competence. The data were collected through questionnaires distributed to 40 teachers who participated in the training. The results were analyzed using descriptive statistics and inferential analysis including normality, linearity, and hypothesis testing using Pearson correlation.

Table 1. Descriptive Statistics of Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Google Workspace Training (X)	40	78	114	96.78	8.651
Digital Competence (Y)	40	76	114	95.45	8.753

Table 1 shows the descriptive statistics for both variables. The average score for Google Workspace training is 96.78, while the digital competence score is 95.45. These results suggest a relatively high level of participation and competency, with moderate variation among respondents.

Table 2. Test of Normality and Linearity

Test	Variable	Sig. Value	Interpretation
Kolmogorov-Smirnov	Training (X)	0.200	Normal distribution
Kolmogorov-Smirnov	Competence (Y)	0.134	Normal distribution
Linearity Test	X*Y	0.000	Linear relationship

The normality test results indicate that both the training and digital competence variables are normally distributed ($p > 0.05$). Furthermore, the linearity test shows a significant linear

relationship between training and competence ($p < 0.05$), validating the use of Pearson correlation analysis.

Table 3. Pearson Correlation between Training and Digital Competence

Variable	Pearson Correlation (r)	Sig. (2-tailed)	N
Training (X) & Competence (Y)	0.891	0.000	40

As shown in Table 3, the Pearson correlation coefficient between training and digital competence is 0.891, with a significance value of 0.000, indicating a very strong and statistically significant positive relationship. This means that as participation in Google Workspace training increases, teachers' digital competence tends to improve significantly.

The data analysis confirms that Google Workspace for Education training has a strong positive impact on teachers' digital competence. All statistical tests including normality, linearity, and correlation support the hypothesis that the training is an effective tool for enhancing digital skills in the educational context.

Discussion

The results of this study confirm the significant effect of Google Workspace for Education training on improving teachers' digital competence. The strong positive correlation ($r = 0.891$) indicates that the higher the effectiveness and participation in the training program, the more competent teachers become in integrating digital tools into their teaching practices. This finding aligns with previous studies Ovcharuk et al., (2020), which found that structured digital training significantly contributes to enhancing teachers' confidence and proficiency in using educational technologies.

One of the key explanations for this result lies in the comprehensive structure of the training itself (Akcil et al., 2021). The training provided not only technical guidance on using Google applications such as Google Classroom, Meet, Docs, and Drive but also included pedagogical approaches that allowed teachers to integrate these tools into real teaching scenarios. According to Regita (2023), the effectiveness of Google Workspace tools in education is maximized when teachers are trained not just to use them but to embed them within meaningful instructional strategies (Ideland, 2021; Niyazova et al., 2022).

Moreover, the findings suggest that teachers were highly engaged during the training sessions, as reflected by high mean scores for both training effectiveness and digital competence. This indicates that factors such as content relevance, hands-on practices, and ongoing support played crucial roles in building teacher capacity. Previous research (Schmidt & Tang, 2020; Strutynska et al., 2021) also emphasized the importance of active participation and practice-based learning in fostering digital literacy among educators.

The linearity and normality of the data reinforce the robustness of the analysis, confirming that the relationship between the training program and teachers' competencies is statistically sound (Fauziah & Nugroho, 2024; Oliynyk et al., 2021). These results offer strong evidence for schools and policymakers to invest in continuous, targeted training programs that not only meet teachers' immediate needs but also align with institutional goals, such as becoming a Google Reference School. Such initiatives are vital in the context of educational digital transformation (Kasyan et al., 2021; Schmidt & Tang, 2020).

In summary, the discussion highlights that Google Workspace for Education training is not merely a technical orientation but a strategic intervention that significantly uplifts teachers' readiness for digital teaching. It supports the notion that capacity-building programs must be

designed with pedagogical depth and technological breadth. The results of this study offer practical implications for schools aiming to optimize their digital ecosystems through empowered and digitally competent educators (Agibova et al., 2020; Darmo et al., 2025).

CONCLUSIONS

Based on the findings of this study, it can be concluded that Google Workspace for Education training has a significant and positive impact on enhancing the digital competence of teachers at SMA Negeri 11 Padang. The strong correlation between training participation and improved digital skills indicates that structured, relevant, and practice-oriented training plays a vital role in preparing teachers to integrate technology into their instructional practices. Furthermore, this improvement supports the school's strategic goal of becoming a Google Reference School, demonstrating that professional development aligned with institutional digitalization initiatives can lead to meaningful and sustainable transformation in educational settings.

CONFLICTS OF INTEREST STATEMENT

Regarding this study, the author declares that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

Study concept and design: Rina Wati. Acquisition of data: Jonni Mardizal. Analysis and interpretation of data: M. Giatman. Drafting the manuscript: Rina Wati. Critical revision of the manuscript for important intellectual content: Hansi Effendi. Statistical analysis: Rina Wati.

REFERENCES

- Agibova, I. M., Kulikova, T. A., Poddubnaya, N. A., & Fedina, O. V. (2020). Development of digital competence of a future teacher in the context of informatization and digitalization of modern teacher education. *ARPHA Proceedings*, 3, 13–26.
- Akcil, U., Uzunboylu, H., & Kinik, E. (2021). Integration of technology to learning-teaching processes and google workspace tools: A literature review. *Sustainability*, 13(9), 5018. <https://doi.org/10.3390/su13095018>
- Alfárez-Pastor, M., Collado-Soler, R., Lérica-Ayala, V., Manzano-León, A., Aguilar-Parra, J. M., & Trigueros, R. (2023). Training digital competencies in future primary school teachers: A systematic review. *Education Sciences*, 13(5), 461. <https://doi.org/10.3390/educsci13050461>
- Budnyk, O., Zozuliak-Sluchyk, R., Nedilskyi, S., Chervinska, I., Malaniuk, T., Prevysokova, N., & Ketsyk-Zinchenko, U. (2021). Modern digital distance learning technologies: Challenges of future teacher training. *Revista Inclusiones*, 41–53.
- Darmo, C. P., Iryani, L., & Maharani, P. (2025). Impact of System Digitalization Administration through Training Microsoft Office and Google Workspace (SMK Sjakhyakirti). *JARDIRA—Jurnal Pengabdian Digital Dan Rekayasa Informatika*, 1(1), 18–26.
- Fauziah, A. S., & Nugroho, F. H. (2024). Improving Digital Competency for Educators and Education Personnel Through Google Workspace for Education. *Amalee: Indonesian Journal of Community Research and Engagement*, 5(1), 337–349. <https://doi.org/10.37680/amalee.v5i1.4019>
- Garzón Artacho, E., Martínez, T. S., Ortega Martín, J. L., Marin Marin, J. A., & Gómez García, G. (2020). Teacher training in lifelong learning—The importance of digital competence in the encouragement of teaching innovation. *Sustainability*, 12(7), 2852. <https://doi.org/10.3390/su12072852>

- Ideland, M. (2021). Google and the end of the teacher? How a figuration of the teacher is produced through an ed-tech discourse. *Learning, Media and Technology*, 46(1), 33–46. □ <https://doi.org/10.1080/17439884.2020.1809452>
- Kassymova, G. M., Tulepova, S. B., & Bekturova, M. B. (2023). Perceptions of digital competence in learning and teaching English in the context of online education. *Contemporary Educational Technology*, 15(1), ep396. <https://doi.org/10.30935/cedtech/12598>
- Kasyan, S. P., Oliynyk, V., Kondratova, L., & Gushchina, N. I. (2021). Development of digital competence of pedagogical staff in distance learning based on cloud service. *Information Technologies and Learning Tools*, 6(86), 268–288.
- Nadrljanski, Đ., Nadrljanski, M., & Pavlinović, M. (2022). Digitalization of education. In *Handbook on Intelligent Techniques in the Educational Process: Vol 1 Recent Advances and Case Studies* (pp. 17–39). Springer. https://doi.org/10.1007/978-3-031-04662-9_2
- Niyazova, G. Z., Saparkhojaye, N. P., Bazarbaeva, A. I., & Azybayev, M. A. (2022). Development of Digital Competence of School Teachers. *World Journal on Educational Technology: Current Issues*, 14(3), 592–603.
- Oliynyk, V. V., Gushchina, N. I., Konatova, L. G., & Kasyan, S. P. (2021). Development of digital competence of pedagogical staff in distance learning based on cloud services. *Information Technologies and Learning Tools*, 86(6), 268. [DOI:10.33407/itlt.v86i6.4722](https://doi.org/10.33407/itlt.v86i6.4722)
- Ovcharuk, O., Ivaniuk, I., Soroko, N., Gritsenchuk, O., & Kravchyna, O. (2020). *The use of digital learning tools in the teachers' professional activities to ensure sustainable development and democratization of education in European countries*. <https://doi.org/10.1051/e3sconf/202016610019>
- Peters, M., Ejjaberi, A. E., Martínez, M. J., & Fàbregues, S. (2022). Teacher digital competence development in higher education: Overview of systematic reviews. *Australasian Journal of Educational Technology*, 38(3), 122–139. <https://doi.org/10.14742/ajet.7543>
- Rubach, C., & Lazarides, R. (2025). Empowering Teacher Professionalization with Digital Competencies. In *Education Sciences* (Vol. 15, Issue 7, p. 867). [MDPI](https://doi.org/10.3390/educ15070867).
- Schmidt, J. T., & Tang, M. (2020). Digitalization in education: challenges, trends and transformative potential. In *Führen und managen in der digitalen transformation: Trends, best practices und herausforderungen* (pp. 287–312). Springer. https://doi.org/10.1007/978-3-658-28670-5_16
- Strutynska, O. V., Torbin, G. M., Umryk, M. A., & Vernydub, R. M. (2021). *Digitalization of the educational process for the training of the pre-service teachers*. <https://doi.org/10.31812/123456789/4437>
- Valverde-Berrocoso, J., Fernández-Sánchez, M. R., Revuelta Dominguez, F. I., & Sosa-Díaz, M. J. (2021). The educational integration of digital technologies preCovid-19: Lessons for teacher education. *PloS One*, 16(8), e0256283. <https://doi.org/10.1371/journal.pone.0256283>
- Yurinova, E. A., Byrdina, O. G., & Dolzhenko, S. G. (2022). Transprofessional competences of school teachers in the digital environment: education employers' perspective. *Education and Information Technologies*, 27(2), 1841–1863. <https://doi.org/10.1007/s10639-021-10687-w>