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# Teachers' digital literacy at SMKN 3 Surakarta: The role of learning motivation and organizational support

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***Abstrak***

*Transformasi digital di bidang pendidikan menuntut guru untuk memiliki kemampuan literasi digital guru dalam mendukung pembelajaran. Namun, pada praktiknya masih ditemukan perbedaan kemampuan literasi digital guru yang dipengaruhi oleh faktor internal, seperti motivasi belajar serta faktor eksternal seperti dukungan organisasi. Tujuan penelitian ini untuk mengetahui pengaruh motivasi belajar dan dukungan organisasi terhadap literasi digital guru SMKN 3 Surakarta baik secara parsial maupun simultan. Penelitian ini menggunakan pendekatan asosiatif kausal, dengan jumlah populasi dan sampel 75 guru melalui teknik total sampling. Data dikumpulkan melalui angket tertutup berskala Likert yang telah melewati uji validitas dan reliabilitas. Analisis data menggunakan regresi linear berganda melalui bantuan perangkat lunak IBM SPSS Statistics versi 27. Temuan penelitian menunjukkan bahwa (1) motivasi belajar berpengaruh positif dan signifikan terhadap literasi digital guru dengan kontribusi efektif sebesar 48,1%. (2) dukungan organisasi berpengaruh positif dan signifikan terhadap literasi digital guru dengan kontribusi efektif sebesar 16,4%. (3) motivasi belajar dan dukungan organisasi berpengaruh positif dan signifikan terhadap literasi digital guru secara simultan dengan nilai R Square sebesar 0,645 menunjukkan bahwa 64,5% variabel literasi digital guru dipengaruhi oleh motivasi belajar dan dukungan organisasi, sementara sisanya 35,5% dipengaruhi oleh variabel lain di luar penelitian ini.*

*Kata Kunci: dukungan organisasi; literasi digital guru; motivasi belajar; guru, sekolah kejuruan*

**Abstract**

Digital transformation in education requires teachers to possess digital literacy competencies in order to support effective learning. However, in practice, disparities in teachers' digital literacy remain evident, influenced by internal factors such as learning motivation, as well as external factors such as organizational support. This study aims to examine the effect of learning motivation and organizational support on the digital literacy of teachers at SMKN 3 Surakarta, both partially and simultaneously. This study employed a causal associative approach, with a population and sample of 75 teachers selected through a total sampling technique. Data were collected using a closed-ended Likert-scale questionnaire that had undergone validity and reliability testing. Data analysis was conducted using multiple linear

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regression with the aid of IBM SPSS Statistics software, version 27. The findings revealed that (1) learning motivation has a positive and significant effect on teachers' digital literacy, with an effective contribution of 48.1%; (2) organizational support has a positive and significant effect on teachers' digital literacy, with an effective contribution of 16.4%; and (3) learning motivation and organizational support simultaneously exert a positive and significant effect on teachers' digital literacy, with an R-square value of 0.645, indicating that 64.5% of the variance in teachers' digital literacy is explained by learning motivation and organizational support, while the remaining 35.5% is attributable to other variables outside the scope of this study.

Keywords: organizational support; teacher digital literacy; learning motivation; teachers; vocational school

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## Introduction

The rapid advancement of digital technology has profoundly transformed the landscape of education, generating both unprecedented opportunities and significant challenges for teaching professionals. In this context, teachers are expected not only to be competent users of digital tools but also to serve as effective guides in cultivating students' critical engagement with digital information and platforms. As Julianto (2023) argued, teachers occupy a pivotal position in digital literacy ecosystems, particularly in terms of comprehending, evaluating, and responsibly applying technology to facilitate student learning.

At the global and regional levels, however, the state of teachers' digital literacy remains far from optimal. Alakrash and Abdul Razak (2021) found that in Southeast Asia, teachers' digital literacy continues to face substantial structural barriers, including infrastructure gaps, insufficient targeted professional development programs, and inadequate institutional support. Similarly, Mariana and Nurjanah (2023) reported that approximately 70% of teachers in the region remain at basic to intermediate levels of digital literacy, rendering them unable to integrate digital technology in a fully optimized manner. This challenge is particularly pronounced in Indonesia, where Masnah et al. (2024) found that only 32% of vocational school (SMK) teachers had participated in digital literacy training, while the remaining 68% had never received any formal instruction in this domain.

Despite various initiatives aimed at improving teachers' digital literacy, real-world conditions continue to reveal significant shortcomings. Saraswati et al. (2022) documented that the digital literacy of vocational school teachers in Central Java remained suboptimal, and that even participation in programs organized by the Ikatan Guru Indonesia (IGI) in the region yielded inconsistent outcomes in terms of technology mastery and sustained practical application. These challenges were also evident at SMKN 3 Surakarta, where preliminary observations indicated that most teachers were limited to basic software applications (e.g., Microsoft Word, Excel, and PowerPoint) and elementary internet usage—primarily for searching teaching materials via Google and YouTube—while demonstrating limited capability in advanced digital operations, critical evaluation of digital information, adherence to digital ethics, or cybersecurity awareness.

Two key factors have been identified in the literature as significant predictors of teachers' digital literacy: learning motivation and organizational support. With respect to the former, Yonata and Arman (2025) demonstrated that learning motivation significantly influences teachers' digital literacy skills, a finding corroborated by Kurniawan et al. (2024). With respect to the latter, Aprianto and Suciati (2024) showed that organizational support—encompassing facility provision, training, and a conducive work

environment—positively and significantly predicts digital literacy, a conclusion also supported by Bakhri et al. (2025).

Theoretically, this study is grounded in two complementary frameworks. Digital literacy among teachers can be conceptualized through Van Laar et al.'s (2017) 21st Century Digital Skills theory, which posits that digital competence in the contemporary era encompasses not merely the technical operation of devices but also critical thinking, collaborative problem-solving, and responsible technology use. In this framework, teachers' digital literacy is understood as a multidimensional construct that integrates technical proficiency with higher-order cognitive and social capacities. Learning motivation is conceptualized in relation to Schunk's (2012) Self-Regulated Learning (SRL) theory, which emphasizes the role of autonomous goal-setting and self-directed engagement in sustaining ongoing competence development. Organizational support, in turn, is theorized through Neves and Eisenberger's (2014) Perceived Organizational Support (POS) framework, which holds that employees who perceive their institutions as recognizing their contributions and caring for their welfare are more inclined to invest in professional development, including the enhancement of digital competencies.

A notable gap in the extant literature is that prior studies have tended to examine learning motivation and organizational support in isolation as predictors of teachers' digital literacy, rather than simultaneously within a single analytical model. This limitation is particularly acute in the context of vocational secondary education (SMK), where teachers operate under distinct expectations—namely, a strong alignment between classroom pedagogy and evolving industry technological standards—that may amplify the influence of both internal motivation and institutional backing. The present study addresses this gap by empirically examining the joint and independent effects of learning motivation and organizational support on teachers' digital literacy within a unified analytical framework, thereby contributing to both theoretical understanding and practical policy formulation in vocational education.

The research questions guiding this study are: (1) Does learning motivation have a positive and significant effect on the digital literacy of teachers at SMKN 3 Surakarta? (2) Does organizational support have a positive and significant effect on the digital literacy of teachers at SMKN 3 Surakarta? (3) Do learning motivation and organizational support simultaneously exert a positive and significant effect on the digital literacy of teachers at SMKN 3 Surakarta? Corresponding hypotheses propose that each of these effects is positive and statistically significant.

## Literature Review

### Teachers' Digital Literacy

Judijanto (2024) conceptualized teachers' digital literacy as the ability to effectively leverage digital technology in ways that encompass accessing, managing, and evaluating information, engaging in critical thinking, and fostering creativity within the learning process. This conceptualization is consistent with Van Laar et al.'s (2017) 21st Century Digital Skills theory, which frames digital competencies as indispensable for functioning effectively in modern work, learning, and social environments. The theory emphasizes that digital literacy extends well beyond technical device operation to encompass critical reasoning, collaborative problem-solving, and ethical responsibility in technology use.

In the present study, teachers' digital literacy was operationalized using the indicators proposed by Raharjo and Winarko (2021), comprising ten dimensions: (1) accessing digital devices; (2) selecting information sources; (3) comprehending digital information; (4) analyzing digital information; (5) verifying information sources; (6) evaluating information; (7) distributing digital content; (8) producing digital content; (9) participating in digital platforms; and (10) collaborating in digital environments. These dimensions collectively capture both the consumptive and productive aspects of digital competence, making them well-suited to the multidimensional nature of teachers' work in technology-integrated classrooms.

2.2 Learning Motivation

Learning motivation refers to the internal driving force that propels individuals toward acquiring new knowledge and skills. Cahyani et al. (2020) described motivation as a form of internal energy that directs and sustains goal-oriented behavior. In the educational context, learning motivation shapes teachers' inclination to voluntarily engage with professional development activities, particularly those involving the acquisition of digital competencies. Theoretically, this study draws on Schunk's (2012) Self-Regulated Learning (SRL) framework, which underscores the capacity of individuals to autonomously direct, regulate,

and monitor their learning processes. In an era of rapid digital change, self-regulatory capacities are especially critical, enabling teachers to adapt independently, engage in self-directed learning, and continuously upgrade their digital competencies.

In this study, learning motivation was measured using the seven indicators derived from Sardiman (2021): (1) consistency; (2) perseverance; (3) interest; (4) independence; (5) confidence; (6) commitment; and (7) activeness. These indicators collectively reflect the volitional and cognitive dimensions of motivation that sustain engagement with professional learning.

2.3 Organizational Support

Organizational support refers to the extent to which an educational institution actively contributes to its teachers' professional growth and well-being. Untari et al. (2021) characterized organizational support as an institution's capacity to recognize teachers' contributions and attend to their professional needs and welfare. Lestari et al. (2025) further described organizational support as reflecting teachers' trust in their employing institution, expressed through the provision of fairness, recognition of contributions, attention to welfare, professional acknowledgment, and adequate working conditions.

This construct is grounded theoretically in Neves and Eisenberger's (2014) Perceived Organizational Support (POS) theory, which defines POS as an employee's belief that the institution recognizes their work contributions and values their well-being. In the present study, organizational support was measured using four indicators adapted from Jaenab et al. (2023): (1) supervisory support; (2) recognition and reward; (3) facilities and infrastructure; and (4) welfare provisions.

## Method

### Research Design and Participants

This study employed a quantitative approach with a causal-associative design, which is appropriate for investigating the directional relationships among variables and identifying the extent to which predictor variables influence an outcome variable (Ghozali, 2021). The independent variables were learning motivation (X1) and organizational support (X2), while the dependent variable was teachers' digital literacy (Y).

The study population comprised all 75 teachers at SMKN 3 Surakarta—including teachers of both general and vocational subjects—who were selected through total sampling. Following Sugiyono (2025), total sampling is recommended when the population size is below 100, ensuring that all members of the population serve as respondents. Accordingly, all 75 teachers constituted the research sample.

### Instrumentation

Data were collected using a closed-ended questionnaire employing a four-point Likert scale (1 = strongly disagree; 4 = strongly agree). The use of a four-point scale—rather than the conventional five-point format—was intentional; as Rokeman (2024) noted, the elimination of a neutral midpoint increases data validity by encouraging respondents to express more definitive positions. Questionnaires were distributed in paper form directly at the school, with written instructions included to ensure clarity and response accuracy. Participants completed the questionnaires independently, without external pressure, and confidentiality was assured.

The measurement instruments were independently developed based on indicators drawn from prior research. The learning motivation scale (X1) drew on indicators proposed by Sardiman (2021), encompassing: (1) consistency; (2) perseverance; (3) interest; (4) independence; (5) confidence; (6) commitment; and (7) activeness (18 items). The organizational support scale (X2) was based on indicators from Jaenab et al. (2023), covering: (1) supervisory support; (2) recognition and reward; (3) facilities and infrastructure; and (4) welfare provisions (12 items). The teachers' digital literacy scale (Y) was adapted from Raharjo and Winarko (2021), comprising the ten dimensions described in the literature review (22 items), yielding a total instrument pool of 52 validated items.

### Validity and Reliability Testing

Content validity was assessed using the Pearson Product Moment correlation technique, with items deemed valid when r-calculated exceeded r-table at a significance level of 0.05 (Slamet & Wahyuningsih,

2022). Reliability was assessed using Cronbach's Alpha, with a threshold of $\alpha > 0.60$ indicating acceptable reliability (Pratama & Permatasari, 2021). Validity testing was conducted on a separate sample of 30 teachers from SMKN 1 Surakarta—a school with comparable institutional characteristics—to maintain independence from the study sample. IBM SPSS Statistics version 27 was used for both analyses.

Of the original 59 items, 52 items demonstrated validity, with r-calculated values exceeding r-table ($r = 0.361$, $p < 0.05$); the remaining 7 items were excluded. Cronbach's Alpha coefficients indicated strong internal consistency across all three scales: learning motivation (X1) = 0.906; organizational support (X2) = 0.850; and teachers' digital literacy (Y) = 0.903. The 52 validated items were subsequently used in the main data collection.

**Data Analysis**

Prior to hypothesis testing, ordinal-scale data were transformed to interval-scale data using the Method of Successive Intervals (MSI). Four prerequisite assumption tests were conducted: (1) normality (Kolmogorov-Smirnov test); (2) linearity (deviation from linearity test); (3) multicollinearity (tolerance and VIF values); and (4) heteroscedasticity (Glejser test and scatterplot inspection).

Hypothesis testing was conducted using multiple linear regression analysis. Partial effects were evaluated using the t-test, and simultaneous effects were evaluated using the F-test. The coefficient of determination ($R^2$) was computed to assess the overall explanatory power of the model. Additionally, effective contribution and relative contribution calculations were performed to quantify the specific contribution of each independent variable to the dependent variable. All analyses were conducted using IBM SPSS Statistics version 27.

## Results

**Descriptive Statistics**

Descriptive analyses were conducted for all three study variables. Table 1 presents the descriptive statistics for teachers' digital literacy (Y), learning motivation (X1), and organizational support (X2).

**Tabel 1**
*Hasil Analisis Deskripsi Data*

| | | Literasi Digital Guru | Motivasi Belajar | Dukungan Organisasi |
|---|---|---|---|---|
| N | Valid | 75 | 75 | 75 |
| | Missing | 0 | 0 | 0 |
| Mean | | 65,01 | 55,75 | 33,50 |
| Median | | 63,69 | 55,86 | 32,42 |
| Mode | | 68 | 48 | 32[a] |
| Std. Deviation | | 9,148 | 6,741 | 3,481 |
| Variance | | 83,679 | 45,437 | 12,120 |
| Range | | 48 | 32 | 15 |
| Minimum | | 42 | 41 | 26 |
| Maximum | | 90 | 73 | 41 |
| Sum | | 4876 | 4181 | 2512 |

As shown in Table 1, the digital literacy variable exhibited a mean score of 65.01, a median of 63.69, and a standard deviation of 9.148, with observed scores ranging from 42 to 90 across 22 items. The learning motivation variable had a mean of 55.75, a median of 55.86, and a standard deviation of 6.741, with a range of 41 to 73 across 18 items. The organizational support variable had a mean of 33.50, a median of 32.42, and a standard deviation of 3.481, with scores ranging from 26 to 41 across 12 items. No missing data were identified for any variable.

**Assumption Testing**

Four prerequisite tests were conducted prior to hypothesis testing. The Kolmogorov-Smirnov normality test yielded an Asymp. Sig. (2-tailed) value of 0.200 ($p > 0.05$), confirming that the data distribution satisfied the normality assumption. Linearity testing showed deviation from linearity significance values of 0.407 for learning motivation and 0.557 for organizational support (both $p > 0.05$), confirming linear relationships between each predictor and the outcome variable.

Multicollinearity diagnostics indicated tolerance values of 0.901 and VIF values of 1.110 for both predictors, both well within acceptable thresholds (tolerance > 0.10; VIF < 10), indicating the absence of problematic multicollinearity. The Glejser test for heteroscedasticity returned significance values of 0.064 for learning motivation and 0.359 for organizational support (both $p > 0.05$), and scatterplot inspection revealed no discernible systematic pattern in residual distribution. Collectively, these results confirm that all assumptions underlying multiple linear regression analysis were satisfactorily met.

**Multiple Linear Regression Analysis**

Table 2 presents the unstandardized and standardized regression coefficients obtained from the multiple linear regression analysis.

**Tabel 2**
Hasil Analisis Regresi Linear Berganda

| | *Unstandardized Coefficients* | | *Standardized Coefficients* |
|---|---|---|---|
| | B | Std. Error | Beta |
| (*Constant*) | -11,662 | 7,151 | |
| Motivasi Belajar | 0,876 | 0,100 | 0,646 |
| Dukungan Organisasi | 0,830 | 0,194 | 0,316 |

As shown in Table 2, the regression equation derived from this analysis is:

$\hat{Y} = -11.662 + 0.876X_1 + 0.830X_2$

where $\hat{Y}$ denotes predicted digital literacy, $X_1$ denotes learning motivation, and $X_2$ denotes organizational support. A one-unit increase in learning motivation (holding organizational support constant) is associated with a 0.876-unit increase in digital literacy, while a one-unit increase in organizational support (holding learning motivation constant) is associated with a 0.830-unit increase in digital literacy. As noted by Nurhidayati and Yuliantari (2018), a negative constant value requires no special interpretation when regression assumptions are met and slope coefficients are non-zero; the constant is therefore disregarded in substantive interpretation.

**Hypothesis Testing**

**Tabel 3**
*Hasil Uji T*

| | $t_{hitung}$ | Sig. |
|---|---|---|
| (*Constant*) | -1,631 | 0,107 |
| Motivasi Belajar (X1) | 8,735 | < 0,001 |
| Dukungan Organisasi ($X_2$) | 4,274 | < 0,001 |

As presented in Table 3, learning motivation (X1) yielded a t-calculated value of 8.735, which exceeded the t-table value of 1.99 ($\alpha = 0.05$, $df = 72$), with a significance level of $p < 0.001$. These results indicate that learning motivation has a statistically significant positive partial effect on teachers' digital literacy (H1 supported). Similarly, organizational support (X2) yielded a t-calculated value of 4.274, exceeding the t-table value of 1.99, with $p < 0.001$, confirming a significant positive partial effect on teachers' digital literacy (H2 supported).

Table 4 presents the results of the simultaneous hypothesis test (F-test).

**Tabel 4**
*Hasil Uji F*

| | *Sum of Squares* | df | *Mean Square* | F | Sig. |
|---|---|---|---|---|---|
| Regression | 3996,311 | 2 | 1998,156 | 65,516 | <0,001[b] |
| Residual | 2195,899 | 72 | 30,499 | | |
| Total | 6192,210 | 74 | | | |

As shown in Table 4, the F-test yielded an F-calculated value of 65.516, which substantially exceeded the F-table value of 3.12 ($\alpha = 0.05$; df1 = 2; df2 = 72), with $p < 0.001$. These results provide strong evidence that learning motivation and organizational support jointly and significantly predict teachers' digital literacy (H3 supported).

**Coefficient of Determination and Variable Contributions**

Table 5 presents the coefficient of determination, and Tables 6, 7, and 8 detail the correlation coefficients and the effective and relative contributions of each predictor variable.

**Tabel 5**
*Hasil Uji Koefisien Determinasi ($R^2$)*

| R | *R Square* | Adjusted R Square | *Std. Error of the Estimate* |
|---|---|---|---|
| 0,803 | 0,645 | 0,636 | 5,52255 |

As indicated in Table 5, the R-square value of 0.645 signifies that 64.5% of the variance in teachers' digital literacy is collectively explained by learning motivation and organizational support, with the remaining 35.5% attributable to other factors not examined in this study.

**Tabel 6**
*Hasil Koefisien Korelasi*

| Variabel | Koefisien Regresi (Beta) | Koefisien korelasi | R Square |
|---|---|---|---|
| Motivasi Belajar (X1) | 0,646 | 0,745 | 0,645 |
| Dukungan Organisasi (X2) | 0,316 | 0,519 | |

Table 6 presents the standardized regression coefficients (Beta) and bivariate correlation coefficients used to calculate the effective contribution of each predictor to the overall $R^2$. These values serve as the basis for the effective contribution computation reported in Table 7.

**Tabel 7**
*Hasil Sumbangan efektif $X_1$ dan $X_2$ terhadap Y*

| Sumbangan Efektif | Nilai | Persentase |
|---|---|---|
| Motivasi Belajar ($X_1$) | 0,646 x 0,745 x 100% = 0,481 | 48,1% |
| Dukungan Organisasi ($X_2$) | 0,316 x 0,519 x 100 % = 0,164 | 16,4% |
| Total | | 64,5% |

As shown in Table 7, learning motivation (X1) accounts for an effective contribution of 48.1% to teachers' digital literacy, while organizational support (X2) contributes 16.4%. The combined effective contribution of 64.5% is consistent with the R-square value, confirming the accuracy of the partitioned variance estimates.

**Tabel 8**
*Hasil Sumbangan Relatif X1 dan $X_2$ terhadap Y*

| Sumbangan Relatif | Nilai | Persentase |
|---|---|---|
| Motivasi Belajar ($X_1$) | 48,1% ÷ 64,5% | 74,6% |
| Dukungan Organisasi ($X_2$) | 16,4% ÷ 64,5% | 25,4% |
| Total | | 100% |

As presented in Table 8, within the variance explained by the regression model (64.5%), learning motivation accounted for a relative contribution of 74.6%, while organizational support contributed the remaining 25.4%. This finding confirms that, among the two predictors examined, learning motivation is substantially the more dominant determinant of teachers' digital literacy.

## Discussion

### Effect of Learning Motivation on Teachers' Digital Literacy

The finding that learning motivation exerts a positive and significant partial effect on teachers' digital literacy is consistent with prior research. Butarbutar et al. (2024) similarly concluded that learning motivation significantly predicts digital literacy, and Fütterer et al. (2024) demonstrated that teachers' engagement in professional development activities is substantially determined by the strength of their learning motivation. The present findings suggest that as teachers' intrinsic drive to learn intensifies, their propensity to engage in sustained, self-directed exploration of digital technologies likewise increases.

Analysis of individual questionnaire items revealed that item 3—concerning continuous, self-initiated learning about technology—received the highest aggregate score (sum = 250), indicating broad agreement among respondents. This pattern suggests that teachers at SMKN 3 Surakarta are generally aware of the necessity of ongoing digital upskilling and are willing to pursue such development autonomously.
Theoretically, these findings resonate with Van Laar et al.'s (2017) 21st Century Digital Skills framework, which situates digital competence within a broader ecology of lifelong learning dispositions. Digital literacy, as conceptualized by this framework, is not a static attainment but a dynamic capacity sustained by continued motivation to adapt, explore, and apply new technologies responsibly. Teachers' relative contribution of 74.6% to the explained variance further underscores that digitally literate teachers are, above all, self-motivated learners who proactively engage with evolving technological demands.

### Effect of Organizational Support on Teachers' Digital Literacy

Organizational support also demonstrated a positive and significant partial effect on teachers' digital literacy, consistent with the conclusions of Mulyanti et al. (2024), who found significant organizational support effects on digital literacy among vocational school teachers across Indonesia. Andriany et al. (2023) similarly found that teachers who perceive strong organizational support are more willing to adopt digital innovations, utilize online learning resources, and integrate a broader range of digital skills into their instructional practice.

Item-level analysis indicated that item 5—pertaining to principals' appreciation of teachers' efforts in using digital technology—received the highest aggregate score among organizational support items (sum = 274), suggesting that recognition from school leadership is a particularly salient form of support perceived by teachers. This finding aligns with Bakhri et al. (2025), who identified recognition, welfare attention, and professional acknowledgment as key manifestations of organizational support.

The theoretical basis for this finding is provided by Neves and Eisenberger's (2014) POS theory, which posits that when employees perceive their organization as genuinely valuing their contributions and attending to their welfare, they develop heightened emotional engagement, loyalty, and intrinsic motivation to excel professionally. Applied to the present context, when teachers sense that their school genuinely supports their digital development efforts, they are more motivated and resourced to enhance their digital competencies.

### Simultaneous Effect and the Relative Dominance of Learning Motivation

The simultaneous analysis confirmed that learning motivation and organizational support together significantly predict teachers' digital literacy ($F = 65.516 > F\text{-table} = 3.12$; $p < 0.001$; $R^2 = 0.645$). The two variables collectively accounted for 64.5% of the variance in digital literacy, leaving 35.5% to be explained by factors outside the scope of this study—a finding that highlights the potential value of further research incorporating additional predictors.

A particularly noteworthy finding is the marked dominance of learning motivation over organizational support in explaining digital literacy variance, with effective contributions of 48.1% and

16.4%, respectively—a ratio of approximately 3:1. This disparity may be partially attributable to the distinctive professional context of SMK teachers, who are expected to maintain close alignment between their instructional content and current industry practices. This normative expectation may cultivate heightened internal drive among vocational teachers to independently pursue digital upskilling, even in the absence of strong institutional incentives. The finding also implies that teachers who internalize the professional necessity of digital competence are likely to pursue its development proactively, regardless of the level of external support available.

Despite the primacy of internal motivation, organizational support retains meaningful significance as an enabling factor. Without adequate institutional resources, recognition, and infrastructure, even highly motivated teachers may face structural barriers that impede the translation of motivation into competence development. This suggests that both factors operate in a complementary rather than substitutive manner, and that optimal digital literacy outcomes are most likely to emerge when strong internal motivation is scaffolded by a supportive institutional environment.

In terms of novelty, previous studies have tended to examine learning motivation and organizational support in isolation (Kurniawan et al., 2024; Aprianto & Suciati, 2024). The present study advances the literature by examining both predictors within a unified analytical framework applied to SMK teachers, thereby providing an integrated account of the relative contributions of individual and institutional factors. This integrated perspective is particularly relevant for policy formulation, as it implies that effective strategies for enhancing digital literacy must address both the cultivation of intrinsic teacher motivation and the provision of meaningful organizational support.

**Conclusion**

This study examined the effects of learning motivation and organizational support on the digital literacy of teachers at SMKN 3 Surakarta. Three principal conclusions were drawn. First, learning motivation exerts a positive and significant partial effect on teachers' digital literacy ($t = 8.735 > t\text{-table} = 1.99$; $p < 0.001$), with an effective contribution of 48.1%. Second, organizational support exerts a positive and significant partial effect on teachers' digital literacy ($t = 4.274 > t\text{-table} = 1.99$; $p < 0.001$), with an effective contribution of 16.4%. Third, learning motivation and organizational support jointly exert a positive and significant simultaneous effect on teachers' digital literacy ($F = 65.516 > F\text{-table} = 3.12$; $p < 0.001$; $R^2 = 0.645$).

The dominant influence of learning motivation—approximately three times greater than that of organizational support—highlights the primacy of intrinsic factors in shaping digital competence among vocational school teachers. This pattern is interpretable in light of the distinctive character of SMK teaching, which demands adaptability and responsiveness to evolving industrial and technological landscapes. At the same time, organizational support remains a meaningful predictor, underscoring the necessity of an enabling institutional environment in which teachers' motivation can be effectively channeled and sustained.

These findings carry important implications for educational policy and practice. Schools and educational policymakers should invest simultaneously in strategies that strengthen teachers' intrinsic motivation—such as structured reflection activities, peer learning communities, and goal-setting frameworks—and in institutional support mechanisms including continuous digital literacy training, recognition of digital innovation efforts, provision of adequate technological infrastructure, and constructive leadership engagement. A dual-pronged approach that addresses both individual motivation and institutional support is likely to yield the most substantial and sustainable improvements in teachers' digital literacy.

This study is subject to several limitations. First, the cross-sectional design provides a static snapshot of the relationships among variables and cannot capture longitudinal dynamics or causal trajectories over time. Second, the single-school sample restricts generalizability; findings should be interpreted with appropriate caution regarding their applicability to other schools or educational levels. Future research should consider longitudinal designs, multi-school sampling frames encompassing diverse institutional contexts, and the inclusion of additional predictor variables—such as self-efficacy, technology infrastructure quality, school leadership styles, and peer collaborative culture—that may further illuminate the complex antecedents of teachers' digital literacy.

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