

Applying the Theory of Planned Behavior to Cyberloafing: Drivers and Performance Consequences in an Indonesia's Cement Company

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ABSTRACT

The research investigated how the Theory of Planned Behavior (TPB) factors, attitudes, subjective norms, and perceived behavioral control influenced cyberloafing among employees at PT XYZ, and how such behavior subsequently related to employee performance. While prior literature often assumed that cyberloafing reduced productivity, the research challenged that perspective by examining its potential as a form of workplace micro-break. Data were collected from 126 employees using a structured questionnaire on a five-point Likert scale and analyzed through Structural Equation Modeling (SEM) with SmartPLS 4.0. The findings reveal three main results. First, all TPB constructs significantly predict higher levels of cyberloafing, underscoring the role of psychological and social factors in shaping Internet use at work. Second, patterns of cyberloafing differ across organizational roles, with administrators engaging more frequently than operators. Third, contrary to conventional assumptions, cyberloafing shows no significant negative effect on overall work performance. These results suggest that, in this industrial context, limited cyberloafing may operate as a mechanism for stress relief and concentration recovery rather than as a drain on productivity. By providing empirical evidence from an Indonesian state-owned enterprise, the researchers contribute to a more nuanced understanding of cyberloafing, highlighting its cultural and organizational dimensions and questioning its universally negative portrayal.

Keywords: Theory of Planned Behavior (TPB), cyberloafing, performance, perceived behavioral control, subjective norm

INTRODUCTION

The Internet has revolutionized workplace operations, but its accessibility has also led to cyberloafing, employees using work hours for personal online activities. Research shows that 60% of employees engage in non-work-related Internet use, costing organizations up to 50 minutes of productivity per day (Safdeni et al., 2025). While conventional wisdom suggests cyberloafing harms performance (Rizky et al., 2024), emerging evidence indicates it

may serve as a coping mechanism, reducing stress without necessarily decreasing output (Hurriyati & Marlinda, 2023). This paradox is particularly evident at PT XYZ, where internal audits reveal 37% of bandwidth is consumed by personal Internet use, yet annual productivity has increased by 5%. Such contradictions highlight the need for a deeper, context-specific investigation into the true impact of cyberloafing.

PT XYZ, a century-old Indonesian state-owned cement company, presents a compelling case

study. Unlike typical office-based environments, its 24/7 production operations create unique dynamics of cyberloafing. Preliminary interviews reveal that employees, particularly those in control rooms with computer access, view brief online breaks (*hak istirahat digital*) as a normative right. Field observations further indicate that cyberloafing patterns vary significantly between roles. Machine operators engage in shorter, more frequent sessions, while administrative staff have prolonged but less frequent usage. These nuances challenge one-size-fits-all Internet policies and demand a tailored approach to digital behavior management.

Internet misuse in the workplace is the inappropriate use of the Internet for personal purposes during working hours, including accessing non-work-related websites, engaging in social media, online shopping, or viewing inappropriate content. This behavior can lead to significant productivity losses and potential legal liabilities for organizations (Asogwa & Nosike, 2024). The term also refers to the inappropriate use of the Internet in the workplace, characterized by visiting sites that are explicitly prohibited by organizational policies, such as those related to gaming, gambling, and adult content (Askarov, 2025). These behaviors, often categorized as cyberloafing, represent the intentional use of organizational Internet resources for personal purposes during working hours (Lim & Chen, 2012).

Additionally, excessive Internet usage for personal interests during work hours contributes to this misuse (Environmental Management Authority, n.d.). Recent research indicates that cyberloafing among government employees in Malang City remains prevalent. A previous study has highlighted that the phenomenon of cyberloafing is categorized as high, reflecting the impact of modern Internet usage habits among employees (Hardiani et al., 2022). This ongoing trend underscores the necessity for organizations to address the implications of Internet misuse in the workplace effectively (Novianti & Roz, 2023). Research by Safrihsyah et al. (2024) has shown an inverse relationship between work ethic and cyberloafing. Individuals with a high work ethic have a tendency not to do cyberloafing, and vice versa. The results of research from Ngowella et al. (2022) have found that employees misuse the Internet for around 10% of existing working hours or around 50 minutes per day. It is also found that employees with high levels of job stress will tend to perform cyberloafing behaviour in their work environment and vice versa (Moffan & Handoyo, 2020).

Cyberloafing can hurt organizations not only by lowering productivity, but also by wasting company Internet and network resources (Asogwa & Nosike, 2024). Financial inefficiencies emerge through wasted bandwidth, network congestion, and reduced system performance (Askew et al., 2019). Another negative impact is accessing illegal websites that accidentally

make company information can be hacked by other unauthorized parties. Security vulnerabilities intensify when employees access unauthorized or high-risk websites, potentially exposing sensitive information, increasing susceptibility to phishing, malware, or ransomware attacks, and creating system entry points for external cyber threats (Hurriyati & Marlinda, 2023). Consequently, Internet misuse should not be treated solely as a disciplinary problem but as a systemic organizational challenge with implications for operational continuity, information security, and long-term organizational resilience.

In addition to the negative impacts, cyberloafing also has a positive impact. Some researchers have found that cyberloafing can overcome work stress (Hurriyati & Marlinda, 2023). Furthermore, cyberloafing can help employees to get new ideas. It is also one of the strategies for ostracized employees to become less emotionally exhausted (Sao et al., 2022).

The research employs the Theory of Planned Behavior (TPB) to examine the antecedents of cyberloafing, namely attitudes, subjective norms, and perceived behavioral control. It also examines its variables' consequences for job performance within an organizational context that remains relatively underexplored. The research has three main objectives: (1) to extend the TPB framework by examining the cultural boundaries of its applicability within a State-Owned Enterprise (SOE) in Indonesia; (2) to demonstrate that the impact of cyberloafing on job performance is highly contingent upon job characteristics and role demands, being detrimental for machine operators while relatively insignificant for administrative employees; and (3) to propose evidence-based Internet usage policies that balance productivity demands with employee well-being.

The TPB has garnered significant attention across various fields, demonstrating its relevance in understanding human behavior. Recent studies highlight its application in diverse areas, including health-related behaviors, education, and organizational settings. The TPB posits that individual behavior is influenced by attitudes, subjective norms, and perceived behavioral control, which collectively shape intentions and subsequent actions. In the context of workplace cyberloafing, this means that attitudes, subjective norms, and perceived behavioral control collectively shape intentions and subsequent actions. It implies that employees' Internet misuse arises not just from personal inclinations (attitudes), but also from peer behaviors (subjective norms) and their perceived ability to control online activities. This framework has been utilized to analyze behaviors ranging from health practices to professional conduct in the workplace (Yeoman, 2024). This review synthesizes contemporary literature on TPB, emphasizing its applications, extensions, and inherent limitations (Bosnjak et al., 2020).

The TPB has been widely and effectively employed to explain the adoption of new technologies, including Artificial Intelligence (AI), the Internet of

Things (IoT), and e-learning platforms. The adoption of AI-based tools in educational settings is analysed, and it is found that individuals' attitudes toward AI, along with perceptions of ease of use related to perceived behavioral control, are significant determinants of their intentions to adopt such technologies (Jiao & Cao, 2024). These findings suggest that individuals' beliefs about their capability to use technology play a critical role in shaping adoption intentions. Moreover, the results indicate that technology acceptance is not solely driven by technical characteristics but is also influenced by users' cognitive and affective evaluations of the perceived benefits of the technology. Similarly, TPB is applied to examine the adoption of IoT devices in smart homes, highlighting the influence of subjective norms, such as recommendations from family members and friends, on individuals' intentions to adopt the technology. In this context, social pressure and environmental expectations are found to be key factors motivating individuals to embrace technological innovations. This evidence reinforces the argument that technology adoption is inherently social and context-dependent (Margaret & Sidharta, 2023). Overall, these two studies underscore the flexibility of TPB as a theoretical framework that remains highly relevant for explaining technology adoption behaviors across diverse sectors and cultural contexts.

Recent research also reinforces the significant impact of attitudes on Internet-related behaviors. It has been found that individuals who hold permissive attitudes toward online risks, such as sharing personal information or engaging in cyberbullying, are more likely to engage in Internet misuse (Xie et al., 2022). This observation aligns with the TPB (Ajzen, 2020), which continues to be a key framework for understanding how attitudes shape behavioral intentions and actions. In previous research on activities that take up productive time in the workplace, three non-productive activities are identified: preoccupation with doing something unrelated to work, attendance at pointless meetings, and time-consuming communication unrelated to office affairs (Kosasih et al., 2023). In line with this argument, positive attitudes toward social media as a means of self-expression and social validation are strongly associated with excessive use and addictive behaviors. It demonstrates that individuals who perceive social media as essential for social interaction are more likely to develop problematic usage patterns. These findings indicate that the attitudinal dimension within the TPB plays a central role in shaping both behavioral intentions and actual social media use. Furthermore, perceptions of high social needs may intensify psychological dependence on social media as a source of recognition and social connectedness. In organizational contexts, such conditions may trigger uncontrolled social media use during working hours, ultimately undermining employees' focus, productivity, and overall performance (Wolgast et al., 2025).

Previous research has found that adolescents

with positive attitudes toward online aggression are significantly more likely to participate in cyberbullying. It also highlights that moral disengagement, where individuals rationalize harmful actions, serves as a mediator in this relationship. Research conducted reveals that individuals with favorable attitudes toward social media as a means of escaping real-life stressors are more prone to developing compulsive usage habits. This excessive use is associated with adverse mental health outcomes, including anxiety and depression (Zhu et al., 2021). Additionally, another research has examined how attitudes toward online privacy affect misuse behaviors. The findings indicate that individuals with a relaxed attitude toward privacy are more likely to engage in risky behaviors, such as oversharing personal information or becoming victims of phishing scams (Jiaxuan et al., 2025). Hence, the first hypothesis is as follows:

H1: Attitude has a positive and significant effect on Internet misuse

A previous study by Cristello et al. (2024) has explored how peer pressure on social media influences teens, showing that subjective norms link exposure to substance use of content online with actual offline substance use. The findings indicate that injunctive norms, such as perceptions of societal approval or disapproval, play a crucial role in shaping adolescents' decisions to engage in substance use, highlighting the impact of peer influences on risky behaviors online. It aligns with the TPB framework, which posits that subjective norms are critical determinants of behavioral intentions, particularly regarding Internet-related activities. Similarly, previous research by Masur et al. (2023) has demonstrated that subjective norms significantly affect self-disclosure behaviors on social media platforms. Individuals adjust their online self-disclosure based on their perceptions of what others are doing and what is expected of them. This behavior illustrates how social pressures can lead to increased Internet misuse, as users may disclose more personal information than they consider safe. In line with the results of that previous research, research on Internet misuse by employees in 500 MSMEs in Malaysia has also been conducted. It also shows that subjective norms are positively associated with intense Internet abuse in the workplace (Murthy et al., 2018). The second hypothesis is as follows:

H2: Subjective norm has a positive and significant effect on Internet misuse.

Recent studies have also reinforced the connection between low perceived behavioral control and Internet addiction. For instance, individuals with lower perceived behavioral control are more prone to developing problematic Internet use, characterized by an inability to manage online activities and a neglect of real-life responsibilities (Meng et al., 2024). Similarly, according to Lee et al. (2022), perceived

behavioral control moderates the relationship between stress and Internet addiction, indicating that individuals with poor self-control are more likely to use the Internet as a means of escape.

In the realm of cyberbullying and online harassment, perceived behavioral control has also been linked to antisocial behaviors. According to Wright and Wachs (2020), adolescents with lower perceived behavioral control are more likely to engage in cyberbullying, perceiving fewer barriers to such behavior. In contrast, those with higher PBC exhibit better resistance to peer pressure and adherence to ethical online norms. The importance of self-regulation is also highlighted in mitigating online aggression (Bonny-Noach et al., 2025). The role of perceived behavioral control is emphasized in promoting responsible online behavior, particularly concerning social media usage.

The relationship between perceived behavioral control and privacy violations has attracted increasing scholarly attention. Individuals with lower levels of perceived behavioral control are less likely to use strong passwords or avoid risky links, making them more vulnerable to privacy breaches. These findings suggest that limited perceptions of control can undermine individuals' ability to manage digital security risks effectively. Moreover, such conditions are often associated with low levels of digital literacy and reduced confidence in using technology (Ajzen, 2020; Mehdy et al., 2021).

Furthermore, perceived behavioral control plays a crucial role in promoting responsible online behavior, particularly in social media use. Individuals with high levels of perceived behavioral control tend to be better able to regulate their technology use and to consider the consequences of their online activities. In organizational settings, these findings indicate that enhancing perceived behavioral control through targeted training and clear policies can be an effective strategy for minimizing privacy violations and deviant Internet use. Accordingly, perceived behavioral control emerges as a key variable that should be carefully considered in the design of behavior-based managerial interventions (Mehraboun, 2024). Hence, the third hypothesis is as follows:

H3: Perceived behavioral control has a positive and significant effect on Internet misuse.

Recent studies have shown that spending too much time online for non-academic reasons can hurt students' academic performance. Students who engage in off-task Internet activities, such as browsing social media during study hours, report lower GPAs and higher levels of academic procrastination. Similarly, there is a negative correlation between Internet addiction and academic achievement, with reduced self-regulation and increased distraction acting as mediating factors (Mehdy et al., 2021). In the context of cyberloafing, defined as using the Internet for non-work-related activities during study or class time, this

behavior has been identified as a significant predictor of poor academic outcomes. Students who frequently engage in cyberloafing report diminished focus and comprehension during lectures, ultimately leading to poorer exam performance (Wu et al., 2021).

Excessive Internet use in professional settings often manifests as cyberloafing, where employees engage in personal online activities during work hours. Cyberloafing is associated with decreased task performance and heightened workplace stress. Employees who spend considerable time on social media or entertainment websites exhibit lower productivity and greater job dissatisfaction (Fei, 2023). Furthermore, Internet addiction has been linked to diminished job performance. Employees with higher levels of Internet addiction are more likely to experience burnout and reduced job engagement, which ultimately affects their overall performance (Zubairi et al., 2024).

Excessive Internet use, particularly in the form of addiction or overuse of social media, has been linked to various mental health issues, including anxiety, depression, and sleep disturbances. Individuals who spend significant time online report lower life satisfaction and poorer mental health, which adversely affects their ability to perform daily tasks effectively (Twenge & Blanchflower, 2025). Additionally, excessive Internet use has been associated with physical health problems like eye strain, poor posture, and sedentary behavior. These physical health issues negatively impact individuals' productivity in both academic and professional environments (Vischer, 2007).

H4: Internet misuse has a negative and significant effect on employee performance.

As shown in Figure 1, the conceptual framework is developed on the theoretical foundation of the research, namely the TPB. This framework illustrates the proposed relationships among attitude, subjective norms, and perceived behavioral control toward Internet misuse, and how such misuse subsequently impacts employee performance. The model reflects how individual perceptions and behavioral intentions contribute to the likelihood of Internet misuse in the workplace, ultimately influencing overall performance outcomes.

Prior research on cyberloafing suffers from three major gaps. First, most studies focus on Western corporate environments, neglecting how cultural norms in Southeast Asia, such as Indonesia's collectivist work ethic, shape Internet misuse behaviors. Second, while the TPB has been widely used to predict cyberloafing, its application in industrial settings, such as cement manufacturing, remains unexplored. Third, existing findings on performance effects of cyberloafing are inconsistent, with some studies reporting productivity losses (Wu et al., 2021) and others suggesting neutral or even beneficial outcomes (Hurriyati & Marlinda, 2023). These discrepancies underscore the need

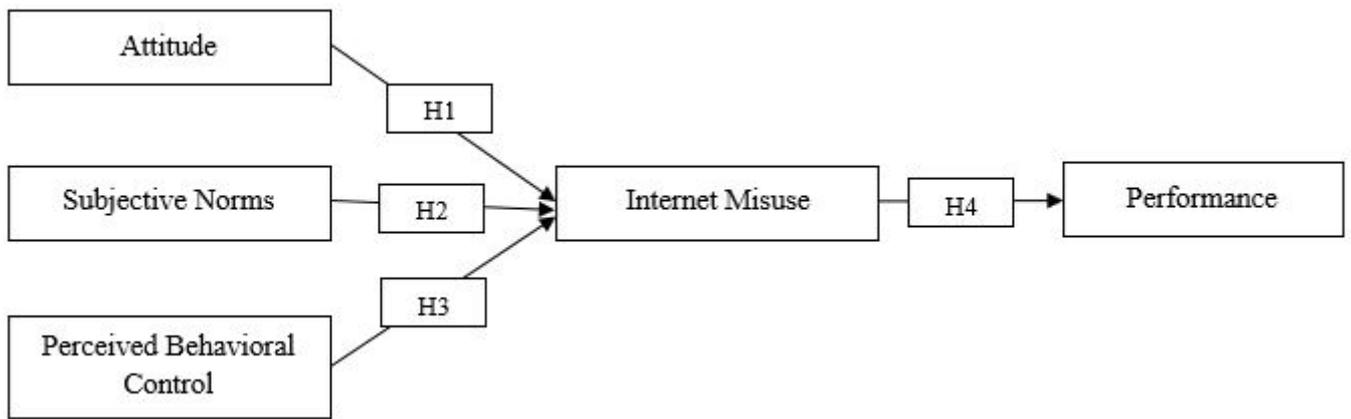


Figure 1 Research Framework

for research that accounts for industry-specific and cultural factors.

Accordingly, the research underscores the importance of adaptive and evidence-based management approaches to addressing cyberloafing in industrial work environments. By elucidating the performance paradox and offering practical policy recommendations, the researchers provide both a conceptual and practical roadmap for organizations seeking to manage employee Internet use sustainably across diverse global industrial contexts. The research examines the antecedents of Internet misuse behavior among employees of PT XYZ based on the TPB and assesses its consequences using the deviant Internet technology use framework.

The research offers several novel contributions to the existing literature. First, the research presents the first empirical investigation of cyberloafing in the Indonesian cement industry. This industry has received limited scholarly attention and is characterized by distinctive operational conditions, such as continuous 24-hour production cycles and heterogeneous job demands, which may shape cyberloafing patterns differently from those observed in office-based work environments. Shift-based work systems and high levels of operational risk render sustained attention and procedural compliance critical, thereby making cyberloafing behavior in this context associated with more complex performance and safety implications.

Second, the research advances theoretical understanding by examining how collectivist work norms within Indonesian SOEs modify the relationships proposed in the TPB framework, particularly the role of subjective norms, which are expected to exert a stronger influence than in Western contexts. The findings indicate that social pressure, group expectations, and a culture of institutional compliance play a central role in shaping employees' behavioral intentions. Accordingly, the results underscore the importance of cultural sensitivity in the application and extension of behavioral theories.

Third, the research bridges divergent perspectives in the literature by simultaneously

analyzing both the negative consequences (reduced productivity and increased security risks) and the potential benefits (stress relief and creative stimulation) of cyberloafing within the same industrial context. This integrative approach enables a more balanced understanding of cyberloafing as a form of workplace behavior that is not entirely dysfunctional. Moreover, the findings provide an empirical foundation for the development of more adaptive, context-sensitive, and sustainable Internet usage policies that support both organizational performance and employee well-being.

METHODS

According to Hair and Alamer (2022), a sample is a portion of the population consisting of several elements selected from the population. All members of the population used in research are referred to as a saturated sample. A saturated sample is a sampling technique where all members of the population are selected. This method is used when the population is relatively small, making its members easily accessible. Because the population is relatively small and easily accessible, researchers use the saturated sample method. The sample is employees of PT XYZ, with a sample size of 126.

The sampling technique used is purposive sampling guided by the sample size rule in Partial Least Squares Structural Equation Modeling (PLS-SEM) rather than saturated sampling. According to Hair and Alamer (2022), the recommended number of respondents is between five and ten times the number of indicators. The researchers employ 2 indicators and adopted a multiplier of 6, resulting in a minimum sample size of 126 respondents ($21 \times 6 = 126$). Around 126 valid responses are ultimately collected to ensure robustness. Data are gathered online via a structured questionnaire distributed via Google Forms and shared with employees of PT XYZ via WhatsApp.

Data are collected using a five-point Likert-scale questionnaire (1 = Strongly Disagree to 5 = Strongly Agree), adapted from validated measurement

Table 1 Respondents' Characteristics

Demographic	Category	Total	%
Gender	Male	69	55%
	Female	57	45%
Age	19–27	6	5%
	28–43	82	65%
	44–59	38	30%
Employee Status	Permanent	120	95%
	Contract	6	5%
Salary (In IDR)	2,501,000–5,000,000	6	5%
	5,001,000–7,500,000	13	10%
	7,501,000–10,000,000	31	25%
	10,001,000–15,000,000	13	10%
	> 5,001,000	63	50%
Marriage Status	Married	102	80%
	Unmarried	12	10%
	Widower/Widow	12	10%

Source: Processed Data (2024)

scales and modified to fit the industrial context. These adaptations are undertaken to ensure the indicators remain relevant to job characteristics, operational environments, and technology use within the industrial sector. Data analysis is conducted using PLS-SEM with SmartPLS 4.0. It is selected for its suitability for small to medium sample sizes and for exploratory research models (Hair & Alamer, 2022). In addition, PLS-SEM enables the simultaneous analysis of relationships among constructs even when the data do not fully conform to normal distribution assumptions.

The analytical procedure is carried out in three main stages: measurement model evaluation, structural model assessment, and hypothesis testing. The measurement model evaluation aims to assess construct validity and reliability using indicators such as outer loadings, composite reliability, and Average Variance Extracted (AVE). Subsequently, the structural model is evaluated to examine the strength and direction of relationships among latent variables using path coefficients and R-square values. The final stage of hypothesis testing uses a bootstrapping procedure to ensure the statistical significance of the tested relationships.

RESULTS AND DISCUSSION

From the methodological description, the gathered results are analyzed and presented to reflect the research's generated opinion, with interpretation. It is done to present respondents' stance on the subject matter.

Overall, the respondents' demographic characteristics indicate that the majority are in the productive age range and have relatively mature work experience. The predominance of the 28–43

age group suggests that most respondents are in the mid-career stage, during which performance demands, job responsibilities, and organizational involvement tend to be high. In the context of work behavior and technology use, this age group generally demonstrates adequate digital literacy alongside a substantial level of work engagement, making it particularly relevant for examining cyberloafing behavior and its implications for job performance.

The composition of employment status, which is dominated by permanent employees, indicates a high level of job stability within the organization. Such stability may influence attitudes, subjective norms, and perceived behavioral control, as articulated within the TPB framework. Employees with permanent status typically experience stronger job security, which, on the one hand, may enhance organizational commitment, but on the other hand, may potentially reduce self-monitoring of Internet use behavior if not accompanied by clear policies and effective controls.

In terms of income level, the relatively large proportion of employees earning more than IDR 15,000,000 indicates that most respondents enjoy a relatively high level of economic well-being. This condition may affect access to personal technological devices and the intensity of Internet use for both work- and non-work-related purposes. In organizational behavior research, income level is often associated with work expectations, lifestyle, and technology usage patterns that may influence online behavior in the workplace.

Furthermore, the predominance of married respondents suggests a relatively high level of social and family responsibility. Marital status is frequently linked to psychological maturity, self-regulation, and an orientation toward job stability. In the context

Table 2 Results of Validity Test

Indicator	Attitude	Internet Misuse	Performance	Perceived Behavioral Control	Subjective Norms
Attitude1	0.898	0.221	-0.154	0.135	0.147
Attitude2	0.881	0.191	-0.154	0.100	0.155
Attitude3	0.836	0.252	-0.192	0.091	0.116
Attitude4	0.849	0.215	-0.105	0.067	0.110
Attitude5	0.749	0.090	-0.149	-0.059	-0.012
Internet Misuse1	0.102	0.841	-0.151	0.633	0.648
Internet Misuse2	0.254	0.827	-0.076	0.465	0.517
Internet Misuse4	0.261	0.749	-0.179	0.456	0.483
Perceived Behavior Control 2	0.060	0.515	-0.035	0.805	0.734
Perceived Behavior Control 3	0.145	0.631	-0.142	0.862	0.710
Perceived Behavior Control 4	0.004	0.472	0.013	0.803	0.587
Perceived Behavior Control 5	0.095	0.514	-0.130	0.835	0.668
Subjective Norms 2	0.120	0.672	-0.074	0.687	0.845
Subjective Norms 3	0.203	0.515	-0.155	0.678	0.836
Subjective Norms 4	0.088	0.533	-0.092	0.629	0.802
Subjective Norms 5	0.035	0.496	0.003	0.683	0.781
Performance 10	-0.197	-0.155	0.805	-0.120	-0.066
Performance 2	-0.086	-0.096	0.783	-0.041	-0.050
Performance 3	-0.160	-0.129	0.831	-0.065	-0.085
Performance 4	-0.102	-0.084	0.703	-0.025	-0.070
Performance 5	-0.157	-0.119	0.800	-0.018	-0.077
Performance 6	-0.100	-0.087	0.784	-0.046	-0.055
Performance 8	-0.133	-0.204	0.839	-0.136	-0.128
Performance 9	-0.161	-0.110	0.758	-0.071	-0.041

of Internet use behavior, married individuals tend to consider the long-term consequences of their actions for both career development and family life. Accordingly, the overall demographic profile of the respondents in Table 1 provides a robust foundation for understanding the dynamics of cyberloafing behavior and the factors that shape it within an industrial organizational context.

The validity test in Table 2 presents the outer loadings for each indicator on its respective latent construct: attitude, internet misuse, performance, perceived behavioral control, and subjective norms. The results indicate that all indicators load more strongly on their intended constructs than on other constructs, thereby fulfilling the criteria for discriminant validity. For the attitude construct, all indicators (A1–A5) demonstrate high loadings on their respective constructs, with the highest loading of 0.898. This finding confirms that employees' attitudes toward Internet use in the workplace are measured consistently and validly. Similarly, the internet misuse construct shows strong indicator loadings, particularly for IM1, IM2, and IM4 (≥ 0.749), indicating that the measurement instrument accurately captures cyberloafing or Internet misuse behavior. The perceived behavioral control construct also exhibits excellent validity, as all indicators (PBC2–PBC5) have outer loading values above 0.80. This result suggests that employees' perceptions of

their ability and control over workplace Internet use are measured reliably. Likewise, the subjective norm demonstrates robust indicator loadings, with SN2–SN6 exceeding 0.78, highlighting the significant role of social norms and environmental pressure in shaping employees' Internet-related behavior. Finally, the performance construct is measured using indicators Y1–Y9, all of which exhibit acceptable outer loadings above the minimum threshold. It indicates that employee performance, as the dependent variable, is well represented by the selected indicators. Overall, the validity test results confirm that the measurement model meets the required standards of construct validity and is suitable for further structural model analysis. The outer loading values for the primary constructs exceed the recommended threshold of 0.70. The results suggest that the indicators adequately represent their respective latent variables (Hair & Alamer, 2022).

Table 3 presents the Cronbach's alpha and composite reliability values for all study variables. The results indicate that all constructs meet the established reliability criteria, with values exceeding the 0.70 threshold (Hair & Alamer, 2022). The results suggest that the indicators used for each construct demonstrate strong internal consistency. Furthermore, the high composite reliability values indicate that the constructs adequately account for the variance in their indicators. Therefore, the measurement instruments

Table 3 Results of Reliability Test

Variable	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Attitude	0.901	0.927	0.925	0.712
Internet Misuse	0.731	0.742	0.848	0.651
Performance	0.914	0.955	0.929	0.623
Perceived Behavioral Control	0.846	0.857	0.896	0.683
Subjective Norm	0.834	0.847	0.889	0.666

Table 4 Results of R-Square

Variable	R-Square	R-Square Adjusted
Internet Misuse	0.521	0.509
Performance	0.029	0.020

Table 5 Results of Path Coefficient

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistics (O/STDEV)	P-Values	Description
Attitude → Internet Misuse	0.158	0.167	0.070	2.262	0.024	Supported
Perceived Behavioral Control → Internet Misuse	0.272	0.278	0.118	2.305	0.021	Supported
Subjective Norms → Internet Misuse	0.443	0.439	0.126	3.528	0.000	Supported
Internet Misuse → Performance	-0.169	-0.204	0.097	1.735	0.083	Rejected

employed are considered reliable and appropriate for further structural model analysis.

The results presented in Table 4 show that the research model explains varying degrees of variance for the two outcome variables. For Internet misuse, the model achieves an R-square value of 0.521, indicating that the three TPB constructs, attitude, subjective norm, and perceived behavioral control, collectively account for 52.1% of the variance in Internet misuse. This result suggests that these psychological factors have substantial predictive power regarding cyberloafing activities in the workplace. The remaining 47.9% of unexplained variance implies that other factors not included in the model, such as individual personality traits, organizational policies, or job characteristics, may also influence employees' Internet misuse behaviors.

In contrast, the model shows much weaker predictive power for employee performance, with an R-square of only 0.029. This result indicates that the TPB variables in the research explain only 2.9% of the variance in employee performance, while

the remaining 97.1% is attributable to unmeasured factors. This finding aligns with previous research in industrial settings, where performance outcomes are typically determined more by operational systems, physical work conditions, and technical competencies than by psychological or behavioral factors alone (Nilsson et al., 2025). The minimal impact of Internet misuse on performance in this context may reflect the nature of manufacturing work, where production outcomes depend more on equipment functioning and standardized processes than on employees' momentary online activities. These results suggest that while TPB factors effectively predict cyberloafing behavior, their influence on overall job performance appears negligible in this specific industrial context (Sao et al., 2022).

Based on Table 5, the results of hypothesis testing are derived from the relationships among variables and are evaluated using the original sample values, t-statistics, and p-values. The original sample values indicate the direction and magnitude of the effects among the latent variables tested in the

structural model. Subsequently, the t-statistics are used to assess the statistical significance of these relationships by comparing them with the established threshold values. Meanwhile, the p-values serve as the basis for decision-making in accepting or rejecting the research hypotheses. Accordingly, these three indicators provide a comprehensive assessment of the empirical validity of the relationships among variables in the research model (Hair & Alamer, 2022).

In the first hypothesis, attitude has a positive effect on Internet misuse. The relationship between attitude and Internet misuse has an original sample value of 0.158, indicating a positive direction. The t-statistic is 2.262, which is above the reference value of 1.96, while the p-value is 0.024, below the 0.05 threshold. Therefore, the first hypothesis is supported. This finding is consistent with previous studies that emphasize the role of employees' attitudes in shaping cyberloafing or Internet misuse behavior. Recent empirical research grounded in the TPB demonstrates that permissive or favorable attitudes toward personal Internet use significantly increase the likelihood of Internet misuse in the workplace (Akram et al., 2022). The alignment between the result and prior findings reinforces the robustness of TPB in explaining Internet-related deviant behavior. From a practical perspective, this result implies that organizations should not only rely on technical controls but also focus on shaping employees' attitudes through clear policies, ethical guidelines, and awareness programs to reduce Internet misuse.

Similarly, in the second hypothesis, subjective norms positively affect Internet misuse. The relationship shows an original sample value of 0.443, which means a positive direction. The t-statistic is 3.528 (> 1.96), and the p-value is 0.000 (< 0.05), confirming that the second hypothesis is supported. This result is in line with previous research indicating that social influence and perceived peer behavior play a dominant role in encouraging Internet misuse. Studies have shown that when coworkers or supervisors implicitly tolerate or engage in non-work-related Internet activities, such behavior becomes socially acceptable and more likely to be imitated by other employees (Koay & Soh, 2023). The stronger coefficient compared to other TPB variables suggests that subjective norms are a particularly influential predictor in collectivist organizational contexts. The implication of this finding is that organizations must pay close attention to workplace culture and leadership behavior, as inconsistent enforcement of rules or managerial tolerance may unintentionally legitimize Internet misuse.

The third hypothesis states that perceived behavioral control has a positive effect on Internet misuse. The results indicate an original sample value of 0.272, with a t-statistic of 2.305 (> 1.96) and a p-value of 0.021 (< 0.05). Thus, the third hypothesis is supported. This finding is consistent with recent studies suggesting that employees who perceive greater ease, autonomy, and opportunity to access the

Internet are more likely to engage in misuse behaviors, particularly when monitoring mechanisms are weak (Mohammed et al., 2025). The similarity between the current findings and previous research confirms that perceived behavioral control is a critical antecedent of Internet misuse within the TPB framework. In practical terms, this result implies that organizations should balance employee autonomy with appropriate monitoring and control systems, ensuring that access to Internet resources does not unintentionally facilitate deviant usage patterns.

According to the fourth hypothesis, Internet misuse negatively affects performance. The original sample value is -0.169, suggesting a negative direction. However, the t-statistic is 1.735 (< 1.96), and the p-value is 0.083 (> 0.05), indicating that the relationship is not significant. Therefore, the fourth hypothesis is not supported. The finding that cyberloafing does not significantly reduce performance contrasts with the dominant assumption that Internet misuse necessarily undermines productivity. While some studies, such as Plath and Christiansen (2023), Askew et al. (2019) and Liberman et al. (2011), have reported negative effects on performance due to time loss and distraction, other research points to more nuanced outcomes. According to Lim and Chen (2012), limited cyberloafing can serve as a form of micro-break that helps employees to recover mental energy, manage stress, and maintain focus.

In the context of PT XYZ, two factors may explain why cyberloafing does not significantly affect performance. First, much of the company's work is process-driven and structured, with clear task boundaries and deadlines. This situation reduces the likelihood that short periods of online diversion disrupt overall output. Second, cultural dynamics may also play a role. In Indonesian workplaces, online interactions during work can serve social and psychological functions, fostering a sense of connectedness and stress relief without detracting from task completion.

These findings demonstrate that the effects of cyberloafing are contextual rather than universally negative. In highly structured industrial environments, occasional cyberloafing does not necessarily impair employee performance and may even indirectly contribute to employee well-being and the sustainability of work productivity. This phenomenon can be explained by the role of cyberloafing as a short-term cognitive recovery mechanism, helping employees to alleviate mental fatigue arising from demanding work conditions. Furthermore, clearly defined task structures and supervisory mechanisms in industrial settings function as natural constraints, preventing such behavior from escalating into excessive or problematic Internet use. Therefore, the research results suggest that overly restrictive organizational Internet-use policies may become counterproductive if they fail to consider job-specific contexts and employees' psychological needs.

CONCLUSION

The research demonstrates that attitudes, subjective norms, and perceived behavioral control significantly shape employees' engagement in cyberloafing. However, such behavior does not significantly diminish performance in the context of PT XYZ. The findings contribute to workplace behavior research by challenging the assumption that cyberloafing is universally harmful. It suggests that it may serve adaptive functions, such as short recovery or stress relief.

Furthermore, the findings indicate that cyberloafing should not be viewed as an entirely dysfunctional behavior but rather as a contextual phenomenon shaped by the cognitive demands of work. In certain job roles, non-work-related Internet activities may function as a short-term mental recovery mechanism. Meanwhile, in occupations requiring high levels of concentration and involving safety risks, such behaviors have the potential to impair performance. These findings reinforce the argument that uniform organizational policies may be ineffective and even counterproductive.

The research implications highlight the need for organizations to adopt a more nuanced approach to Internet-use policies, balancing monitoring mechanisms with supportive strategies that encourage responsible and productive Internet use. Such an approach enables organizations not only to mitigate the risks of misuse but also to facilitate employee well-being and sustainable work effectiveness. Adaptive and context-sensitive policies may further enhance trust between management and employees, thereby fostering greater intrinsic compliance. Accordingly, organizations should take into account job characteristics, cognitive demands, and workplace culture when designing regulations governing Internet use in the workplace.

Nevertheless, the research has several limitations. First, the research scope is limited to a single organization. Second, the research relies on self-reported data, which may be subject to perceptual bias. Third, the cross-sectional research design restricts the ability to capture behavioral changes over time. These limitations may affect the generalizability of the findings and the potential for respondent bias. Therefore, future research is encouraged to adopt cross-industry and longitudinal approaches to better capture the dynamics of cyberloafing behavior over time. In addition, integrating qualitative methods, such as in-depth interviews or case studies, can provide a more comprehensive understanding of individual motivations and contextual factors underlying such behavior.

AUTHOR CONTRIBUTIONS

The participants of the research do not give written consent for their data to be shared publicly. So,

due to the sensitive nature of the research, supporting data is not available.

DATA AVAILABILITY

Conceived and designed the analysis, Y. and H. L.; Collected the data, A. S. and A. L. N.; Contributed data or analysis tools, Y., H. L., A. S., and A. L. N.; Performed the analysis, Y., H. L., and I. G. S.; and Wrote the paper, Y., H. L., I. G. S., and A. L. N.

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