COGNITIVE SCIENCES AND HUMAN DEVELOPMENT

Smartphone Use for Work during Personal Activities: An Investigation into Work-Life Conflict

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ABSTRACT

This quantitative study investigates the impact of smartphone use for work and time-based work interference with leisure (WIL) on work-life conflict among 123 private-sector workers in Kuching, Sarawak. Analyses of Pearson Correlation Coefficients were carried out. The findings support previous research which suggests using smartphones for work after hours can lead to conflicts between employees' work and personal lives. Furthermore, the findings show that work-life conflict is compounded by time-based work interferences with leisure (WIL). These findings have ramifications for policies and procedures surrounding work-related smartphone use and the amount of time spent on specific tasks during off-work hours, which could negatively impact employees' work-life balance.

Keywords: smartphone, leisure activities, time, work-life conflict

1   INTRODUCTION

Going digital is now a worldwide trend, and Sarawak should participate. The State government introduced the Sarawak Digital Economy (SDE) 2018-2022 strategy plan to pave the way for the State to become a digitally evolved and developed nation. The State government is working on creating a digital economy that will promote economic growth, raise income, and improve people's quality of life within the next five years. As a result, research into digital technologies, particularly among Sarawak employees in their daily lives, is critical to rescaling the workforce towards the Sarawak Digital Economic (SDE) goal.

One of the digital technologies used by Sarawak employees is the smartphone. Its use has been recognised as one of the key contributing factors in increasing work productivity due to its easy access to work chat groups, calls, and work email accounts during off-work hours. Such flexibility may help employees complete unfinished tasks and continuously discuss ongoing work assignments with their supervisors, colleagues, or clients outside of working hours. Indeed, smartphone use for work after working hours has altered work texture. However, behind every smartphone use is another story: its use allows the encroachment on employees' personal lives, which adds to the challenge of managing their work-life interface. Previous findings on smartphone use for work after working hours are inconclusive. On the one hand, smartphone use for work after working hours can make work more flexible (e.g., Adisa, Gbadamosi, & Osabutey, 2017; Cousins & Robey, 2015; Mazmanian, Orlikowski, & Yates, 2013; Yun, Kettinger, & Lee, 2012). On the other hand, evidence showed that smartphone use for work after working hours contributed to high work-life conflict (Boswell & Olson-Buchanan, 2007; Ghislieri, Emanuel, Molino, Cortese, & Colombo, 2017; Omar Lim, 2019).

Additionally, much of the extant smartphone use for work after working hours has been conducted on restricted populations in developed countries such as the Netherlands, Austria, the United States of America, and Canada (e.g., Cousins & Robey, 2015; Derks, Bakker, Peters, & van Wingerden, 2016; Ninaus, Diehl, & Terlutter, 2021). Unfortunately, little research has been conducted in non-Western countries. As one of several increasingly industrialising countries in East Asia where employees are required to work long hours, it is crucial to investigate private-sector employees in Kuching, Sarawak, if they face similar work-life conflicts when using smartphones for business purposes during off-work hours.

Apart from that, leisure activities (such as hiking, volunteering, or gardening) are regarded as a personal life area that provide pleasure and delight to individuals who engage in them (de Bloom, Nawijn, Geurts, Kinnunen, & Korpela, 2017; Kim, Lee, Chun, Han, & Heo, 2017). Such leisure activities contribute to positive well-being and quality of life (Downward & Dawson, 2016; Kuykendall, Zhu, & Craig, 2020). However, in East Asia, where employees have long working hours (Son & Chen, 2018), work interfering with leisure seems more common. Moreover, as work has become more digitalised, it may be challenging to maintain leisure activities due to work demands, negatively impacting work-life conflict. With time-based work interference with leisure (WIL), there is limited research addressing the possible relationships between critical variables (Aeon & Aguinis, 2017; Son & Chen, 2018). Hence, research about employees' time-based work interference with leisure (WIL) is needed.

Furthermore, there is a need to acknowledge the work-life conflict rather than the life-work conflict, capturing the spillover of the work domain onto the personal life domain. It is imperative to focus on employees with traditional family households (i.e., married with children). Employees who are single and living together with family members may also face challenges when faced with the constant use of smartphones for work after working hours.

Given that previous research has produced mixed results on the growing number of employees who use smartphones for work during off-work hours, as well as their pursuit of leisure activities after work hours, and to improve our understanding of how these issues play out in populations that are often overlooked in work-life research studies, we looked into the following research questions:

1. Does smartphone use for work after working hours influence work-life conflict?
2. Does time-based work interference with leisure (WIL) influence work-life conflict?

In the following, to investigate the relationship between smartphone use for work after working hours and time-based work interference with leisure (WIL) on work-life conflict, we briefly discussed the theoretical foundation of the research study. The current investigation was built upon role theory (Powell, Greenhaus, Allen, & Johnson, 2019; Rothbard & Ollier-Malaterre, 2016), which postulates that employees manage their work and personal life roles according to their various role structures. The conflict between roles may arise when obligations and pressures from work and personal life blur together. Thus, to investigate the relationships in this research study, we utilised role theory as the theoretical foundation.

To summarise, we expect smartphone use for work after working hours and time-based work interference with leisure (WIL) to increase work-life conflict. For that reason, we hypothesise:

H$_1$: There is a relationship between smartphone use for work after working hours and work-life conflict. With the higher use of smartphones for work-related purposes during off-work hours, work-life conflict among private-sector employees increases.

H$_2$: There is a relationship between time-based work interference with leisure (WIL) and work-life conflict. Employees with high time-based work interference with leisure (WIL) will increase work-life conflict.

2   MATERIALS & METHODS

The questionnaire was set up using Google Form with a brief description of the purpose of the study. In an email, the data collection process was meticulously explained, and the researchers assured the participants of the confidentiality of their responses. No personal details were asked in the online questionnaire. The sample consisted of 123 respondents conveniently sampled from private organisations in Kuching, Sarawak. Prior to the data collection, a pilot study was carried

out amongst 30 employees to ensure the reliability of the study. As shown in Table 1, the Cronbach's α values were all above .7.

Table 1. Reliability test for the pilot study.

Variable	Number of items	Cronbach's Alpha value
Smartphones use for work after working hours	5	0.88
Time-based work interference with leisure (WIL)	6	0.88
Work-life conflict	4	0.77
Overall items	**15**	

The online questionnaire was divided into four (4) sections: demographic, smartphone use for work after working hours, time-based work interference with leisure (WIL), and work-life conflict, with 15 items. A descriptive statistic was used to quantitatively summarise the sample of the population. In addition, a Pearson correlation test was conducted to determine if there was a relationship between smartphone use for work after working hours and time-based work interference with leisure (WIL) on work-life conflict. Table 2 shows the summary description of the online questionnaire.

Demographic Background. Gender, age, race, highest attainment level of education, marital status, family composition, hours worked weekly, work overtime frequency, the total number of work chat groups, and full access to work email accounts on respondents' smartphones were included in a sociodemographic background questionnaire.

Smartphone Use for Work After Working Hours. Smartphone use for work during off-work hours was measured with a five-item scale developed by Yun *et al.* (2012). All items were rated on a five-point Likert scale ranging from 1 = Strongly disagree to 5 = Strongly agree, with a reported reliability result of α = .89 from a past study conducted by Yun *et al.* (2012). An example item is: "Due to smartphone use for work purposes, I have to make changes to my plans for family/personal activities". In the current study, the Cronbach's α of the scale was .88.

Time-based Work Interferences with Leisure (WIL). To measure time-based WIL, current researchers used a six-item scale developed initially by Tsaur, Liang and Hsu (2012) with a reported reliability result of α = .95. All items were rated on a five-point Likert scale: 1 = Strongly disagree to 5 = Strongly agree. Results of a high score for the items represent the respondents' leisure time is frequently occupied by their working time. An example item is: "I often work in the evening, even during my leisure time". In the current study, Cronbach's α value was .88.

Work-Life Conflict. A four-item scale developed by Gutek, Searle, and Klepa (1991) was used to measure the respondents' perceptions of work-life conflict. The response options ranged from 1 = Strongly disagree to 5 = Strongly agree. A sample item is: "After work, I come home too tired

to do some of the things I would like to do". The Cronbach's α value for this measure was .81. In the current study, the Cronbach's α for this measure was .77.

Table 2. Summary description of the online questionnaire.

Variable	Number of items	Source of questionnaire
Demographic background	11	-
Smartphones use for work after working hours	5	Yun, Kettinger and Lee (2012)
Time-based work interference with leisure (WIL)	6	Tsaur, Liang and Hsu (2012)
Work-life conflict	4	Gutek, Searle and Klepa (1991)
Overall items	**26**	

3   RESULTS

A total of 123 private-sector employees based in Kuching, Sarawak, participated in the current study, with 70.7 per cent ($n = 87$) being female and 29.3 per cent ($n = 36$) being male. As much as 35.8 per cent ($n = 22$) of the respondents were between 20 to 24 years of age, and 82.1 per cent ($n = 101$) consisted of Chinese. The majority of the respondents had up to a Bachelor's degree (58.5%) level of education, and out of 73.2 per cent ($n = 90$) respondents who were single, 58.5 per cent ($n = 72$) of them lived together with family members. The summary profile of the respondents is illustrated in Table 3. Most participants (43.1 %) worked more than 40 hours per week, and 50.4 per cent ($n = 62$) sometimes worked overtime. Finally, 99 respondents (80.5%) had full access to their work email accounts on their devices, and all of them had work chat groups, with 64 (52%) of them having 1 to 4 work chat groups.

Table 3. Summary of demographic characteristics.

Item	n	%
Gender		
Male	36	29.3
Female	87	70.7
Age		
20 to 24	44	35.8
25 to 29	42	34.1
30 to 34	6	4.9
35 to 39	18	14.6

40 to 44	6	4.9
45 to 49	1	0.8
50 to 54	3	2.4
55 to 59	1	0.8
60 and above	2	1.6
Race		
Malay	4	3.3
Chinese	101	82.1
Indian	14	11.4
Others	4	3.3
Highest level of education		
Master's / PhD	4	3.3
Bachelor's	72	58.5
STPM / Diploma / A-Level	29	23.6
SPM / O-Level	16	13.0
Others	2	1.6
Marital status		
Single	90	73.2
Divorced	1	0.8
Widowed	1	0.8
Married	31	25.2
Household composition		
Single, living alone	15	12.2
Single, living together with family members	72	58.5
Single parent	3	2.4
Married with no children	7	5.7
Married with children	24	19.5
Others	2	1.6
Hours worked weekly		
Less than 20	30	24.4
20 to 24	4	3.3
25 to 29	6	4.9

30 to 34	9	7.3
35 to 39	21	17.1
More than 40	53	43.1
Work overtime frequency		
Frequently	22	17.9
Sometimes	62	50.4
Occasionally	17	13.8
Rarely	22	17.9
Number of work chat groups on a smartphone		
1 to 4	64	52.0
5 to 9	30	24.4
10 to 14	17	13.5
15 to 19	7	5.7
20 and above	5	4.1
Full access to the work email account on a smartphone		
Yes	99	80.5
No	24	19.5

In Hypothesis 1, the researchers predicted that respondents would experience higher work-life conflict when they use their smartphones intensively for work-related activities during off-work hours. Table 4 shows a moderate positive relationship between smartphone use for work after working hours and work-life conflict, $r (123) = 0.591$, $p < 0.01$, $p = 0.000$. Albeit moderately related, the result suggested that higher smartphone use for work after working hours would result in higher work-life conflict. As for Hypothesis 2, high time-based work interference with leisure (WIL) is associated with high work-life conflict. Table 4 presents a moderate relationship between time-based WIL and work-life conflict, $r (123) = 0.655$, $p < 0.01$, $p = 0.000$. It is concluded that time-based WIL leads to work-life conflict among private-sector employees.

Table 4. Pearson correlation between smartphone use for work after working hours and time-based work interference with leisure (WIL) on work-life conflict.

Correlation		
	p-value	*r-value*
Smartphones use for work after working hours	.000	.591*
Time-based work interference with leisure (WIL)	.000	.655**

*Notes: *p<0.05 and **p<0.01.*

4   DISCUSSION

In this sample of private-sector employees in Kuching, smartphone use for work after working hours was high. Many respondents agreed to have full access to a work email account through their smartphones (80.5%), and all of the respondents participated in work chat groups (100%). In terms of the proposed hypotheses, both H_1 and H_2 were supported. The Pearson's correlations test results showed a moderate relationship between smartphone use for work after working hours and work-life conflict. The private-sector employees who frequently use smartphones for work purposes after working hours tend to experience increased work-life conflict. Previous findings supported it, implying that when employees use smartphones for work after working hours, the more they experience work-life conflict (Derks *et al.*, 2016; Ghislieri *et al.*, 2017; Omar Lim, 2019). The current study suggested that smartphone use for work outside of working hours increases work-life conflict. However, it offers an alternative way of working where employees can communicate and share work issues while at the same time being involved in their personal life activities. As a result, employees experience higher levels of work-life conflict when there is an increase in work-related smartphone use after working hours.

Meanwhile, Hypothesis 2 also showed a moderate relationship between time-based work interference with leisure (WIL) and work-life conflict. The current results supported the notion that employees working in private sectors were working overtime and their working time hindered them from participating in leisure activities. Private-sector employees' plans for leisure activities were often influenced by work emergencies and overtime, which prompted work-life conflict. Thus, the findings were by results found in Son and Chen (2018), where the respondents in the current study agreed that leisure activities were often changed last minute or hampered due to work. It was necessary to work overtime rather than participate in leisure activities. Such time-based work interference with leisure (WIL) led to work-life conflict amongst the private-sector employees. It is also in line with a study on leisure constraints by Kuykendall et al. (2020), where working long hours required employees to reduce involvement in leisure activities. Such negative spillover from work to personal life domain caused work-life conflict.

5   IMPLICATIONS

In this section, we identify implications for practice that are important to be addressed. Firstly, we note that smartphone use for work after working hours and time-based work interference with leisure (WIL) cannot be overcome by focusing solely on an individual's practices and approaches. Supervisors who model continuous availability by using smartphones for work during off-work hours and long work hours are likely to signal or convey ideal worker norms to their employees. Such pressure to conform to their managers' ideal worker norms may hinder individuals from engaging in non-work activities. As a result, managers may serve as role models for employees in their organisations in terms of how they engage in leisure activities without the stress of working extra due to persistent smartphone connectivity, which frequently occurs at night and on weekends.

Finally, employers and Human Resource managers should be more aware of the impact of smartphone use for work after hours and time-based work interference with leisure (WIL) on work-life balance. Human Resource practitioners may aid with formal organisational standards for

setting up boundaries on smartphone use for work after hours and supporting employees who choose to take "down-time," which can help minimise and resolve work-life conflict. Organisations could communicate after-hours work-related responses via smartphones. Employees will feel that senior management cares about their well-being due to these actions, and they will be more productive, motivated, and engaged at work.

6 LIMITATIONS & RECOMMENDATIONS

This study does not come without limitations, and thus, the findings should be interpreted with caution. First, the current research study only focused on smartphone use for work and did not consider other communication technologies. Some employees may use other communication technologies (e.g., tablets and laptops). Consequently, these communication technologies may play a role in shaping the findings. Secondly, it is also possible that its reliance on online questionnaires limits our study. This limitation can be offset with more intensive research by investigating the day-level effects of smartphone use, where rich data should be collected at several points on employees' daily smartphone use for work after working hours. Finally, our research study is restricted to employees from private organisations in Kuching, Sarawak. As a result, future researchers should do comparable studies in the public sector, non-profit organisations, or multinational enterprises, where smartphone use for work after working hours may be more frequent.

7 CONCLUSION

Overall, the goal of this study was to identify the relationship between smartphone use for work after working hours and time-based work interference with leisure (WIL) with work-life conflict, which prompts future researchers from the academic world and various work industries so that we might gain more insights on those areas. The results indicated that employees' increased use of smartphones for work-related purposes led to work-life conflict after working hours. Also, time-based work interference with leisure (WIL) was associated with increased work-life conflict among private-sector employees. However, the use of smartphones for work after working hours came with a cost. To achieve the Sarawak Digital Economy's (SDE) goals and objectives for 2018 to 2022, it is necessary for the Sarawak employees to embrace digital technologies in transforming the way they work. It is hoped that by highlighting these issues, the continuation of research in this area may help to understand further the use of smartphones as means for conducting work outside of the office after working hours and when time devoted to the work role makes it difficult to take part in leisure activities.

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REFERENCES

Adisa, T. A., Gbadamosi, G., & Osabutey, E. L. (2017). What happened to the border? The role of mobile information technology devices on employees' work-life balance. *Personnel Review, 46*(8), 1651-1671. doi:10.1108/pr-08-2016-0222

Aeon, B., & Aguinis, H. (2017). It's about time: New perspectives and insights on time-based work interference with leisure (WIL). *Academy of Management Perspectives, 31*(4), 309-330. doi:10.5465/amp.2016.0166

Boswell, W. R., & Olson-Buchanan, J. B. (2007). The use of communication technologies after hours: The role of work attitudes and work-life conflict. *Journal of Management, 33*(4), 592–610. doi:10.1177/0149206307302552

Cousins, K., & Robey, D. (2015). Managing work-life boundaries with mobile technologies. *Information Technology & People*, *28*(1), 34–71. doi:10.1108/ITP-08-2013-0155.

de Bloom, J., Nawijn, J., Geurts, S., Kinnunen, U., & Korpela, K. (2017). Holiday travel, staycations, and subjective well-being. *Journal of Sustainable Tourism*, *25*(4), 573–588. doi:10.1080/ 09669582.2016.1229323

Derks, D., Bakker, A. B., Peters, P., & van Wingerden, P. (2016). Work-related smartphone use, work–family conflict and family role performance: The role of segmentation preference. *Human Relations*, *69*(5), 1045-1068. doi:10.1177/0018726715601890

Downward, P., & Dawson, P. (2016). Is it pleasure or health from leisure that we benefit from most? An analysis of well-being alternatives and implications for policy. *Social Indicators Research*, 126(1), 443–465. doi:10.1007/s11205-015-0887-8

Ghislieri, C., Emanuel, F., Molino, M., Cortese, C.G., & Colombo, L. (2017). New technologies smart or harm work-family boundaries management? Gender differences in conflict and enrichment using the JD-R theory. *Frontiers in Psychology, 8*. doi:10.3389/fpsyg.2017.01070

Gutek, B. A., Searle, S., & Klepa, L. (1991). Rational versus gender role explanations for work-family conflict. *Journal of Applied Psychology, 76*(4), 560-568. doi:10.1037/0021-9010.76.4.560

Kim, J., Lee, S., Chun, S., Han, A., & Heo, J. (2017). The effects of leisure-time physical activity for optimism, life satisfaction, psychological well-being, and positive affect among older adults with loneliness. *Annals of Leisure Research*, *20*(4), 406–415. doi:10.1080/11745398.2016.1238308

Kuykendall, L., Zhu, Z., & Craig, L. (2020). How work constrains leisure: New ideas and directions for interdisciplinary research. *Journal of Leisure Research*, *51*(5), 635-642. doi: 10.1080/00222216.2020.1807841

Mazmanian, M., Orlikowski, W. J., & Yates, J. (2013). The autonomy paradox: The implications of mobile email devices for knowledge professionals. *Organization Science*, *24*(5), 1337-1357. doi: 10.1287/orsc.1120.0806

Ninaus, K., Diehl, S., & Terlutter, R. (2021). Employee perceptions of information and communication technologies in work life, perceived burnout, job satisfaction and the role of work-family balance. *Journal of Business Research*, *136*, 652-666. doi: 10.1016/j.jbusres.2021.08.007

Omar Lim, S. L. (2019). Daily smartphone use for work and its effect on work-life conflict among integrators. *Journal of Cognitive Sciences and Human Development*, *5*(2), 1-13. doi:10.33736/jcshd.v5i2

Powell, G. N., Greenhaus, J. H., Allen, T. D., & Johnson, R. E. (2019). Introduction to special topic forum: Advancing and expanding work-life theory from multiple perspectives. *Academy of Management Review*, *44*(1), 54-71. doi:10.5465/amr.2018.0310

Rothbard, N.P., & Ollier-Malaterre, A. (2016). Boundary Management. In T.D. Allen & L.T. Eby (Eds.), The Oxford handbook of work and family (pp.109-122). Oxford University Press.

Son, J. S., & Chen, C. (2018). Does using a smartphone for work purposes "ruin" your leisure? Examining the role of smartphone use in work–leisure conflict and life satisfaction. *Journal of Leisure Research, 49*(3-5), 236-257. doi:10.1080/00222216.2018.1534074

Tsaur, S, Liang, Y., & Hsu, H. (2012). A multidimensional measurement of work-leisure conflict. *Leisure Sciences, 34*(5), 395-416. doi:10.1080/01490400.2012.714701

Yun, H., Kettinger, W. J., & Lee, C. C. (2012). A new open door: The smartphone's impact on work-to-life conflict, stress, and resistance. *International Journal of Electronic Commerce*, *16*(4), 121–152. doi:10.2753/JEC1086-4415160405