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Vivien K.G. Lim  
*National University of Singapore, bizlimv@gmail.com*

Thompson Teo  
*National University of Singapore, bizteosh@nus.edu.sg*

Egan Wee Khoon Lua  
*National University of Singapore, eganlua@u.nus.edu*

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# Impact of Daily Commuting on Cyberloafing and Procrastination

Short Paper

**Vivien K.G. Lim**

School of Business

National University of Singapore

bizlimv@nus.edu.sg

**Thompson S.H. Teo**

School of Business

National University of Singapore

bizteosh@nus.edu.sg

**Egan W.K. Lua**

School of Business

National University of Singapore

eganlua@u.nus.edu

## Abstract

*This paper examines how commute impedances (crowding and time urgency) are associated with recovery experiences (psychological detachment and relaxation), which in turn are associated with cyberloafing and procrastination. Based on a survey of 106 full-time employees who used public transport (buses and mass rapid transit) to work, we found that relaxation significantly mediated the relationship between crowding and cyberloafing, but did not mediate the relationship between time urgency and cyberloafing. Psychological detachment significantly mediated the relationship between time urgency and procrastination, but did not mediate the relationship between crowding and procrastination. Our results suggest that employees should be cognizant of how their psychological states upon arrival at the workplace can affect their work in the morning. Consequently, employees can incorporate morning workplace rituals that facilitate their psychological transition to work. As well, organizations can implement measures that allow employees reattach back to work in the morning.*

**Keywords:** Commuting, cyberloafing, procrastination, recovery, impedance

## Introduction

Work procrastination is a serious issue that plagues organizations. With the advent of technology, employees have increased opportunities and avenues to procrastinate. Under the guise of busily working away at the computer, employees could be spending hours surfing the Net and browsing social media. These acts of engaging in non-job-related online activities at work is termed “cyberloafing” (Lim, 2002). Cyberloafing is considered a form of work withdrawal as it reduces the amount of time employees spend on their tasks (Askew et al., 2014).

Scholars have proposed various theoretical frameworks to explain why employees cyberloaf. Lim and her colleagues proposed that employees cyberloaf to retaliate against organizations for unjust treatment (Lim, 2002; Lim & Teo, 2005). Scholars further examined and found other organizational factors such as workplace norms and job characteristics to be related to cyberloafing (e.g., Moody & Siponen, 2013; Vitak et al., 2011). Employees have also been reported to cyberloaf as a way of coping with stress or boredom at work (Koay et al., 2017; Pindek et al., 2018).

Despite studies showing that factors outside of work have impact on employees’ non-job-related internet use at work (e.g., Koay et al., 2017; Wagner et al., 2012), research on the antecedents of cyberloafing has

mainly focused on factors that are directly related to work or the organizational environment. Less focus is given to the variables that exist outside the work domain but have the potential to have an impact on cyberloafing. The daily commute is a non-work activity that can have an impact on employees' performance at work. In Singapore, the average commuting time per day on public transport is 84 minutes, with more than 85% commuters reporting that they spend more than two hours commuting every day. In London, more than 50% train commuters checked and sent email during the commute (Chan & Amarnani, 2018). This is not surprising given the prevalence of mobile devices.

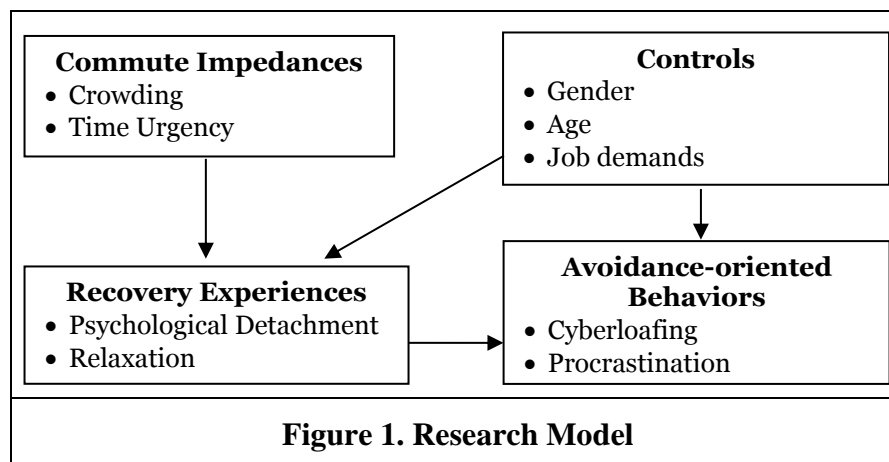
Studies have also shown that commuting has spillover effects on work outcomes and task performance. For instance, Evans and Wener (2007) found that individuals who were in close proximity to other passengers during the morning commute subsequently showed reduced persistence on a proofreading task. Lachmann et al. (2017) found that stress associated with commuting was related to Internet addiction. Extending research on the impact of non-work factors on cyberloafing, we examine the impact of daily commuting and recovery on employees' cyberloafing and procrastination at work.

## Theory and Hypotheses

Premised upon the ego-depletion model of self-regulation, cyberloafing is considered a workplace distraction (Baumeister et al., 1998). Wagner et al. (2012) showed that employees cyberloafed when their self-regulatory resources were depleted. While the ego-depletion model explains why employees cyberloaf when their self-regulatory resources are drained, it does not fully account for the organizational factors that contribute to cyberloafing and why employees cyberloaf when they are well-rested. Askew et al. (2014) sought to address this concern by explaining that employees always have the intention to cyberloaf; the extent to which they cyberloaf depends on descriptive norms, cyberloafing attitudes and the ability to hide cyberloafing at work.

However, this approach does not provide a compelling explanation on why employees cyberloaf when they are well-recovered. According to the job-recovery literature, employees who are sufficiently recovered will possess the necessary resources to better avoid distractions at work (Sonnetag, 2003). Consequently, they should not engage in cyberloafing or procrastination at work. Although job-recovery is generally associated with increased work performance and well-being, some scholars have noted the potential downside of too much recovery (Fritz et al., 2010; Shimazu et al., 2016).

Through the theoretical lens provided by research on rest and recovery as well as approach-avoidance motivation framework, we examine the impact of daily commuting through recovery experiences on procrastination and cyberloafing at work. To our knowledge, this is the first study that investigates the impact of the daily commute on cyberloafing and procrastination. Additionally, this study contributes to the understanding of daily within-person fluctuations in procrastination and cyberloafing by using an experience sampling methodology. The research model is presented in Figure 1.



## ***Commute Impedances and Recovery Experiences***

Work recovery is the process where individuals' psychophysical systems that were activated during work return to their prestressor levels (Meijman & Mulder, 1998). Recovery can be promoted through different recovery mechanisms, namely psychological detachment, relaxation and mastery. Psychological detachment occurs when individuals distance themselves mentally from work during off-job time (Sonnentag & Bayer, 2005). Individuals undergo psychological detachment from work when they do not engage in work-related thoughts or activities (Sonnentag et al., 2012). Relaxation is achieved when individuals experience a state of low activation and increased positive affect. Relaxation is typically experienced when individuals engage in activities that requires little social, physical or psychological demands. Mastery experiences refer to challenging activities that provides learning opportunities (Sonnentag & Fritz, 2007). In this study, we did not include mastery as a recovery process in the model.

This is because while mastery aids the recovery process by building up new resources, activities that promote mastery exert demands on the individuals (Sonnentag & Fritz, 2007). Therefore, it is unlikely that mastery will take place at the same time as relaxation because they are inherently different processes (Sonnentag et al., 2012). As well, we believe that compared to mastery, psychological detachment and relaxation are more likely to be affected by commute impedances.

Recently, van Hooff (2015) noted that the daily commute provides employees with opportunities to undergo recovery experiences. However, according to the commute impedance model, commute impedances increase individuals' stress levels by interfering with the goal of timely arrival at the workplace (Stokols et al., 1978). Therefore, under high levels of commute impedances, individuals will be in a negative state of arousal and thus have greater difficulty in undergoing psychological detachment and relaxation.

We argue that crowding and time urgency are two commute impedances that would negatively affect individuals' ability to undergo detachment and relaxation during the commute to work. Crowding refers to the psychological perception of crowdedness (i.e., feeling cluttered or confined) during commuting (Mahudin et al., 2012). Crowding triggers feelings of anxiety as individuals' personal space is potentially invaded and risk of physical and social contact with other passengers is increased (Cheng, 2010; Evans & Wener, 2007). Time urgency refers to one's perspective about time (Lucas and Heady, 2002), e.g., time urgency increases anxiety as individuals are worried about being late for work. Thus, we posit:

Hypothesis 1: Crowding is negatively related to (a) relaxation and (b) detachment.

Hypothesis 2: Time urgency is negatively related to (a) relaxation and (b) detachment.

## ***Approach-Avoidance Motivation***

Recovery has mostly been presented as a positive experience that promotes work performance and decreases exhaustion and fatigue. Ideally, recovery during off-job period should help individuals replenish depleted energy and personal resources (i.e., self-regulatory resources) such that individuals have the necessary resources to avoid workplace distractions and not engage in avoidance-oriented behaviors. However, scholars have noted a potential downside to too much recovery. For example, Fritz et al. (2010) and Shimazu et al. (2016) found that psychological detachment exhibited a curvilinear relationship with work outcomes, in which job performance and work engagement increased up to a medium level of detachment and decreased as the level of detachment increased. Hence, too much detachment from work increased the time that employees require to gear up and transition into their work roles. While scholars have explained why too much psychological detachment may not be a good thing, they have not really shed light on the potential downside of too much relaxation. Thus, we seek to fill this gap in the literature by examining the downsides of too much recovery using the approach-avoidance motivation framework.

The approach-avoidance motivation framework is widely utilized by organizational behavior scholars to explain motivation and behavior (e.g., Carver & Harmon-Jones, 2009; Diefendorff & Mehta, 2007). An approach-oriented behavior is one that is directed toward a positive stimulus while an avoidance-oriented behavior is one that is directed away from a negative stimulus (Elliot, 2006). Work-related tasks may be viewed as positive or negative stimuli. When individuals view work-related tasks positively, their affective and cognitive processes that facilitate optimal task engagement are activated (Elliot & Harackiewicz, 1996). These processes motivate individuals to engage in approach-oriented behavior that results in increased work performance. In contrast, when individuals view work-related tasks negatively, they engage in self-

protective withdrawal of affective and cognitive resources and direct their attention away from work-related tasks (Elliot & Harackiewicz, 1996).

Viewed through the lens provided by the approach-avoidance framework, the state of relaxation and psychological detachment induces avoidance-oriented behaviors because being relaxed and detached from work for too long means more time will be required for employees to get into a “working mode”. As a result, individuals strive to prolong their positive mood arising from recovery during the commute and engage in avoidance-oriented behaviors to conserve their energy and resources. While recovery experiences during the commute to work aid in the replenishment of self-regulatory resources, high levels of recovery in the form of relaxation and detachment during the commute to work makes it difficult for employees to transition from a non-working mode to a working mode.

Although cyberloafing and procrastination are both avoidance-oriented behaviors, they are fundamentally different in nature. Procrastination refers to the tendency to delay the initiation or completion of tasks (Howell, Watson, Powell, & Buro, 2006; Lay, 1986), while cyberloafing is a specific form of loafing behavior (Lim, 2002). Thus, cyberloafing can be regarded as an active form of avoidance behavior in that employees are actively engaged in surfing the net and playing online games. In contrast, procrastination is a more passive behavior, in which employees delay tasks and have difficulty following through on their plans. Therefore, we argue that psychological detachment and relaxation will have a different impact on procrastination and cyberloafing. As relaxation is characterized by a state of low activation and positive affect, employees who are relaxed will be more inclined to cyberloaf to sustain their positive state. This is in line with previous findings that cyberloafing is positively related to positive affect (Lim & Chen, 2012). In contrast, employees’ propensity to procrastinate is influenced by their proximity to temptations at work (Steel et al., 2018). Likewise, employees’ proximity to work-related tasks (e.g., deadlines) motivates them to take action toward the completion of those tasks (Steel et al., 2018). As psychological detachment increases employees’ psychological distance from work, work goals become more distal and employees are more likely to procrastinate.

Hypothesis 3(a): Relaxation has a stronger positive relationship to cyberloafing than procrastination.

Hypothesis 3(b): Psychological detachment has a stronger positive relationship to procrastination than cyberloafing.

The level of relaxation and psychological detachment that employees undergo during their commute to work is impacted by the degree of impedances that they face during the commute. The level of relaxation and psychological detachment subsequently determines employees’ post-commute, pre-work state in the morning. Employees who are highly relaxed will avoid immediately engaging in work tasks upon reaching the office. Similarly, for employees who are in highly detached state, work will be less salient in their scheme of things. As work becomes more distal, employees will experience greater difficulty in initiating work-related tasks. Therefore, we posit that relaxation and psychological detachment mediate the relationships between commute impedances and avoidance-oriented behaviors.

Hypothesis 4: Relaxation mediates the relationship between (a) crowding and cyberloafing, and (b) time urgency and cyberloafing.

Hypothesis 5: Psychological detachment mediates the relationship between (a) crowding and procrastination, and (b) time urgency and procrastination.

## **Method**

Participants in the study comprised full-time employees who worked full-time in the service and finance industries and who commuted regularly to a fixed work location in Singapore. In order to be included in the study, participants had to (i) travel regularly from Monday to Friday between home and a fixed work location using only public transportation (bus/train), and (ii) be in the present job for at least one month with no concrete plans to leave. A total of 106 participants (89.8% response rate) completed the study. The average age of participants was 28.40 years ( $SD = 6.02$ ). Men comprised 34% of the sample. Participants first completed a general survey on demographic information. Participants then responded to daily surveys over seven workdays. The daily surveys included the morning post-commute survey and the lunch survey. The post-commute survey was completed when participants arrived at work in the morning and included

questions regarding commute impedances and recovery experiences. The lunch survey was sent during lunch hour and included questions on procrastination and cyberloafing in the morning.

Crowding was measured with the scale developed by Mahudin et al. (2012). Participants indicated the extent to which their commutes felt “cluttered” and “confining” on a 5-point scale (1 = *not at all* and 5 = *extremely*). The Cronbach’s alpha was 0.93. Time urgency of the commute was measured with the scale developed by Lucas and Heady (2002). Participants evaluated their sense of time urgency during their morning commutes on a 5-point scale (1 = *strongly disagree* and 5 = *strongly agree*). A sample item included “I was in a hurry to reach my destination.” The Cronbach’s alpha was 0.90. Psychological detachment and relaxation were assessed with the scale developed by Sonnentag and Fritz (2007). A sample item for psychological detachment was “during my commute, I distanced myself from my work”. A sample item for relaxation was “during my commute, I kicked back and relaxed.” The Cronbach’s alphas were 0.90 for both psychological detachment and relaxation. Procrastination was assessed with the scale developed by Tuckman (1991). A sample item included “I needlessly delayed finishing tasks, even when they were important.” The Cronbach’s alpha was 0.92. Cyberloafing was assessed with the scale developed by Lim and Teo (2005). Sample items included “visit non-work-related websites” and “instant messaged”. The Cronbach’s alpha was 0.83.

We conducted multilevel analyses using hierarchical linear modelling (HLM) 7.0 software package (Raudenbush et al., 2011). We group mean-centered day-level (level-1) variables to remove between-person variance, so that only within-person variances are used in level 1 regressions (Raudenbush & Bryk, 2002; Zhang et al., 2009). Mediation analyses were conducted using Rockwood and Hayes’ (2017) MLMED macro for SPSS. The indirect effect was estimated by a Monte-Carlo simulation generating 95% confidence intervals using 10,000 resamples.

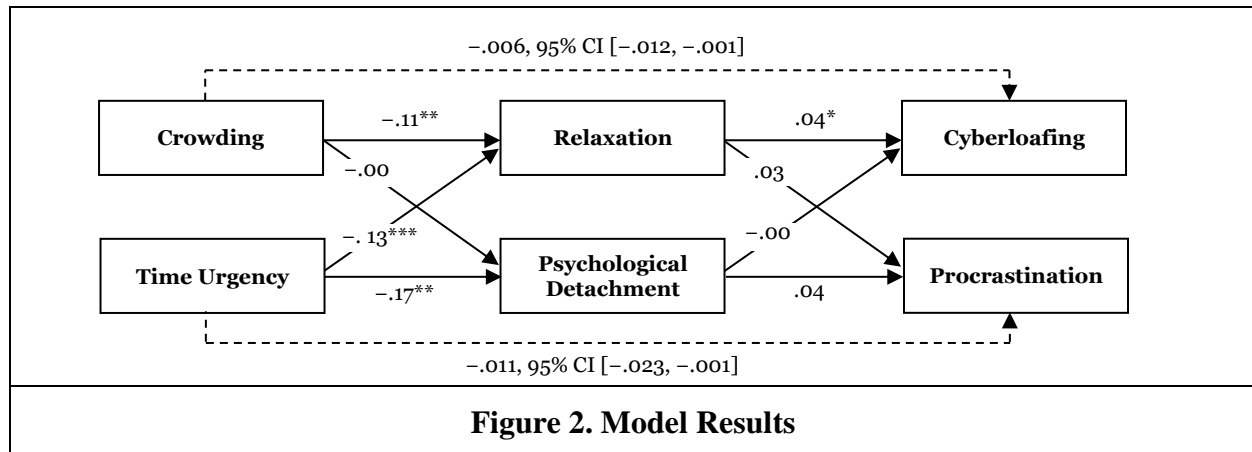
Gender and age were entered as control variables as these factors have been found to affect commute experiences (e.g., Kluger, 1998). We also controlled for job demands as job characteristics may affect work-related outcomes (Sonnentag, 2003).

## Results

Our results indicated that gender and age were not related to any of the outcome variables. Job demands was negatively related to procrastination and cyberloafing. Crowding was negatively related to relaxation ( $b = -0.11, p < 0.01$ ) but not significantly related to psychological detachment ( $b = -0.00, ns$ ). Time urgency was negatively related to relaxation ( $b = -0.13, p < 0.001$ ) and psychological detachment ( $b = -0.17, p < 0.01$ ). Therefore, Hypotheses 1(a) and 2 were supported. The correlation between relaxation and cyberloafing was higher ( $r = 0.10, p < 0.01$ ) than the correlation between relaxation and procrastination ( $r = 0.07, ns$ ). A two-tailed Steiger’s Z-test was used to test the significance of the differences (Luthans et al., 2007). Results showed that relaxation was not more strongly related to cyberloafing than procrastination. Results of the multilevel regression analyses showed that relaxation was positively related to cyberloafing ( $b = 0.04, p < 0.05$ ) but not significantly related to procrastination ( $b = 0.03, ns$ ). Therefore, Hypothesis 3(a) was not supported.

The correlation between psychological detachment and procrastination was higher ( $r = 0.09, p < 0.05$ ) than the correlation between psychological detachment and cyberloafing ( $r = 0.05, ns$ ). Results of the two-tailed Steiger’s Z-test showed that psychological detachment was not more strongly related to procrastination than cyberloafing. Results of the multilevel regression analyses showed that psychological detachment was not significantly related to procrastination ( $b = 0.04, ns$ ) and cyberloafing ( $b = -0.00, ns$ ). Therefore, Hypothesis 3(b) was not supported.

As recommended by Preacher and Hayes (2008), the indirect effect is significant at the .05 level if the confidence intervals (CI) do not include the value zero. Relaxation significantly mediated the relationship between crowding and cyberloafing ( $b = -0.006, SE = 0.003, 95\% \text{ CI lower bound} = -0.012, \text{ upper bound} = -0.001$ ), but did not mediate the relationship between time urgency and cyberloafing. Thus, only Hypothesis 4(a) was supported. Psychological detachment significantly mediated the relationship between time urgency and procrastination ( $b = -0.011, SE = 0.006, 95\% \text{ CI lower bound} = -0.023, \text{ upper bound} = -0.001$ ), but did not mediate the relationship between crowding and procrastination. Thus, only Hypothesis 5(b) was supported.



## Discussion

Our results showed that time urgency and crowding were related to recovery experiences differently. Specifically, time urgency was negatively related to relaxation and psychological detachment while crowding was only negatively related to relaxation. This difference in impact on recovery experiences could be attributed to the nature of the two types of impedances. Time urgency is characterized by the concern of not reaching the workplace on time. This concern renders it more difficult for employees to psychologically detach themselves from work-related thoughts. Time urgency also increases anxiety, making it harder for employees to relax. Thus, time urgency was negatively related to both relaxation and psychological detachment. Unlike time urgency, crowding was only negatively related to relaxation. Crowding reduces employees' ability to relax as they have to look out for threats to personal safety and security due to being in close proximity with other passengers on the bus/train. Crowding was not significantly related to psychological detachment as crowding might cause employees to be occupied with thoughts related to being in a crowded commute environment, and thus crowding might actually distract employees from work-related thoughts.

Relaxation was significantly and positively related to cyberloafing but not procrastination. However, relaxation did not have a stronger relationship to cyberloafing. Contrary to our hypotheses, we did not find a significant direct relationship between psychological detachment and avoidance-oriented behaviors. Although DeArmond et al. (2014) reported a significant and negative relationship between psychological detachment and procrastination, we found that psychological detachment had a positive, though not significant, relationship with procrastination. A possible explanation for this could be due to the difference in study design. DeArmond et al. (2014) used a longitudinal study design and measured psychological detachment and procrastination two months apart. They assessed participants' psychological detachment and procrastination by asking participants to consider how much they were able to detach from work and how much they procrastinated in the previous month. In contrast, we used a daily diary study design that allowed us to assess psychological detachment and procrastination immediately, or shortly after it happened. A daily diary design reduced recall bias and allowed us to have a better understanding of the contingencies of recovery experiences on avoidance-oriented behaviors at work (Scollon et al., 2003).

Results also suggested different mechanisms through which crowding and time urgency indirectly impacted procrastination and cyberloafing behaviors respectively. Interestingly, relaxation only mediated the relationship between crowding and cyberloafing, while psychological detachment only mediated the relationship between time urgency and procrastination. These results are striking as they suggested that while procrastination and cyberloafing are both avoidance-oriented behaviors, they are fundamentally different in nature. In fact, the within-person correlation between procrastination and cyberloafing is 0.13 ( $p < 0.10$ ) and the between-person correlation is 0.25 ( $p < 0.05$ ).

Procrastination can be regarded as a more passive form of avoidance in which employees withdraw their affective and cognitive resources away from work-related tasks. As psychological detachment involves

mentally switching off from work, it activates employees' 'withdrawal instincts' and orients employees away from work-related tasks. Thus, it would make it very much easier for psychologically detached employees to attempt to continue to detach from work and procrastinate once they reached the workplace. In contrast, cyberloafing is an activity-oriented form of avoidance in which employees divert their attention away from work-related activities to engage in non-work-related online activities. Being in a relaxed state increased employees' tendency to avoid work-related tasks. As cyberloafing is associated with increased positive affect, it becomes a preferred activity as doing so allows employees to prolong their positive mood arising from relaxation during the commute.

While van Hooff (2015) found recovery experiences during the evening commute to be positively related to well-being at the end of the evening, our findings suggested that relaxation and psychological detachment during the morning commute may not be beneficial for work. These findings are consistent with Sonnentag and Kühnel's (2016) argument and findings that mentally reconnecting to work in the morning has important implications for work performance. Being in a state of relaxation and psychological detachment during the morning commute puts the employees in a state of non-arousal and rest. Consequently, employees may require more energy and effort to gear up for work once they transitioned from the commute to work domain.

## **Conclusion**

Our study makes two important contributions. First, the study extends theoretical perspectives on cyberloafing by conceptualizing cyberloafing and procrastination as avoidance-oriented counterproductive behavior. Using the theoretical lens provided by the approach-avoidance motivation framework, we explain why employees cyberloaf and procrastinate despite being well-rested. Although cyberloafing and procrastination are both avoidance-oriented behaviors, our results showed that they are fundamentally different in nature. Specifically, relaxation had a stronger positive relationship to cyberloafing than procrastination. Also, relaxation only mediated the relationship between crowding and cyberloafing, while psychological detachment only mediated the relationship between time urgency and procrastination. We attribute the difference in mediational effects of relaxation and psychological detachment on cyberloafing and procrastination to the psychological processes underlying these two forms of disengagement.

Procrastination can be regarded as a more passive form of disengagement in which employees withdraw their affective and cognitive resources away from work-related tasks. As psychological detachment involves mentally switching off from work, it activates employees' 'withdrawal instincts' and orients employees away from work-related tasks. Thus, employees who are in a highly detached state upon arriving at work are more prone to delaying work tasks. In contrast, cyberloafing is an activity-focused form of disengagement in which employees divert their attention away from work-related tasks to non-work-related online activities. Being in a relaxed state increased employees' tendency to avoid work-related tasks. As cyberloafing is associated with increased positive affect, it becomes a preferred activity as doing so allows employees to prolong their positive mood arising from relaxation during the commute.

Second, our study extends and contributes to the research stream on cyberloafing and procrastination by examining factors beyond the organization. Results of this study showed that the daily commute and recovery experiences during the commute are non-work factors that have an impact on employees' cyberloafing and procrastination at work. Future studies can extend this line of inquiry and examine other non-work factors that may contribute to cyberloafing and procrastination. Advancing this line of research would undoubtedly contribute to organizations' understanding of the factors that influence cyberloafing and allow them to take necessary measures.

As employees cyberloaf and procrastinate when they are either too relaxed or too stressed at work, organizations should aim to strike a balance between the two. Organizations can implement measures to help employees effectively transition to work in the morning such that they are up and running by the time they arrive at work or shortly thereafter.

We will continue to work on the paper to prepare it for submission to a journal. We plan to examine moderators in the proposed research model. For instance, commute predictability and commute control are commute-related factors that may moderate the impact of commute impedances on recovery experiences. As well, we will be examining personality traits (e.g., neuroticism and conscientiousness) as moderators of the relationship between recovery experiences and avoidance-oriented behaviors as studies



have found personality traits to be related to procrastination and cyberloafing. We will also be conducting a second study to further test the model.

## References

- 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* (36), pp. 510–519.
- Baumeister, R. F., Bratslavsky, E., Muraven, M., and Tice, D. M. 1998. "Ego Depletion: Is the Active Self a Limited Resource?," *Journal of Personality and Social Psychology* (74:5), pp. 1252–1265.
- Carver, C. S., and Harmon-Jones, E. 2009. "Anger Is an Approach-Related Affect: Evidence and Implications," *Psychological Bulletin* (135:2), pp. 183–204.
- Chan, C., and Amarnani, R. 2018. "Commentary: Of Course Commuting Shouldn't Count as Work Hours," *ChannelNewsAsia*, September 24.
- Cheng, Y. H. 2010. "Exploring Passenger Anxiety Associated with Train Travel," *Transportation* (37:6), pp. 875–896.
- DeArmond, S., Matthews, R. A., and Bunk, J. 2014. "Workload and Procrastination: The Roles of Psychological Detachment and Fatigue," *International Journal of Stress Management* (21:2), pp. 137–161.
- Diefendorff, J. M., and Mehta, K. 2007. "The Relations of Motivational Traits With Workplace Deviance," *Journal of Applied Psychology* (92:4), pp. 967–977.
- Elliot, A. J. 2006. "The Hierarchical Model of Approach-Avoidance Motivation," *Motivation and Emotion* (30:2), pp. 111–116.
- Elliot, A. J., and Harackiewicz, J. M. 1996. "Approach and Avoidance Achievement Goals and Intrinsic Motivation: A Mediational Analysis," *Journal of Personality and Social Psychology* (70:3), pp. 461–475.
- Evans, G. W., and Wener, R. E. 2007. "Crowding and Personal Space Invasion on the Train: Please Don't Make Me Sit in the Middle," *Journal of Environmental Psychology* (27:1), pp. 90–94.
- Fritz, C., Yankelevich, M., Zarubin, A., and Barger, P. 2010. "Happy, Healthy, and Productive: The Role of Detachment from Work during Nonwork Time," *Journal of Applied Psychology* (95:5), pp. 977–983.
- Howell, A. J., Watson, D. C., Powell, R. A., and Buro, K. 2006. "Academic Procrastination: The Pattern and Correlates of Behavioural Postponement," *Personality and Individual Differences* (40:8), pp. 1519–1530.
- Kluger, A. N. 1998. "Commute Variability and Strain," *Journal of Organizational Behavior* (19), pp. 147–165.
- Koay, K. Y., Soh, P. C. H., and Chew, K. W. 2017. "Do Employees' Private Demands Lead to Cyberloafing? The Mediating Role of Job Stress," *Management Research Review* (40:9), pp. 1025–1038.
- Lachmann, B., Sariyska, R., Kannen, C., Stavrou, M., and Montag, C. 2017. "Commuting, Life-Satisfaction and Internet Addiction," *International Journal of Environmental Research and Public Health* (14:10), p. 1176.
- Lay, C. H. 1986. "At Last, My Research Article on Procrastination," *Journal of Research in Personality* (20), pp. 474–495.
- Lim, V. K. G. 2002. "The IT Way of Loafing on the Job: Cyberloafing, Neutralizing and Organizational Justice," *Journal of Organizational Behavior* (23:5), pp. 675–694.
- Lim, V. K. G., and Chen, D. J. Q. 2012. "Cyberloafing at the Workplace: Gain or Drain on Work?," *Behaviour and Information Technology* (31:4), pp. 343–353.
- Lim, V. K. G., and Teo, T. S. H. 2005. "Prevalence, Perceived Seriousness, Justification and Regulation of Cyberloafing in Singapore: An Exploratory Study," *Information & Management* (42:8), pp. 1081–1093.
- Lucas, J. L., and Heady, R. B. 2002. "Flextime Commuters and Their Driver Stress, Feelings of Time Urgency, and Commute Satisfaction," *Journal of Business and Psychology* (16:4), pp. 565–571.
- Luthans, F., Avolio, B. J., Avey, J. B., and Norman, S. M. 2007. "Positive Psychological Capital: Measurement and Relationship with Performance and Satisfaction Part of the Management Sciences and Quantitative Methods Commons," *Personnel Psychology* (60), pp. 541–572.
- Mahudin, N. D. M., Cox, T., and Griffiths, A. 2012. "Measuring Rail Passenger Crowding: Scale Development and Psychometric Properties," *Transportation Research Part F: Traffic Psychology and Behaviour* (15:1), Elsevier Ltd, pp. 38–51.

- Meijman, T. F., and Mulder, G. 1998. "Psychological Aspects of Workload," in *Handbook of Work and Organizational Psychology* (2<sup>nd</sup> ed.).
- Moody, G. D., and Siponen, M. 2013. "Using the Theory of Interpersonal Behavior to Explain Non-Work-Related Personal Use of the Internet at Work," *Information & Management* (50:6), Elsevier B.V., pp. 322–335.
- Pindek, S., Krajcevska, A., and Spector, P. E. 2018. "Cyberloafing as a Coping Mechanism: Dealing with Workplace Boredom," *Computers in Human Behavior* (86), Elsevier Ltd, pp. 147–152.
- Preacher, K. J., and Hayes, A. F. 2008. "Asymptotic and Resampling Strategies for Assessing and Comparing Indirect Effects in Multiple Mediator Models," *Behavior Research Methods* (40:3), pp. 879–891.
- Raudenbush, S. W., and Bryk, A. S. 2002. *Hierarchical Linear Models: Applications and Data Analysis Methods (Vol. 1)*, Sage.
- Raudenbush, S. W., Bryk, A. S., Cheong, Y. F., Congdon, R., and Du Toit, M. 2011. *Hierarchical Linear and Nonlinear Modeling (HLM7)*, Lincolnwood, IL: Scientific Software International, 1112.
- Rockwood, N. J., and Hayes, A. F. 2017. "MLmed: An SPSS Macro for Multilevel Mediation and Conditional Process Analysis," *Poster Presented at the Annual Meeting of the Association of Psychological Science (APS), Boston, MA*.
- Scollon, C. N., Kim-prieto, C., and Diener, E. 2003. *Experience Sampling : Promises and Pitfalls , Strengths and Weaknesses*, (4), pp. 5–34.
- Shimazu, A., Matsudaira, K., De Jonge, J., Tosaka, N., Watanabe, K., and Takahashi, M. 2016. "Psychological Detachment from Work during Non-Work Time: Linear or Curvilinear Relations with Mental Health and Work Engagement?," *Industrial Health* (54:3), pp. 282–292.
- Sonnentag, S. 2003. "Recovery, Work Engagement, and Proactive Behavior: A New Look at the Interface between Nonwork and Work," *Journal of Applied Psychology* (88:3), pp. 518–528.
- Sonnentag, S., and Bayer, U. V. 2005. "Switching off Mentally: Predictors and Consequences of Psychological Detachment from Work during off-Job Time," *Journal of Occupational Health Psychology* (10:4), pp. 393–414.
- Sonnentag, S., and Fritz, C. 2007. "The Recovery Experience Questionnaire: Development and Validation of a Measure for Assessing Recuperation and Unwinding From Work," *Journal of Occupational Health Psychology* (12:3), pp. 204–221.
- Sonnentag, S., and Kühnel, J. 2016. "Coming Back to Work in the Morning: Psychological Detachment and Reattachment as Predictors of Work Engagement.," *Journal of Occupational Health Psychology* (21:4), pp. 379–390.
- Sonnentag, S., Niessen, C., and Neff, A. 2012. "Recovery: Nonwork Experiences That Promote Positive States," *The Oxford Handbook of Positive Organizational Scholarship*.
- Steel, P., Svartdal, F., Thundiyil, T., and Brothen, T. 2018. "Examining Procrastination across Multiple Goal Stages: A Longitudinal Study of Temporal Motivation Theory," *Frontiers in Psychology* (9:327), pp. 1–16.
- Stokols, D., Novaco, R., Stokols, J., and Campbell, J. 1978. "Traffic Congestion, Type A Behavior, and Stress," *Journal of Applied Psychology* (63:4), p. 467.
- Tuckman, B. W. 1991. "The Development and Concurrent Validity of the Procrastination Scale," *Educational and Psychological Measurement* (51:2), pp. 473–480.
- van Hooff, M. L. M. 2015. "The Daily Commute from Work to Home: Examining Employees' Experiences in Relation to Their Recovery Status," *Stress and Health: Journal of the International Society for the Investigation of Stress* (31:2), pp. 124–137.
- Vitak, J., Crouse, J., and Larose, R. 2011. "Personal Internet Use at Work: Understanding Cyberslacking," *Computers in Human Behavior* (27:5), pp. 1751–1759.
- Wagner, D. T., Barnes, C. M., Lim, V. K. G., and Ferris, D. L. 2012. "Lost Sleep and Cyberloafing: Evidence from the Laboratory and a Daylight Saving Time Quasi-Experiment," *Journal of Applied Psychology* (97:5), pp. 1068–1076.
- Zhang, Z., Zyphur, M. J., and Preacher, K. J. 2009. "Testing Multilevel Mediation Using Hierarchical Linear Models," *Organizational Research Methods* (12:4), pp. 695–719.