E-ISSN: 3108-4192

APSSHS

Academic Publications of Social Sciences and Humanities Studies
2022, Volume 2, Page No: 197-203
Available online at: https://apsshs.com/

Asian Journal of Individual and Organizational Behavior

Navigating Uncertainty: The Role of Stress and Ambiguity in Cyberloafing Behavior Among Indonesian University Students

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Abstract

In today's digital workplace, employees' personal use of the internet during work hours (cyberloafing) has become extremely hard to detect and manage, demanding that organizations handle the issue with greater care and understanding rather than strict monitoring alone. The present research explores how role conflict, work stress, and role ambiguity interact to drive cyberloafing among employees of a university in Papua, Indonesia. Drawing on general strain theory, the study adopted a cross-sectional approach and gathered questionnaire data from 280 staff members chosen through proportional random sampling. Key findings show that: Role conflict significantly increases both work-related stress and cyberloafing. Work stress has a strong positive impact on cyberloafing. Role ambiguity significantly intensifies the direct link between role conflict and cyberloafing. However, role ambiguity does NOT meaningfully amplify the relationship between work stress and cyberloafing. Practically, the results emphasize that role conflict is a major contributor to employee stress and online distraction at work, yet work stress itself is an even more powerful immediate trigger of cyberloafing. The study also clarifies that unclear job expectations (role ambiguity) worsen cyberloafing mainly when employees already face conflicting demands, but do not make stressed employees loaf more than they already do. To reduce cyberloafing, organizations—especially in academic settings—should prioritize crystal-clear job descriptions, consistent policies, and open communication channels to lower role ambiguity and conflicting expectations, rather than relying solely on surveillance or punishment.

Keywords: Higher education staff, Role conflict, Cyberloafing, Role ambiguity, Work stress

How to cite this article: Kim MJ, Lee JW, Park SH, Choi DH. Navigating Uncertainty: The Role of Stress and Ambiguity in Cyberloafing Behavior Among Indonesian University Students. Asian J Indiv Organ Behav. 2022;2:197-203. https://doi.org/10.51847/hPu3zXxGIL

Received: 16 August 2022; **Revised:** 27 November 2022; **Accepted:** 29 November 2022
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Introduction

The rise of digital technologies and the Internet has fundamentally transformed modern workplaces, enabling greater flexibility and supporting organizational productivity and efficiency [1]. Firms that enhance their employees' digital skills particularly benefit from these advancements [2, 3]. However, the increasingly complex nature of contemporary work often exposes employees to conflicting demands and expectations, giving rise to role conflict. This occurs when employees encounter incompatible work requirements, creating psychological strain and emotional tension [4, 5]. Such stress not only diminishes job satisfaction but can also impair performance [6, 7]. As a coping mechanism, employees may turn to cyberloafing—engaging in Internet activities unrelated to work, such as browsing social media or personal entertainment—to relieve stress and distraction from workplace pressures [8-10]. The widespread use of the Internet in the workplace has made monitoring and managing cyberloafing increasingly challenging for organizations [11].

Role ambiguity further complicates this dynamic. When employees lack clarity regarding their responsibilities, objectives, or performance expectations, their vulnerability to stress and maladaptive coping strategies like cyberloafing may increase [12].

The combined presence of role conflict and ambiguity can intensify stress, as employees navigate unclear expectations without sufficient guidance or support [7]. While prior research has established that role conflict contributes to work stress and cyberloafing, the moderating influence of role ambiguity has received limited attention, particularly in Indonesia [5, 13]. As digital access continues to expand in workplaces, the potential for cyberloafing also grows, highlighting the need to understand these psychological mechanisms in organizational contexts [11, 14]. This study addresses this gap by examining how role ambiguity affects the relationship between role conflict, work stress, and cyberloafing, offering insights into how employee behavior is shaped in the digital age [15, 16].

The effects of role conflict, role ambiguity, and stress extend beyond individual experiences, influencing overall job satisfaction, productivity, and organizational effectiveness [7, 8, 15, 17]. Employees under role-related stress may be more likely to engage in cyberloafing, particularly when ambiguity exacerbates uncertainty about their responsibilities [18]. This behavior, fueled by easy access to online resources, can reduce efficiency and negatively impact organizational outcomes [19]. Understanding the moderating role of ambiguity is therefore critical for designing human resource strategies that reduce stress and limit cyberloafing. By clarifying roles and expectations, organizations can foster a more productive and satisfying work environment—a concern especially relevant in the Indonesian context, where managing cyberloafing remains a complex challenge [11].

This study investigates the impact of role conflict on work stress and cyberloafing, examining role ambiguity as a moderating factor. Anchored in General Strain Theory (GST), it provides theoretical and practical contributions by offering insights into strategies for improving employee well-being and performance, as well as informing future research on the psychological and organizational drivers of effective workplace behavior.

Literature Review

General strain theory

General Strain Theory (GST), introduced by Robert Agnew in 1992, suggests that experiences of strain or tension can heighten the likelihood of deviant behaviors. Strain arises from the inability to achieve desired goals, the loss of valued stimuli, or exposure to negative stimuli [20]. According to GST, such pressures can lead individuals to engage in behaviors aimed at coping or relieving tension, such as cyberloafing. Within organizational settings, sources of strain often include role conflict and role ambiguity, which contribute to elevated work stress [21, 22]. In this context, using the Internet for non-work-related activities serves as a coping mechanism to manage negative emotions triggered by stress. Role conflict emerges when employees face incompatible job demands, whereas role ambiguity occurs when expectations regarding responsibilities and performance are unclear [23]. Both conditions create heightened stress levels, which in turn can increase the propensity for cyberloafing as a form of psychological relief [24, 25].

Work stress, role conflict, and cyberloafing

The growing availability of the Internet at work has given rise to cyberloafing, defined as employees' use of company Internet access for personal purposes during working hours [1]. One of the strongest antecedents of this behavior is role conflict. When employees receive incompatible demands from supervisors, colleagues, or multiple roles, they experience heightened tension and psychological pressure. A substantial number of studies have shown that such conflicting expectations increase perceived job stress, which then leads employees to use the Internet for unrelated activities as a temporary coping strategy [13, 24, 26]. This stress-induced distraction offers short-term relief and restores a sense of control [22]. Andreassen *et al.* [21] further observed that workers facing intense pressure frequently turn to social networking platforms during work time to escape emotional discomfort. Additional empirical evidence confirms that greater stress originating from conflicting roles directly translates into higher levels of cyberloafing [27, 28]. Consequently, minimizing role conflict and supporting stress management are recommended organizational strategies to curb this behavior [5].

Based on the literature, the following hypotheses are formulated: H1. There is a significant positive relationship between role conflict and employees' cyberloafing behavior. H2. Higher levels of work stress are significantly associated with increased cyberloafing. H3. Role conflict exerts a significant positive influence on employees' perceived work stress. H4. The relationship between role conflict and cyberloafing is partially or fully mediated by work stress.

Role ambiguity as a moderating variable

Role ambiguity acts as a moderator in the relationships between role conflict, work stress, and cyberloafing, either amplifying or attenuating these connections. When role ambiguity is high, employees face uncertainty regarding their duties and performance expectations, which intensifies the negative impact of role conflict. Role conflict occurs when incompatible or contradictory demands are placed on an employee, triggering confusion, hesitation, and heightened work stress [4]. Under conditions of high role ambiguity, this stress becomes more severe, pushing individuals toward cyberloafing as a coping mechanism [24, 29].

Research indicates that employees facing simultaneous role conflict and role ambiguity tend to escape workplace pressure by engaging in personal internet activities during work hours [25]. High role ambiguity strengthens the link between role conflict and work stress, increasing psychological strain and, in turn, prompting greater cyberloafing behavior [24, 30, 31].

To counteract these effects, organizations should minimize role ambiguity through clear job descriptions, well-defined responsibilities, and improved communication channels. Such measures can weaken the detrimental influence of role conflict on both work stress and cyberloafing [32]. Ultimately, proactively managing role ambiguity helps protect employee well-being and sustains organizational performance by reducing the harmful consequences of role conflict [5]. H5: Role ambiguity moderates the relationship between role conflict and cyberloafing. H6: Role ambiguity moderates the relationship between role conflict and work stress. H7: Role ambiguity moderates the relationship between work stress and cyberloafing.

Research Methodology

This study targeted administrative staff at public universities in Papua, Indonesia. According to Hair *et al.* [33], SEM-AMOS analyses that include mediation or moderation require a minimum sample size of 200–300 participants. The population comprised 637 employees across three state universities: Universitas Cenderawasih (276), Universitas Musamus (158), and Universitas Papua (203). From this population, 280 respondents were selected through proportional simple random sampling. Data collection was conducted over three months, from April 18 to July 18, 224, using a cross-sectional survey design.

Data were collected through a structured questionnaire using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The measures included role conflict [34], work stress [35], cyberloafing [28], and role ambiguity [36]. Prior to distribution, the instruments underwent a pilot test to confirm their validity and reliability. Once validated, the questionnaires were administered to the selected participants, and responses were monitored biweekly to ensure completeness.

Structural Equation Modeling (SEM) using AMOS was employed to examine the relationships among latent variables. SEM requires several critical assumptions to produce reliable results. First, the data must approximate a normal distribution, assessed through skewness and kurtosis, with values near zero indicating normality [37]. Second, sample size is crucial, with at least 200 respondents recommended for models of moderate complexity [38]. Third, model fit was evaluated using indices including Chi-square, RMSEA, CFI, and TLI; a well-fitting model is indicated by RMSEA < 0.08 and CFI/TLI > 0.90 [39]. Fourth, construct validity was verified through convergent validity, with factor loadings and Average Variance Extracted (AVE) exceeding 0.5, and Composite Reliability (CR) exceeding 0.7. Fifth, SEM assumes linear relationships between latent variables and their indicators, as non-linear relationships can bias estimates [40]. Sixth, homoscedasticity of the dependent variable was confirmed using Levene's test [41]. Finally, residuals were checked for independence, since correlated errors can distort parameter estimates and hypothesis testing [42]. By fulfilling these requirements, SEM-AMOS provides robust and accurate estimates of the structural relationships in the model.

Research Result

Table 1 presents the SEM-AMOS results, demonstrating that the model meets the established standards for both validity and reliability.

Table 1. Measurement Model

Construct	Item Code	Factor Loading	Average Variance Extracted (AVE)	Composite Reliability
Role Conflict	RC1	0.664	0.52	0.761
	RC2	0.879		
	RC3	0.593		
Role Ambiguity	RA1	0.772	0.68	0.861
	RA2	0.799		
	RA3	0.889		
Work Stress	WS1	0.711	0.58	0.871
	WS2	0.686		
	WS3	0.693		
	WS4	0.960		
	WS5	0.716		
Cyberloafing	CL1	0.667	0.50	0.746
	CL2	0.733		
	CL3	0.710		

The results presented in **Table 1** show that all factor loadings exceed 0.50 (FL > 0.5), confirming the convergent validity of the constructs. The Average Variance Extracted (AVE) values are all above 0.50 (AVE > 0.50), indicating adequate reliability. In addition, the Composite Reliability (CR) values for each construct exceed 0.70, demonstrating that the model meets the threshold for internal consistency. These findings confirm that all constructs satisfy both validity and reliability criteria. **Table**

2 further presents the Goodness of Fit (GoF) indices for the model, as assessed using SEM-AMOS, indicating an overall satisfactory model fit.

Table 2. Goodness of Fit Model SEM

Fit Index	Value	Recommended Cut-off	Acceptable Range	Fit Conclusion
Chi-square (CMIN)	72.762	$p > 0.05$	–	Fit
CMIN/DF	0.827	≤ 2.00	–	Fit
RMR	0.015	≤ 0.05	0.05–0.06	Fit
GFI	0.968	≥ 0.90	0.80–0.90	Fit
AGFI	0.951	≥ 0.90	0.80–0.90	Fit
TLI	1.011	≥ 0.95	0.85–0.95	Fit
CFI	1.000	≥ 0.95	0.85–0.95	Fit
RMSEA	0.000	≤ 0.08	0.08–0.09	Fit

Based on the Goodness of Fit (GoF) summary presented in **Table 2**, all indices indicate that the model meets the required criteria. The Chi-square (CMIN) value is 0.879, exceeding the 0.05 threshold; the CMIN/DF ratio is 0.827, below the recommended value of 2; and RMR is 0.015, well under the 0.05 cut-off. Additionally, GFI (0.968) and AGFI (0.951) surpass the 0.90 benchmark, TLI (1.011) and CFI (1.000) exceed 0.95, and RMSEA (0.000) falls below 0.08. Collectively, these eight indices confirm that the model achieves an acceptable fit, making the SEM-AMOS results suitable for further interpretation. Subsequently, hypothesis testing was performed using the full AMOS model, with results illustrated in **Figure 1**, **Table 3 and 4**.

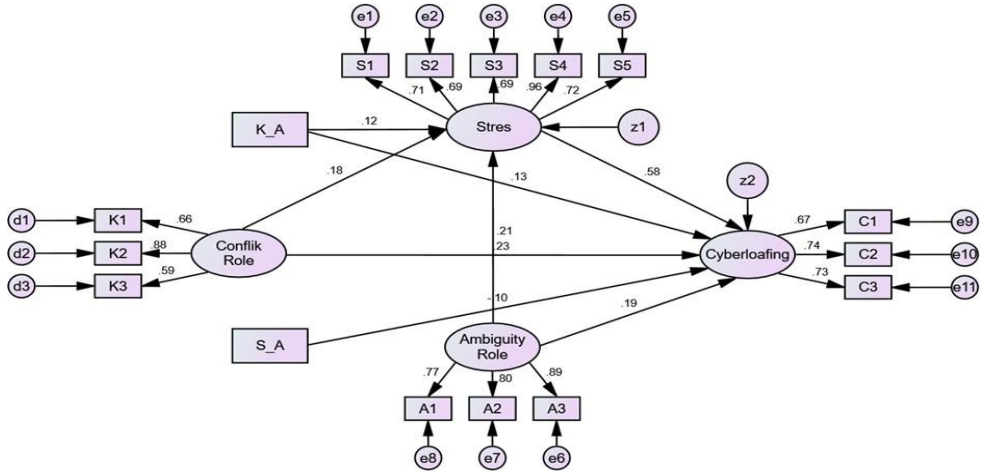

Figure 1. Full Model SEM-AMOS

Figure 1 presents the structural model estimated using SEM-AMOS, highlighting the relationships among the study variables. The measurement model has satisfied both validity and reliability requirements, as indicated in **Table 1**. In addition, the overall model demonstrates an acceptable fit, with key indices including CFI, RMSEA, and TLI meeting the established criteria **(Table 2)**. The findings from **Figure 1** are further detailed in **Table 3 and 4**, which summarize the results of hypothesis testing, including direct effects, indirect (mediating) effects, and the impact of the moderating variable.

Table 3. Mediation Effect and Direct Effect

Hypothesis	Path Relationship	Direct Effect (β)	p-value	Indirect Effect (β)	p-value	Conclusion
H1	Role Conflict → Cyberloafing	0.212	0.001	–	–	Supported
H2	Work Stress → Cyberloafing	0.584	***	–	–	Supported
H3	Role Conflict → Work Stress	0.183	0.007	–	–	Supported
H4	Role Conflict → Work Stress → Cyberloafing	–	–	0.107	0.041	Partial Mediation Supported

The outcomes of the moderation hypotheses are presented in **Table 4**. As shown in **Table 3**, all three hypotheses concerning direct effects were statistically significant and therefore supported: Role conflict significantly influences cyberloafing ($\beta = 0.212$, $p = 0.001 < 0.05$), supporting H1. Work stress has a significant positive effect on cyberloafing ($\beta = 0.584$, $p < 0.001$), supporting H2. Role conflict significantly affects work stress ($\beta = 0.183$, $p = 0.007 < 0.05$), supporting H3.

Additionally, work stress was found to partially mediate the relationship between role conflict and cyberloafing (indirect effect $\beta = 0.107$, $p = 0.041 < 0.05$), confirming H4.

The results for the three moderation hypotheses (H5, H6, and H7) are reported in **Table 4**.

Table 4. Moderation Effect

Interaction Term (Moderator: Role Ambiguity)	Dependent Variable	Path Coefficient (β)	p-value	Conclusion
H5: Role Conflict × Role Ambiguity	→ Cyberloafing	0.120	0.027	Supported (significant)
H6: Role Conflict × Role Ambiguity	→ Work Stress	0.121	0.043	Supported (significant)
H7: Work Stress × Role Ambiguity	→ Cyberloafing	-0.099	0.066	Not supported (p > 0.05)

Table 4 illustrates how role conflict affects cyberloafing and work stress, with role ambiguity acting as a moderator. The results indicate that role conflict positively impacts cyberloafing when role ambiguity is considered, with a significant path coefficient of 0.120 (p = 0.027), supporting hypothesis H5. Likewise, role conflict also significantly contributes to work stress under the influence of role ambiguity (path coefficient = 0.121, p = 0.043), confirming hypothesis H6. However, the anticipated effect of work stress on cyberloafing, moderated by role ambiguity, was not supported, as evidenced by a path coefficient of -0.099 (p = 0.066), leading to the rejection of hypothesis H7. Overall, six out of the seven proposed hypotheses are validated, while one is not. Although the study shows significant direct and indirect relationships, role ambiguity does not significantly alter the effect of work stress on cyberloafing. Further interpretation of these findings is discussed in detail in the discussion section.

Discussion

Employees often face conflicting demands or unclear expectations at work, a situation referred to as role conflict, which can lead to elevated stress levels [23, 43]. When job responsibilities are contradictory or ambiguous, individuals experience confusion and tension, making it difficult to meet expectations effectively [44]. As a result, some employees resort to cyberloafing—engaging in non-work-related online activities during work hours—as a way to cope with stress and momentarily escape pressure [30, 45].

The study reveals that role conflict not only raises stress but also directly encourages cyberloafing [46]. Employees experiencing high levels of conflict often use cyberloafing as a temporary relief from work pressures [47]. Similarly, heightened stress itself can trigger cyberloafing behaviors, as individuals seek short-term ways to reduce tension and workload demands [5, 48]. Addressing both role conflict and work stress is therefore essential to reduce cyberloafing and promote productivity and employee well-being [18, 22].

Role ambiguity—uncertainty about job roles and expectations—also plays a significant role in shaping work stress and cyberloafing [5, 30]. When employees are unsure about what is expected of them, confusion and stress increase, which can encourage cyberloafing as a coping mechanism [22]. The study finds that role ambiguity intensifies the effects of role conflict on both work stress and cyberloafing but does not significantly amplify the direct impact of stress on cyberloafing. In contexts of high ambiguity, the lack of clarity makes resolving conflicts more challenging, thereby increasing stress levels [6, 26, 30]. Employees experiencing both high stress and high role ambiguity are more prone to cyberloafing as a way to manage pressure temporarily [25, 32, 49]. However, when ambiguity is moderate, employees tend to focus on clarifying their roles rather than engaging in non-work activities, which explains why the moderating effect of role ambiguity on stress-driven cyberloafing is not significant. Effective communication and clearly defined job responsibilities can reduce role ambiguity, alleviate stress, and limit cyberloafing, ultimately improving organizational productivity and employee welfare [22].

Conclusion

Cyberloafing, or using the Internet for non-work-related activities during work hours, can serve as a temporary way for employees to manage work stress, workload, and role ambiguity. However, it may also negatively affect overall productivity. According to General Strain Theory (GST), role conflict is a major source of workplace strain. GST suggests that increased work stress can lead individuals to engage in deviant or coping behaviors to alleviate pressure. When employees face conflicting job demands or unclear expectations, they experience role conflict, which generates uncertainty, hesitation, and psychological strain, ultimately raising work stress. High stress levels, in turn, may push employees toward cyberloafing as a mechanism to relieve pressure. In this context, cyberloafing functions as a stress-coping strategy arising from role conflict.

GST also highlights the role of role ambiguity in intensifying the effects of both role conflict and work stress. Unclear job responsibilities and expectations create additional confusion, increasing psychological strain and work stress. Employees without adequate guidance or support in managing conflicting demands are more likely to feel overwhelmed. While role ambiguity strengthens the impact of role conflict on both work stress and cyberloafing, it does not significantly amplify the direct effect of work stress on cyberloafing. High levels of ambiguity exacerbate the negative consequences of role conflict, prompting employees to turn to cyberloafing as a means of coping. Reducing role ambiguity through clear communication and well-defined task assignments can therefore alleviate stress and limit cyberloafing.

From a managerial perspective, the findings suggest that role conflict directly contributes to work stress and cyberloafing. Employees facing unclear or conflicting job demands are more prone to stress, which can lead to non-productive behaviors. Role ambiguity further intensifies these effects, as vague responsibilities heighten confusion and pressure. To mitigate these risks, organizations should focus on clarifying job roles, setting measurable goals, and maintaining open channels of communication. Policies that support work-life balance, stress management initiatives, and training in role clarification can further reduce employees' reliance on cyberloafing. Ultimately, well-defined expectations combined with employee support enhance productivity, reduce workplace stress, and promote organizational well-being.

Acknowledgments: None

Conflict of interest: None

Financial support: None

Ethics statement: None

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