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The Effect of Self-Management and Digital Readiness on Teacher Professionalism: Evidence from Junior High Schools in Manado, Indonesia

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ABSTRACT

In the era of digital transformation, teacher professionalism has become a critical determinant of educational quality, yet its relationship with self-regulatory capacity and digital preparedness remains underexplored in developing-country contexts. Empirical evidence from Indonesian schools indicates that teachers' levels of self-management and digital readiness remain varied and suboptimal, potentially undermining effective teaching performance in technology-integrated learning environments. This study aimed to examine the partial and simultaneous effects of self-management and digital readiness on teacher professionalism among junior high school teachers in Paal Dua District, Manado City, Indonesia. A quantitative explanatory research design was employed. Data were collected via a validated Likert-scale questionnaire administered to 85 respondents, selected using the Slovin formula (e = 0.05) from a population of 108 teachers across eight schools. Multiple linear regression analysis was conducted using IBM SPSS Statistics. Self-management had a positive and significant effect on teacher professionalism ($\beta = 0.434$, $t = 4.911$, $p < 0.001$), while digital readiness also exerted a positive and significant influence ($\beta = 0.413$, $t = 4.681$, $p < 0.001$). Self-management emerged as the more dominant predictor. Simultaneously, both variables significantly predicted teacher professionalism ($F = 23.115$, $p < 0.001$), explaining 36.1% of its variance ($R^2 = 0.361$). The integration of self-management capabilities and digital readiness constitutes a key determinant of teacher professionalism in digitally transforming educational settings. These findings provide an empirical basis for school administrators and education policymakers to design targeted teacher professional development programs that simultaneously strengthen self-management competencies and digital readiness.

Keywords: digital readiness, digital transformation, educational management, self-management, teacher professionalism.

INTRODUCTION

The rapid advancement of digital technology in the 21st century has fundamentally transformed educational systems worldwide. Learning environments are no longer confined to physical classrooms but have expanded into digital spaces through e-learning, hybrid instruction, and interactive multimedia. The OECD (2021, 2023) affirms that digital transformation has become a core element of modern education, requiring teachers to develop digital competencies as an integral dimension of their professional identity.

The Indonesian government has responded to this global imperative through strategic policy initiatives, including the Merdeka Belajar curriculum reform and the Digital Learning Transformation Program, which distributed educational technology equipment, including interactive digital boards and laptops, to 288,865 schools nationwide, with 75% of devices delivered by November 2025 (Ministry of Basic and Secondary Education, 2025). Despite these structural advancements, empirical evidence reveals a persistent gap: approximately 67% of Indonesian teachers still encounter difficulties operating digital devices and utilizing online learning platforms (OECD, 2024; UNICEF, 2021).

This gap underscores the importance of understanding not merely the availability of technology, but teachers' internal capacities, specifically their self-management and digital readiness, in leveraging such tools for professional purposes. Schunk and Greene (2021) describe self-management as an individual's ability to regulate thoughts, emotions, and behaviors effectively in pursuit of professional goals, which is particularly relevant when teachers face the psychological demands of digital adaptation, including technostress and burnout. Similarly, OECD (2021) defines digital readiness as an individual's capacity to use digital technology effectively within professional tasks and to adapt to technological change.

Prior research has established a positive relationship between teacher professionalism and various psychological and technological competencies. Cabero-Almenara et al. (2021) conducted a systematic review identifying digital competence as a multidimensional construct encompassing technical skills, information management, communication, and problem-solving, each significantly correlated with instructional effectiveness. Falloon (2020) proposed the Teacher Digital Competency (TDC) framework, emphasizing that digital literacy must evolve into digital competence before meaningful gains in teacher professionalism can be realized. Jiménez-Sierra et al. (2023), in their recent systematic review, confirmed that digital readiness positively predicts instructional quality, particularly in technology-integrated settings. Lu and Chen (2024) further demonstrated that teacher digital readiness significantly impacts instructional quality in digital learning environments.

From the perspective of self-regulatory capacities, Panadero (2021) reviewed six major models of self-regulated learning, concluding that self-regulation, closely related to self-management is a robust predictor of professional performance across domains. Lestari and Fauzan (2022) found that self-regulated learning substantially contributes to teacher professional development in the Indonesian context. Studies by Sari (2019) and Rahman (2021) have similarly demonstrated that self-management

and digital literacy are positively associated with teacher performance and professional competence in Indonesia.

Despite growing evidence on the individual roles of self-management and digital readiness, a critical research gap exists: no study has simultaneously examined both constructs as joint predictors of teacher professionalism within a single empirical model, particularly in the context of Indonesian junior high schools undergoing active digital transformation. Most prior studies address either self-regulatory competencies or digital skills in isolation, or focus on broader populations without the specificity of district-level analysis in a developing educational context.

Furthermore, existing studies have not adequately examined which of the two factors exerts more dominant influence on professionalism when both are considered simultaneously, a question with direct practical significance for prioritizing teacher development interventions. The novelty of this study lies in: (1) jointly modeling self-management and digital readiness as predictors within a single regression framework; (2) providing district-level evidence from a rapidly digitalizing Indonesian educational setting; and (3) empirically determining the relative dominance of each predictor to inform resource allocation in teacher professional development programs.

Based on the identified gap, this study aims to: (1) examine the partial effect of self-management on teacher professionalism; (2) examine the partial effect of digital readiness on teacher professionalism; and (3) examine the simultaneous effect of both self-management and digital readiness on teacher professionalism among junior high school teachers in Paal Dua District, Manado City, Indonesia.

THEORETICAL FRAMEWORK

Self-Management

Self-management, also conceptualized as self-regulation in educational psychology literature, refers to an individual's ability to manage their own thoughts, emotions, and behaviors in an effective and goal-directed manner (Schunk & Greene, 2021). In professional contexts, self-management encompasses time management, self-control, intrinsic motivation, self-discipline, and continuous self-development. Teachers with strong self-management capabilities are better positioned to plan learning activities systematically, maintain focus under workplace pressures, sustain professional motivation, and engage in reflective practice.

Digital Readiness

Digital readiness refers to an individual's preparedness to use digital technology effectively for professional tasks and to adapt to technological developments (OECD, 2021). In the teaching context, digital readiness encompasses planning technology-integrated lessons, organizing digital resources, implementing technology-supported learning activities, and evaluating the effectiveness of digital pedagogy. Redecker (2020) operationalized this through the DigCompEdu framework, which identifies six competency domains for educators using digital technology.

Teacher Professionalism

Teacher professionalism constitutes the degree to which teachers fulfill their professional duties

effectively, encompassing pedagogical competence, content mastery, technology integration, and sustained professional development (Darling-Hammond & Hyler, 2020). Indonesian regulatory frameworks, specifically Permendiknas No. 16/2007 and Permendikbudristek No. 16/2022, define teacher professional competence as including content mastery, pedagogical skills, social capacity, and personality, with explicit requirements for technology integration in the contemporary digital era.

METHOD

Research Design

This study employed a quantitative approach with an explanatory research design, aimed at explaining the causal relationships between self-management (X_1), digital readiness (X_2), and teacher professionalism (Y). Multiple linear regression was used as the primary analytical technique, consistent with the study's objective of examining both partial and simultaneous effects.

Population and Sample

The study population comprised 108 teachers from eight junior high schools in Paal Dua District, Manado City, North Sulawesi Province, Indonesia. Proportional stratified random sampling was applied using the Slovin formula with a 5% margin of error, yielding a final sample of 85 teachers. Demographic characteristics indicated that the majority of respondents were female (68.2%), predominantly in the 31–40 age group (41.1%), held a bachelor's degree (96.5%), and had more than 15 years of teaching experience (34.1%).

Instrumentation

Data were collected using a structured Likert-scale questionnaire (1 = Strongly Disagree to 5 = Strongly Agree) comprising 35 items: 12 items for self-management (measuring time management, self-control, self-motivation, self-discipline, and self-development), 10 items for digital readiness (measuring planning, organizing, actuating, and controlling of digital technology use), and 13 items for teacher professionalism (measuring content mastery, technology integration, and continuous professional development).

Instrument validity was established through Pearson Product Moment correlation analysis, with all 35 items yielding r-values above the critical r-table value of 0.361 ($n = 30$, $\alpha = 0.05$). Reliability was confirmed through Cronbach's Alpha ($\alpha = 0.893$), exceeding the 0.70 threshold, indicating high internal consistency.

Data Analysis

Prior to regression analysis, classical assumption tests were conducted: (1) Normality was assessed via the Kolmogorov–Smirnov test (Asymp. Sig. = 0.200 > 0.05); (2) Multicollinearity was examined through Variance Inflation Factor (VIF = 1.000) and Tolerance values (1.000), indicating no multicollinearity; and (3) Heteroscedasticity was tested using the Glejser test (Sig. $X_1 = 0.208$; Sig. $X_2 = 0.885 > 0.05$), confirming homoscedasticity. Multiple linear regression, t-tests (partial effects), F-test (simultaneous effect), and the coefficient of determination (R^2) were used for hypothesis testing.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1 presents the descriptive statistics for all three variables.

Table 1. Descriptive Statistics of Research Variables

Variable	N	Mean	SD	Range
Self-Management (X_1)	85	36.00	7.616	23–49
Digital Readiness (X_2)	85	33.00	6.294	22–46
Teacher Professionalism (Y)	85	36.00	7.588	18–51

SD = Standard Deviation

Frequency distribution analysis revealed that self-management scores were distributed across low (31.8%), moderate (31.8%), and high (36.5%) categories, indicating generally adequate but uneven self-management capabilities among teachers. Digital readiness showed a greater proportion in the low (36.5%) and moderate (32.9%) categories, suggesting that digital preparedness remains a developmental area. Teacher professionalism was predominantly in the moderate (40.0%) and high (36.5%) categories, indicating a generally acceptable but improvable level of professional competence.

Regression Analysis

Table 2 presents the results of the multiple linear regression analysis.

Table 2. Multiple Linear Regression Results

Variable	B (Unstd.)	Std. Error	β (Std.)	t-value	Sig.
Constant	4.003	4.766	–	0.840	0.403
Self-Management (X_1)	0.432	0.088	0.434	4.911	<.001
Digital Readiness (X_2)	0.498	0.106	0.413	4.681	<.001
F-value	**23.115**	—	—	—	**<.001**
R^2 / Adjusted R^2	**0.361 / 0.345**	—	—	—	—

Dependent Variable: Teacher Professionalism (Y). Std. = Standardized.

The regression equation derived from these results is: $Y = 4.003 + 0.432X_1 + 0.498X_2 + e$. Both predictors were statistically significant at $p < 0.001$. Self-management ($\beta = 0.434$) emerged as the marginally more dominant predictor compared to digital readiness ($\beta = 0.413$), indicating that internal

self-regulatory capacity has a slightly stronger association with professional performance than technology preparedness.

Effect of Self-Management on Teacher Professionalism

The finding that self-management positively and significantly predicts teacher professionalism ($\beta = 0.434$, $p < 0.001$) is consistent with a growing body of literature. Panadero (2021) theoretically established that self-regulated behaviors, including time management, goal setting, and self-monitoring, are critical for sustained professional performance. The present study extends this by providing empirical evidence from the Indonesian secondary school context, confirming that teachers with stronger self-management capabilities demonstrate higher levels of professionalism.

This result aligns with Lestari and Fauzan (2022), who demonstrated that self-regulated learning significantly contributes to teacher professional development in Indonesia, as well as Sari (2019), who found a positive association between self-management and teacher work performance. Furthermore, Schunk and Greene (2021) emphasized that self-management not only enhances task execution but also enables adaptive coping with complex and changing workplace demands, a quality increasingly essential in the era of educational digitalization. The present finding strengthens this theoretical position by showing that self-management's domain extends beyond personal efficiency to encompass broader professional performance indicators, including instructional planning, reflective practice, and continuous competency development.

Notably, the standardized beta coefficient for self-management (0.434) was slightly higher than that of digital readiness (0.413), indicating that internal regulatory capacities may exercise a more foundational influence on professionalism than external technological skills. This partially diverges from the emphasis placed by Falloon (2020) and Lu and Chen (2024) on digital competence as the primary driver of instructional quality, suggesting that while digital skills are important, without adequate self-management foundations, their contribution to professionalism may be limited.

Effect of Digital Readiness on Teacher Professionalism

Digital readiness was found to positively and significantly predict teacher professionalism ($\beta = 0.413$, $p < 0.001$), consistent with the findings of Lu and Chen (2024), who demonstrated that teacher digital readiness significantly affects instructional quality in digital learning environments. The present study reinforces this association and extends it to the specific dimension of overall teacher professionalism, encompassing content delivery, technology integration, and professional self-development.

Jiménez-Sierra et al. (2023), in their systematic review, confirmed digital competence as a robust predictor of instructional effectiveness, while Cabero-Almenara et al. (2021) identified digital competence as a multidimensional determinant of teacher performance. The current findings corroborate these conclusions in the Indonesian context, where digital readiness was found to significantly support teachers in planning, organizing, implementing, and evaluating technology-integrated lessons. Rahman (2021) similarly identified digital literacy as positively associated with teacher professional competence in Indonesia, further corroborating the present findings.

However, the frequency distribution data revealed that a substantial proportion of teachers in this study fell within the low and moderate categories of digital readiness (36.5% and 32.9%,

respectively), reflecting the broader Indonesian challenge documented by OECD (2024). This contrasts with studies conducted in higher-resource educational contexts (e.g., European settings examined by Redecker, 2020), where digital readiness is more uniformly distributed, suggesting that context-specific interventions are necessary in developing countries.

Simultaneous Effect of Self-Management and Digital Readiness

The simultaneous effect of both variables on teacher professionalism was highly significant ($F = 23.115$, $p < 0.001$), explaining 36.1% of the variance in teacher professionalism ($R^2 = 0.361$). This aligns with the theoretical argument advanced by Darling-Hammond and Hyler (2020, 2022), who contended that contemporary teacher professionalism requires a combination of self-development capabilities and technology competencies. UNESCO (2021, 2023) similarly underscores that effective teacher performance in digital education demands both psychological readiness and practical digital skills, a position substantiated by the present study.

The remaining 63.9% of variance unexplained by the model indicates that other factors, such as school leadership, institutional support, pedagogical training quality, socioeconomic context, and collegial collaboration, also meaningfully contribute to teacher professionalism. This is consistent with OECD (2023) findings that school learning environments and leadership support play crucial roles in teacher professional performance. Future research should incorporate these additional predictors to develop more comprehensive explanatory models.

A notable contribution of this study is the demonstration that self-management and digital readiness function as complementary, rather than redundant, predictors. The absence of multicollinearity (VIF = 1.000) confirms that these constructs measure distinct dimensions of teacher capacity, each contributing independently to professional performance. This finding has direct relevance for professional development program design, suggesting that interventions should address both competency domains simultaneously rather than treating them as mutually exclusive.

CONCLUSION

This study demonstrated that both self-management and digital readiness have positive and significant effects on teacher professionalism among junior high school teachers in Paal Dua District, Manado City, Indonesia, both partially and simultaneously. Self-management emerged as the marginally more dominant predictor, underscoring the primacy of internal self-regulatory capacities in professional performance. Jointly, these variables explained 36.1% of the variance in teacher professionalism ($R^2 = 0.361$, $F = 23.115$, $p < 0.001$), establishing a robust empirical basis for integrating both constructs into teacher professional development frameworks. These findings carry important practical implications for educational stakeholders. School principals and district education offices should design professional development programs that simultaneously strengthen teachers' self-management competencies, including time management, motivational strategies, and reflective

practice, and their digital readiness, encompassing technology planning, resource organization, digital instruction implementation, and technology-based evaluation. Policy interventions should move beyond hardware provision toward comprehensive human capital development that addresses both dimensions in an integrated manner, particularly in districts undergoing rapid digital transformation. The study is subject to several limitations. First, the cross-sectional design precludes causal inference; longitudinal studies are recommended to establish directionality. Second, the study was conducted in a single district, which may limit generalizability. Third, self-report data may be subject to social desirability bias. Future research should adopt multi-district or multi-province sampling frameworks, incorporate objective measures of digital competence and professional performance, and examine potential mediating variables, such as institutional support and professional learning communities, that may moderate the relationships identified in this study.

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