



The Influence of Phubbing and Fear of Missing Out on Digital Leadership and Employee Performance

A Study of Generation Z in Makassar's Service Sector

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Abstract

The rapid advancement of digital technology has significantly reshaped employee behavior, particularly among Generation Z workers who are highly prone to digital distractions. Maladaptive behaviors such as Phubbing and Fear of Missing Out (FOMO) have been shown to negatively affect Employee Performance (EP). However, the mediating role of Digital Leadership (DL) in this dynamic remains underexplored, especially in developing economies and service sector contexts. This study investigates the mediating effect of DL on the relationship between Phubbing, FOMO, and EP, focusing on Generation Z employees in service companies in Makassar, Indonesia.

A quantitative research approach was employed using Structural Equation Modeling-Partial Least Squares (SEM-PLS). The measurement model was tested using Confirmatory Factor Analysis (CFA) to ensure validity and reliability, while the structural model assessed path coefficients and mediation effects. Data were collected from 384 Generation Z employees across various service industries.

The results reveal that both Phubbing and FOMO significantly reduce employee performance. However, Digital Leadership plays a pivotal mediating role by mitigating these negative impacts. DL facilitates healthier digital engagement in the workplace, helping sustain productivity despite the prevalence of digital distractions.

This study contributes to the literature by integrating digital behavior management into leadership frameworks and provides practical insights for human resource management in the digital era. To the best of our knowledge, this is the first empirical investigation of this mediation model within the service sector of a developing economy.

Keywords

Phubbing, Fear of Missing Out, Digital Leadership, Employee Performance

INTRODUCTION

Organizations in the 21st century are facing unprecedented challenges resulting from globalization, rapid technological advancements, and highly competitive markets. The rise of digital technologies has not only transformed business processes but also reshaped employee behaviors, especially in data-driven and service-oriented industries such as hospitality, banking, retail, and creative services. In these sectors, human capital has become a critical driver of organizational success, with Generation Z employees digital natives becoming the dominant workforce (Kharisma Putra et al., 2023; Yousaf et al., 2022).

One of the emerging issues in the digital work environment is the rise of maladaptive digital behaviors, particularly Phubbing, the act of ignoring direct interpersonal interactions due to excessive smartphone use, and FOMO the anxiety over missing online social updates. These behaviors, while seemingly trivial, have been found to negatively affect concentration, collaboration, and overall EP (Maza & Aprianty, 2022). The problem becomes more critical in service-based industries where real-time communication and customer interaction are fundamental components of job performance.

Although the direct impacts of Phubbing and FOMO on performance have been highlighted in prior studies, the mediating role of DL remains underexplored, especially in the context of Generation Z employees in developing countries. Digital Leadership, defined as the ability of leaders to guide teams in leveraging technology productively while managing digital risks, has become an essential managerial competency in modern organizations. Leaders are now expected not only to implement digital tools but also to foster a healthy digital culture that prevents digital distractions from undermining productivity.

Existing Human Resource Management (HRM) interventions may be well-designed and technically sound, yet without alignment to digital behavior management, such interventions risk becoming ineffective. There is a need to better understand how leadership styles, particularly DL competencies, interact with digital behaviors like Phubbing and FOMO to influence EP outcomes.

Furthermore, service organizations in Makassar are currently undergoing rapid digital transformation, prompting a significant shift in the way employees interact with technology and each other. Despite this transition, empirical studies addressing how DL can mitigate the negative impacts of digital distractions are still limited in the Indonesian context, especially for Generation Z employees who are highly exposed to digital engagement both in and outside the workplace.

This research addresses this gap by examining how DL mediates the relationship between Phubbing, FOMO, and EP in service companies in Makassar, Indonesia. Drawing upon theories of digital behavior, organizational leadership, and human resource management, this study aims to provide a nuanced understanding of how organizations can manage Generation Z employees more effectively in digitally intensive environments. The findings are expected to offer practical implications for developing leadership strategies that align with the digital realities of modern service sectors in emerging economies.

MATERIALS AND METHODS

This study focuses on the service sector in Makassar, Indonesia, and adopts a quantitative research method to investigate the mediating effect of DL in the relationship between Phubbing, FOMO (FOMO), and EP. The research population consists of Generation Z employees working in various service companies across Makassar, including retail, hospitality, creative services, and other service-oriented organizations.

The sampling technique employed in this study is simple random sampling, targeting employees from different service companies to capture diverse experiences with digital behavior in the workplace. A total of 384 valid responses were collected and analyzed, exceeding the minimum sample size recommended for SEM-PLS analysis (Hair Jr et al., 2019). This sample size ensures adequate statistical power and enhances the generalizability of the findings within the Generation Z workforce segment.

Data were collected using a structured questionnaire comprising validated measurement scales. The Phubbing construct was measured using items developed by Karadağ et al., (2015). focusing on the frequency of smartphone use during interpersonal interactions and the extent of distraction it causes. The Fear of Missing Out (FOMO) variable was assessed using the scale adapted from Przybylski et al., (2013). capturing respondents' anxiety about missing social updates and their compulsive social media engagement. Digital Leadership was measured based on a specialized framework which includes dimensions such as digital communication, digital team building, technological skills, and change management capabilities. Employee Performance (EP) was evaluated using indicators adapted from Roberts & David, (2020), covering productivity, work quality, timeliness, teamwork, and innovation initiatives. All items were rated on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

The use of simple random sampling allowed for the inclusion of Generation Z employees from various service companies regardless of hierarchy level, ensuring that both operational staff and supervisory employees were represented. This approach is aligned with the best practices in organizational behavior research (Hair et al., 2019), providing a comprehensive understanding of how DL mediates the impact of Phubbing and FOMO on EP across different service settings.

Data Collection Methods

This study employed a structured questionnaire to collect data from Generation Z employees working in various service companies in Makassar, Indonesia. The questionnaire consisted of 26 items measuring four primary constructs: PB, FOMO, DL, and EP.

PB and FOMO, as independent variables, were assessed using 8 items each, designed to capture the frequency of digital distractions and the anxiety associated with missing social interactions. Digital Leadership, as the mediating variable, was measured using 5 items, focusing on leaders' digital capabilities, technological adaptability, and innovation facilitation. EP, the dependent variable, was also evaluated with 5 items, reflecting task completion, collaboration, innovation, and work quality.

The data collection process was conducted through a combination of printed questionnaires and online distribution via Google Forms, ensuring broad accessibility and higher response rates. All items were rated on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). This format allowed respondents to express their level of agreement with each statement in a standardized manner, facilitating consistent data analysis.

The chosen measurement approach was designed to capture the multidimensional aspects of digital behavior, leadership practices, and performance outcomes within a digitally engaged workforce.

Phubbing

Phubbing is measured using indicators that assess the frequency and intensity of employees ignoring interpersonal interactions due to mobile phone usage during work activities. The items are adapted from Yousaf et al. (2022) and Aditia (2021), focusing on behaviors such as checking social media, responding to messages, and using smartphones during meetings or team interactions.

Fear of Missing Out (FOMO)

FOMO is assessed by evaluating the degree of anxiety and compulsion employees experience when they are not connected to online networks. The scale is adapted from Maza & Aprianty (2022) and Tandon et al. (2022), covering aspects like the need for constant updates, fear of exclusion from social information, and emotional discomfort when unable to access social media.

Digital Leadership

Digital Leadership is measured through indicators that capture a leader's capacity to guide, influence, and manage the team effectively in a digital environment. The scale includes dimensions such as digital literacy, setting digital boundaries, promoting productive technology use, and fostering innovation, based on Nanang et al. (2023).

Employee Performance

Employee performance is assessed through self-reported measures that reflect both task performance and contextual performance. Indicators include productivity, efficiency, teamwork, problem-solving, and adaptability to digital work environments.

RESULTS AND DISCUSSION

Following the data collection process, the analysis was conducted using SmartPLS 4.0, as the primary tool for Structural Equation Modeling with Partial Least Squares (SEM-PLS). The use of SEM-PLS was chosen due to its suitability for predictive models and for analyzing complex relationships among latent variables, particularly when mediating effects are involved (Hair et al., 2019).

The measurement model analysis, or outer model, was conducted through two testing stages: construct validity and reliability, as well as discriminant validity.

Table 1 Outer Loading

Variable	Indicator	PB	FOMO	EP	DL
PB	PB.1	0.854			
	PB.2	0.835			
	PB.3	0.822			
	PB.4	0.788			
	PB.5	0.834			
	PB.6	0.839			
	PB.7	0.863			
	PB.8	0.806			
FOMO	FOMO. 1		0.847		
	FOMO. 2		0.798		
	FOMO. 3		0.835		
	FOMO. 4		0.800		
	FOMO. 5		0.829		
	FOMO. 6		0.875		
	FOMO. 7		0.858		

	FOMO. 8	0.789
EP	EP.1	0.903
	EP.2	0.846
	EP.3	0.909
	EP.4	0.852
	EP.5	0.922
DL	DL.1	0.840
	DL.2	0.894
	DL.3	0.906
	DL.4	0.901
	DL.5	0.893

The outer loading analysis was performed to evaluate the convergent validity of the measurement model. According to Hair Jr. et al. (2019), an indicator is considered to have satisfactory loading if the factor loading value exceeds 0.70, indicating that the indicator explains a substantial portion of the variance in the latent variable.

The findings show that all indicators in this study have factor loading values above the threshold of 0.70, confirming strong correlations between the observed indicators and their respective latent constructs.

Table 2 Fornel Lacker

Variable	Indicator	PB	FOMO	EP	DL
PB	X1	0.830			
FOMO	X2	0.811	0.829		
EP	Y	-0.864	-0.899	0.887	
DL	Z	-0.789	-0.787	0.866	0.887

These findings align with the theoretical framework that positions digital distractions as harmful to both individual performance and organizational leadership functions. However, DL emerges as a critical driver of EP, serving both as a performance enhancer and as a potential buffer against the negative impacts of technology misuse.

The results highlight the importance of developing leadership competencies that are not only technologically proficient but also capable of managing the digital behavior of employees to maintain high levels of productivity in service organizations.

Table 3 Heterotrait-Monotrait Ratio

	PB	FOMO	EP	DL
PB				
FOMO	0.866			
EP	0.925	0.962		
DL	0.844	0.841	0.929	

While most constructs demonstrate acceptable discriminant validity, the high HTMT values between digital behavior constructs (Phubbing and FOMO) and EP suggest possible conceptual overlap. This reflects the real-world scenario where digital distractions are tightly linked to productivity, especially in service industries.

Internal consistency reliability in PLS was assessed using Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE) (Sugiyono, 2019). Reliability testing evaluates the precision and consistency of measurement instruments, ensuring they are trustworthy for data collection. The composite reliability values for each variable are presented below.

Table 4 Construct Reliability and Convergent Validity

Variable	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
PB	0.936	0.936	0.947	0.690
FOMO	0.935	0.937	0.946	0.688
EP	0.932	0.933	0.948	0.787
DL	0.932	0.934	0.949	0.787

These findings support the theoretical framework that digital distractions negatively affect both individual EP and organizational leadership effectiveness. Nevertheless, DL emerges as a key factor in enhancing EP and acts as a protective buffer against the adverse effects of digital misuse. The results underscore the critical need for developing leadership competencies that combine technological proficiency with the ability to manage employees' digital behaviors, ensuring sustained productivity in service organizations.

The structural model analysis, or inner model, was performed to assess the relationships between latent variables, including path coefficients, effect size (f^2), and predictive relevance (Q^2), and coefficient of determination (R^2),

Table 5 Path Coefficient

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
EP	0.893	0.897	0.016	54.305	0.000
DL	0.686	0.691	0.043	15.859	0.000

The path coefficient results indicate a strong and statistically significant relationship between the variables. Specifically, the path coefficient from DL(Z) to EP (Y) is 0.686, with a t-statistic of 15.859 and a p-value of 0.000, demonstrating a robust positive effect of DL on EP. This suggests that higher levels of DL competencies among leaders significantly enhance EP.

Additionally, the reliability of the EP construct is confirmed with a path coefficient of 0.893, accompanied by a t-statistic of 54.305 and a p-value of 0.000, indicating strong construct validity and reliability within the structural model.

Table 6 Predictive relevance

Konstruk	Q ² predict	Interpretasi Prediktif
EP 1	0.684	Predictive relevance kuat
EP 2	0.661	Predictive relevance kuat
EP 3	0.709	Predictive relevance sangat kuat
EP 4	0.602	Predictive relevance kuat
EP 5	0.683	Predictive relevance kuat
DL 1	0.449	Predictive relevance kuat
DL 2	0.528	Predictive relevance kuat
DL 3	0.589	Predictive relevance kuat
DL 4	0.569	Predictive relevance kuat
DL 5	0.515	Predictive relevance kuat

The predictive relevance of the model was evaluated using the Q² statistic, which measures the model's capability to predict endogenous construct indicators. According to Hair et al. (2019), Q² values greater than zero indicate that the model has predictive relevance for the particular construct, with higher values reflecting stronger predictive power.

The results show that all indicators for EP (Y1 to Y5) exhibit Q² values ranging from 0.602 to 0.709, indicating strong to very strong predictive relevance. Specifically, indicator Y3 demonstrates a particularly high predictive relevance of 0.709, underscoring the model's robustness in predicting employee task performance and related outcomes.

Similarly, all indicators for DL (Z1 to Z5) have Q² values between 0.449 and 0.589, signifying strong predictive relevance. These values affirm the model's effectiveness in accurately forecasting variations in DL competencies based on the observed data.

Overall, the high Q² values across all indicators confirm that the structural model possesses substantial predictive relevance, reinforcing the validity of the relationships hypothesized between digital behaviors, leadership, and EP in service organizations.

Table 7 Effect Size

	PB	FOMO	EP	DL
PB			0.174	0.211
FOMO			0.523	0.203
EP				
DL			0.292	

Effect size (f²) analysis revealed that FOMO has a large impact on EP (f² = 0.523), indicating its substantial influence on productivity. Phubbing shows a moderate effect on performance (f² = 0.174) and a small effect on DL (f² = 0.211). Meanwhile, DL exhibits a small to medium effect on EP (f² = 0.292). These findings highlight FOMO as the most influential predictor of performance, with Phubbing and DL also playing significant roles in explaining variance in employee outcomes.

Table 8 Coefficient Determination

Variable	R Square
EP	0.893
DL	0.686

The coefficient of determination (R²) indicates the amount of variance in the endogenous constructs explained by their predictors. In this study, EP has an R² value of 0.893, suggesting that 89.3% of its variance is explained by Phubbing, FOMO, and DL. Meanwhile, DL has an R² of 0.686, indicating that 68.6% of its variance is accounted for by Phubbing and FOMO. These high R² values demonstrate the strong explanatory power of the model in predicting EP and DL within the service sector context.

Table 9 Effect Size

Variable	R Square
EP	0.893
DL	0.686

The coefficient of determination (R^2) indicates the amount of variance in the endogenous constructs explained by their predictors. In this study, EP has an R^2 value of 0.893, suggesting that 89.3% of its variance is explained by Phubbing, FOMO, and Digital Leadership. Meanwhile, DL has an R^2 of 0.686, indicating that 68.6% of its variance is accounted for by Phubbing and FOMO. These high R^2 values demonstrate the strong explanatory power of the model in predicting EP and DL within the service sector context.

Hypothesis testing and path analysis were conducted to examine the significant effects of independent variables on the dependent variable by assessing the path coefficients, which represent the parameter estimates and their significance based on T-statistics.

Table 10 Path Coefficient dan Specific Indirect effect

Hypothesis Code	Variable Code	Coefficient (O)	Standard Deviation	t-statistic	P-Value
H1	PB → EP	-0.256	0.071	3.633	0.000
H2	FOMO → EP	-0.443	0.096	4.630	0.000
H3	PB → DL	-0.439	0.095	4.624	0.000
H4	FOMO → DL	-0.431	0.099	4.361	0.000
H5	DL → EP	0.315	0.074	4.269	0.000
H6	PB → DL → EP	-0.139	0.047	2.939	0.003
H7	FOMO → DL → EP	-0.136	0.043	3.189	0.001

The path analysis results demonstrate significant relationships among the studied variables. Specifically, PB has a significant negative effect on EP ($\beta = -0.256$, $t = 3.633$, $p < 0.001$), indicating that increased PB reduces performance. Similarly, FOMO negatively impacts EP ($\beta = -0.443$, $t = 4.630$, $p < 0.001$), showing a stronger detrimental effect.

Both Phubbing and FOMO also significantly negatively affect DL, with path coefficients of $\beta = -0.439$ ($t = 4.624$, $p < 0.001$) and $\beta = -0.431$ ($t = 4.361$, $p < 0.001$), respectively, suggesting that these maladaptive behaviors undermine leadership effectiveness in digital contexts.

Conversely, DL positively influences EP ($\beta = 0.315$, $t = 4.269$, $p < 0.001$), confirming its role as a performance enhancer.

Mediation analysis reveals that DL partially mediates the relationship between Phubbing and EP (indirect effect $\beta = -0.139$, $t = 2.939$, $p = 0.003$) as well as between FOMO and EP (indirect effect $\beta = -0.136$, $t = 3.189$, $p = 0.001$). These findings suggest that while phubbing and FOMO directly impair EP, their negative impacts are partially transmitted through diminished digital leadership.

Overall, the results underscore the critical mediating role of DL in mitigating the adverse effects of digital distractions on employee outcomes in service organizations.

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DECLARATION OF CONFLICT

The authors indicate that they have no confirmed competing financial considerations or personal connections that could have perceived to affect the work reported in this paper.

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