

The Mediating Role of Boundary Creation around Work-Related ICT Use between Segmentation Preference and Psychological Detachment

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Abstract: Work-related use of ICT (W ICT) at home has been found to relate to important employee outcomes in their work and family lives. However, little is known about how individuals can actively apply strategies or tactics to utilize the advantages or reduce the disadvantages of W ICT. In the current study, based on boundary theory, we examined the interaction effect of segmentation preference and boundary control in creating the boundary around W ICT and its subsequent positive effect on individuals' psychological detachment. Results based on a sample of 560 Chinese full-time employees showed that only for individuals with higher boundary control, segmentation preference positively promotes boundary creation around W ICT that subsequently positively predict psychological detachment. These findings provide a deeper understanding of how individuals with high segmentation preference can achieve psychological detachment through actively creating boundaries around W ICT use at home.

Keywords: Boundary creation; work-related ICT use at home; psychological detachment; segmentation preference; boundary control

1 Introduction

Information and communication technologies (ICT; e.g., cell phones and computers) have received increasing attention in the work-family literature because ICT make it more feasible for employees to access work from anywhere and at any time [1-3]. On one hand, ICT provide convenience for employees to handle work more efficiently [4,5]. On the other hand, with work extending into family time, ICT may have negative effects such as increased work-family conflict and hindered recovery from work [6-8]. However, researchers argued that the majority of these existing studies tend to investigate the relationship between ICT and individuals' work-family interface from the technological determinism perspective, an approach that neglects or undervalues the impact of human choices [9,10]. ICT can change the characteristics (such as permeability) of an individual's work-family boundaries, but at the same time can also be a tool for controlling boundary activities and help manage the diverse domains [9]. Individuals may actively apply different strategies or tactics to utilize the advantages or reduce the disadvantages of ICT to achieve work-family balance. Hence, based on boundary theory, the current study investigated how employees can actively manage their work-family boundary around work-related ICT (W ICT) use at home, and examined the potential effect of this boundary creation on psychological detachment.

The current study contributes to the literature in the follow ways. First, as a core dimension of recovery experience, psychological detachment has received considerable research attention [11,12]. Previous studies found that not being psychologically detached from work during after-hours is related to poor health and well-being [13-15], and increased levels of emotional exhaustion [16]. The negative relationship



between W ICT and psychological detachment has been confirmed in previous studies [8,17,18]. However, less is known about how to prevent or hinder this process [19]. Thus, this study contributes to the literature by examining how boundary creation around W ICT, a boundary management tactic [20], might positively promote employee psychological detachment.

Second, the current study examined whether boundary creation around W ICT might mediate the relationship between segmentation preference and psychological detachment. According to boundary theory [4], individuals manage work and family roles using personal strategies that fall on a segmentation-integration continuum, with integration often leading to cross-role interruptions. Thus, individuals with higher segmentation preference might be more likely to actively create this boundary around W ICT [21], and then be more psychologically detached from work. Thus, we predicted boundary creation around W ICT might mediate the existing relationship between segmentation preference and psychological detachment [8]. The current study controlled for the previously tested mediator (W ICT use) in [8], thus providing a more holistic picture on the underlying mechanisms through which segmentation preference might predict psychological detachment.

Third, we also contribute to the literature by examining the moderating role of boundary control in the relationship between segmentation preference and boundary creation around W ICT. While segmentation preference reflects what people desire, individuals will need to have enough capacity or necessary resources to create practical boundaries around W ICT successfully, and boundary control might represent such a type of source. Thus, the current study examined boundary control as a moderator of the relationship between segmentation preference and boundary creation, helping us better understand how practical boundaries around W ICT can be successfully created.

2 Hypothesis Development

2.1 Boundary Creation around W ICT and Psychological Detachment

Boundary theory suggests that individuals create and maintain boundaries between work and family to manage multiple roles in their lives [4,22]. In addition, the way one creates and maintains the work-home boundaries affects his/her work and family outcomes [22]. Therefore, individuals who actively separate their work and family roles may prevent the intrusion of thoughts and actions from work into family life [23], which in turn promotes psychological detachment from work [24,25]. Although the invasion of work into family through W ICT makes it difficult for individuals to mentally detach from work and/or devote into recovery activities [8,17], individuals may develop their own rules or restrictions for W ICT in order to avoid interference with family activities (such as recovery activities) from work. Thus, whether employees create boundaries around W ICT while at home can potentially affect psychological detachment [19]. If employees can actively apply boundary management strategies to manage W ICT, such as restricting or completely avoiding the use of mobile phone after hours, psychological detachment may be improved.

Olson-Buchanan et al. [20] first introduced the concept of boundary creation around W ICT, defining it as individuals' self-imposed restrictions on W ICT in the home domain [20]. Boundary creation around W ICT can be conceptualized as one of the most important boundary tactics that individuals can utilize to separate their work and home domains [21]. Kreiner et al. [26] has shown that the parish priests with stronger technological boundaries between work and home reported less perceived invasion of work into the home domain [26]. Accordingly, Park et al. [21] found that boundary creation around ICT was negatively related to employees' psychological work-to-family interference [21]. These findings suggested that individuals with stronger boundaries around W ICT should tend to engage in less work-related activities at home (e.g., refusing to answer work-related incoming calls and messages [19]). Therefore, they can efficiently remain detached from work during family time.

Based on the aforementioned argument, we suggested that creating boundaries around W ICT is an active boundary management strategy that could positively predict psychological detachment. Thus, we proposed following hypothesis.

H1. Boundary creation around W ICT will be positively associated with psychological detachment.

2.2 Boundary Creation around W ICT at Home as a Mediator

According to boundary theory, individuals vary in their preference of segmenting or integrating work and family domains, and they might construct work-home boundaries according to their preference [4]. Segmentation preference refers to the degree to which one prefers to separate various aspects of work and home from each other [27]. Segmentation preference affects individuals' work-family boundary management through particular rules and practices [4]. Specifically, individuals with high integration preference have greater difficulty in creating and maintaining role boundaries. Conversely, individuals who prefer to segmentation tend to consider work and family as two distinct domains [8]. Using W ICT enables individuals to stay connected to their work during family time, making their family boundaries more permeable [28]. Individuals who prefer to segmentation would like to avoid this, and thus are more likely to create a boundary around W ICT use at home. Previous studies have confirmed this notion by finding that individuals with high segmentation preference are likely to set more boundaries for W ICT at home [20,21], suggesting that individuals' segmentation preference is an important antecedent of boundary creation around W ICT at home.

In addition to advocating people's active role in shaping the boundary and boundary transactions, boundary theory also concerns the effects of boundary management on outcomes of individuals' work and family domains [19,22]. Previous study indicated that individuals' segmentation preference could reduce their work-family interference through the mediator role of boundary creation around W ICT [21]. This finding suggested that boundary creation around W ICT could be regarded as a strategy for individuals with segmentation preference to reduce the disadvantages of W ICT to their family activities. As one of the mainly engaged activities during family time, recovery experience (such as psychological detachment) may also benefit from individuals' restriction of W ICT. We have discussed the aforementioned potential promotion effect of boundary creation around W ICT on psychological detachment. Therefore, based on the suggestion of boundary theory that individuals' boundary creation and management connects individual differences (e.g., segmentation preference) and work-family outcomes [21], and that segmentation preference positively related with psychological detachment [8], we predicted boundary creation around W ICT would mediate the relationship between segmentation preference and psychological detachment. Meanwhile, we built on previous study [21], by controlling the only previously established mediator (W ICT use) in the relationship between segmentation preference and psychological detachment. Thus, we hypothesized the following:

H2. Boundary creation around W ICT will mediate the relationship between segmentation preference and psychological detachment.

2.3 Boundary Control as a Moderator

As discussed above, individuals with high segmentation preference might actively create boundaries around W ICT and be more psychologically detached from work when at home. However, these advantages of segmentation strategies may depend on individuals' skill or ability to psychologically transit roles between work and family [21]. Boundary preferences (such as segmentation preference) reflects only what individuals desire, while "enacted boundaries" are the actual demarcations they create or have between work and family [29]. In other words, unless individuals have enough capacity or necessary resources, they may not be able to create practical boundaries around W ICT successfully even if they want.

In the context of boundary management (e.g., boundary creation), boundary control is an important resource because it allows employees to more effectively manage their work and family roles. Boundary control refers to the degree to which an individual perceives he/she is in control of how he/she manages the boundaries between work and family lives [30]. With high boundary control, individuals who prefer to integration can rapidly switch between work and family tasks at will, while individuals who prefer to segmentation can perform all work issues and family issues in discrete time blocks [8,31,32]. Kossek et al. [30] also argued that individuals with higher boundary control would have more resources and self-efficacy

to manage boundaries to their preferences. A recent research suggests that boundary control is a critical component in determining how individuals experience work-family technology use [33]. These findings suggest that individuals' boundary control and preference may interact to affect their work-home boundary management in a way that individuals with high segmentation preference can effectively create boundaries around W ICT use only when they also have high boundary control. Building on these findings, we inferred that higher boundary control could allow individuals with segmentation preference create boundaries around W ICT more easily. Based on this logic, we proposed the following hypothesis:

H3. The positive relationship between segmentation preference and boundary creation around W ICT will be moderated by boundary control, such that the relationship will be stronger for individuals with higher boundary control than for those with lower boundary control.

Boundary control not only can allow individuals to manage work-home boundaries according to their preferences, but also can contribute to the relationships between boundary preferences and work-home interference, such as psychological detachment [34]. Kossek et al. [31] proposed that positive outcomes are more likely to occur when individuals enact boundary management styles that are congruent with their preference and feel in control of boundaries. As a key resource for individuals to manage work-family boundaries, high boundary control may help individuals have better alignment between preferred and enacted boundaries which can be also called "boundary congruence" [27,29]. Previous studies have found that this kind of "boundary congruence" was related to better mental health [35], reduced work-family conflict [36], and increased work-family balance [29]. In this study, we regarded individuals' boundary creation around W ICT as an indicator of "boundary congruence", because it reflects the "fit" between individuals' segmentation preference and separate capacity (boundary control). In other words, high boundary control can allow individuals preferring to segmentation successfully enact boundaries through restricting W ICT use; this "boundary congruence" can further help them experience positive work-family outcomes such as psychological detachment. Thus, building on the aforementioned discussion and the above hypotheses, we hypothesized:

H4. Boundary control and segmentation preference will interact to predict psychological detachment through the mediating effect of boundary creation around W ICT. Specifically, the indirect effect of segmentation preference on psychological detachment via boundary creation around W ICT will be stronger for individuals with higher boundary control.

In summary, the main purpose of this study was to examine boundary creation around W ICT at home as a mediator between segmentation preference and psychological detachment, and boundary control as a moderator. Fig. 1 summarizes the proposed relationships in the current study.

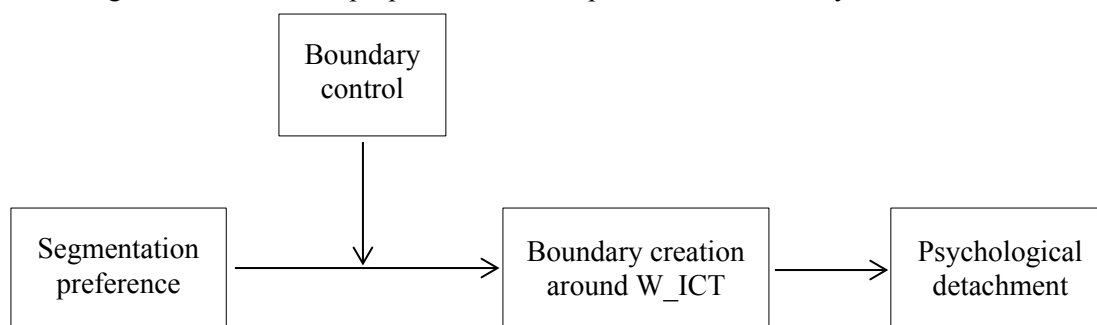


Figure 1: Overview of the hypothesized model

3 Method

3.1 Participants

We sent a survey to 600 full-time employees from different companies in different industries from China, and received 560 responses (response rate = 93.33%). The survey was anonymous and participation was voluntary. One hundred and ninety two (34.29%) of them were female and 368 (65.71%) were male.

Four hundred and twenty nine (76.61%) of them were married and 131 (23.39%) were not married. The mean age of the participants was 35.31 (SD = 8.53 years), worked an average of 55.69 hours per week (SD = 15.57 hours).

3.2 Measures

Boundary creation around W ICT. We used a five-item scale ($\alpha = 0.87$) adapted from Olson-Buchanan et al. to assess boundary creation around W ICT [20]. All items were rated on a 7-point Likert scale ranging from “1-totally disagree” to “7-totally agree”. Higher total scores indicated a higher level of boundary creation around W ICT. The five items included in this study asked about (1) limiting amount of time or when W ICT are used, (2) not using W ICT during vacation, (3) not using W ICT during weekends, (4) responding via W ICT only for emergencies, and (5) using W ICT solely for outgoing purposes (not incoming).

Psychological detachment. Psychological detachment was assessed with a four-item scale ($\alpha = 0.90$). This four-item scale is a subscale from the Recovery Experience Questionnaire [37] for the measurement of psychological detachment. Items asked to what extent employees did not think about work during their non-work hours. Example questions include “I forget about work” and “I don’t think about work at all”. All items were rated on a 5-point Likert scale (“1-totally disagree” to “5-totally agree”). Higher total scores indicated a higher level of psychological detachment.

Segmentation preference. We used Kreiner’s four-item scale ($\alpha = 0.78$) to measure segmentation preference [27]. An example question is “I prefer to keep work life at work”. All items were rated on a 5-point Likert scale (“1-totally disagree” to “5-totally agree”). Previous researches have revealed the bidirectional nature of segmentation preference (preference for segmenting work from the family domain, and preference for segmenting family from the work domain) and shown that these preferences have domain specific effects [21]. In the current study, we were particularly interested in how individuals create boundaries to manage their work-related W ICT use at home. Thus, we focus specifically on preference for segmenting work from the family domain in this study.

Boundary control. We used Kossek et al. four-item scale ($\alpha = 0.83$) adapted form to assess boundary control [31,38]. Sample items were “I control whether I am able to keep my work and personal life separate” and “Whether working or not working, I can determine how to schedule my own time”. Respondents answered on a 5-point Likert scale ranging from “1-Strongly disagree” to “5-Strongly agree”.

3.3 Control Variables

Previous studies on psychological detachment showed that demographic characteristics, including gender, age, marital status, and workhours per week might be predictors of psychological detachment, e.g., [39,40]. Hence, in order to minimize issues related to spurious relationships, gender (male = 1, female = 0), age, marital status (married = 1, not married = 0), and workhours per week were controlled in hypothesis testing. In addition, W ICT expectation from important others (such as supervisor) has been found to positively relate to individuals’ W ICT use [33], and psychological detachment [34]. Thus, W ICT expectation of supervisor was included as a control variable in hypothesis testing. We used a four-item scale ($\alpha = 0.73$) adapted from the after-hours electronic communications expectations scale developed by Piszczek [33]. A sample item was “My supervisor expects me to respond to after-hours electronic work communications immediately”. Participants rated each item from “1-totally disagree” to “5-totally agree”. In addition, Park et al. found that W ICT use mediated the relationship between work-home segmentation and psychological detachment [8]. Thus, in order to provide a more holistic picture on the underlying mechanisms through which segmentation preference might relate with psychological detachment, the current study also controlled for W ICT use in hypothesis testing. We used a three-item scale ($\alpha = 0.90$) developed by Ma et al. to assess the frequency of W ICT use [41]. A sample item was “During non-work hours, how often do the people who are related to your job (e.g., supervisor, colleagues) contact you via ICT for work issues”. Participants rated each item from “1-never” to “5-very often”.

3.4. Strategy of Analysis

We tested all the hypothesis using the SPSS Process macro [42,43], a computational tool for testing mediation, moderation, and their combinations. Specifically, we used PROCESS Model 4 to test the hypothesis about the mediating effect of boundary creation around W ICT (Hypothesis 1 and Hypothesis 2), and used PROCESS Model 1 to test the interactive effect between segmentation preference and boundary control on boundary creation around W ICT (Hypothesis 3). Lastly, we used PROCESS Model 8 to test the mediated moderation effect (Hypothesis 4). Additionally, bootstrap-based bias corrected confidence intervals (95%) for the indirect effects were generated using 5000 iterations of bootstrapping.

4 Results

4.1 Confirmatory Factor Analysis

Before testing the hypotheses, we assessed the discriminant validity of the focal variable measures through confirmatory factor analysis (CFA). Results indicated that the hypothesized four-factor model (boundary creation around W ICT, segmentation preference, psychological detachment, and boundary control) in which all items were loading on their respective latent variable provided a significantly better fit ($\chi^2 = 501.92$, $df = 113$, $TLI = 0.90$, $CFI = 0.92$, $RMSEA = 0.078$) than the one-factor model ($\chi^2 = 2900.85$, $df = 119$, $TLI = 0.33$, $CFI = 0.42$, $RMSEA = 0.204$), $\Delta\chi^2 = 2398.9$, $p < 0.01$. These results indicated that the measures did capture distinct constructs.

4.2 Descriptive Statistics

Means, standard deviations, and correlations among the variables are presented in Tab. 1. There was a significant correlation between boundary creation around W ICT and psychological detachment ($r = 0.23$, $p < 0.01$), preliminarily supporting Hypothesis 1. Segmentation preference was positively related to boundary creation around W ICT ($r = 0.15$, $p < 0.01$), but was not significantly related to psychological detachment ($r = -0.05$, $p > 0.05$). Besides, boundary control was positively related to both boundary creation around W ICT ($r = 0.16$, $p < 0.01$) and psychological detachment ($r = 0.46$, $p < 0.01$). These results are consistent with the theoretical expectations.

Table 1: Means, standard deviations, and correlations among study variables (N = 560)

	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>
<i>1</i>	0.66	0.48									
<i>2</i>	35.31	8.53	-0.24**								
<i>3</i>	0.77	0.42	-0.27**	0.55**							
<i>4</i>	55.69	15.57	0.35**	-0.46**	-0.37**						
<i>5</i>	3.72	0.71	0.06	-0.16**	-0.14**	0.22**					
<i>6</i>	3.73	0.90	0.23**	-0.31**	-0.21**	0.35**	0.31**				
<i>7</i>	4.05	0.68	-0.06	-0.10*	-0.09*	0.04	0.15**	0.05			
<i>8</i>	3.28	1.35	-0.03	0.13**	-0.10*	-0.15**	-0.14**	-0.24**	0.15**		
<i>9</i>	3.30	0.77	-0.05	0.24**	0.17**	-0.30**	-0.11**	-0.07	-0.11**	0.16**	
<i>10</i>	3.15	1.08	-0.36**	0.51**	0.37**	-0.62**	-0.19**	-0.35**	-0.05	0.23**	0.46**

Note. 1-gender, 2-age, 3-marital status, 4-workhours per week, 5-W ICT expectation, 6-W ICT use, 7-, Segmentation preference 8-Boundary creation, 9-Boundary control, 10-psychological detachment
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; similarly hereinafter

4.3 Hypothesis Testing

Hypothesis 1 predicted that boundary creation around W_ICT would be positively related to psychological detachment. Results of regression analysis showed that, after controlling the effects of control variables, boundary creation around W_ICT positively predicted psychological detachment ($B = 0.23, p < 0.001$), supporting Hypothesis 1.

Hypothesis 2 predicted that boundary creation around W_ICT would mediate the relationship between segmentation preference and psychological detachment. Tab. 2 (Eq. (1)) shows that segmentation preference positively predicted boundary creation around W_ICT ($B = 0.21, p < 0.001$). Moreover, Tab. 2 (Eq. (4)) shows that boundary creation around W_ICT positively predicted psychological detachment ($B = 0.24, p < 0.001$), while segmentation preference did not significantly predict psychological detachment ($B = -0.03, p > 0.05$). The bootstrapped indirect effect of segmentation preference on psychological detachment from boundary creation around W_ICT was 0.05 with a 95% CI [0.03, 0.08] which excluded 0, thus supporting Hypothesis 2.

Table 2: Regression results for mediation effect of boundary creation around W_ICT

IV	<i>Boundary creation as DV</i>				<i>Psychological detachment as DV</i>			
	Eq. (1)		Eq. (2)		Eq. (3)		Eq. (4)	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Gender	0.06	0.04	0.08	0.04	-0.09*	0.04	-0.11**	0.04
Age	0.02	0.05	0.03	0.05	-0.04	0.05	-0.04	0.05
Marital Status	0.01	0.05	0.02	0.05	-0.15**	0.05	-0.16**	0.05
Workhours per Week	-0.06	0.05	-0.06	0.05	-0.27***	0.05	-0.25***	0.05
W_ICT Expectation	-0.06	0.04	-0.09*	0.04	0.02	0.04	0.04	0.04
W_ICT use	-0.18***	0.04	-0.18***	0.04	-0.03	0.04	0.01	0.04
Segmentation Preference			0.21***	0.04			-0.03	0.04
Boundary creation							0.24***	0.04
R^2	0.06		0.10		0.09		0.14	
F	5.76***		8.62***		8.99***		11.32***	
ΔR^2			0.04**				0.05**	

Note. IV-Independent variables, DV-Dependent variable; similarly hereinafter.

Hypothesis 3 predicted that the positive relationship between segmentation preference and boundary creation around W_ICT would be moderated by boundary control. Tab. 3 (Eq. (2)) shows that the interaction effect between segmentation preference and boundary control on boundary creation around W_ICT was significant ($B = 0.16, p < 0.001$). Simple slope tests indicated that the relationship between segmentation preference and boundary creation around W_ICT was significantly positive ($B_{simple} = 0.38, p < 0.001, 95\% CI = [0.27, 0.50]$) when boundary control was high, but not significant ($B_{simple} = 0.08, p > 0.05, 95\% CI = [-0.03, 0.19]$) when boundary control was low. Fig. 2 shows the interaction plot. Taken together, these results supported Hypothesis 3.

Hypothesis 4 posited that boundary control and segmentation preference would interact to predict psychological detachment through the mediating effect of boundary creation around W_ICT. Results showed that the index of moderated mediation was significant ($effect = 0.03, 95\% CI = [0.01, 0.05]$). That is, the conditional indirect effects of segmentation on psychological detachment via boundary creation around W_ICT at different levels of boundary control (1 SD above/ below the mean) are significantly different from each other. Specifically, the indirect effect was significant ($effect = 0.07, 95\% CI = [0.04, 0.11]$) when boundary control was high (1 SD above the mean), but not significant ($effect = 0.01, 95\% CI$

= [-0.01, 0.04]) when boundary control was low (1 SD below the mean). Thus, the indirect effect of segmentation preference on psychological detachment via boundary creation around W ICT was stronger for individuals with high boundary control. These results supported Hypothesis 4.

Table 3: Regression results for moderation effect of boundary control

IV	<i>Boundary creation as DV</i>				<i>Psychological detachment as DV</i>					
	Eq. (1)		Eq. (2)		Eq. (3)		Eq. (4)		Eq. (5)	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Gender	0.06	0.04	0.07	0.04	-0.09*	0.04	-0.10**	0.04	-0.12**	0.04
Age	0.02	0.05	0.02	0.05	-0.04	0.05	-0.07	0.05	-0.07	0.04
Marital Status	0.01	0.05	0.02	0.05	-0.15**	0.05	-0.15**	0.05	-0.16***	0.05
Workhours Per week	-0.06	0.05	-0.02	0.05	-0.27***	0.05	-0.18***	0.05	-0.18***	0.05
W ICT Expectation	-0.06	0.04	-0.07	0.04	0.02	0.04	0.04	0.04	0.05	0.04
W ICT use	-0.18***	0.04	-0.17**	0.04	-0.03	0.04	-0.03	0.04	0.01	0.04
Segmentation Preference (X)			0.24***	0.04			0.06	0.04	0.01	0.04
Boundary Control (U)			0.08	0.04			0.24***	0.04	0.23***	0.04
X * U			0.16***	0.04			0.19***	0.04	0.16***	0.04
Boundary Creation									0.18***	0.04
<i>R</i> ²	0.06		0.13		0.09		0.20		0.23	
<i>F</i>	5.76***		9.53***		8.99***		14.99***		16.04***	
ΔR^2			0.07**				0.11***		0.03**	

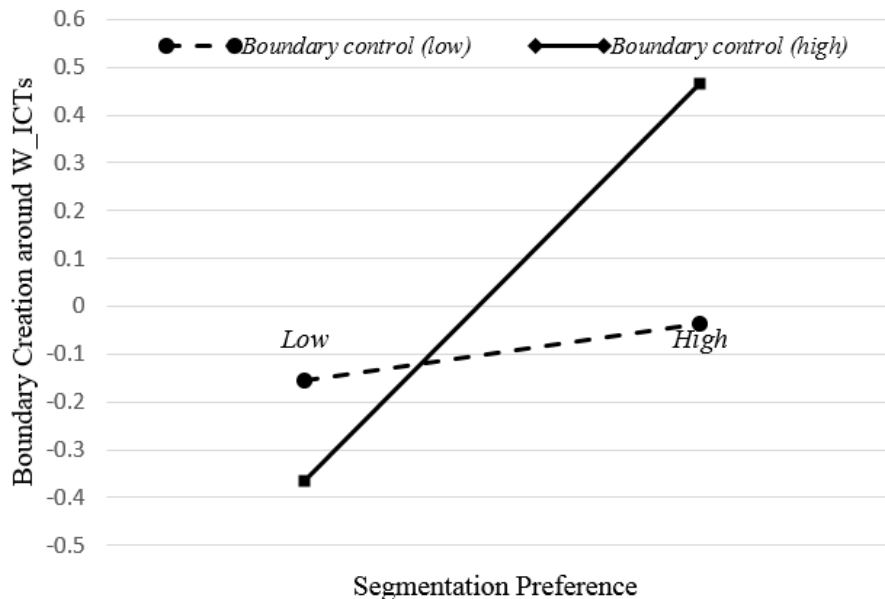


Figure 2: Moderating effect of boundary control on the relationship between segmentation preference and boundary creation around W ICT

5 Discussion

Based on boundary theory [4], the current study tested whether boundary creation around W ICT would mediate the effect of segmentation preference on psychological detachment, and examined boundary control as a boundary condition of this mechanism. Results found that boundary creation around W ICT significantly mediated the relationship between segmentation preference and psychological detachment. Besides, the positive relationship between segmentation preference and boundary creation around W ICT was stronger at high but not at low level of boundary control. In addition, boundary creation around W ICT mediated the effect of the interaction of boundary control and segmentation preference on psychological detachment. Overall, our findings provide evidence to suggest that boundary creation around W ICT can be an active and effective strategy that individuals could employ to achieve psychological detachment from work.

5.1 Theoretical Contributions

Our study contributes to the literature on W ICT and work-family boundary management in the following ways. First, our study expands previous studies' technological determinism perspective of W ICT [9,10], and contributes to a broader understanding of the important role of human choice or initiative on how to handle W ICT to reduce their effect on individuals' off-work lives. Previous research on W ICT primarily focused on its negative effect on individuals' family lives [17,34,44]. These studies tend to suggest that when dealing with ICT, individuals are more likely to be passive recipients rather than active users. Thus, the potential human initiative on ICT has been largely overlooked [9,45]. However, individuals can potentially apply suitable boundary tactics to limit or avoid the possible negative effects of W ICT [26,46]. Boundary creation around W ICT can serve as an effective "filter" for individuals to reduce the disruption of W ICT to family life. Consistent with previous findings that boundary creation around W ICT can potentially prevent individuals from negative outcomes such as work-family interference and impaired sleep quality [19,21,47,48], our study revealed a positive relationship between boundary creation around W ICT and psychological detachment. This helps us gain a broader understanding on the benefits of actively building boundaries around W ICT.

Second, our findings support the proposition that individuals preferring to segmentation are more likely to create boundaries around W ICT that in turn links to psychological detachment. This extends Park et al.'s [8], finding that W ICT use partially mediated the relationship between segmentation preference and psychological detachment and by showing that boundary creation around W ICT also contributes to how segmentation preference might promote psychological detachment. Because individuals' W ICT may be either passive or active [49,50], W ICT use merely reflects individuals' passive response to work demands. Boundary creation around W ICT, on the other hand, can represent individuals' initiative or activity in dealing with ICT. Based on our findings, we suggest that examining the mediating role of boundary creation around W ICT between segmentation preference and psychological detachment will help us understand how individuals preferring segmentation can effectively recover from work at home.

Third, we also found that boundary control moderated the relationship between segmentation preference and boundary creation around W ICT, which in turn predicted psychological detachment. Specifically, people who prefer to segmentation and have higher boundary control are more likely to be successfully in creating boundaries around W ICT, thus experiencing higher psychological detachment. Previous research suggests that individuals' boundary segmentation preferences may not always be enacted as desired because of situational constraints, and not achieving this segmentation may lead to greater work-home interference and stress [26,27]. Our finding suggests that the relationship between segmentation preference and boundary creation around W ICT, as well as the indirect effect of segmentation preference on psychological detachment through boundary creation around W ICT were stronger when boundary control was high than when boundary control was low. In other words, for individuals with low level of boundary control, even they have high segmentation preference, they may not be able to effectively create boundaries around the use of W ICT, and are less likely to experience psychological detachment at home. These findings support Park et al. [21], note that experiencing advantages/disadvantages from

segmentation/integration strategies might depend on an individual's skill levels and practices for role-transitions between work and family, and confirmed the crucial role of boundary control in helping individuals to actively manage work-home boundaries and achieve psychological detachment [30,34]. In particular, our results shed light on the effect of boundary control in individuals' proactive management of ICT to disengage from work at home.

Further, results of the current study provided a new perspective on our understanding of the role of boundary control. Although a few recent studies have revealed the important role of boundary control in relationships between W ICT and work-home outcomes, these studies either regarded boundary control as result of W-ICT [33], or as a condition that moderates the effects of W ICT [34]. Different from these perspectives, we viewed boundary control as an important moderator that determines how an individual use W ICT. This is consistent with the suggestion of both boundary theory [4], and the human agency theory [51] that individuals could act proactively to make practical and normative choices among alternative situations. Our findings showed that individuals not only passive recipients of ICT, but also active users of them. Individuals can apply initiative and effective tactics around W ICT according to their needs (such as segmentation preference) and abilities (such as boundary control), thus protect psychological detachment.

5.2 Practical Implications

Our findings also have practical implications for employees, managers, and organizations. First, our study suggest that individuals may achieve psychological detachment by initiatively creating boundaries around W ICT. Although it is shown that W ICT may be related with negative outcomes [24,52], it would be neither realistic nor desirable to completely ban with W ICT [53,54]. Further, due to the extensive penetration of ICT in today's work and lives, it is becoming an indispensable part of individuals' daily lives. Our findings suggested that instead of completely banning W ICT, individuals need to be aware that they can adopt appropriate strategies such as creating boundary around W ICT to potentially reduce the negative outcomes of W ICT. Further, given that proper psychological detachment is crucial for both employee well-being and productivity [13,55], it is also necessary for organizations to train their employees or provide sufficient policies to successfully create proper boundaries around W ICT.

Second, while segmentation preference might be an important antecedent of boundary creation around W ICT, we found that boundary control plays an important moderating role. This finding might provide us with the following implication. On the one hand, employees preferring to segmentation should be trained to acquire and utilize the positive aspects of high boundary control (e.g., increased self-efficacy, resources, and skills) to help them create boundaries around W ICT. For example, individuals could improve their time management skill that is helpful in enhancing boundary control [30]. On the other hand, managers and organizations should provide work-family support and introduce availability policies to employees with high segmentation preference to increase their boundary control [30], and thus potentially promote their psychological detachment.

5.3 Limitations and Future Directions

This study has several limitations that future research should address. First, the current study applied a cross-sectional design, which used same source data for all variables and lacked multiple measurements. As a result, our findings may have been influenced by common method variance (CMV [56]). Although this may be the case, previous research has shown that CMV actually decreases the probability of finding significant interaction effects [57]. Therefore, our results, with multiple significant interactions, help to provide additional confidence that CMV did not overly influence our findings. Nonetheless, we encourage future researches to examine our variables at multiple points in time, or use multiple sources (e.g., boundary creation around W ICT use can be rated by spouses).

Second, while we focused on the role of boundary creation around W ICT in the relationship between segmentation preference and psychological detachment, other boundary management styles should be further explored. Thus, we encourage future studies to explore other mediating mechanisms by which segmentation preference affect psychological detachment.

Third, while we tested the interact effect of segmentation preference and boundary control on boundary creation around W ICT, we encourage future studies to examine other personal and environmental factors that may guide boundary creation around W ICT for people with segmentation preference. In addition, given the paucity of research on boundary control, we encouraged more future studies to investigate the important effects of boundary control on employees' effectively boundary management. Lastly, we also encourage future research to examine how high levels of boundary control could be achieved.

6 Conclusion

The current study finds that segmentation preference and boundary control interact to predict boundary creation around W ICT, which in turn relates to psychological detachment. Only for individuals with higher boundary control, segmentation preference might promote boundary creation around W ICT that subsequently protect psychological detachment. This study provides a deeper understanding of whether and how segmentation preference can promote psychological detachment through creating boundaries around W ICT.

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