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Digital Literacy and Employee Performance in Culinary MSMEs: A Mediation Model

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Abstract

This study examines the mediating role of competency in the relationship between digital literacy and employee performance among culinary micro, small, and medium enterprises (MSMEs) in Purbalingga Regency, Indonesia. Digital transformation has encouraged culinary MSMEs to adopt social media marketing, digital payment systems, online delivery platforms, and customer communication applications. However, the effectiveness of these technologies depends on the ability of owners and employees to use them productively. This study employed a quantitative explanatory design involving 150 culinary MSME owners and employees who had experience using digital tools in daily business operations. Data were collected through a structured questionnaire and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. The results indicate that digital literacy has a positive and significant effect on competency and employee performance. Competency also has a positive and significant effect on employee performance and partially mediates the relationship between digital literacy and employee performance. These findings show that digital literacy improves employee performance both directly and indirectly through competency development. The study contributes to Human Capital Theory and competency-based human resource management by explaining how digital capability is transformed into work performance. Practically, the findings suggest that culinary MSME owners and local stakeholders should integrate digital literacy training with competency-based development programs to improve employee performance and business competitiveness.

Keywords: Digital Literacy, Competency, Employee Performance, Culinary Msmes, Digital Business

1. Introduction

Micro, small, and medium enterprises (MSMEs) play a strategic role in Indonesia's economic development because they contribute substantially to gross domestic product, employment creation, and community-based entrepreneurship. Official government information shows that Indonesian MSMEs contribute more than 60% to national gross domestic product and absorb almost 97% of the national workforce [1]. Among various MSME sectors, culinary MSMEs are particularly important because they are closely connected to daily consumption, local tourism, informal employment, and household-based entrepreneurship. In the digital economy era, these businesses are increasingly required to use online food delivery applications, social media marketing, digital payment systems, and customer communication platforms. However, digital technology adoption does not automatically improve business or employee outcomes because its effectiveness depends on the ability of owners and employees to use digital tools productively in daily operations.

At the local level, Purbalingga Regency provides a relevant empirical context for studying culinary MSMEs. The official Satu Data Purbalingga portal provides MSME data for Purbalingga Regency during 2018–2024 and records food and beverage industry units during 2018–2025 [2], [3]. Although these datasets do not specifically classify culinary MSMEs as a separate category, they provide relevant contextual evidence for understanding food-based business activities in Purbalingga. BPS Purbalingga also reported that the accommodation and food service category recorded the highest economic growth among business fields in 2023, reaching 13.52% [4]. In addition, local government programs have supported MSME digitalization, online market access, food processing training, online marketing training, and packaging improvement [5], [6], [7]. These conditions indicate that culinary MSMEs in Purbalingga are economically relevant and increasingly connected to digital business practices. However, the extent to which digital literacy improves employee performance through competency development remains an empirical issue.

Digital literacy has become an essential capability in digital business because it enables individuals to access, evaluate, communicate, and apply digital information effectively in work-related activities [8]. Employees with

stronger digital literacy are more likely to process digital transactions, use online platforms, manage customer communication, and solve technology-related problems. Previous studies have shown that digital capability, technology utilization, and digital transformation can improve innovation, operational efficiency, and organizational performance [9], [10], [11], [12], [13], [14], [15]. More recent studies further emphasize that digital transformation in SMEs is influenced by digital strategy, managerial readiness, digital orientation, organizational agility, and technological capability [16], [17], [18], [19], [20], [21], [22], [23]. In the Indonesian and culinary SME context, digital transformation has also been linked to SME performance improvement [24], [25], [26]. However, most studies have examined digitalization at the organizational level, particularly in larger firms, technology-intensive sectors, or urban business environments. Limited attention has been given to how digital literacy affects individual employee performance in small culinary businesses operating in regional areas.

From a human resource management perspective, employee performance is not determined by technology alone. Competency, which includes knowledge, skills, attitudes, adaptability, communication ability, and service orientation, is a key factor that enables employees to transform available resources into productive work behavior [27]. Human Capital Theory also explains that investment in knowledge and skills can increase individual productivity and organizational value [28]. Thus, digital literacy can be understood as a form of human capital that strengthens employee competency. Employees who are digitally literate are expected to become more adaptive, technically skilled, service-oriented, and capable of improving work quality.

Although digital literacy and competency are conceptually related, the mechanism linking digital literacy to employee performance remains insufficiently explained. This creates an important research gap. Previous studies have mostly examined the direct effect of digital capability or technology adoption on performance, while the mediating role of competency has received less attention. In addition, competency is often treated as an independent predictor of performance rather than as a mechanism that explains how digital literacy is converted into performance outcomes. Empirical evidence from culinary MSMEs in non-metropolitan regions is also limited, even though these businesses have distinct characteristics compared with large firms or urban enterprises.

The novelty of this study lies in positioning competency as a mediating variable in the relationship between digital literacy and employee performance. This approach shifts the discussion of MSME digitalization from a purely technological perspective to a human resource capability perspective. Accordingly, this study aims to examine the effect of digital literacy on competency and employee performance, as well as the mediating role of competency in the relationship between digital literacy and employee performance among culinary MSMEs in Purbalingga Regency. Theoretically, this study contributes to Human Capital Theory and competency-based human resource management by explaining how digital literacy is translated into employee performance through competency development. Practically, the findings are expected to help MSME owners, local governments, and training institutions design digital training programs that are integrated with competency development.

2. Research Methods

This study employed a quantitative explanatory research design to examine the causal relationships among digital literacy, competency, and employee performance in culinary MSMEs [29]. The research was conducted in Purbalingga Regency, Central Java, Indonesia, focusing on culinary MSMEs that use digital tools such as social media, digital payment systems, online delivery platforms, and customer communication applications. The unit of analysis was individual MSME human resources, consisting of owners and employees directly involved in operational and service activities.

The population consisted of owners and employees of culinary MSMEs operating in Purbalingga Regency. Since the exact population size was not formally documented, this study used non-probability sampling with a purposive sampling approach. Respondents were selected based on two criteria: they had been actively involved in culinary MSME activities for at least six months and had experience using digital tools in business operations. A total of 150 respondents were included in the analysis. This sample size was considered adequate for Partial Least Squares Structural Equation Modeling (PLS-SEM), particularly for a model with a limited number of latent variables and structural paths [30].

This study examined three constructs: digital literacy, competency, and employee performance. Digital literacy was treated as the exogenous variable, competency as the mediating variable, and employee performance as the endogenous variable. All constructs were measured reflectively using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Table 1 presents the operational definition of the research variables.

Table 1. Operational Definition of Variables

Variable	Indicator	Measurement Scale	Main Source
Digital Literacy	Ability to use digital applications, online marketing, digital transactions, customer data management, and technical problem solving	Likert scale 1–5	[8]
Competency	Job knowledge, technical skills, service orientation, communication ability, and adaptability	Likert scale 1–5	[27]
Employee Performance	Work quality, work quantity, timeliness, productivity, and customer satisfaction	Likert scale 1–5	[31]

Source: Developed by the author based on literature, 2026.

Primary data were collected using a structured questionnaire distributed through online and offline methods. The questionnaire items were adapted from previous studies and adjusted to the context of culinary MSMEs. Before full data collection, a preliminary instrument check was conducted to ensure item clarity and relevance. The collected data were then screened for completeness and suitability for statistical analysis.

Data were analyzed using PLS-SEM with SmartPLS 4. PLS-SEM was selected because it is suitable for prediction-oriented research, theory development, latent variable analysis, and medium sample sizes [30]. The analysis consisted of two stages: measurement model evaluation and structural model evaluation. The measurement model was assessed using outer loading, Cronbach’s Alpha, Composite Reliability, Average Variance Extracted (AVE), and the Heterotrait–Monotrait Ratio (HTMT). The structural model was evaluated using Variance Inflation Factor (VIF), coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), path coefficients, and mediation analysis. Hypothesis testing was conducted through SmartPLS 4 bootstrapping with 5,000 subsamples to examine direct and indirect effects.

3. Results and Discussion

The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. The analysis consisted of descriptive statistics, measurement model evaluation, structural model evaluation, hypothesis testing, mediation analysis, and discussion.

3.1 Descriptive Statistics

Table 2 presents the descriptive statistics of the research variables. Digital literacy obtained a mean score of 4.12, competency 4.18, and employee performance 4.21. These values indicate that respondents generally perceived their digital literacy, work-related competency, and employee performance at relatively high levels. The standard deviation values ranged from 0.49 to 0.56, showing that the responses were relatively consistent.

Table 2. Descriptive Statistics of Variables

Variable	N	Mean	Standard Deviation	Min	Max
Digital Literacy	150	4.12	0.56	2.80	5.00
Competency	150	4.18	0.52	3.00	5.00
Employee Performance	150	4.21	0.49	3.10	5.00

Source: Processed primary data, 2026.

3.2 Measurement Model Evaluation

The measurement model was evaluated using outer loading, Cronbach’s Alpha, Composite Reliability, Average Variance Extracted (AVE), and the Heterotrait–Monotrait Ratio (HTMT). As shown in Table 3, all indicators had outer loading values above 0.70, indicating that each indicator adequately represented its construct.

Table 3. Outer Loading of Indicators

Construct	Indicator	Outer Loading	Result
Digital Literacy	DL1	0.812	Valid
Digital Literacy	DL2	0.843	Valid
Digital Literacy	DL3	0.821	Valid
Digital Literacy	DL4	0.857	Valid

Construct	Indicator	Outer Loading	Result
Digital Literacy	DL5	0.821	Valid
Competency	COMP1	0.835	Valid
Competency	COMP2	0.852	Valid
Competency	COMP3	0.861	Valid
Competency	COMP4	0.843	Valid
Competency	COMP5	0.834	Valid
Employee Performance	PERF1	0.806	Valid
Employee Performance	PERF2	0.828	Valid
Employee Performance	PERF3	0.842	Valid
Employee Performance	PERF4	0.851	Valid
Employee Performance	PERF5	0.820	Valid

Source: SmartPLS 4 output, 2026.

Table 4 shows that all constructs met the reliability and convergent validity criteria. Cronbach's Alpha values ranged from 0.887 to 0.901, while Composite Reliability values ranged from 0.917 to 0.926. These values exceeded the recommended threshold of 0.70. The AVE values ranged from 0.688 to 0.714, indicating that each construct explained more than half of the variance of its indicators.

Table 4. Reliability and Convergent Validity

Variable	Cronbach's Alpha	Composite Reliability	AVE
Digital Literacy	0.892	0.918	0.691
Competency	0.901	0.926	0.714
Employee Performance	0.887	0.917	0.688

Source: SmartPLS 4 output, 2026.

Discriminant validity was evaluated using the HTMT ratio. Table 5 shows that all HTMT values were below 0.90, indicating that the constructs were empirically distinct from one another. Therefore, the measurement model fulfilled the validity and reliability requirements.

Table 5. Discriminant Validity Using HTMT Ratio

Variable	DL	COMP	PERF
Digital Literacy	–		
Competency	0.684	–	
Employee Performance	0.651	0.702	–

Source: SmartPLS 4 output, 2026.

3.3 Structural Model Evaluation

The structural model was evaluated using collinearity statistics, coefficient of determination, effect size, predictive relevance, and path coefficients. Table 6 shows that all VIF values were below 5.00, indicating that multicollinearity was not a serious concern in the model.

Table 6. Collinearity Statistics

Relationship	VIF	Result
Digital Literacy → Competency	1.000	No collinearity issue
Digital Literacy → Employee Performance	1.879	No collinearity issue
Competency → Employee Performance	1.879	No collinearity issue

Source: SmartPLS 4 output, 2026.

The coefficient of determination results are presented in Table 7. Digital literacy explained 46.8% of the variance in competency, while digital literacy and competency jointly explained 61.2% of the variance in employee performance. These results indicate that the model had adequate explanatory power.

Table 7. Coefficient of Determination

Endogenous Variable	R ²	Interpretation
Competency	0.468	Moderate
Employee Performance	0.612	Moderate to substantial

Source: SmartPLS 4 output, 2026.

Table 8 presents the effect size values. Digital literacy had a large effect on competency, while its direct effect on employee performance was small. Competency had a large effect on employee performance, indicating that competency played a stronger direct role in explaining employee performance than digital literacy.

Table 8. Effect Size

Relationship	f ²	Interpretation
Digital Literacy → Competency	0.880	Large
Digital Literacy → Employee Performance	0.095	Small
Competency → Employee Performance	0.440	Large

Source: SmartPLS 4 output, 2026.

Predictive relevance was assessed using Q² values. As shown in Table 9, the Q² values for competency and employee performance were greater than zero. This indicates that the model had predictive relevance for both endogenous constructs.

Table 9. Predictive Relevance

Endogenous Variable	Q ²	Interpretation
Competency	0.296	Predictive relevance
Employee Performance	0.412	Predictive relevance

Source: SmartPLS 4 output, 2026.

3.4 Hypothesis Testing and Mediation Analysis

Hypothesis testing was conducted using the bootstrapping procedure in SmartPLS 4. The results of the direct effect analysis are presented in Table 10.

Table 10. Path Coefficients of Direct Effects

Relationship	Path Coefficient	Standard Error	t-statistic	p-value	Result
Digital Literacy → Competency	0.684	0.061	11.213	< 0.001	Supported
Digital Literacy → Employee Performance	0.278	0.087	3.195	0.002	Supported
Competency → Employee Performance	0.571	0.073	7.821	< 0.001	Supported

Source: SmartPLS 4 bootstrapping output, 2026.

The results show that digital literacy had a positive and significant effect on competency, with a path coefficient of 0.684, a t-statistic of 11.213, and a p-value below 0.001. Thus, the first hypothesis was supported. Digital literacy also had a positive and significant effect on employee performance, with a path coefficient of 0.278, a t-statistic of 3.195, and a p-value of 0.002. Therefore, the second hypothesis was supported. Furthermore, competency had a positive and significant effect on employee performance, with a path coefficient of 0.571, a t-statistic of 7.821, and a p-value below 0.001. This result supports the third hypothesis and shows that competency was the strongest direct predictor of employee performance.

The mediation analysis is presented in Table 11. The indirect effect of digital literacy on employee performance through competency was positive and significant, with a coefficient of 0.391, a t-statistic of 6.447, and a p-value below 0.001. Since the direct effect of digital literacy on employee performance remained significant, competency partially mediated the relationship between digital literacy and employee performance. Therefore, the fourth hypothesis was supported.

Table 11. Indirect Effect

Indirect Relationship	Coefficient	Standard Error	t-statistic	p-value	Mediation Type
Digital Literacy → Competency → Employee Performance	0.391	0.061	6.447	< 0.001	Partial mediation

Source: SmartPLS 4 bootstrapping output, 2026.

3.5 Discussion

The findings show that digital literacy significantly improves competency [8], [16], [19]. This indicates that employees who are able to use digital applications, manage online transactions, communicate through digital platforms, and solve technology-related problems tend to have stronger work-related competencies. In culinary MSMEs, digital literacy is important because daily business activities increasingly involve social media promotion, online delivery platforms, digital payment systems, and customer communication channels.

Digital literacy also has a significant direct effect on employee performance [9], [10], [15], [20]. This finding suggests that digital capability helps employees work more efficiently, respond to customers faster, reduce transaction errors, and support digital service delivery. However, the direct effect of digital literacy on employee performance is smaller than the effect of competency. This means that digital skills alone are not sufficient to produce optimal performance unless they are supported by broader work-related competencies.

Competency has the strongest direct effect on employee performance [27], [31]. Employees with better job knowledge, technical skills, communication ability, adaptability, and service orientation are more capable of delivering quality work, maintaining productivity, completing tasks on time, and improving customer satisfaction. This finding supports the competency-based human resource management perspective, which emphasizes that superior competencies lead to better work outcomes.

The mediation result confirms that competency partially mediates the relationship between digital literacy and employee performance [16], [21], [24], [26]. This means that digital literacy improves employee performance not only directly but also indirectly by strengthening employee competency. Therefore, digitalization in culinary MSMEs should not be viewed merely as technology adoption. It should also be understood as a human resource capability process in which employees need sufficient competencies to transform digital tools into better performance.

Practically, the findings suggest that culinary MSME owners and local government stakeholders should integrate digital literacy training with competency-based development. Training should not only focus on how to use digital platforms, but also strengthen customer service, communication skills, adaptability, problem solving, and operational discipline. Such integration can help culinary MSMEs improve employee performance and remain competitive in the digital business environment.

Overall, the results indicate that digital literacy and competency are strategic resources for improving employee performance in culinary MSMEs. Digital literacy provides the foundation for using technology effectively, while competency enables employees to transform digital capability into productive work behavior. Strengthening both aspects is therefore essential for supporting the sustainability and competitiveness of culinary MSMEs in Purbalingga Regency.

4. Conclusion

This study examined the mediating role of competency in the relationship between digital literacy and employee performance among culinary MSMEs in Purbalingga Regency. The findings show that digital literacy has a positive and significant effect on competency and employee performance. This indicates that employees who are able to use digital applications, manage online transactions, communicate through digital platforms, and solve technology-related problems tend to demonstrate better work capability and performance. The results also confirm that competency has the strongest direct effect on employee performance. Employees with stronger job knowledge, technical skills, communication ability, adaptability, and service orientation are more capable of improving work quality, productivity, timeliness, and customer satisfaction. In addition, competency partially mediates the relationship between digital literacy and employee performance. This means that digital literacy improves employee performance not only directly but also indirectly through competency development. Theoretically, this study contributes to Human Capital Theory and competency-based human resource management by explaining how digital literacy is translated into employee performance through competency. Practically, the findings suggest that culinary MSME owners and local government stakeholders should integrate digital literacy training with competency-based development programs. Training should not only focus on the use of digital platforms but also strengthen service skills, communication, adaptability, problem solving, and operational discipline. This study is

limited to culinary MSMEs in one regional context and uses cross-sectional data. Future studies are encouraged to involve broader geographical areas, use longitudinal designs, and include additional variables such as innovation capability, leadership, organizational culture, or digital readiness.

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