You have got a nerve: Examining the nexus between coworkers' cyberloafing and workplace incivility

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Running head: Cyberloafing and workplace incivility

You have got a nerve: Examining the nexus between coworkers'

cyberloafing and workplace incivility

Abstract

Purpose: While cyberloafing has emerged as a prevalent issue in numerous workplaces, research on its consequences is still underdeveloped, highlighting a need for further exploration and analysis. Drawing upon the cognitive appraisal theory of emotion, this study investigates the influence of coworkers' cyberloafing on employees' workplace incivility, mediated by negative emotions and moderated by task interdependence.

Design/Methodology/Approach: In Study 1, the hypothesized research model was tested utilizing three-wave time-lagged survey data collected from 333 employees and their coworkers. In Study 2, an additional sample of 274 employees was surveyed. Data were analyzed using hierarchical regression analysis and bootstrap methods.

Findings: The results indicated that coworkers' cyberloafing positively influenced employees' workplace incivility, with this relationship mediated by negative emotions. Additionally, task interdependence was found to positively moderate both the direct relationship between coworkers' cyberloafing and negative emotions and the indirect path from coworkers' cyberloafing to employees' workplace incivility through negative emotions.

Practical implications: This study helps managers gain a deeper understanding of cyberloafing's effects, enabling them to manage and curb it more effectively.

Originality/Value: Prior research has predominantly explored the effects of cyberloafing on its implementers. However, this study innovatively shifts focus to the observer perspective, empirically demonstrating whether and how coworkers' cyberloafing affects employees' workplace incivility, enriching and expanding the existing literature.

Keywords: cyberloafing; workplace incivility; negative emotions; task interdependence; cognitive appraisal theory of emotion

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Introduction

Employees need the Internet in everyday office work. However, many often use it to carry out activities irrelevant to work, such as browsing shopping websites and engaging in social chit-chat. Cyberloafing is non-work-related online behavior during working hours (Lim and Chen, 2012). Scholars have conducted numerous insightful studies on cyberloafing over the last two decades. Jeong et al. (2020) found that 85.04% of employees use electronic devices for personal usage rather than work-related usage during working hours. Cyberloafing is pervasive and has various detrimental effects on the implementers and the organization. For example, cyberloafing encroaches on work time, reduces work performance, and damages the organization's reputation (Lim et al., 2021; Wu et al., 2020). According to Lim et al. (2021), a cyberloafing employee causes an organization to lose approximately $4,500 annually. The potential harm associated with cyberloafing has made it a pressing issue for managers, and investigating how cyberloafing influences organizations has become a hot topic in academia.

The workplace is not a vacuum. Cyberloafing implementers interact with coworkers in various ways (Fong et al., 2022). This scenario lays the contextual foundation for the multiple and complex phenomena induced by cyberloafing. Previous research mainly focused on cyberloafing's effects on implementers (Lim, 2002; Tsai, 2023). However, the study of cyberloafing should not only focus on implementers (Tandon et al., 2022). The impact of cyberloafing on observers, as an integral part of the organizational context, deserves attention from scholars (Wu et al., 2023). The attitudes and behaviors of employees (observers) are influenced by observing the behaviors of their coworkers (implementers) and assessing complex information (Tang et al., 2022). Existing explorations in the areas of organizational behaviors and information systems (IS) support the importance of the observer's perspective. For example, after seeing a coworker being abused, observers develop empathic emotion or schadenfreude, which affects their subsequent behaviors (Chen et al., 2021a).

Based on the findings above, this study raises an intriguing question: can third-party employees (observers) be influenced by cyberloafing in the workplace? Due to the open office environment of the contemporary workplace and communicative feedback among organization members, the

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likelihood that observers will witness their colleagues engage in cyberloafing is heightened (Henle, 2023). Consequently, the covert nature of cyberloafing is inevitably diminished. Observers are thus prone to reacting in response to such behavior. Indeed, all extant empirical research on the effects of coworkers' cyberloafing on observers confirms the potential for interpersonal influence. For instance, Wu et al. (2023) discovered that in the presence of social learning theory and deterrence mechanisms, employees are induced to engage in coworkers' cyberloafing.

However, an alternative approach is to consider group intervention following a detrimental assessment of cyberloafing (i.e., incongruent behaviors), rather than relying on a positive evaluation of cyberloafing to encourage learning behaviors (Fong et al., 2022; Lin and Loi, 2021). Workplace incivility, a form of interpersonal low-intensity transgression, is characterized by ambiguous intent to harm and violates norms of mutual respect in the workplace (Andersson and Pearson, 1999). Specific manifestations include derogatory remarks about others without justification, condescendingly treating others, etc. In today's complex interpersonal environment, workplace incivility is widespread and on the rise every year, posing significant harm to organizations (Miranda et al., 2020).

Multiple justifications exist for employing workplace incivility as a behavioral response of employees to coworkers' cyberloafing in this study. First, compared with other negative behaviors with severe consequences, organizations generally lack formal regulations and punitive procedures to manage low-intensity transgressions such as workplace incivility (Lim and Cortina, 2005). Second, coworkers' cyberloafing leads employees to believe that the organization's management and systems are not strictly enforced and that engaging in unreasonable behaviors is permissible (Wu et al., 2023). Finally, employees generally lack the power to formally punish their coworkers for cyberloafing. Employees are likely to partake in workplace incivility to inflict resentment and vengeance on those responsible for cyberloafing, given that such behavior engenders feelings of ease of comprehension and causes minimal harm (Han et al., 2022).

The cognitive appraisal theory of emotion provides a theoretical framework to understand how and when coworkers' cyberloafing affects employee workplace incivility. This theory states that

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when faced with a stimulus event, individuals assess its threat, challenge, or harm, generating a series of emotional responses (Lazarus, 1991). While preliminary findings suggest that cyberloafing can benefit the implementers, the organization ultimately prohibits the practice and appears self-serving to observers. The unproductive nature of coworkers' cyberloafing delays the completion of collective tasks, leads to a decline in job performance, destroys team members' common interests and "cake", and triggers a breakdown in teamwork (Huang et al., 2015; Lim and Chen, 2012). Moreover, coworkers' cyberloafing can cause social contagion, resulting in group inertia and a tendency for team members to blame each other (Askew et al., 2019; Wu et al., 2023). When observers evaluate coworkers' cyberloafing as a threat to the team's shared goals, they typically display negative emotions such as tension, worry, and anger (Chen et al., 2021b). Without appropriate guidance, these negative emotions may lead to negative employee behaviors (Tang et al., 2022). Thus, based on the cognitive appraisal theory of emotion, this study introduces negative emotions as a mediating mechanism in the influence of coworkers' cyberloafing on workplace incivility.

Based on the cognitive appraisal theory of emotion (Lazarus, 1991), individuals appraise environmental events regarding their relevance to themselves and the consistency of their expectations or goals (Lazarus and Folkman, 1984). According to an old Chinese proverb, "*A single thread cannot make a cord nor a single tree a forest.*" The theme of win-win cooperation sets the tone for task interdependence, which is the degree of relatedness among team members when performing work tasks (Wageman, 1995). Employees often focus their attention on the people and events in the workplace that "matter most to their ego involvement" and are perceived to be relevant to the achievement of their task goals (Chen et al., 2021b).

When task interdependence is high, the interpersonal interactions required to complete the task become frequent (Liu et al., 2021), and employees are likely to observe coworkers' cyberloafing. Additionally, task interdependence places higher demands on cooperation and accountability (Wong and Berntzen, 2019), and coworkers' cyberloafing hinders goal achievement to the detriment of the observer. The potential assessment of conflicting gains and responsibilities between the two

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may explain why observers experience stronger emotional and behavioral fluctuations. Taken together, we posit that task interdependence is a critical moderator influencing the relationship between coworkers' cyberloafing and observers' emotional responses and subsequently determines observers' behavioral responses.

Drawing on the cognitive appraisal theory of emotion, this study examines the impact of coworkers' cyberloafing on workplace incivility through the mediating role of negative emotions and the moderating role of task interdependence. Our research offers four contributions to the existing literature. First, this study will contribute to the research on the outcome factors of cyberloafing. In recent years, organizational researchers have conducted several studies on the antecedents of cyberloafing but paid less attention to its effects (Tandon et al., 2022). In particular, the relationship between cyberloafing and workplace incivility remains unclear. Thus, by analyzing the influence of coworkers' cyberloafing on workplace incivility, this study can be a valuable addition to the current body of knowledge. Second, it offers a novel avenue for investigation into cyberloafing. Current research has focused on the implementers themselves in the field of cyberloafing (Tsai, 2023), with less in-depth exploration of other organizational roles. The present study adds to the body of research on cyberloafing by examining coworkers' cyberloafing from the perspective of observers. It also contributes to the literature on cyberloafing stakeholders.

Third, it contributes to the advancement of cyberloafing research. While scholars have only focused on exploring the impact of cyberloafing on individuals (Henle, 2023; Zhou et al., 2021), this study digs deeper into elucidating the inter-individual effects of cyberloafing, providing valuable insights into the study of cyberloafing's interactions. Fourth, previous studies have explored the social contagion mechanism of coworkers' cyberloafing based on social learning theory (Wu et al., 2023). In contrast, based on the cognitive appraisal theory of emotion, the present study explored how observers develop negative emotions by assessing coworkers' cyberloafing in the workplace and then engaging in workplace incivility. Finally, boundary conditions of coworkers' cyberloafing were investigated. Prior studies on boundaries have primarily examined the impact of perceived sanctions (Wu et al., 2023). However, the current investigation incorporates task

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interdependence as a moderating variable, which helps identify how coworkers' cyberloafing leads to the reinforcement or moderation of observers' negative emotions and workplace incivility in the workplace. Figure 1 illustrates the theoretical framework of the present study.

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FIGURE 1 ABOUT HERE

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Literature review

Cyberloafing

Scholars describe the individual use of the Internet, information and communication technology (ICT) devices in the workplace as cyberloafing, such as sending personal messages via WhatsApp, browsing non-work-related websites, and accessing YouTube (Lim et al., 2021). Cyberloafing was initially defined as using organizational Internet for purposes unrelated to assigned work, such as emailing and browsing activities (Lim, 2002). Askew et al. (2014) defined cyberloafing as engaging in activities using electronic devices during work that supervisors perceive as unrelated to work. However, with the changing technological landscape, its definition has increasingly focused on the role of social media (Andreassen et al., 2014) and has evolved to encompass the use of electronic devices (Askew et al., 2019). Wu et al. (2020) defined cyberloafing as employees using personal or organizational information technology (IT) resources for Internet activities unrelated to work. In conclusion, regardless of the evolution of the definition of cyberloafing, its primary connotation can be summarized as non-work-related activities carried out for personal purposes during working hours via the organization's Internet system (Lim, 2002).

The antecedents of cyberloafing are primarily classified into individual and organizational factors. On one hand, individual factors can influence cyberloafing, such as demographic information, individual traits, and individual perception. Durak and Saritepeci (2019) found that gender significantly affects cyberloafing. Jia et al. (2013) established a connection between specific personality traits and cyberloafing. The study revealed that openness is positively related to cyberloafing. There were also some studies that explored the impact of individual perception on

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cyberloafing. Based on equity theory, Cheng et al. (2020) found that perceived overqualification affects employees' cyberloafing through harmonious passion. Usman et al. (2021) verified that meaningful work affects employees' cyberloafing through the mechanism of affective commitment from the perspective of social exchange theory.

On the other hand, organizational factors such as leadership style and job characteristics can influence cyberloafing. First, leadership style can affect subordinates' cyberloafing differently (Zoghbi-Manrique-de-Lara et al., 2020). Some studies have shown that abusive supervision can influence subordinates' cyberloafing by mediating psychological capital and emotional exhaustion under different perspectives of social exchange theory and conservation of resources theory (Agarwal and Avey, 2020; Lim et al., 2021). Second, the critical reasons for cyberloafing are job factors, including job requirements and stress (Elrehail et al., 2021). For example, if employees think that their employer mistreats them, they will be angry and resentful and cyberloaf to get back at the company (Li et al., 2018). Furthermore, Koay (2018) found that ostracism can lead to emotional exhaustion and cyberloafing.

As research progressed, scholars started to concentrate on the outcomes of cyberloafing. Early scholars argued that cyberloafing reduces work efficiency and leads to shorter working hours for employees, lowering job performance and productivity (Andreassen et al., 2014) and increasing the risk of information security (Hadlington and Parsons, 2017). Subsequent scholars have thoroughly explored the positive outcomes of cyberloafing, including the finding that cyberloafing does not necessarily harm individual performance, but instead, it manifests a curvilinear association (She and Li, 2023). Wu et al. (2020) found that social cyberloafing increases positive psychological detachment and enhances mental health, while it also leads to increased fatigue, thus negatively affecting mental health. Meanwhile, Zhong et al. (2022) discovered the dual effects of informational cyberloafing on innovation performance. Furthermore, a recent study has supported the positive correlation between employees' daily cyberloafing, innovation, and proactive behavior (Tsai, 2023). Apart from the implementer's perspective, research has also focused on the social contagion mechanism of cyberloafing among bystanders (Askew et al., 2019). For instance, Wu et al. (2023)

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found that coworkers' cyberloafing affects employees' perceptions of formal and informal sanctions, thereby inducing employee cyberloafing. Askew et al. (2019) suggested that supervisor and coworker support for cyberloafing and perceived supervisor and coworker cyberloafing affect employee cyberloafing.

Workplace Incivility

Workplace incivility is a low-intensity deviant behavior that violates the norm of mutual respect while displaying a vague intention to harm in the workplace (Andersson and Pearson, 1999). Bossing around, not listening to others, making offensive comments, speaking loudly, interrupting discussions, undisguised discourtesy, and alienating others are examples of workplace incivility in contemporary organizations that directly affect corporate culture and harmony (Han et al., 2022). Although this behavior lacks a clear and conscious direction, it is widespread and can even trigger a boomerang escalation effect in interpersonal interactions, producing irreparable harm.

Research rarely focuses on the influencing factors of workplace incivility. Organizational injustice has been confirmed to be associated with workplace incivility (Blau, 2007; Blau and Andersson, 2005). Subsequent studies have demonstrated the impact of perceived role stressors, such as role ambiguity and conflict on workplace incivility (Taylor and Kluemper, 2012). Similarly, high job demands have been shown to foster the occurrence of workplace incivility (Koon and Pun, 2018; Liu et al., 2021). However, current research on workplace incivility focuses on its consequences, examining the attitudes and behaviors of both victims and bystanders. For the victims, Shin and Hur (2020) found that supervisor incivility influences subordinates' job insecurity, subsequently affecting their job performance. Applying the theory of self-regulated social cognition, Tong et al. (2019) explored the mechanisms through which workplace incivility affects supportive behaviors and emotional exhaustion through employees' self-blame. For the bystanders, Miranda et al. (2020) found that responsibility for observed incivility can impact employees' feelings of guilt and shame, generating supportive behaviors toward the victims of incivility and retaliation from the implementers of incivility.

Task interdependence

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Task interdependence refers to the extent to which team members depend on the performance of others in completing tasks and obtaining rewards (Wageman, 1995). Furthermore, task interdependence reflects the degree to which contact and collaboration, such as sharing resources, information, or techniques, are required to execute work tasks in an organization. Campion et al. (1993) proposed that task interdependence affects the efficiency of task completion and that tasks with high interdependence necessitate multiple employees performing their duties, cooperating to complete the tasks together, and being rewarded collectively based on their overall performance.

Extant research has explored the critical role of team characteristics in areas such as organizational behaviors and information systems. For example, Wong and Berntzen (2019) explored the moderating mechanisms of team task interdependence in transformational leadership and leader-member exchange quality processes. Chen et al. (2021b) found that perceived task interdependence can strengthen the positive relationship between social media usage in the workplace and employee creativity. Le Blanc et al. (2021) found the moderating role of task interdependence in charismatic leadership and team innovative behavior. Zhang et al. (2022) explored how task interdependence strengthened the relationship between high commitment work systems and workplace friendship and the indirect effect of high commitment work systems on employee well-being. Task interdependence undoubtedly plays an "icing on the cake" in these studies. However, some studies point out the negative aspects of task interdependence. For example, task interdependence was found to be a reinforcer of anger after observing workplace incivility (Liu et al., 2021).

Hypothesis development

Cognitive Appraisal Theory of Emotion

In existing research, the cognitive appraisal theory of emotion has become a widely used theoretical paradigm for understanding workplace relationships and behaviors. The cognitive appraisal theory of emotion is a psychological theory that explains the production of emotions, emphasizing that emotions result from an individual's cognitive appraisal of specific events (Lazarus, 1991; Lazarus and Folkman, 1984). When individuals face stimulus events, they assess their threat,

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challenge, or harm, triggering many emotional responses. Specifically, this study anticipates that employees will initially perceive coworkers' cyberloafing as events relevant to their interests and threats, as cyberloafing delays the completion of collective tasks, undermines team members' common interests, and triggers the breakdown of teamwork (Huang et al., 2015). This scenario often elicits negative emotions such as anxiety and anger among observers (Chen et al., 2021a), leading to incivility behaviors. When task interdependence is high, employees typically focus on individuals or events related to task goals (Chen et al., 2021b), causing observers to perceive cyberloafing as rule-breaking and a potential threat. Consequently, this scenario likely triggers their negative emotions and workplace incivility.

Coworkers' cyberloafing and workplace incivility

Working in teams rather than alone is more common for employees (Magpili and Pazos, 2018), and coworkers are critical to employees' social interactions and task completion (Fong et al., 2022). Therefore, employees are likely to notice coworkers' cyberloafing. This view is supported by the empirical literature, which has demonstrated that observed cyberloafing tends to impact employees (Askew et al., 2019). According to the cognitive appraisal theory of emotion, when a coworker engages in cyberloafing, employees evaluate the behavior based on their information regarding the coworker. Although cyberloafing may result in a positive outcome for the implementers (She and Li, 2023), employees may perceive it as disruptive and unfair (Fong et al., 2022; Tims et al., 2015; Zhong et al., 2022), which could lead to resistance and workplace incivility toward the coworkers, and ultimately a negative workplace experience for both the implementers and the observers.

Specifically, employees who observe their coworkers engaging in cyberloafing are prone to manifest workplace incivility to express alienation, dissatisfaction, and hostility toward their coworkers. Contrary to organizational regulations, cyberloafing consumes work time, leads to procrastination, and diminishes work performance, resulting in damaged trust (Lim et al., 2021). The disappointment and frustration may prompt observers to engage in workplace incivility to express their discontent. Moreover, coworkers' cyberloafing causes work overload and a tense environment and may trigger a sense of unfairness in observers, creating a feeling that their efforts

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are not fully acknowledged. In such circumstances, observers may become irritable or anxious due to increased work pressure, which could manifest as uncivil language or behavior. Lastly, compared to other deviant behaviors, workplace incivility has a lower intensity and ambiguous harmful intent (Han et al., 2022). Coworkers' cyberloafing implies laxity in supervisory measures and organizational culture, leading employees to believe that the organization is less likely to control and penalize low-intensity transgressive behaviors. Additionally, employees may deem justifying or concealing workplace incivility easier by making excuses, seeking understanding from others, and seeking forgiveness from the victim. Therefore, we propose the following hypothesis:

H1: *Coworkers' cyberloafing positively affects workplace incivility.*

Mediating role of negative emotions

When perceiving coworkers' cyberloafing, individuals will assess the event's threat, challenge, or harm. Coworkers' cyberloafing delays work time and task completion, reduces work quality and efficiency, and disrupts team and organizational planning (Lim, 2002). To ensure the timely completion of organizational goals, other members may need to invest extra resources and energy, increase their workload, or even work overtime to eliminate the uncertainty caused by coworkers' cyberloafing (Jiang et al., 2020). Additionally, coworkers' cyberloafing may lead to social learning behaviors among other organizational members, thus inducing a diffuse and lazy work atmosphere. In such an environment, employees tend to lose motivation and initiative (Wu et al., 2023). Likewise, they may consider whether they have the control to change the problem of coworkers' cyberloafing. If they feel unable to resolve it, they may feel powerless, inducing negative emotions such as restlessness, tension, anger, and anxiety (Lazarus and Folkman, 1984). Previous research has similarly demonstrated the contribution of employee-assessed workplace stress to negative emotions (Tang et al., 2022). In summary, coworkers' cyberloafing triggers employees' negative emotions.

The cognitive appraisal theory of emotion posits that emotions play a crucial role in subsequent behavioral responses (Tang et al., 2022). Prior studies have found that when employees experience negative emotions, they tend to perceive other negative events and information in the workplace,

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which impacts their psychological state and decision-making (Ma and Zhang, 2022). Negative emotions can cause aggression among employees, which may harm their interpersonal interactions at work. According to Miranda et al. (2020), the emergence of deviant and counterproductive behaviors in the workplace is closely related to negative emotions. Individuals need to release and soothe their negative emotions to achieve psychological balance (Miranda et al., 2020). Therefore, employees may vent their dissatisfaction and anger toward coworkers' cyberloafing by displaying workplace incivility to vent their emotions. As a result, we suggest the following hypothesis:

H2: *Employees' negative emotions mediate the relationship between coworkers' cyberloafing and workplace incivility.*

Moderating effect of task interdependence

The content of an individual's evaluation of environmental events primarily includes the relevance of the event to oneself and its consistency with expectations or goals (Lazarus and Folkman, 1984). Work environments with high task interdependence impose greater demands on collaboration, enhancing team communication and coordination but also sowing seeds of potential pitfalls. For instance, coworkers' cyberloafing can be easily observed, leading to decreased role clarity, increased workload, role conflicts, and reduced control over tasks. These factors require employees to invest additional effort and time in coordination, potentially exacerbating interpersonal conflicts (Dadaboyev et al., 2019; Taylor and Kluemper, 2012). In such situations, coworkers' cyberloafing may be readily perceived as a "free" phenomenon, which is more likely to result in negative emotions such as dissatisfaction and anger.

On the one hand, task interdependence demands effort and cooperation from each team member (Le Blanc et al., 2021). Coworkers' cyberloafing manifests as indifference toward team tasks, delaying the progress and efficiency of the entire team. Employees will likely perceive this behavior as a hindrance and disrespect toward themselves and the team, consequently eliciting negative emotions such as anger and anxiety. On the other hand, teams emphasizing task interdependence typically evaluate and reward the collective rather than individuals (Campion et al., 1993). Team members bear the consequences for their coworkers' cyberloafing, but the final

evaluations and rewards are similar. Employees may seek fair judgment by comparing their returns with their coworkers, leading to unfair assessments and a higher likelihood of experiencing negative emotions such as jealousy and sadness (Ma and Zhang, 2022).

By contrast, when the level of task interdependence is relatively low, team members work independently of one another (Le Blanc et al., 2021). Less interpersonal interaction and cooperation are required to complete the task. Given that individual job performance is less correlated to overall performance, employees do not need to "pay" for their coworkers' cyberloafing. Consequently, their expectations for coworkers will be lower. Under low-interdependence tasks, regardless of the consequences of coworkers' cyberloafing, employees will be less likely to be disappointed by coworkers' performance (Liu et al., 2021). In the event of low task interdependence, employees may only give cyberloafing coworkers a kind reminder or choose to neglect or capitulate to avoid confrontation as the negative. Therefore, negative emotions such as anxiety, dissatisfaction, and anger are less likely to arise in a low-interdependence task. Hence, we propose the following hypothesis:

H3: *Task interdependence positively moderates the relationship between coworker cyberloafing and employees' negative emotions. When task interdependence is high, the positive effect of coworker cyberloafing on employees' negative emotions will be stronger.*

In H2, we proposed that negative emotions mediate the relationship between cyberloafing and workplace incivility. Combined with the review of H3, task interdependence moderates the relationship between cyberloafing and negative emotions. When task interdependence is relatively high, it can be assumed that coworkers' cyberloafing behaviors, such as online entertainment activities during working hours, which lead to neglecting communication with others and delaying the achievement of overall goals, will be more easily noticed by other employees (Askew et al., 2019). The perception of cyberloafing activity will trigger negative emotions and substantial amounts of "negative feedback" from employees (behaviors of reducing cooperation, venting dissatisfaction, or alienating each other). Thus, high task interdependence is argued to promote workplace incivility caused by coworkers' cyberloafing through employees' negative emotions.

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Conversely, when task interdependence is relatively low, clear job division, high autonomy, and a strong emphasis on individual tasks minimize the attention paid to coworkers. When coworkers slack off online, employees may not view it as an immediate threat to themselves. Accordingly, they may choose to overlook it and feel fewer emotional changes, thus reducing negative responding behaviors. Moreover, low task interdependence is further argued to alleviate the negative emotions caused by coworkers' cyberloafing and will also reduce the frequency of employees engaging in workplace incivility. Consequently, we suggest the following hypothesis:

H4: *Task interdependence positively moderates the indirect effect of coworkers' cyberloafing on workplace incivility through negative emotions. This indirect effect is enhanced when task interdependence is high rather than low.*

Method: Study 1

Participants and procedure

Data were collected using a paper-based survey questionnaire (one-to-one matching) from employees and their coworkers working in a power grid company (with an open-plan office environment) in Guizhou, China. The department members work in proximity, making it possible to observe coworkers' cyberloafing. The research procedure consists of three phases. First, we contacted the human resources department several times before the survey started to determine the implementation timing. With the assistance of the human resources manager, researchers randomly selected employees and coworkers from the department to participate in the survey and created a participant list. Every paired employee and coworker comes from the same department. Second, to match employees with their coworkers, researchers placed relevant materials for the questionnaires (employee and coworker questionnaires) into a sealed envelope, clearly indicating a unique pairing code on both the questionnaires and the envelope. Finally, the researchers explained the purpose of the survey to participants and ensured that the survey data would only be used for research purposes and kept strictly confidential and anonymous. After completing the questionnaires, participants placed them back in their respective envelopes, sealed them, and returned the sealed envelopes to the researchers. In addition, the researchers prepared red envelopes and small gifts in advance for

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each employee as an incentive.

The questionnaires were filled out at three different intervals, with a two-week gap between each time point. At T1, the researchers gathered responses from employees on demographic factors, coworkers' cyberloafing, and task interdependence. Researchers distributed 420 employee questionnaires and collected 384 responses. At T2, the researchers asked employees who had responded to the initial survey to report on negative emotions. Researchers distributed 384 questionnaires and collected 361 responses. At T3, the researchers invited coworkers to take the survey of employees at T2 to rate workplace incivility. Researchers distributed 361 questionnaires and collected 342 responses. After excluding invalid questionnaires, such as those with inconsistent or missing responses, 333 valid samples with matching responses were obtained. Among them were 211 male employees (63.4%), 195 employees between the ages of 26 to 35 (58.6%), 163 employees with a bachelor's degree (48.9%), and 111 employees with work tenure with coworker between 7 to 12 months (33.3%).

Measures

We adopted established measures with high reliability and validity. The translated versions were verified through back-translation procedure. All the variables in our hypothesized research model were rated on a 5-point Likert-type scale, with 1 to 5 representing "strongly disagree" to "strongly agree."

Coworkers' cyberloafing was measured by the 3-item scale developed by Moody and Siponen (2013), the Cronbach's α for this scale was 0.890. *Negative emotions* were measured with the 5-item scale developed by Liu et al. (2007), the Cronbach's α for this scale was 0.880. *Task interdependence* was measured by the 3-item scale from Campion et al. (1993), the Cronbach's α for this scale was 0.815. *Workplace incivility* was assessed by using the 4-item scale developed by Lim and Cortina (2005), the Cronbach's α for this scale was 0.911. The specific items can be found in the Appendix. Gender, age, education level, and tenure with coworker were utilized as control variables.

Results: Study 1

Confirmatory factor analysis

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Confirmatory factor analysis (CFA) was carried out to examine the discriminant validity of coworkers' cyberloafing, negative emotions, workplace incivility, and task interdependence (please see Table 1 for CFA results). The four-factor model demonstrated the best fit and proved significantly better than the three-factor model ($\Delta\chi^2 = 438.087$, $\Delta df = 3$, $p < 0.001$), the two-factor model ($\Delta\chi^2 = 1,039.484$, $\Delta df = 5$, $p < 0.001$) and the one-factor model ($\Delta\chi^2 = 1,588.611$, $\Delta df = 6$, $p < 0.001$) respectively. The CFA results showed that the variables measured in this study have good discriminant validity and are distinctive.

We used the factor loadings, average variance extracted (AVE), and composite reliability (CR) to test the convergent validity. The AVE value for coworkers' cyberloafing is 0.73, and the CR value is 0.89. The AVE value for negative emotions is 0.60, and the CR value is 0.88. The AVE value for task interdependence is 0.53, and the CR value is 0.82. The AVE value for workplace incivility is 0.74, and the CR value is 0.92. The results showed that the scales in this study had good convergent validity.

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TABLE 1 ABOUT HERE

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Descriptive statistics

Table 2 presents this study's correlation coefficients of coworkers' cyberloafing, negative emotions, task interdependence, and workplace incivility. A significant positive correlation exists between coworkers' cyberloafing and negative emotions ($r = 0.380$, $p < 0.01$). Furthermore, a significant positive correlation exists between negative emotions and workplace incivility ($r = 0.492$, $p < 0.01$), and the results confirm preliminary support for our hypotheses.

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TABLE 2 ABOUT HERE

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Main and mediating effects

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Hierarchical regression analysis was used to test the hypotheses (please see the results in Table 3). To test the main effect, the control variables and coworkers' cyberloafing were simultaneously entered into the regression equation with workplace incivility as the dependent variable. As shown in Model 4, coworkers' cyberloafing has a significant positive impact on incivility ($\beta = 0.186$, $p < 0.05$), confirming support for H1. To test H2, the control variables, coworkers' cyberloafing, and negative emotions were simultaneously entered into the regression equation with workplace incivility as the dependent variable. As shown in Model 6, negative emotions positively impact workplace incivility ($\beta = 0.524$, $p < 0.001$). However, the positive effect of coworkers' cyberloafing on workplace incivility is no longer significant ($\beta = -0.082$, ns). This finding suggests that negative emotions mediate the relationship between coworkers' cyberloafing and workplace incivility, and H2 was initially supported.

The R mediation method was used to further test the significance of the mediating effect of negative emotions between coworkers' cyberloafing and workplace incivility. The results showed that coworkers' cyberloafing indirectly affects workplace incivility through negative emotions ($\beta = 0.268$, 95% $CI = [0.184, 0.374]$). Therefore, the mediating effect of negative emotions is significant, thus supporting H2.

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TABLE 3 ABOUT HERE

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Moderating effect

To test the moderating effect, gender, age, education level, tenure with coworker, coworkers' cyberloafing, task interdependence, and interaction terms were simultaneously entered into the regression equation with negative emotions as the dependent variable. As shown in Model 7, the interaction item between coworkers' cyberloafing and task interdependence has a significant positive impact on negative emotions ($\beta = 0.167$, $p < 0.001$), which indicates that task interdependence moderates the relationship between coworkers' cyberloafing and negative emotions. The results of simple slope analysis showed that when the task interdependence was low,

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the positive effect of cyberloafing on negative emotions was relatively weak (*simple slope* = 0.082, *t* = 1.459, *ns*). When task interdependence was high, the positive effect of coworkers' cyberloafing on negative emotions was relatively strong (*simple slope* = 0.416, *t* = 7.806, *p* < 0.001). H3 was supported. Figure 2 shows the moderating effect of task interdependence.

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FIGURE 2 ABOUT HERE

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Moderated mediation analysis

This study used the bootstrap method to test the moderated mediation effect, and Table 4 displays the results. The positive association between coworkers' cyberloafing and negative emotions was significant at high task interdependence level (*ß* = 0.418, 95% *CI* = [0.298, 0.544]) but insignificant at low task interdependence level (*ß* = 0.082, 95% *CI* = [−0.039, 0.194]). The difference was significant (*ß* = 0.336, 95% *CI* = [0.154, 0.528]). Thus, H3 was fully supported. Table 4 also shows that the indirect effect of negative emotions between coworkers' cyberloafing and workplace incivility was significant at the high level of task interdependence (*ß* = 0.210, 95% *CI* = [0.139, 0.293]) but insignificant at low task interdependence (*ß* = 0.041, 95% *CI* = [-0.021, 0.097]). The difference (*ß* = 0.169, 95% *CI* = [0.073, 0.289]) was significant, indicating that task interdependence moderated the indirect effect of coworkers' cyberloafing on workplace incivility through negative emotions. Thus, H4 was supported.

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TABLE 4 ABOUT HERE

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Although Study 1 provided initial support for our hypotheses, it also had a few notable limitations. First, Study 1 only controlled for conventional demographic information. Nonetheless, previous studies have shown that employees' level of cyberloafing is a vital influence variable (Askew et al., 2019). Second, a possible underlying factor for coworkers' cyberloafing inducing

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negative emotions is that cyberloafing negatively affects teamwork or team performance (She and Li, 2023), which Study 1 did not validate. Finally, Study 1 only explored the mediating role of negative emotions and lacked a focus on discrete emotions (Barclay and Kiefer, 2019).

To address these limitations, we conducted Study 2. The primary objectives of Study 2 are as follows. First, previous research has demonstrated that employees' cyberloafing (Askew et al., 2019; Wu et al., 2023), conscientiousness (Sheikh et al., 2019), and perceived norms (Song et al., 2021) influence attitudes and perceptions of coworkers' cyberloafing. Thus, we included them as control variables to validate the model's accuracy under this framework. Second, we need to clarify that coworkers' cyberloafing may be disruptive and negatively affect team performance and team cooperation, thus explaining why observers develop negative emotions. We explored the effects of coworkers' cyberloafing on team cooperation and team performance to increase the rigor of this study in supplementary analyses. Finally, as different negative emotions did not show similar results (Lazarus and Folkman, 1984), we validated the differentiation of specific negative emotions in supplementary analyses. Specifically, we further explored anger and anxiety as specific discrete emotions to explore the differential predictive effects of both in the process of workplace incivility induced by coworkers' cyberloafing.

Method: Study 2

Participants and procedure

The researcher used a paper-based questionnaire to survey employees in two enterprises in Southwest China, both in the service sector. Companies rely highly on the Internet, and the work requirement of universal Internet applications is a prerequisite for cyberloafing. The companies have an open office layout with employees' workstations next to, opposite, or behind each other, enabling them to observe their coworkers' computer screens and behaviors. In addition, the company required employees to work in teams frequently and irregularly to complete specific tasks. Before the start of the survey, the researcher worked with the head of the company to determine the list of participants.

During the survey process, the researcher was physically present to distribute and collect the

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questionnaires and informed the subjects that the survey data would be used for academic purposes only and in complete confidentiality. The questionnaires were completed by employees. A total of 320 questionnaires were distributed, and 274 valid questionnaires were received after excluding those filled out haphazardly, with missing data, and those that failed to match. Among them were 149 male employees (54.4%), 121 employees between the ages of 26 to 35 (44.2%), 153 employees with an undergraduate degree (55.8%), and 90 employees who have been working with their coworkers for at least 25 months (32.8%).

Measures

As in Study 1, we adopted established measures with high reliability and validity. The translated versions were verified by back-translation procedure. All the variables in our hypothesized research model were rated on a 5-point Likert-type scale, with 1 to 5 representing "strongly disagree" to "strongly agree." Similarly, we used the same measure as that in Study 1 for coworkers' cyberloafing (Cronbach's α = 0.797), negative emotions (Cronbach's α = 0.907), and task interdependence (Cronbach's α = 0.880). Workplace incivility was assessed using the 4-item scale developed by Lim and Cortina (2005), the Cronbach's α for this scale was 0.924. Furthermore, team cooperation was measured by the 4-item scale from Lester et al. (2002), the Cronbach's α for this scale was 0.942. Team performance was measured by the 4-item scale from Gonzalez-Mulé et al. (2016), the Cronbach's α for this scale was 0.912. Anger was measured by the 3-item scale from Mitchell et al. (2015), the Cronbach's α for this scale was 0.890. Anxiety was measured by the 3-item scale from Warr (1990), the Cronbach's α for this scale was 0.920.

Apart from gender, age, education, and years of working with coworkers, we controlled for several other variables. *Perceived norms* were measured by the 4-item scale from Hinduja (2007), the Cronbach's α for this scale was 0.947. *Employees' level of cyberloafing* was measured by the 3-item scale developed by Moody and Siponen (2013), the Cronbach's α for this scale was 0.857. *Conscientiousness* was measured by the 3-item scale developed by John and Srivastava (1999), the Cronbach's α for this scale was 0.852. The specific items can be found in the Appendix.

Results: Study 2

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Common method bias

We conducted Harman's single-factor test (Podsakoff et al., 2003). The results showed that one factor explained 34.8% of the variance, which did not exceed 50% of the total explained variation, indicating that the common method bias was not serious.

Confirmatory factor analysis

CFA was carried out to examine the discriminant validity of conscientiousness, perceived norms, cyberloafing, coworkers' cyberloafing, negative emotions, workplace incivility, and task interdependence (please see Table 5 for CFA results). The seven-factor model demonstrated the best fit ($\chi^2 = 418.203$, $df = 278$, $CFI = 0.971$, $TLI = 0.966$, $RMSEA = 0.043$). The CFA results showed that the variables measured in this study had good discriminant validity and were distinctive.

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TABLE 5 ABOUT HERE

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Descriptive statistics

Table 6 presents the correlation coefficients of conscientiousness, perceived norms, cyberloafing, coworkers' cyberloafing, negative emotions, task interdependence, and workplace incivility in this study. A significant positive correlation exists between coworkers' cyberloafing and negative emotions ($r = 0.447$, $p < 0.01$). Furthermore, a significant positive correlation exists between negative emotions and workplace incivility ($r = 0.412$, $p < 0.01$), confirming preliminary support for our hypotheses.

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TABLE 6 ABOUT HERE

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Main and mediating effects

Hierarchical regression analysis was used to test the hypotheses (please see the results in Table 7). To test the main effect, the control variables and coworkers' cyberloafing were simultaneously

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entered into the regression equation with workplace incivility as the dependent variable. As shown in Model 4, coworkers' cyberloafing has a significant positive impact on incivility (β = 0.216, p < 0.001), which confirms support for H1. To test H2, the control variables, coworkers' cyberloafing, and negative emotions were simultaneously entered into the regression equation with workplace incivility as the dependent variable. As shown in Model 6, negative emotions positively impact workplace incivility (β = 0.380, p < 0.001). However, the positive effect of coworkers' cyberloafing on workplace incivility is no longer significant (β = 0.041, ns). This finding suggests that negative emotions mediate the relationship between coworkers' cyberloafing and workplace incivility, and H2 was initially supported.

We utilized PROCESS Macro to further test the significance of the mediating effect of negative emotions between coworkers' cyberloafing and workplace incivility. The results showed that coworkers' cyberloafing indirectly affects workplace incivility through negative emotions (β = 0.228, 95% CI = [0.138, 0.324]). Therefore, the mediating effect of negative emotions is significant, thus supporting H2.

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TABLE 7 ABOUT HERE

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Moderating *effect*

To test the moderating effect, gender, age, education level, tenure with coworker, conscientiousness, perceived norms, cyberloafing, coworkers' cyberloafing, task interdependence, and interaction terms were simultaneously entered into the regression equation with negative emotions as the dependent variable. As shown in Model 7, the interaction item between coworkers' cyberloafing and task interdependence has a significant positive impact on negative emotions (β = 0.213, p < 0.001), which indicates that task interdependence moderates the relationship between coworkers' cyberloafing and negative emotions. The results of simple slope analysis showed that when task interdependence was low, the positive effect of cyberloafing on negative emotions was relatively weak (*simple slope* = 0.292, t = 4.617, p < 0.001). When task interdependence was high,

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the positive effect of cyberloafing on negative emotions was relatively strong (*simple slope* = 0.558, *t* = 8.823, *p* < 0.001). H3 was supported, and Figure 3 shows the moderating effect of task interdependence.

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FIGURE 3 ABOUT HERE

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Moderated mediation analysis

This study used the bootstrap method to test the moderated mediation effect, and Table 8 shows the results. The indirect effect of negative emotions between coworkers' cyberloafing and workplace incivility was significant at the high level of task interdependence (*ß* = 0.319, 95% *CI* = [0.193, 0.452]) and also significant at low task interdependence (*ß* = 0.119, 95% *CI* = [0.045, 0.205]). Moreover, the difference (*ß* = 0.098, 95% *CI* = [0.044, 0.171]) was significant, indicating that task interdependence moderated the indirect effect of coworkers' cyberloafing on workplace incivility through negative emotions. Thus, H4 was supported.

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TABLE 8 ABOUT HERE

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Supplementary analysis

To validate the effect of coworkers' cyberloafing on team cooperation and team performance, we conducted supplementary analysis 1 of the study design. Gender, age, education level, tenure with coworker, and coworkers' cyberloafing were included in regression equations, with team cooperation and team performance as outcome variables. As shown in Table 9, coworkers' cyberloafing had a significant negative effect on team cooperation (*ß* = −0.220, *p* < 0.001) and team performance (*ß* = −0.175, *p* < 0.01).

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TABLE 9 ABOUT HERE

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This study argues that some specific discrete emotions (e.g., anger, anxiety) may also have mediating effects in the process of coworkers' cyberloafing affecting workplace incivility. Exploring the impact of anger and anxiety, this study conducted supplementary analysis 2. From the results of descriptive statistical analysis, coworkers' cyberloafing had a positive correlation with anger ($r = 0.251$, $p < 0.01$) *and a*nxiety ($r = 0.158$, $p < 0.01$), both anger ($r = 0.339$, $p < 0.01$) and anxiety ($r = 0.173$, $p < 0.01$) showed a significant positive correlation with workplace incivility.

Hierarchical regression analysis was used to test the relations (please see the results in Table 10). To test the mediating effect, the control variables and coworkers' cyberloafing were simultaneously entered into the regression equation with workplace incivility as the dependent variable. As shown in Model 6, coworkers' cyberloafing has a significant positive impact on workplace incivility ($ß = 0.216$, $p < 0.001$). This study entered anger and anxiety into the regression equation with workplace incivility as the outcome variable, as shown in Model 8. Both anger ($ß = 0.306$, $p < 0.001$) and anxiety ($ß = 0.120$, $p < 0.05$) has a significant positive impact on workplace incivility.

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TABLE 10 ABOUT HERE

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We utilized Mplus 8.3 to further test the significance of the mediating effects of anger and anxiety between coworkers' cyberloafing and workplace incivility. The results showed that coworkers' cyberloafing indirectly affects workplace incivility through anger ($ß = 0.101$, 95% $CI =$ [0.035, 0.209]). The results also showed that coworkers' cyberloafing indirectly affects workplace incivility through anxiety ($ß = 0.024$, 95% $CI =$ [0.001, 0.080]). Therefore, the mediating effects of anger and anxiety are significant. Moreover, the mediating effect of anxiety in coworkers' cyberloafing affecting workplace incivility was smaller than the mediating effect of anger in the relationship between the two. The difference ($ß = 0.077$, 95% $CI =$ [0.006, 0.181]) was significant.

Findings and discussion

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Drawing on the cognitive appraisal theory of emotion, we examined the theoretical mechanism and boundary conditions of how coworkers' cyberloafing influences workplace incivility through Study 1 and Study 2. Our findings are not only consistent with the assumptions of the cognitive appraisal theory of emotion that an observer's assessment of a coworker's cyberloafing triggers emotional and behavioral responses, but also expand on the much neglected theoretical and empirical driven research on coworkers' cyberloafing behaviors and workplace incivility. The findings revealed that coworkers' cyberloafing could lead to workplace incivility, and task interdependence not only positively moderates the relationship between coworkers' cyberloafing and workplace incivility but also positively moderates the mediating effect of negative emotions on the relationship between coworkers' cyberloafing and workplace incivility.

In addition, our study found a negative effect of coworkers' cyberloafing on team performance and cooperation. Finally, we verified the mediating role played by anger and anxiety between coworkers' cyberloafing and workplace incivility, and the findings showed that the mediating effect of anger was greater than that of anxiety. This finding suggests that different emotions show similar but varying degrees of mediating effects. Regarding behavioral tendencies and psychological explanatory mechanisms, different emotions may induce different adaptive behaviors in ongoing social interactions (Ferris et al., 2016). Specifically, angry individuals are likely to attribute to others or the external environment and are likely to engage in retaliatory aggression (Wang et al., 2023). In contrast, anxious individuals tend to internalize their emotions and trigger withdrawal avoidance (Cheng and McCarthy, 2018).

Theoretical implications

Our study presents the following theoretical directions. Firstly, this study expands the empirical findings on the outcomes of cyberloafing and links the research on coworkers' cyberloafing to workplace incivility. In recent years, several interesting studies have been carried out on cyberloafing's antecedents, focusing primarily on individuals, leadership, and organizational factors. For instance, studies have shown that factors such as abusive supervision (Lim et al., 2021), perceived overqualification (Zhang et al., 2020), and workplace ostracism (Koay, 2018) effectively

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predict employees' cyberloafing. However, a comprehensive exploration of the results of cyberloafing is lacking (Tsai, 2023). Other scholars have examined the positive or negative impacts of cyberloafing, such as job performance (She and Li, 2023), mental health (Wu et al., 2020), and innovative performance (Zhong et al., 2022). Nonetheless, the varied and complex phenomena associated with cyberloafing in organizations call for rigorous empirical investigation. One response to the call is from Tandon et al. (2022) who explored the interpersonal behaviors triggered by cyberloafing. This study successfully integrates the domains of organizational behaviors and information systems by exploring and validating the positive impact of coworkers' cyberloafing on workplace incivility. This integration provides a novel perspective for understanding the dynamics of employee behavior in the digital era, emphasizing the pivotal role of information systems in influencing and shaping employee behavior.

Secondly, this study focuses on the impact of employees' cyberloafing on observers. Existing research has focused on the implementer in the study of cyberloafing (Tsai, 2023), but has not explored in depth the other roles (observers) in organizations. The study of observers has been thoroughly explored across several disciplinary areas. However, relatively little attention has been paid to studying coworker cyberloafing. A review of the literature reveals that only a few studies have focused on the impact of coworkers' cyberloafing on observer attitudes and behaviors (Askew et al., 2019), and even fewer have delved into the multiple psychological mechanisms and behavioral responses of observers. For example, related research in the field of IS has found that observers learn from the implementer's cyberloafing, reflecting the contagion mechanism of consistent in-group behaviors (Wu et al., 2023). However, in-group norms persist, as manifested in resistance and disapproval of anachronistic behaviors. Based on this finding, our study not only enriches the research community in the field of cyberloafing by exploring the effects of implementer cyberloafing on observer behaviors, but also provides particular and valuable insights into the study of observers of cyberloafing.

Thirdly, we analyzed and examined the process mechanism by which cyberloafing affects observers' workplace incivility, revealing the process of observers' emotional and cognitive

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appraisal in this mechanism. Current scholars have explored the aftereffect of cyberloafing primarily from the perspectives of effort-recovery and social learning, neglecting the key role played by the cognitive appraisal theory of emotion. For example, previous studies have explored the relationship between relaxation in cyberloafing and job performance through the effort-recovery model (She and Li, 2023). Based on the social contagion mechanism, scholars have found observers' learning behaviors toward descriptive norms of cyberloafing within a team (Song et al., 2021). Based on the cognitive appraisal theory of emotion, this paper opens the "black box" in which implementers' cyberloafing induces negative emotions in observers, which in turn affects their workplace incivility. This finding not only responds to the call for researchers to explore the mechanisms and theoretical framework of the consequences of cyberloafing (Tandon et al., 2022), but also expands the scope of applying the cognitive appraisal of emotion theory. In addition, by identifying cyberloafing as an antecedent to observers' negative attitudes and behaviors, our findings help organizations understand the negative effects of cyberloafing in the workplace.

Finally, this study demonstrates how task interdependence moderates the mechanism of coworkers' cyberloafing affecting workplace incivility through the mediation of negative emotions. We identified the detrimental impact of coworkers' cyberloafing and further examined the boundary conditions to better understand how and when such impact becomes stronger or weaker. Prior research has explored the moderating effect of individual traits and organizational factors in cyberloafing, such as time management skills (She and Li, 2023) and organizational sanctions (Song et al., 2021), while neglecting the key role played by task characteristics. Wu et al. (2023) called for exploring the key role of collaborative relationships between coworkers and employees in coworkers' cyberloafing and employee behaviors. We found that task interdependence does not frequently play a positive role. In particular, high task interdependence can be a "shackle" to employees and a "catalyst" for the emergence of unethical behavior. When task interdependence is high, employees are easily affected by coworkers' cyberloafing, which leads to experiencing emotional changes and then responding with workplace incivility. Low task interdependence will ease the negative emotions of employees caused by coworkers' cyberloafing and reduce the

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corresponding workplace incivility. Moreover, our findings suggest that how employees respond to coworkers' cyberloafing is mediated by task interdependence, which deepens our understanding of the relationship between coworkers' cyberloafing and employees' workplace incivility.

Practical implications

First, this study reveals the positive impact of coworkers' cyberloafing and employees' workplace incivility. Organizations and managers should have reasonable control over cyberloafing in the workplace. Employees' online behaviors are somewhat private, and mismanagement can conflict with employees' privacy rights and affect company labor relations. In the process of information system management, organizations and managers need to explore other external non-intrusive strategies to control cyberloafing, such as formulating appropriate company regulations on network use and penalty systems, installing network security systems, strengthening information system supervision and protection, and setting up different Internet access privileges for different positions. Managers should ensure the authenticity, transparency, and relevance of controlling cyberloafing while providing timely deterrent warnings to employees in various departments in the organization. In terms of work design, organizations should provide specific time gaps and place arrangements to transform employees' cyberloafing into organizationally guided micro-breaks between jobs to facilitate employees' recovery from stress (Wu et al., 2021).

Second, attention should be paid to the mediating role played by negative emotions in the process of cyberloafing affecting observers' workplace incivility. When organizations and managers attempt to reduce workplace incivility by improving observers' negative emotions, they should consider whether employees' emotions improve after implementing countermeasures. Organizations should improve the management system, adhere to the "people-oriented" management concept, realize humane management, strengthen the interaction and communication with employees, pay attention to the emotional changes of employees in real-time, and promptly give guidance to employees with negative emotions. Moreover, managers should create an inclusive and cordial environment, promote communication among organizational members, and foster respect and care among coworkers. For instance, managers can hold tea parties, organize sports

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games, and set up rest areas to enhance communication between organizational members after work. These activities can improve mutual understanding and trust between employees, strengthen their emotional bonds, allow employees to reduce psychological pressure, and reduce misunderstandings and conflicts among employees in the long run.

Third, this study highlights the importance of task interdependence in how coworkers' cyberloafing causes workplace incivility through negative emotions. The result implies that organizations should carefully designate team tasks. Managers must not only consider organizational performance but also categorize and allocate tasks according to the personality and competence of each employee. Individuals should be able to independently execute daily activities and eventually grow increasingly independent if the work is divided to lessen the dependency on jobs. Moreover, if team tasks are highly interdependent, organizations and managers should focus on employee internal relationships, cultivate a harmonious team environment, and enhance understanding and communication. Finally, the organization should design and enhance accountability, assign clear responsibilities to individuals, and foster a responsible attitude among employees and a healthy and positive work environment.

Limitations and future directions

This research contains several limitations that may be addressed in future research. First, this study only examined the mediating roles of anger and anxiety in the relationship between coworkers' cyberloafing and workplace incivility. This study did not address other discrete emotions such as frustration (Liu et al., 2007). Since discrete emotions may have diverse impacts (Sufi et al., 2024), we encourage future research to explore the mediating roles of frustration.

Second, this study only examined the moderating role of task interdependence in the relationship between coworkers' cyberloafing and employees' negative emotions and workplace incivility. For a start, apart from employees' cooperation to perform the joint task, other task characteristics (e.g., complexity) exist. Future research must evaluate whether additional task characteristics will elicit a negative response from employees. Other contextual elements include organizational atmosphere and workload, apart from task characteristics. Employees may tolerate

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coworkers' cyberloafing in teams with a high level of forgiveness or playfulness. What's more, the genesis of employee behavior is affected by situational factors and individual differences. For instance, Machiavellian personalities are self-interested and may react unfavorably to coworkers' cyberloafing. This study encourages future research to investigate additional possible boundary conditions. Lastly, future research could be expanded within the IS domain to investigate the relationship between IS/IT factors and coworkers' cyberloafing, thereby increasing the essential contribution to the IS field. For example, information system security can alleviate the employees' negative emotions triggered by coworkers' cyberloafing.

Third, this study only controlled for gender, age, education level, tenure with coworker, cyberloafing, conscientiousness, and perceived norms. However, several important factors can impact workplace incivility, and the control variables need further addition and enrichment. For instance, individuals from different cultures, generations, and industries have varying attitudes toward cyberloafing, which further influences their likelihood of engaging in workplace incivility (Liberman et al., 2011; Askew et al., 2019). Additionally, whether employees are evaluated individually or on a team-based basis is a crucial factor influencing their concern for coworkers' cyberloafing. Therefore, including "attitudes toward cyberloafing" and "the propensity for individual or team-based evaluation" as control variables would benefit future studies.

Conclusion

Drawing on the cognitive appraisal theory of emotion, we developed and tested a model of coworkers' cyberloafing and workplace incivility, delineating how and when coworkers' cyberloafing influences workplace incivility through the lens of negative emotions. Specifically, we tested task interdependence as a situational factor influencing the magnitude of direct and indirect effects. Our findings demonstrate that coworkers' cyberloafing can lead to workplace incivility. At the same time, task interdependence positively moderated this relationship and positively moderated the indirect effect. This study also verified the negative impact of coworkers' cyberloafing on team performance and cooperation as well as the mediating role of anger and anxiety in how coworkers' cyberloafing affects workplace incivility. The current research contributes to improving the theory

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and providing a framework for future research by synthesizing and explaining the underlying mechanisms of coworkers' cyberloafing and workplace incivility.

References

Agarwal, U.A. and Avey, J.B. (2020), "Abusive supervisors and employees who cyberloaf: examining the roles of psychological capital and contract breach", *Internet Research*, Vol. 30 No. 3, pp. 789-809.

Andersson, L.M. and Pearson, C.M. (1999), "Tit for tat? The spiraling effect of incivility in the workplace", *Academy of Management Review*, Vol. 24 No. 3, pp. 452-471.

Andreassen, C.S., Torsheim, T. and Pallesen, S. (2014), "Predictors of use of social network sites at work-a specific type of cyberloafing", *Journal of Computer-Mediated Communication*, Vol. 19 No. 4, pp. 906-921.

Askew, K., Buckner, J.E., Taing, M.U., Ilie, A., Bauer, J.A., and Coovert, M.D. (2014), "Explaining cyberloafing: the role of the theory of planned behavior", *Computers in Human Behavior*, Vol. 36, pp. 510-519.

Askew, K.L., Ilie, A., Bauer, J. A., Simonet, D.V., Buckner, J.E. and Robertson, T.A. (2019), "Disentangling how coworkers and supervisors influence employee cyberloafing: what normative information are employees attending to?", *Journal of Leadership and Organizational Studies*, Vol. 26 No. 4, pp. 526-544.

Barclay, L.J. and Kiefer, T. (2019), "In the aftermath of unfair events: understanding the differential effects of anxiety and anger", *Journal of Management*, Vol. 45 No. 5, pp. 1802-1829.

Blau, G. (2007), "Partially testing a process model for understanding victim responses to an anticipated worksite closure", *Journal of Vocational Behavior*, Vol. 71 No. 3, pp. 401-428.

Blau, G. and Andersson, L. (2005), "Testing a measure of instigated workplace incivility", *Journal of Occupational and Organizational Psychology*, Vol. 78 No. 4, pp. 595-614.

Campion, M.A., Medsker, G.J. and Higgs, A.C. (1993), "Relations between work group characteristics and effectiveness: implications for designing effective work groups", *Personnel*

31

Psychology, Vol. 46 No. 4, pp. 823-847.

Chen, C., Qin, X., Yam, K.C. and Wang, H. (2021a), "Empathy or schadenfreude? Exploring observers' differential responses to abusive supervision", *Journal of Business and Psychology*, Vol. 36 No. 6, pp. 1077-1094.

Chen, L., Zheng, B., Liu, H. and Deng, M. (2021b), "Three-way interaction effect of social media usage, perceived task interdependence and perceived participative leadership on employee creativity", *Internet Research*, Vol. 31 No. 2, pp. 457-478.

Cheng, B., Zhou, X., Guo, G., Yang, K. (2020), "Perceived overqualification and cyberloafing: a moderated-mediation model based on equity theory", *Journal of Business Ethics*, Vol. 164 No. 3, pp. 565-577.

Cheng, B.H. and McCarthy, J.M. (2018), "Understanding the dark and bright sides of anxiety: a theory of workplace anxiety", *Journal of Applied Psychology*, Vol. 103 No. 5, pp. 537-560.

Dadaboyev, S., Park, J. and Ahn, S.I. (2019), "Dark sides of self-efficacy and task interdependence: victimization", *Journal of Managerial Psychology*, Vol. 34 No. 6, pp. 386-400.

Durak, H.Y. and Saritepeci, M. (2019), "Occupational burnout and cyberloafing among teachers: analysis of personality traits, individual and occupational status variables as predictors", *Social Science Journal*, Vol. 56 No. 1, pp. 69-87.

Elrehail, H., Rehman, S.U., Chaudhry, N.I. and Alzghoul, A. (2021), "Nexus among cyberloafing behavior, job demands and job resources: a mediated-moderated model", *Education and Information Technologies*, Vol. 26 No. 4, pp. 4731-4749.

Ferris, D.L., Yan, M., Lim, V.K.G., Chen, Y. and Fatimah, S. (2016), "An approach-avoidance framework of workplace aggression", *Academy of Management Journal*, Vol. 59 No. 5, pp. 1777-1800.

Fong, C.Y.M., Tims, M. and Khapova, S.N. (2022), "Coworker responses to job crafting: implications for willingness to cooperate and conflict", *Journal of Vocational Behavior*, Vol. 138, p. 103781.

Gonzalez-Mulé, E., Courtright, S.H., DeGeest, D., Seong, J.Y. and Hong, D.S. (2016), "Channeled

32

autonomy: the joint effects of autonomy and feedback on team performance through organizational goal clarity", *Journal of Management*, Vol. 42 No. 7, pp. 2018-2033.

Hadlington, L. and Parsons, K. (2017), "Can cyberloafing and internet addiction affect organizational information security?", *Cyberpsychology, Behavior, and Social Networking*, Vol. 20 No. 9, pp. 567-571.

Han, S., Harold, C.M., Oh, I.S., Kim, J.K. and Agolli, A. (2022), "A meta-analysis integrating 20 years of workplace incivility research: antecedents, consequences, and boundary conditions", *Journal of Organizational Behavior*, Vol. 43 No. 3, pp. 497-523.

Henle, C.A. (2023), "Shifting the literature from who and when to why: identifying cyberloafing motives", *Applied Psychology*, Vol. 73 No. 1, pp. 495-501.

Hinduja, S. (2007), "Neutralization theory and online software piracy: an empirical analysis", *Ethics and Information Technology*, Vol. 9, pp. 187-204.

Huang, L., Gino, F. and Galinsky, A.D. (2015), "The highest form of intelligence: sarcasm increases creativity for both expressers and recipients", *Organizational Behavior and Human Decision Processes*, Vol. 131, pp. 162-177.

Jeong, Y., Jung, H. and Lee, J. (2020), "Cyberslacking or smart work: smartphone usage log-analysis focused on app-switching behavior in work and leisure conditions", *International Journal of Human-Computer Interaction*, Vol. 36 No. 1, pp. 15-30.

Jia, H., Jia, R. and Karau, S. (2013), "Cyberloafing and personality: the impact of the big five traits and workplace situational factors", *Journal of Leadership and Organizational Studies*, Vol. 20 No. 3, pp. 358-365.

Jiang, H., Tsohou, A., Siponen, M. and Li, Y. (2020), "Examining the side effects of organizational Internet monitoring on employees", *Internet Research*, Vol. 30 No. 6, pp. 1613-1630.

John, O.P. and Srivastava, S. (1999), "The big-five trait taxonomy: history, measurement, and theoretical perspectives", Pervin, L.A. and John, O.P. (Eds.), *Handbook of Personality: Theory and Research*, The Guilford Press, New York, NY, pp. 102-138.

Koay, K.Y. (2018), "Workplace ostracism and cyberloafing: a moderated-mediation model",

Internet Research, Vol. 28 No. 4, pp. 1122-1141.

Koon, V.Y. and Pun, P.Y. (2018), "The mediating role of emotional exhaustion and job satisfaction on the relationship between job demands and instigated workplace incivility", *Journal of Applied Behavioral Science*, Vol. 54 No. 2, pp. 187-207.

Lazarus, R.S. (1991), "Progress on a cognitive motivational relational theory of emotion", *American Psychologist*, Vol. 46 No. 8, pp. 819-834.

Lazarus, R.S. and Folkman, S. (1984), *Stress, appraisal and coping*, Springer Publishing Company, New York, NY.

Le Blanc, P.M., González-Romá, V. and Wang, H. (2021), "Charismatic leadership and work team innovative behavior: the role of team task interdependence and team potency", *Journal of Business and Psychology*, Vol. 36 No. 2, pp. 333-346.

Lester, S.W., Meglino, B.M. and Korsgaard, M.A. (2002), "The antecedents and consequences of group potency: a longitudinal investigation of newly formed work groups", *Academy of Management Journal*, Vol. 45 No. 2, pp. 352-368.

Li, H., Luo, X., Zhang, J. and Sarathy, R. (2018), "Self-control, organizational context, and rational choice in Internet abuses at work", *Information and Management*, Vol. 55 No. 3, pp. 358-367.

Liberman, B., Seidman, G., Mckenna, K.Y.A. and Buffardi, L.E. (2011), "Employee job attitudes and organizational characteristics as predictors of cyberloafing", *Computers in Human Behavior*, Vol. 27 No. 6, pp. 2192-2199.

Lim, P.K., Koay, K.Y. and Chong, W.Y. (2021), "The effects of abusive supervision, emotional exhaustion and organizational commitment on cyberloafing: a moderated-mediation examination", *Internet Research*, Vol. 31 No. 2, pp. 497-518.

Lim, S. and Cortina, L.M. (2005), "Interpersonal mistreatment in the workplace: the interface and impact of general incivility and sexual harassment", *Journal of Applied Psychology*, Vol. 90 No. 3, pp. 483-496.

Lim, V.K.G. (2002), "The IT way of loafing on the job: cyberloafing, neutralizing and organizational justice", *Journal of organizational behavior*, Vol. 23 No. 5 pp. 675-694.

34

Lim, V.K.G. and Chen, D.J.Q. (2012), "Cyberloafing at the workplace: gain or drain on work?", *Behaviour and Information Technology*, Vol. 31 No. 4, pp. 343-353.

Lin, X. and Loi, R. (2021), "Punishing the perpetrator of incivility: the differential roles of moral identity and moral thinking orientation", *Journal of Management*, Vol. 47 No. 4, pp. 898-929.

Liu, C., Spector, P.E. and Shi, L. (2007), "Cross-national job stress: a quantitative and qualitative study", *Journal of Organizational Behavior*, Vol. 28 No. 2, pp. 209-239.

Liu, P., Li, X., Li, A., Wang, X. and Xiong, G. (2021), "How third parties respond to workplace incivility: the moderating role of the dark triad and task interdependence", *Personality and Individual Differences*, Vol. 171, p. 110427.

Ma, B. and Zhang, J. (2022), "Are overqualified individuals hiding knowledge: the mediating role of negative emotion state", *Journal of Knowledge Management*, Vol. 26 No. 3, pp. 506-527.

Magpili, N.C. and Pazos, P. (2018), "Self-managing team performance: a systematic review of multilevel input factors", *Small Group Research*, Vol. 49 No. 1, pp. 3-33.

Miranda, G.A., Welbourne, J.L. and Sariol, A.M. (2020), "Feeling shame and guilt when observing workplace incivility: elicitors and behavioral responses", *Human Resource Development Quarterly*, Vol. 31 No. 4, pp. 371-392.

Mitchell, M.S., Vogel, R.M. and Folger, R. (2015), "Third parties' reactions to the abusive supervision of coworkers", *Journal of Applied Psychology*, Vol. 100 No. 4, pp. 1040-1055.

Moody, G.D. and Siponen, M. (2013), "Using the theory of interpersonal behaviour to explain non-work-related personal use of the Internet at work", *Information & Management*, Vol. 50 No. 6, pp. 322-335.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, pp. 879-903.

She, Z. and Li, Q. (2023), "When too little or too much hurts: evidence for a curvilinear relationship between cyberloafing and task performance in public organizations", *Journal of Business Ethics*, Vol. 183 No. 4, pp. 1141-1158.

35

Sheikh, A., Aghaz, A. and Mohammadi, M. (2019), "Cyberloafing and personality traits: an investigation among knowledge-workers across the Iranian knowledge-intensive sectors", *Behaviour and Information Technology*, Vol. 38 No. 12, pp. 1213-1224.

Shin, Y. and Hur, W.M. (2020), "Supervisor incivility and employee job performance: the mediating roles of job insecurity and amotivation", *Journal of Psychology*, Vol. 154 No. 1, pp. 38-59.

Song, M., Ugrin, J., Li, M., Wu, J., Guo, S. and Zhang, W. (2021), "Do deterrence mechanisms reduce cyberloafing when it is an observed workplace norm? A moderated mediation model", *International Journal of Environmental Research and Public Health*, Vol. 18 No. 13, p. 6751.

Sufi, A.F., Raja, U. and Butt, A.N. (2024), "Impact of peer unethical behaviors on employee silence: the role of organizational identification and emotions", *Journal of Business Ethics*, Vol. 190 No. 4, pp. 821-839.

Tandon, A., Kaur, P., Ruparel, N., Islam J.U. and Dhir, A. (2022), "Cyberloafing and cyberslacking in the workplace: systematic literature review of past achievements and future promises", *Internet Research*, Vol. 32 No. 1, pp. 55-89.

Tang, P.M., Yam, K.C., Koopman, J. and Ilies, R. (2022), "Admired and disgusted? Third parties' paradoxical emotional reactions and behavioral consequences towards others' unethical pro-organizational behavior", *Personnel Psychology*, Vol. 75 No. 1, pp. 33-67.

Taylor, S.G. and Kluemper, D.H. (2012), "Linking perceptions of role stress and incivility to workplace aggression: the moderating role of personality", *Journal of Occupational Health Psychology*, Vol. 17 No. 3, pp. 316-329.

Tims, M., Bakker, A.B. and Derks, D. (2015), "Examining job crafting from an interpersonal perspective: is employee job crafting related to the well-being of colleagues?" *Applied Psychology*, Vol. 64 No.4, pp. 727-753.

Tong, J.J., Chong, S.H. and Johnson, R.E. (2019), "The indirect relations of workplace incivility with emotional exhaustion and supportive behaviors via self-blame: the moderating roles of observed incivility and trait emotional control," *Journal of Organizational Behavior*, Vol. 40 No. 8, pp. 931-946.

36

Tsai, H.Y. (2023), "Do you feel like being proactive day? How daily cyberloafing influences creativity and proactive behavior: the moderating roles of work environment", *Computers in Human Behavior*, Vol. 138, p. 107470.

Usman, M., Javed, U., Shoukat, A. and Bashir, N.A. (2021), "Does meaningful work reduce cyberloafing? Important roles of affective commitment and leader-member exchange", *Behaviour and Information Technology*, Vol. 40 No. 2, pp. 206-220.

Wageman, R. (1995), "Interdependence and group effectiveness", *Administrative Science Quarterly*, Vol. 40 No. 1, pp. 145-180.

Wang, Z. and Jiang, F. (2023), "It is not only what you do, but why you do it: the role of attribution in employees' emotional and behavioral responses to illegitimate tasks", *Journal of Vocational Behavior*, Vol. 142, p. 103860.

Warr, P. (1990), "The measurement of well-being and other aspects of mental health", *Journal of occupational Psychology*, Vol. 63 No. 3, pp. 193-210.

Wong, S.I. and Berntzen, M.N. (2019), "Transformational leadership and leader-member exchange in distributed teams: the roles of electronic dependence and team task interdependence", *Computers in Human Behavior*, Vol. 92, pp. 381-392.

Wu, J., Mei, W., Liu, L. and Ugrin, J.C. (2020), "The bright and dark sides of social cyberloafing: effects on Employee mental health in China", *Journal of Business Research*, Vol. 112, pp. 56-64.

Wu, J., Mei, W., Ugrin, J., Liu, L. and Wang, F. (2021), "Curvilinear performance effects of social cyberloafing out of class: the mediating role as a recovery experience", *Information Technology and People*, Vol. 34 No. 2, pp. 581-598.

Wu, J., Song, M., Zoghbi-Manrique-de-Lara, P., Jiang, H., Guo, S. and Zhang, W. (2023), "Why cyberloafing can be socially learned in the workplace: the role of employees' perceived certainty of formal and informal sanctions", *Information Technology and People*, Vol. 36 No. 4, pp. 1603-1625.

Yang, H., Lin, Z., Chen, X. and Peng, J. (2023), "Workplace loneliness, ego depletion and

cyberloafing: can leader problem-focused interpersonal emotion management help?", *Internet Research*, Vol. 33 No. 4, pp. 1473-1494.

Zhang, J., Akhtar, M.N., Zhang, Y. and Sun, S. (2020), "Are overqualified employees bad apples? A dual-pathway model of cyberloafing", *Internet Research*, Vol. 30 No. 1, pp. 289-313.

Zhang, Y., Sun, J.M., Shaffer, M.A. and Lin, C.H. (2022), "High commitment work systems and employee well-being: the roles of workplace friendship and task interdependence", *Human Resource Management*, Vol. 61 No. 4, pp. 399-421.

Zhong, J., Chen, Y., Yan, J. and Luo, J. (2022), "The mixed blessing of cyberloafing on innovation performance during the Covid-19 pandemic", *Computers in Human Behavior*, Vol. 126, p. 106982.

Zhou, B., Li, Y., Hai, M., Wang, W. and Niu, B. (2021), "Challenge-hindrance stressors and cyberloafing: a perspective of resource conservation versus resource acquisition", *Current Psychology*, Vol. 42 No. 2, pp. 1172-1181.

Zoghbi-Manrique-de-Lara, P., Viera-Armas, M. and De Blasio García, G. (2020), "Does supervisors' mindfulness keep employees from engaging in cyberloafing out of compassion at work?", *Personnel Review*, Vol. 49 No. 2, pp. 670-687.

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Table 1: Results of Confirmatory factor analysis (Study 1)

Model	χ^2	df	χ^2/df	$\Delta\chi^2(\Delta df)$	CFI	TLI	RMSEA
Four-factor model	274.258	98	2.799	Baseline model	0.944	0.931	0.074
Three-factor model	712.345	101	7.053	438.087***(3)	0.806	0.769	0.135
Two-factor model	1313.742	103	12.755	1039.484***(5)	0.615	0.552	0.188
One-factor model	1862.869	104	17.912	1588.611***(6)	0.441	0.355	0.226

Note: $n = 333$; ***$p < 0.001$. Three-factor model: Combining negative emotions and task interdependence into one factor; Two-factor model: Combining coworkers' cyberloafing and workplace incivility into one factor, and combining negative emotions and task interdependence into one factor; One-factor model: Combining all constructs into a factor.

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Table 2: Results of descriptive statistical analysis (Study 1)

	Mean	SD	1	2	3
1. Coworkers' cyberloafing	4.807	0.503			
2. Negative emotions	4.013	0.644	0.380**		
3. Task interdependence	3.025	0.643	−0.001	0.032	
4. Workplace incivility	4.251	0.661	0.171**	0.492**	0.036

Note: $n = 333$; $^{*}p < 0.05$, $^{**}p < 0.01$.

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Table 3: Results of hierarchical regression analysis (Study 1)

Variables	Negative emotions			Workplace incivility			Negative emotions
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Gender	0.029	0.003	0.094	0.085	0.080	0.083	0.027
Age	0.043	0.032	0.042	0.038	0.020	0.021	0.036
Education level	0.028	0.082*	−0.060	−0.040	−0.074*	−0.083*	0.080*
Tenure with coworker	−0.040	−0.011	−0.061	−0.050	−0.041	−0.044	−0.012
Coworkers' cyberloafing		0.511***		0.186*		−0.082	0.249***
Negative emotions					0.500***	0.524***	
Task interdependence							0.003
Coworkers' cyberloafing× Task interdependence							0.167***
R^2	0.007	0.156	0.027	0.046	0.263	0.266	0.194
ΔR^2	−	0.149	−	0.019	0.236	0.239	0.187
F	0.574	12.092***	2.303	3.157**	23.323***	19.686***	11.191***

Note: n = 333; *p < 0.05, **p < 0.01, ***p < 0.001. Gender: Male (0), female (1); Age: ≤25 years (1), 26-35 years (2), 36-45 years (3), ≥46 years (4); Education level: High school (1), junior college (2), bachelor's degree (3), graduate degree (4); Tenure with coworker: ≤6 months (1), 7-12 months (2), 13-24 months (3), ≥25 months (4).

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Table 4: Results of moderated mediation analysis (Study 1)

Dependent variables	Moderator	Coworkers' cyberloafing→ Negative emotions	Indirect effect	Direct effect	Total effect
Workplace incivility	High task interdependence	0.418* [0.298, 0.544]	0.210* [0.139, 0.293]	0.036 [−0.076, 0.129]	0.247* [0.153,0.346]
	Low task interdependence	0.082 [−0.039, 0.194]	0.041 [−0.021, 0.097]	−0.115 [−0.236,0.01]	−0.074 [−0.189,0.037]
	Differences (Δ)	0.336* [0.154, 0.528]	0.169* [0.073, 0.289]	0.151* [0.013, 0.276]	0.32* [0.189,0.449]

Note: $n =333$; *$p < 0.05$, 95% confidence interval in parentheses.

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Table 5: Results of confirmatory factor analysis (Study 2)

Model	χ^2	df	χ^2/df	$\Delta\chi^2(\Delta df)$	CFI	TLI	RMSEA
Seven-factor model	418.203	278	1.504	Baseline model	0.971	0.966	0.043
Six-factor model	784.918	284	2.764	366.715***(6)	0.897	0.883	0.080
Five-factor model	1174.102	289	4.063	755.899***(11)	0.819	0.796	0.106
Four-factor model	1516.761	293	5.177	1098.558***(15)	0.749	0.722	0.124

Note: n = 274; ***p < 0.001. Six-factor model: Combining conscientiousness and perceived norms into one factor; Five-factor model: Combining conscientiousness and perceived norms into one factor and combining cyberloafing and coworkers' cyberloafing into one factor, and combining task interdependence and negative emotions into one factor. Four-factor model: Combining conscientiousness, perceived norms, cyberloafing and coworkers' cyberloafing into one factor, and combining task interdependence and negative emotions into one factor.

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Table 6: Results of descriptive statistical analysis (Study 2)

	Mean	SD	1	2	3	4	5	6
1. Conscientiousness	4.089	0.882						
2. Perceived norms	3.368	1.104	0.022					
3. Cyberloafing	1.928	0.831	−0.015	−0.005				
4. Coworkers' cyberloafing	4.254	0.651	0.022	0.102	0.031			
5. Negative emotions	3.809	0.633	−0.088	0.025	0.079	0.447**		
6. Task interdependence	2.737	1.056	0.065	0.023	−0.021	−0.022	−0.131*	
7. Workplace incivility	3.896	0.848	−0.125*	0.095	0.079	0.217**	0.412**	−0.078

Note: $n = 274$; *$p < 0.05$, **$p < 0.01$.

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Table 7: Results of hierarchical regression analysis (Study 2)

Variables	Negative emotions			Workplace incivility			Negative emotions
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Gender	0.081	0.096	0.015	0.022	−0.017	−0.015	0.097
Age	−0.026	−0.052	0.012	0.000	0.023	0.020	−0.059
Education level	−0.066	−0.100	−0.037	−0.053	−0.011	−0.015	−0.115*
Tenure with coworker	0.004	−0.002	−0.050	−0.053	−0.052	−0.052	0.018
Conscientiousness	−0.092	−0.101	−0.127*	−0.131*	−0.090	−0.092	−0.086
Perceived norms	0.023	−0.023	0.093	0.071	0.084	0.080	−0.025
Cyberloafing	0.077	0.059	0.076	0.067	0.045	0.045	0.040
Coworkers' cyberloafing		0.461***		0.216***		0.041	0.437***
Negative emotions					0.399***	0.380***	
Task interdependence							−0.175**
Coworkers' cyberloafing× Task interdependence							0.213***
R^2	0.025	0.233	0.035	0.080	0.190	0.191	0.292
ΔR^2	−	0.208	−	0.045	0.155	0.156	0.267
F	0.971	10.065***	1.364	2.899**	7.767***	6.937***	10.872***

Note: $n = 274$; $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. Gender: Male (0), female (1); Age: ≤25 years (1), 26-35 years (2), 36-45 years (3), ≥46 years (4); Education level: High school (1), junior college (2), bachelor's degree (3), graduate degree (4); Tenure with coworker: ≤6 months (1), 7-12 months (2), 13-24 months (3), ≥25 months (4).

Table 8: Results of moderated mediation analysis (Study 2)

Moderator	Indirect effect	Boot SE	Boot LL 95% CI	Boot UL 95% CI
High task interdependence	0.319	0.066	0.193	0.452
Mean task interdependence	0.218	0.044	0.135	0.307
Low task interdependence	0.119	0.040	0.045	0.205
Moderated mediation index	0.098	0.032	0.044	0.171

Note: $n = 274$.

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Table 9: Results of hierarchical regression analysis (Study 2)

Variables	Team cooperation		Team Performance	
	Model 1	Model 2	Model 3	Model 4
Gender	0.149*	0.142*	−0.082	−0.087
Age	−0.024	−0.009	−0.043	−0.030
Education level	0.141*	0.155**	−0.023	−0.012
Tenure with coworker	0.039	0.040	0.081	0.082
Coworkers' cyberloafing		−0.220***		−0.175**
R^2	0.046	0.094	0.012	0.043
ΔR^2	–	0.048	–	0.031
F	3.241*	5.571***	0.847	2.399*

Note: $n = 274$; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 10: Results of hierarchical regression analysis (Study 2)

Variables	Anger		Anxiety		Workplace incivility			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Gender	0.050	0.052	−0.036	−0.035	0.015	0.022	0.007	0.011
Age	−0.003	−0.010	0.103	0.097	0.012	0.000	−0.007	−0.011
Education level	−0.071	−0.085	−0.019	−0.033	−0.037	−0.053	−0.018	−0.029
Tenure with coworker	−0.042	−0.023	−0.076	−0.056	−0.050	−0.053	−0.027	−0.031
Conscientiousness	0.048	0.062	−0.117	−0.103	−0.127*	−0.131*	−0.129*	−0.132*
Perceived norms	0.055	0.054	−0.002	−0.004	0.093	0.071	0.064	0.055
Cyberloafing	−0.055	−0.073	0.023	0.005	0.076	0.067	0.087	0.081
Coworkers' cyberloafing	0.253***	0.230***	0.156*	0.132*		0.216***		0.120*
Anger							0.336***	0.306***
Anxiety							0.137*	0.120*
Task interdependence		−0.167**		−0.166**				
Coworkers' cyberloafing × Task interdependence		0.204**		0.215**				
R^2	0.081	0.135	0.049	0.106	0.035	0.080	0.169	0.182
ΔR^2	−	0.054	−	0.057	−	0.045	0.134	0.147
F	2.925**	4.114***	1.690	3.128**	1.364	2.899**	5.951***	5.836***

Note: $n = 274$; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. Gender: Male (0), female (1); Age: ≤25 years (1), 26-35 years (2), 36-45 years (3), ≥46 years (4); Education level: High school (1), junior college (2), bachelor's degree (3), graduate degree (4); Tenure with coworker: ≤6 months (1), 7-12 months (2), 13-24 months (3), ≥25 months (4).
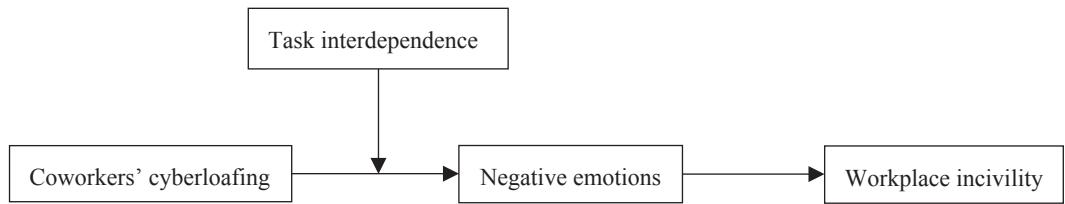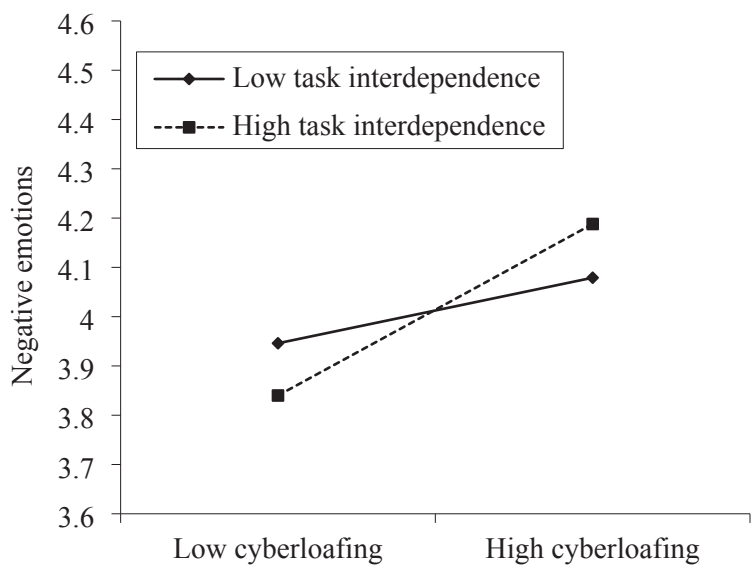
Figure 1: *Research framework*

Figure 2: *The moderating effect of task interdependence on the relationship between coworkers' cyberloafing and negative emotions（Study 1）*
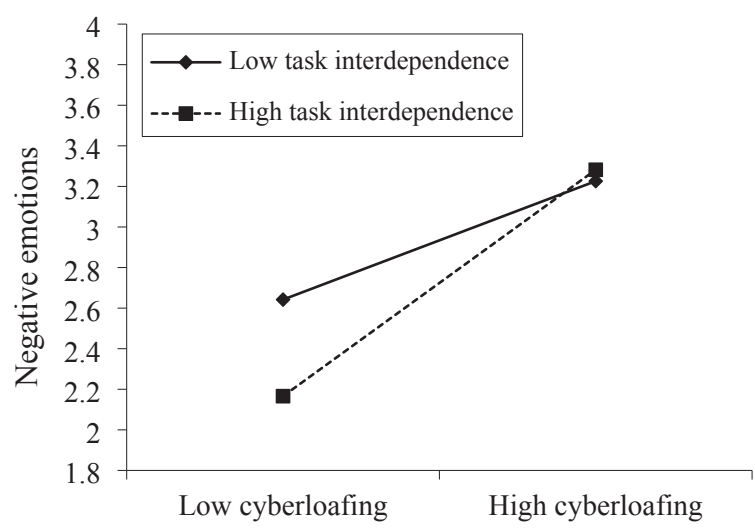

Figure 3: *The moderating effect of task interdependence on the relationship between coworkers' cyberloafing and negative emotions（Study 2）*

Appendix

Study 1

Coworker`s Cyberloafing (Adopted from Moody and Siponen (2013))

1. In general, coworkers use the Internet at work for non-work-related purposes.

2. Coworkers often access the Internet at work for non-work-related purposes.

3. Coworkers spend a significant amount of time on the Internet at work for non-work-related

purposes.

Negative Emotions (Adopted from Liu et al. (2007))

1. Coworkers make me angry.

2. Coworkers make me nervous.

3. Coworkers hate me.

4. Coworkers lead me to a fearful panic.

5. Coworkers make me annoyed.

Task Interdependence (Adopted from Campion et al. (1993))

1. I can't accomplish my tasks without information or materials from other members of my team.

2. Other members of my team depend on me for information or materials needed to perform their

tasks.

3. Within my team, jobs performed by team members are related to one another.

Workplace Incivility (Adopted from Lim and Cortina (2005))

1. The employee despises others or treats others condescendingly.

2. The employee doubts others' judgment on a matter over which they have responsibility.

3. The employee pays little attention to others' statements or showed little interest in others'

opinion.

4. The employee makes unwanted attempts to draw others into a discussion of personal matters.

Study 2

Anger (Adopted from Mitchell et al. (2015))

1. I feel angry.

2. I feel irritated.

3. I feel annoyed.

Anxiety (Adopted from Warr (1990))

1. I feel tense.

2. I feel uneasy.

3. I feel worried.

Conscientiousness (Adopted from John and Srivastava (1999))

1. I am orderly.

2. I am responsible.

3. I am dependable.

Coworker`s Cyberloafing (Adopted from Moody and Siponen (2013))

1. In general, coworkers use the Internet at work for non-work-related purposes.

2. Coworkers often access the Internet at work for non-work-related purposes.

3. Coworkers spend a significant amount of time on the Internet at work for non-work-related

purposes.

Cyberloafing (Adopted from Moody and Siponen (2013))

1. In general, I use the Internet at work for non-work-related purposes.

2. I often access the Internet at work for non-work-related purposes.

3. I spend a significant amount of time on the Internet at work for non-work-related purposes.

Negative Emotions (Adopted from Liu et al. (2007))

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1. Coworkers make me angry.

2. Coworkers make me nervous.

3. Coworkers hate me.

4. Coworkers lead me to a fearful panic.

5. Coworkers make me annoyed.

Perceived Norms (Adopted from Hinduja (2007))

1. If it were prevalent in the company to use the Internet at work for non-work-related activities, and if a lot of people were doing it?

2. If it were held that other people are benefiting from using the Internet at work for non-work-related activities, and why should not I?

3. If it were held that no one else seems to care whether or not they get caught when they use the Internet at work for non-work-related activities?

4. If using the Internet at work for non-work-related activities makes me feel at least a little more 'cool'.

Task Interdependence (Adopted from Campion et al. (1993))

1. I can't accomplish my tasks without information or materials from other members of my team.

2. Other members of my team depend on me for information or materials needed to perform their tasks.

3. Within my team, jobs performed by team members are related to one another.

Team Cooperation (Adopted from Lester et al. (2002))

1. I find it easy to work with each other.

2. When members of my team talk to each other, there is a great deal of understanding.

3. Team members work together to solve problems and make decisions.

4. There is a lot of cooperation among members of my team members.

Team Performance (Adopted from Gonzalez-Mulé et al. (2016))

1. My team achieves its goals.

2. My team achieves high performance.

3. My team makes a great contribution to the company.

4. My team is very successful in terms of overall achievement.

Workplace Incivility (Adopted from Lim and Cortina (2005))

1. I despise others or treat others condescendingly.

2. I doubt others' judgment on a matter over which they have responsibility.

3. I pay little attention to others' statements or showed little interest in others' opinion.

4. I make unwanted attempts to draw others into a discussion of personal matters.

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