



Burnout, Boredom, and Gen Z Productivity: The Roles of Positive Cyberloafing and Digital Mindfulness

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Abstract :

This study examines the effects of burnout and boredom on Gen Z employee productivity by positioning positive cyberloafing and digital mindfulness as mediating mechanisms. A quantitative explanatory design was employed to test the proposed relationships. Data were collected from 178 Generation Z employees through a structured questionnaire and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings show that boredom has a negative and significant effect on productivity, while burnout does not have a significant direct effect. Positive cyberloafing and digital mindfulness have positive and significant effects on productivity. The mediation results further indicate that both positive cyberloafing and digital mindfulness significantly mediate the relationships between burnout, boredom, and productivity. These findings suggest that Gen Z productivity in digital work environments is shaped not only by psychological strain but also by employees' ability to recover and regulate their digital behavior. This study contributes to digital workplace and human resource management literature by reframing cyberloafing as a conditional adaptive mechanism and positioning digital mindfulness as a personal resource for sustaining productivity. Practically, organizations should develop digital well-being policies that support structured digital micro-breaks, mindful technology use, and more meaningful work design.

INTRODUCTION

Digital transformation has reshaped how employees work, communicate, and maintain productivity. Work is increasingly performed through digital platforms, online collaboration, real-time communication, and continuous connectivity. Although these changes improve flexibility and efficiency, they also create new psychological demands, particularly when employees are expected to remain responsive, process large amounts of digital information, and sustain attention for long periods (Marsh et al., 2024; Wrede et al., 2025). These demands may increase emotional exhaustion, cognitive overload, digital fatigue, and reduced work engagement (Ashraf, 2025; Lee et al., 2025; Radin et al., 2025).

This issue is especially relevant for Generation Z employees. As digital natives, Gen Z employees are generally familiar with technology, adaptive to online communication, and comfortable with digital tools. However, their familiarity with technology does not

automatically protect them from digital fatigue, technostress, work boredom, or maladaptive technology use (Mihelič et al., 2023; Syafii et al., 2025). In digital work environments, continuous exposure to online tasks, repetitive digital routines, and high expectations for responsiveness may make Gen Z employees more vulnerable to burnout and boredom (Ashraf, 2025; Kim et al., 2025; Marsh et al., 2024). Burnout refers to prolonged emotional and mental exhaustion caused by excessive work demands, while boredom reflects the loss of cognitive and emotional engagement when work is monotonous, under-stimulating, or personally meaningless (Kim et al., 2025; van Hooff & van Hooft, 2023). Both conditions may weaken attention, reduce motivation, and eventually lower employee productivity (Kamila & Muafi, 2023; Yan et al., 2024).

Employee productivity in the digital era should not be understood only as task completion or output quantity. Productivity also depends on how employees manage psychological energy, recover from fatigue, regulate attention, and control digital distractions (Espel-Huynh et al., 2022; Marsh et al., 2024; Yan et al., 2024). For Gen Z employees, this issue becomes more complex because digital tools can serve as both work enablers and sources of distraction. Therefore, understanding productivity requires examining not only psychological strain, such as burnout and boredom, but also adaptive mechanisms that help employees recover and regulate their digital behavior (Jyoti & Ahmad, 2025; Kwala et al., 2025; Kwala & Agoyi, 2025).

One behavioral response commonly found in digital workplaces is cyberloafing (Hessari et al., 2024; Tiwari & Niraula, 2023). Traditionally, cyberloafing has been viewed as counterproductive behavior because it involves using the internet for non-work purposes during working hours, such as browsing social media, watching short videos, reading online content, or engaging in personal digital communication (Divya & Narwal, 2023; Nguyen et al., 2026). However, recent studies suggest that cyberloafing does not always produce negative outcomes. Its effects depend on intensity, duration, purpose, self-control, and psychological context (Krishna & Agrawal, 2023; Zhong et al., 2022). When conducted briefly, consciously, and in a controlled manner, cyberloafing may serve as a digital micro-break that helps employees recover attention, reduce stress, and restore psychological energy (Kwala & Agoyi, 2025; Zhong et al., 2022). This study therefore adopts the concept of positive cyberloafing, defined as light, controlled non-work internet use that serves as an adaptive coping mechanism rather than purely deviant behavior.

Positive cyberloafing is particularly relevant for Gen Z employees because digital activities are already embedded in their daily routines and coping patterns (Limakrisna et al., 2023; Yuniawan et al., 2025). Short digital breaks may provide emotional relief, social connection, cognitive refreshment, and informal learning opportunities (Krishna & Agrawal, 2023; Mihelič et al., 2023). Nevertheless, cyberloafing can only support productivity when it remains purposeful and controlled. Without self-regulation, digital breaks may become excessive, impulsive, and counterproductive (Chen et al., 2026; Divya & Narwal, 2023). Thus, the productivity effect of cyberloafing depends not only on the activity itself but also on employees' ability to manage their digital behavior consciously (Demirboga et al., 2025; van Hooff & van Hooft, 2023).

Digital mindfulness becomes an important regulatory resource in this context. Digital mindfulness refers to individuals' awareness and self-regulation in using

technology intentionally, consciously, and in alignment with work goals and psychological well-being (Marsh et al., 2024; Wrede et al., 2025). It enables employees to recognize when digital interaction becomes distracting, when a digital break is needed, and when attention should be redirected to work tasks (Mitsea et al., 2023; Remskar et al., 2024). Mindfulness-based approaches have been shown to reduce stress, improve emotional regulation, strengthen focus, and support work engagement in technology-intensive work environments (Lee et al., 2025; Radin et al., 2025; Yan et al., 2024). Unlike positive cyberloafing, which refers to actual digital break behavior, digital mindfulness refers to an internal capacity to regulate attention, impulses, and digital engagement (Jarrahi et al., 2023; Tu et al., 2025).

The theoretical foundation of this study is built on Job Demands-Resources (JD-R) theory and the Meaning-and-Attentional-Components (MAC) model of boredom. JD-R theory explains that high job demands may impair well-being and productivity when not balanced by adequate resources (Bakker et al., 2023; Demerouti, 2025). In this study, burnout and boredom are conceptualized as psychological demands that may reduce productivity, whereas positive cyberloafing and digital mindfulness are conceptualized as adaptive mechanisms that help employees manage these demands (Kamila & Muafi, 2023; Kwala & Agoyi, 2025). The MAC model further explains that boredom emerges when individuals fail to maintain attention or find meaning in their activities, making it closely related to distractibility, cyberloafing, and self-control (Daneels et al., 2025; van Hooff & van Hooft, 2023; Younas et al., 2023). These two perspectives support the argument that the interaction between psychological strain, recovery behavior, and digital self-regulation shapes Gen Z productivity.

Previous studies have examined burnout, boredom, cyberloafing, and mindfulness in relation to employee outcomes. Burnout has been associated with lower engagement, reduced performance, emotional exhaustion, and mental health problems in digital work settings (Ashraf, 2025; Yan et al., 2024). Boredom has also been linked to disengagement, distractible behavior, cyberloafing, and turnover intention (Kim et al., 2025; Ohana et al., 2024; van Hooff & van Hooft, 2023; Younas et al., 2023). Meanwhile, research on cyberloafing has produced mixed findings. Some studies consider cyberloafing harmful to productivity, while others suggest that controlled cyberloafing can support recovery, creativity, psychological well-being, and work performance (Krishna & Agrawal, 2023; Lim & Teo, 2024). Studies on mindfulness also show that mindful awareness can reduce stress, improve focus, enhance work engagement, and support productivity in digital workplaces (Espel-Huynh et al., 2022; Radin et al., 2025; Yan et al., 2024).

Despite these developments, several research gaps remain. First, many studies still frame cyberloafing mainly as a negative or deviant behavior, while its restorative role in digital work environments remains underexplored (Divya & Narwal, 2023; Goyal & Sachdeva, 2025). Second, cyberloafing and mindfulness are often examined separately, although both may operate as complementary mechanisms for managing stress, boredom, and digital distraction (Krishna & Agrawal, 2023; Marsh et al., 2024; Wrede et al., 2025). Third, limited studies have examined positive cyberloafing and digital mindfulness simultaneously as parallel mediating mechanisms between burnout, boredom, and productivity. Fourth, studies focusing specifically on Gen Z employees

remain limited, even though this group has distinctive digital habits, work expectations, and psychological responses to digital work demands (Ashraf, 2025; Mihelič et al., 2023; Syafii et al., 2025).

The novelty of this study lies in its integration of two adaptive digital mechanisms—positive cyberloafing and digital mindfulness—to explain Gen Z employee productivity under conditions of burnout and boredom. This study does not treat digital distraction merely as a threat to productivity, but examines whether controlled digital breaks and mindful digital regulation can help employees sustain performance. By integrating JD-R theory, the MAC model, positive cyberloafing, and digital mindfulness, this study offers a more nuanced understanding of how Gen Z employees manage psychological demands in digital work environments (Kwala & Agoyi, 2025; Marsh et al., 2024). This approach contributes to human-centered digital work management by emphasizing the balance between productivity, recovery, and psychological well-being (Wrede et al., 2025; Yan et al., 2024).

This study aims to examine the effects of burnout and boredom on Gen Z employee productivity and to analyze the mediating roles of positive cyberloafing and digital mindfulness in these relationships. Specifically, this study investigates whether burnout and boredom affect productivity; whether positive cyberloafing and digital mindfulness influence productivity; whether burnout and boredom affect positive cyberloafing and digital mindfulness; and whether positive cyberloafing and digital mindfulness mediate the relationships between burnout, boredom, and productivity.

Based on the theoretical arguments and previous empirical findings, this study proposes the following hypotheses:

- H1: Burnout negatively affects Gen Z employee productivity.
- H2: Boredom negatively affects Gen Z employee productivity.
- H3: Positive cyberloafing positively affects Gen Z employee productivity.
- H4: Digital mindfulness positively affects Gen Z employee productivity.
- H5: Burnout negatively affects positive cyberloafing.
- H6: Boredom negatively affects positive cyberloafing.
- H7: Burnout negatively affects digital mindfulness.
- H8: Boredom negatively affects digital mindfulness.
- H9: Positive cyberloafing mediates the relationship between burnout and Gen Z employee productivity.
- H10: Positive cyberloafing mediates the relationship between boredom and Gen Z employee productivity.
- H11: Digital mindfulness mediates the relationship between burnout and Gen Z employee productivity.
- H12: Digital mindfulness mediates the relationship between boredom and Gen Z employee productivity.

RESEARCH METHOD

This study employed a quantitative approach with an explanatory research design. This design was considered appropriate because the study aimed to test causal relationships among burnout, boredom, positive cyberloafing, digital mindfulness, and Gen Z employee productivity using numerical data and inferential statistical analysis. The study was conducted in Indonesia and focused on active Generation Z employees who

used the internet in their work. This context was selected because Gen Z employees are highly exposed to digital work systems, online communication, and technology-based routines, making them relevant subjects for examining burnout, boredom, cyberloafing, digital mindfulness, and productivity in digital work environments.

The population of this study consisted of active Generation Z employees in Indonesia who worked in the formal sector and used the internet in performing their daily work tasks. The respondents came from various occupational fields, including finance, administration, marketing, operations, information technology, health, education, service, and other work sectors. A purposive sampling technique was used because the study required respondents who met specific criteria related to the research objectives. The inclusion criteria were: (1) belonging to Generation Z, (2) being an active employee, (3) using the internet in work-related activities, and (4) having the possibility of engaging in non-work internet use during working hours.

The sample size was determined using the indicator-based guideline proposed by Hair et al., which recommends a minimum number of respondents based on the model's number of indicators. This study used 34 measurement indicators consisting of eight indicators for burnout, six indicators for boredom, six indicators for positive cyberloafing, six indicators for digital mindfulness, and eight indicators for employee productivity. Based on the minimum requirement of 5 respondents per indicator, the minimum sample size was 170. The final sample comprised 178 valid respondents, meeting the minimum requirement for PLS-SEM analysis.

Data were collected using a structured online questionnaire distributed through Google Forms from January to February 2026. Before completing the questionnaire, respondents were informed about the purpose of the study, the voluntary nature of their participation, and the confidentiality of their responses. The questionnaire was designed using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. This scale was used to measure respondents' perceptions of the research variables and to ensure that the collected data could be analyzed quantitatively.

The research instrument consisted of five main constructs. Burnout was measured through emotional exhaustion, cognitive exhaustion, cynicism, and reduced professional efficacy. Boredom was measured through cognitive boredom, affective boredom, and under-stimulation. Positive cyberloafing was measured through digital micro-break engagement, cognitive refreshment, and controlled digital use. Digital mindfulness was measured through digital awareness, attention regulation, and impulse control in digital use. The quality and quantity of output, timeliness, and work efficiency were measured to assess Gen Z employee productivity. The questionnaire items were developed and adapted from relevant previous studies and adjusted to the context of Gen Z employees in digital work environments.

Data analysis was conducted using descriptive statistics and Partial Least Squares Structural Equation Modeling (PLS-SEM). Descriptive statistics were used to explain respondent characteristics and the distribution of responses for each construct. PLS-SEM was selected because it is suitable for predictive and explanatory research models involving multiple latent variables, mediation effects, and relatively complex relationships among constructs.

The PLS-SEM analysis was conducted in two stages: measurement model evaluation and structural model evaluation. The measurement model was assessed using outer loading, Average Variance Extracted (AVE), Cronbach's Alpha, Composite Reliability,

and discriminant validity. Convergent validity was evaluated based on outer loading values and AVE, while construct reliability was evaluated using Cronbach's Alpha and Composite Reliability. Discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT) to ensure that each construct was empirically distinct from the others.

The structural model was evaluated using the coefficient of determination (R-square), predictive relevance (Q-square), effect size (f-square), model fit, multicollinearity, and path coefficient significance. Multicollinearity was assessed using the Variance Inflation Factor (VIF), while model fit was examined using the Standardized Root Mean Square Residual (SRMR). Hypothesis testing was conducted using the bootstrapping procedure to evaluate the significance of direct and indirect effects. The results were interpreted based on path coefficients, t-statistics, p-values, and confidence intervals. For statistical reporting, p-values previously displayed as 0.000 were reported as $p < 0.001$ to follow standard academic reporting conventions.

Ethical considerations were addressed by ensuring voluntary participation, informed consent, anonymity, and confidentiality. Respondents were not required to provide personally identifiable information, and all collected data were used solely for academic research purposes.

RESULTS AND DISCUSSION

Results

This section presents the empirical findings of the study, including respondent characteristics, measurement model evaluation, discriminant validity, structural model evaluation, model fit, effect size, and hypothesis testing. The data were obtained from 178 Generation Z employees in Indonesia who used the internet as part of their work activities. The analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM).

Table 1. Respondent Characteristics

Characteristic	Category	Frequency	Percentage (%)
Gender	Female	107	60.11
	Male	71	39.89
Age distribution	18–21 years	32	17.98
	22–25 years	111	62.36
	26–28 years	35	19.66
Education level	Senior high school/vocational	20	11.24
	Diploma	38	21.35
	Bachelor's degree	112	62.92
	Master's degree	8	4.49
Employment sector	Private company	123	69.10
	Government institution	24	13.48
	State-owned enterprise	14	7.87
	Start-up/digital-based company	17	9.55
Length of employment	1–3 years	100	56.18
	Other categories	78	43.82
Field of work	Finance	47	26.40
	Administration	45	25.28
	Marketing	24	13.48
	Operations	18	10.11
	Information technology	15	8.43
	Other fields	29	16.29

Table 1 shows that most respondents were female employees, representing 60.11% of the total sample, while male respondents accounted for 39.89%. Based on age distribution, most respondents were between 22 and 25 years old, indicating that the sample mainly represented early-career Generation Z employees. In terms of education level, most respondents held a bachelor's degree, followed by diplomas, senior high school/vocational education, and master's degrees. Private company employees dominated the employment sector, while the remaining respondents worked in government institutions, state-owned enterprises, and start-up or digital-based companies. Most respondents had worked for 1–3 years, suggesting that the sample reflected young employees in the early stage of their professional careers. Based on the field of work, finance and administration were the two most dominant areas, followed by marketing, operations, information technology, and other fields. This profile is relevant to the study because these work areas commonly involve digital communication, internet-based routines, and technology-supported productivity demands.

The measurement model was evaluated using outer loading, Average Variance Extracted (AVE), Cronbach's Alpha, and Composite Reliability. These criteria were used to assess convergent validity and construct reliability.

Table 2. Measurement Model Evaluation

Construct	Number of Items	Outer Loading Range	AVE	Cronbach's Alpha	Composite Reliability	Result
Burnout	8	0.737–0.852	0.618	0.911	0.928	Valid and reliable
Boredom	6	0.807–0.897	0.729	0.926	0.942	Valid and reliable
Positive Cyberloafing	6	0.734–0.854	0.666	0.899	0.923	Valid and reliable
Digital Mindfulness	6	0.756–0.869	0.649	0.891	0.917	Valid and reliable
Gen Z Employee Productivity	8	0.746–0.809	0.619	0.912	0.928	Valid and reliable

The results in Table 2 indicate that all constructs met the requirements for convergent validity and reliability. All outer loading values were above 0.70, showing that each indicator adequately represented its latent construct. The AVE values ranged from 0.618 to 0.729, exceeding the minimum threshold of 0.50. Cronbach's Alpha values ranged from 0.891 to 0.926, and Composite Reliability values ranged from 0.917 to 0.942, indicating strong internal consistency across all constructs. Therefore, all constructs were considered valid and reliable for further structural model analysis. Therefore, all constructs were suitable for further structural model analysis. Visually, the results of outer loading are shown in Figure 1.

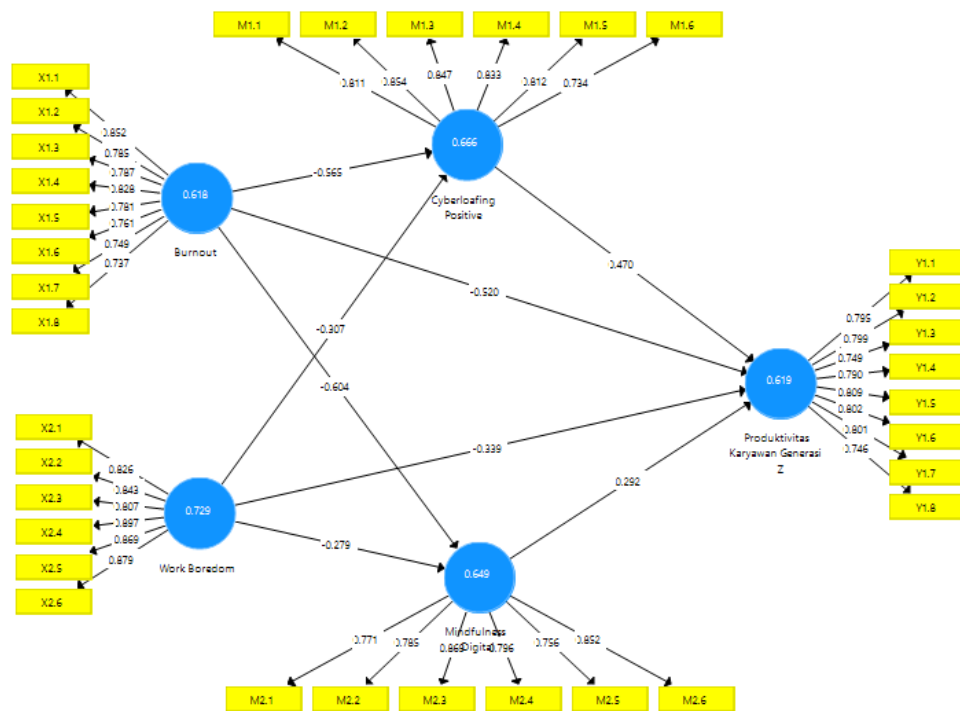


Figure 1. Outer Model Output

After that, discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT). The HTMT criterion was used to determine whether each construct was empirically distinct from the others.

Table 3. HTMT Discriminant Validity

Relationship	HTMT Value	Interpretation
Positive Cyberloafing – Burnout	0.779	Acceptable
Digital Mindfulness – Burnout	0.813	Acceptable
Digital Mindfulness – Positive Cyberloafing	0.924	High but acceptable
Gen Z Employee Productivity – Burnout	0.742	Acceptable
Gen Z Employee Productivity – Positive Cyberloafing	0.918	High but acceptable
Gen Z Employee Productivity – Digital Mindfulness	0.886	Acceptable
Boredom – Burnout	0.503	Acceptable
Boredom – Positive Cyberloafing	0.616	Acceptable
Boredom – Digital Mindfulness	0.609	Acceptable
Boredom – Gen Z Employee Productivity	0.622	Acceptable

The HTMT results show that most construct relationships had values below 0.90, indicating adequate discriminant validity. Two relationships, namely digital mindfulness–positive cyberloafing and Gen Z employee productivity–positive cyberloafing, showed relatively high HTMT values of 0.924 and 0.918. These values indicate conceptual closeness among adaptive digital behavior, digital self-regulation, and productivity. However, since the values remained below 0.95, discriminant validity can still be considered acceptable. This result suggests that although the constructs are theoretically related, they remain empirically distinguishable in the model.

Before evaluating the structural paths, multicollinearity was assessed using the Variance Inflation Factor (VIF). This assessment was conducted to ensure that collinearity problems did not bias the relationships among predictor constructs.

Table 4. Inner VIF Results

Relationship	VIF	Interpretation
Burnout → Positive Cyberloafing	1.294	No multicollinearity
Boredom → Positive Cyberloafing	1.294	No multicollinearity
Burnout → Digital Mindfulness	1.294	No multicollinearity
Boredom → Digital Mindfulness	1.294	No multicollinearity
Burnout → Gen Z Employee Productivity	2.359	No multicollinearity
Boredom → Gen Z Employee Productivity	1.559	No multicollinearity
Positive Cyberloafing → Gen Z Employee Productivity	3.627	No multicollinearity
Digital Mindfulness → Gen Z Employee Productivity	3.846	No multicollinearity

The inner VIF values ranged from 1.294 to 3.846, which were below the commonly used threshold of 5.00. These results indicate that multicollinearity was not a serious issue in the structural model. Therefore, the estimated relationships among exogenous and endogenous constructs could be interpreted without substantial bias caused by collinearity.

Model fit was evaluated using the Standardized Root Mean Square Residual (SRMR), d_ULS, d_G, Chi-Square, and Normed Fit Index (NFI).

Table 5. Model Fit Results

Fit Index	Saturated Model	Estimated Model	Interpretation
SRMR	0.068	0.081	Acceptable
d_ULS	2.751	3.871	Reported
d_G	1.179	1.303	Reported
Chi-Square	1087.096	1139.187	Reported
NFI	0.786	0.775	Moderate

The model fit results show that the SRMR for the saturated model was 0.068, while the estimated model had an SRMR of 0.081. These results indicate that the model had an acceptable level of fit, particularly because the SRMR value was close to the recommended cut-off. Although the NFI value was below 0.90, this result should be interpreted with caution because PLS-SEM primarily emphasizes prediction and explanation rather than the covariance-based model fit. Therefore, the model was considered adequate for further structural evaluation.

The structural model was evaluated using R-squared, adjusted R-squared, and Q-squared. R-square and adjusted R-square were used to assess explanatory power, while Q-square was obtained from blindfolding analysis to assess predictive relevance.

Table 6. Structural Model Evaluation

Endogenous Construct	R-square	Adjusted R-square	Q-square	Interpretation
Positive Cyberloafing	0.579	0.575	0.370	Moderate explanatory power and strong predictive relevance
Digital Mindfulness	0.603	0.599	0.380	Moderate explanatory power and strong predictive relevance
Gen Z Employee Productivity	0.745	0.739	0.445	Strong explanatory power and strong predictive relevance

Table 6 show that burnout and boredom explained 57.9% of the variance in positive cyberloafing and 60.3% of the variance in digital mindfulness. Meanwhile, burnout, boredom, positive cyberloafing, and digital mindfulness explained 74.5% of the

variance in Gen Z employee productivity, indicating strong explanatory power. The Q-square values for all endogenous constructs were greater than zero, with positive cyberloafing at 0.370, digital mindfulness at 0.380, and Gen Z employee productivity at 0.445. These findings indicate that the model has strong predictive relevance. Thus, the proposed model not only explains the relationships among burnout, boredom, positive cyberloafing, digital mindfulness, and productivity but also has adequate predictive power for explaining Gen Z employees' productivity in digital work environments.

Effect size was evaluated using f-square to determine the practical contribution of each exogenous construct to the endogenous constructs.

Table 7. Effect Size Results

Relationship	f-square	Interpretation
Burnout → Positive Cyberloafing	0.587	Large effect
Burnout → Digital Mindfulness	0.712	Large effect
Burnout → Gen Z Employee Productivity	0.010	Very small/no effect
Boredom → Positive Cyberloafing	0.174	Medium effect
Boredom → Digital Mindfulness	0.152	Medium effect
Boredom → Gen Z Employee Productivity	0.032	Small effect
Positive Cyberloafing → Gen Z Employee Productivity	0.239	Medium effect
Digital Mindfulness → Gen Z Employee Productivity	0.087	Small effect

In Table 7, the f-square results show that burnout had large effects on positive cyberloafing and digital mindfulness, indicating that burnout strongly influences employees' ability to engage in adaptive digital breaks and to regulate their digital behavior. However, burnout had a very small effect on productivity, supporting the finding that it does not directly reduce productivity in this model. Boredom had medium effects on positive cyberloafing and digital mindfulness, but only a small effect on productivity. Positive cyberloafing had a medium effect on productivity, whereas digital mindfulness had a small effect. These findings suggest that controlled digital micro-breaks may have a stronger practical contribution to productivity than digital mindfulness, although both remain important adaptive mechanisms.

Hypothesis testing was conducted using the bootstrapping procedure. The results were interpreted based on path coefficients, t-statistics, p-values, and 95% confidence intervals. In accordance with standard academic reporting conventions, p-values previously displayed as 0.000 were reported as $p < 0.001$.

Table 8. Hypothesis Testing Results

Hypothesis	Relationship	Path Coefficient	T-Statistics	P-Values	95% CI	Result
H1	Burnout → Gen Z Employee Productivity	-0.079	1.196	0.232	[-0.264; 0.006]	Not supported
H2	Boredom → Gen Z Employee Productivity	-0.113	2.260	0.024	[-0.212; -0.021]	Supported
H3	Positive Cyberloafing → Gen Z Employee Productivity	0.470	5.930	$p < 0.001$	[0.306; 0.629]	Supported
H4	Digital Mindfulness → Gen Z Employee Productivity	0.292	2.895	0.004	[0.043; 0.468]	Supported
H5	Burnout → Positive Cyberloafing	-0.565	5.295	$p < 0.001$	[-0.765; -0.367]	Supported

H6	Boredom → Positive Cyberloafing	-0.307	3.120	0.002	[-0.471; -0.111]	Supported
H7	Burnout → Digital Mindfulness	-0.604	5.747	p < 0.001	[-0.790; -0.416]	Supported
H8	Boredom → Digital Mindfulness	-0.279	2.871	0.004	[-0.446; -0.099]	Supported
H9	Burnout → Positive Cyberloafing → Gen Z Employee Productivity	-0.265	3.933	p < 0.001	[-0.424; -0.160]	Supported
H10	Boredom → Positive Cyberloafing → Gen Z Employee Productivity	-0.144	2.704	0.007	[-0.254; -0.046]	Supported
H11	Burnout → Digital Mindfulness → Gen Z Employee Productivity	-0.176	2.594	0.010	[-0.313; -0.033]	Supported
H12	Boredom → Digital Mindfulness → Gen Z Employee Productivity	-0.081	2.006	0.045	[-0.160; -0.008]	Supported

The hypothesis testing results show that burnout had a negative but insignificant direct effect on Gen Z employee productivity ($\beta = -0.079$; $t = 1.196$; $p = 0.232$; 95% CI [-0.264; 0.006]). Therefore, H1 was not supported. In contrast, boredom had a negative and significant effect on Gen Z employee productivity ($\beta = -0.113$; $t = 2.260$; $p = 0.024$; 95% CI [-0.212; -0.021]), indicating that higher work boredom tends to reduce productivity among Generation Z employees. Thus, H2 was supported.

Positive cyberloafing had a positive and significant effect on Gen Z employee productivity ($\beta = 0.470$; $t = 5.930$; $p < 0.001$; 95% CI [0.306; 0.629]). Digital mindfulness also had a positive and significant effect on productivity ($\beta = 0.292$; $t = 2.895$; $p = 0.004$; 95% CI [0.043; 0.468]). These findings support H3 and H4, suggesting that controlled digital micro-breaks and mindful digital regulation can contribute positively to Gen Z employee productivity.

The results also show that burnout had a negative and significant effect on positive cyberloafing ($\beta = -0.565$; $t = 5.295$; $p < 0.001$; 95% CI [-0.765; -0.367]) and digital mindfulness ($\beta = -0.604$; $t = 5.747$; $p < 0.001$; 95% CI [-0.790; -0.416]). Similarly, boredom had a negative and significant effect on positive cyberloafing ($\beta = -0.307$; $t = 3.120$; $p = 0.002$; 95% CI [-0.471; -0.111]) and digital mindfulness ($\beta = -0.279$; $t = 2.871$; $p = 0.004$; 95% CI [-0.446; -0.099]). Therefore, H5, H6, H7, and H8 were supported. These findings indicate that burnout and boredom weaken employees' ability to engage in adaptive digital breaks and regulate their digital behavior mindfully.

The mediation results further confirm that positive cyberloafing significantly mediated the relationship between burnout and productivity ($\beta = -0.265$; $t = 3.933$; $p < 0.001$; 95% CI [-0.424; -0.160]) and the relationship between boredom and productivity ($\beta = -0.144$; $t = 2.704$; $p = 0.007$; 95% CI [-0.254; -0.046]). Digital mindfulness also significantly mediated the relationship between burnout and productivity ($\beta = -0.176$; $t = 2.594$; $p = 0.010$; 95% CI [-0.313; -0.033]) and the relationship between boredom and productivity ($\beta = -0.081$; $t = 2.006$; $p = 0.045$; 95% CI [-0.160; -0.008]). Since none of the confidence intervals included zero, H9, H10, H11, and H12 were supported. These results indicate that burnout and boredom reduce productivity indirectly by weakening positive cyberloafing and digital mindfulness as adaptive mechanisms in digital work environments. Visually, the hypothesis testing results are presented in Figure 2.

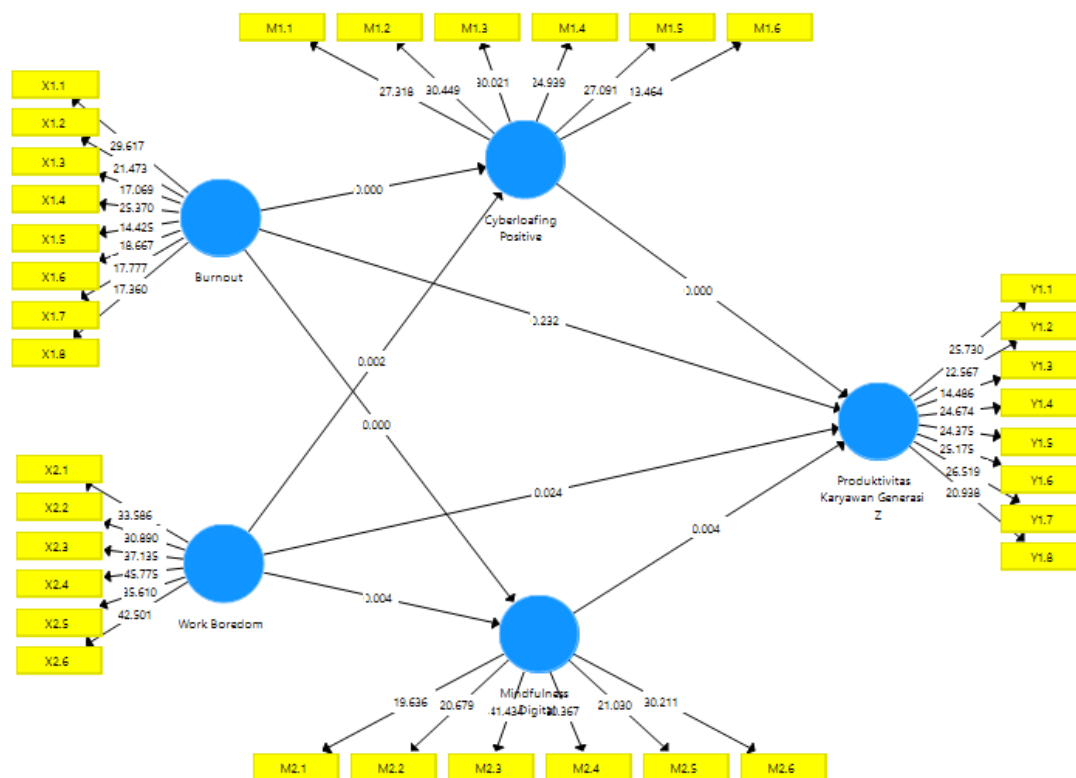


Figure 2. Hypothesis Test Result

Discussion

Productivity is determined not only by the presence of psychological strain but also by employees' capacity to recover attention, regulate digital behavior, and maintain meaningful engagement with work. Boredom had a significant negative direct effect on productivity, while burnout did not show a significant direct effect. At the same time, positive cyberloafing and digital mindfulness positively influenced productivity and significantly mediated the relationships between burnout, boredom, and productivity. These findings suggest that Gen Z productivity should be understood in terms of the interaction among psychological demands, adaptive digital coping, and awareness-based self-regulation.

The insignificant direct effect of burnout on productivity is an important finding because it challenges the assumption that burnout always produces an immediate decline in employee output. Although the coefficient was negative, burnout did not significantly predict productivity directly. This may indicate that Gen Z employees can still maintain visible task performance despite experiencing emotional or cognitive exhaustion, especially when organizational deadlines, performance expectations, and digital work systems continue to require task completion. In this context, burnout may not immediately reduce productivity, but may first deplete the psychological resources required for sustainable performance. This interpretation is consistent with the Job Demands-Resources theory, which posits that excessive job demands may deplete energy, motivation, and personal resources before performance deterioration becomes apparent (Bakker et al., 2023; Demerouti, 2025). It is also consistent with recent evidence that digital burnout and mental health challenges among Gen Z are closely related to psychological strain in technology-intensive environments, even when work outcomes are not immediately affected (Ashraf, 2025; Ohana et al., 2024).

This result does not imply that burnout is irrelevant to productivity. Instead, burnout appears to operate more strongly as a resource-depleting condition than as a direct productivity determinant. The findings show that burnout significantly weakened both positive cyberloafing and digital mindfulness. This means that employees who experience greater emotional and cognitive exhaustion may be less able to use digital breaks in a controlled, restorative way and to mindfully regulate their digital attention. This supports the view that burnout reduces employees' internal resources for adaptive coping and self-regulation. Recent studies on digital work also show that employees need personal resources to manage the dark side of digital working, including digital fatigue, distraction, and overload (Marsh et al., 2024; Wrede et al., 2025). Therefore, burnout may reduce productivity indirectly by weakening the mechanisms that help employees recover psychological energy and manage digital stimuli.

In contrast, boredom had a significant negative effect on Gen Z employee productivity. This finding indicates that boredom may be more immediately harmful to productivity than burnout in the observed model. Boredom is a condition in which employees lose cognitive and emotional connection to their work because tasks are monotonous, understimulating, or lack personal meaning. For Gen Z employees, who are accustomed to fast digital interaction and dynamic information flow, repetitive or low-stimulation tasks may quickly reduce attention, motivation, and task persistence. This finding supports the Meaning-and-Attentional-Components model, which explains boredom as a state that emerges when individuals fail to maintain attention or find meaning in an activity. Recent studies also show that boredom is closely related to digital distraction, cyberloafing, disengagement, and turnover intention (Daneels et al., 2025; Kim et al., 2025; Ohana et al., 2024; van Hooff & van Hooft, 2023; Younas et al., 2023).

The significant effect of boredom also shows that productivity problems in digital workplaces are not caused only by excessive workload. Under-stimulation, lack of task variety, low challenge, and limited perceived meaning can also reduce employee outcomes. Employees may remain digitally connected and physically present, but psychologically detached from their tasks. This condition may encourage passive behavior, reduced initiative, and lower persistence in completing work. In this sense, boredom should be treated as a serious productivity risk, especially among Gen Z employees who often expect work to provide learning, autonomy, relevance, and meaningful digital engagement. This finding is consistent with studies showing that workplace boredom can encourage cyberloafing and moral disengagement, especially when employees perceive low stimulation or a lack of meaning in their work (Ohana et al., 2024; van Hooff & van Hooft, 2023).

Positive cyberloafing had the strongest direct positive effect on Gen Z employees' productivity. This finding supports the emerging view that cyberloafing should not always be interpreted as deviant or counterproductive behavior. When performed briefly, consciously, and within reasonable boundaries, non-work internet use can function as a digital micro-break that restores attention, reduces stress, and refreshes cognitive energy. For Gen Z employees, light digital activities may also provide emotional relief, social connection, informal learning, and mental recovery before returning to work tasks. This result is consistent with recent studies showing that cyberloafing can have different outcomes depending on its form, purpose, and level of control (Krishna & Agrawal, 2023; Kwala et al., 2025; Kwala & Agoyi, 2025; Lim & Teo, 2024). In other words, cyberloafing becomes productive when it functions as recovery rather than avoidance.

However, this study does not suggest that all forms of cyberloafing are beneficial. The positive effect found in this study refers specifically to positive cyberloafing, namely controlled, brief, and restorative digital break behavior. This distinction is important because excessive, passive, or addictive cyberloafing may still reduce productivity and well-being. Recent studies show that cyberloafing can be triggered by technostress, fear of missing out, short-video addiction, and weak self-control, which may make digital behavior more impulsive and counterproductive (Chen et al., 2026; Jyoti & Ahmad, 2025; Nguyen et al., 2026; Selamet et al., 2025). Therefore, the key issue is not simply whether employees use the internet for non-work purposes during working hours, but whether such use is intentional, time-bounded, and psychologically restorative. This finding reframes cyberloafing as a conditional coping mechanism whose effect depends on intensity, purpose, context, and self-regulation.

Digital mindfulness also had a positive and significant effect on Gen Z employee productivity. This finding confirms that awareness-based digital regulation is an important personal resource in technology-intensive work environments. Employees with higher digital mindfulness are more capable of recognizing digital distractions, controlling impulsive technology use, managing notifications, and redirecting attention toward work goals. Thus, digital mindfulness supports productivity not by eliminating technology use, but by helping employees use technology more intentionally and responsibly. This result is in line with studies showing that mindful work and mindful technology use can reduce digital distraction and support more intentional engagement with digital tools (Jarrahi et al., 2023; Marsh et al., 2024). It also supports evidence that digital mindfulness and digitally assisted mindfulness interventions can improve psychological health, self-regulation, and work-related functioning (Mitsea et al., 2023; Remskar et al., 2024; Wrede et al., 2025).

The positive role of digital mindfulness also highlights the importance of internal regulation in digital workplaces. Digital work requires employees not only to use technology efficiently, but also to manage attention, impulses, and emotional responses to digital stimuli. In this study, digital mindfulness helped explain why employees who can regulate their digital behavior tend to be more productive. This is relevant to Gen Z employees because their work routines are strongly embedded in digital platforms, online communication, and multitasking. Recent research also indicates that mindfulness can enhance workplace productivity and creativity when employees use digital technologies consciously and avoid uncontrolled distraction (Tu et al., 2025; Yan et al., 2024). Therefore, digital mindfulness can be understood as a self-regulatory capacity that allows Gen Z employees to remain connected without being overwhelmed by digital demands.

The mediation findings provide further theoretical insight. Positive cyberloafing significantly mediated the relationships between burnout, boredom, and productivity. Because burnout and boredom negatively affected positive cyberloafing, while positive cyberloafing positively affected productivity, the indirect effects were negative. This means that burnout and boredom reduce productivity, in part, by weakening employees' ability to use digital breaks as restorative micro-recovery. When employees are emotionally exhausted or deeply bored, they may lose the capacity to engage in controlled and purposeful cyberloafing. As a result, digital activity may no longer function as a means of recovery but may become a passive distraction or a form of avoidance. This finding extends the cyberloafing literature by showing that positive cyberloafing is not

merely a direct predictor of productivity but also a mechanism that explains how psychological strain affects work outcomes.

Digital mindfulness also significantly mediated the relationships between burnout, boredom, and productivity. This finding indicates that burnout and boredom can reduce productivity indirectly by weakening employees' digital awareness, attention regulation, and impulse control. When employees experience psychological strain, they become less capable of consciously managing digital interactions. This makes them more vulnerable to distraction, cognitive fragmentation, and unproductive digital behavior. From the JD-R perspective, digital mindfulness can be positioned as a personal resource that helps employees manage job demands in digital work settings (Bakker et al., 2023; Demerouti, 2025). This is also consistent with studies showing that mindfulness-based mechanisms can reduce stress, improve focus, support work engagement, and improve employee well-being (Lee et al., 2025; Radin et al., 2025; Remskar et al., 2024; Wrede et al., 2025; Yan et al., 2024).

Theoretically, this study contributes to the digital workplace and human resource management literature in several ways. First, it extends the JD-R theory by showing that burnout and boredom influence productivity not only directly but also indirectly through weakened digital recovery and self-regulation mechanisms. Second, it applies the MAC model to explain why boredom harms Gen Z productivity, especially when work lacks attentional engagement and perceived meaning. Third, it contributes to the cyberloafing debate by reframing it from a purely deviant behavior to a conditional adaptive mechanism that can support productivity when engaged in positively (Goyal & Sachdeva, 2025; Hessari et al., 2024; Kwala & Agoyi, 2025; Lim & Teo, 2024). Fourth, it distinguishes positive cyberloafing from digital mindfulness. Positive cyberloafing refers to actual recovery behavior through controlled digital micro-breaks, while digital mindfulness refers to the internal capacity to regulate digital interactions consciously. By placing both variables in one model, this study shows that Gen Z productivity depends on both restorative behavior and awareness-based regulation.

In practice, the findings suggest that organizations should avoid relying solely on restrictive internet-use policies. Strictly banning all non-work internet use may ignore the restorative value of controlled digital breaks, especially for Gen Z employees who are highly embedded in digital environments. Human resource managers should develop digital well-being policies that distinguish between harmful and positive cyberloafing. Such policies may allow short, purposeful, and time-bounded digital breaks while maintaining clear performance expectations and responsible conduct. Organizations should also invest in digital mindfulness training to help employees recognize digital overload, manage notifications, regulate attention, and prevent impulsive online behavior. For Gen Z employees, this can be implemented through short reflection modules, focus-management exercises, digital boundary-setting practices, and planned micro-break routines. Managers should also treat boredom as a productivity risk by designing work that provides variety, autonomy, feedback, challenge, and meaning through task rotation, job crafting, skill development, or project-based assignments.

This study has several limitations. First, the focus on Generation Z employees may limit the generalizability of the findings to other age groups. Second, the cross-sectional design limits the ability to observe changes in burnout, boredom, cyberloafing, digital mindfulness, and productivity over time. Third, the use of self-reported data may contain perception bias or social desirability bias. Fourth, the model did not include other relevant

organizational and psychological factors such as organizational culture, leadership style, job autonomy, digital workload, work engagement, self-control, and perceived organizational support. Future research should test this model across different generations, industries, and work arrangements. Longitudinal and experimental studies are also needed to examine whether positive cyberloafing and digital mindfulness produce stable productivity benefits over time. Future studies may also compare positive and negative cyberloafing or use qualitative approaches to explore how Gen Z employees interpret digital breaks, boredom, and mindful technology use in daily work practices.

This study confirms that Gen Z employee productivity in digital work environments depends not only on reducing burnout and boredom but also on strengthening adaptive digital coping and self-regulation. Digital work management should therefore move beyond control-based policies toward a balanced model that recognizes recovery, awareness, and responsible technology use as foundations of sustainable productivity.

CONCLUSION

This study concludes that Gen Z employee productivity in digital work environments is influenced not only by psychological strain but also by employees' ability to recover and regulate their digital behavior. The findings show that boredom has a significant negative effect on productivity, while burnout does not directly reduce productivity. However, both burnout and boredom significantly weaken positive cyberloafing and digital mindfulness, which in turn affect productivity. Positive cyberloafing and digital mindfulness were proven to improve productivity and significantly mediate the relationships between burnout, boredom, and Gen Z employee productivity. These results confirm that controlled digital micro-breaks and mindful technology use can serve as adaptive mechanisms to sustain productivity among young employees. Theoretically, this study contributes to digital workplace and human resource management literature by reframing cyberloafing as a conditional restorative behavior and positioning digital mindfulness as a regulatory personal resource. Practically, organizations should develop digital well-being policies, structured digital breaks, and meaningful work design to reduce boredom and support sustainable productivity. Nevertheless, this study is limited by its focus on Gen Z employees, its cross-sectional design, and its reliance on self-reported data. Future research should examine this model across different generations, industries, and work arrangements using longitudinal or mixed-method approaches and by including other variables such as job autonomy, work engagement, self-control, digital workload, and organizational support.

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