Humanities and Social Science Research; Vol. 8, No. 3; 2025
ISSN 2576-3024 E-ISSN 2576-3032
https://doi.org/10.30560/hssr.v8n3p71

Impact of Off-Hours Work-Related Electronic Communication on Work Engagement Among University Faculty: The Moderating Role of Boundary Flexibility

Qing Yang[1], Xiaohan Ma[1], Yang Li[2] & Lingling Zhang[2]

[1] Business Administration, Affiliation School of Management, Beijing Union University, China

[2] Human Resources, School of Biochemical Engineering, Beijing Union University, China

Correspondence: Lingling Zhang, Human resources, School of Biochemical Engineering, 100101, China. Tel: 86-136-9133-0749. E-mail: yangqing20021126@163.com, zwqmxk@163.com, nansanyan@163.com, zllzk2006@163.com

Received: May 19, 2025; Accepted: May 30, 2025; Published: May 31, 2025

Abstract

With the rapid development of information and communication technology and new office forms, non-working time and work-related electronic communication has become an essential part of people's work and life. Teachers in colleges and universities also have the same phenomenon in their daily work, but different teachers have different evaluations of this work status, and there are differences in the impact of different work motives. The article explores the mechanism of the influence of non-working time and work-related electronic communication on work engagement by taking teachers in college A as the research object, and selects boundary flexibility ability as the moderating variable. The results show that non-working time and work-related e-communication have a significant negative effect on work engagement of teachers in college A. Boundary elasticity ability plays a negative moderating role between non-working time and work-related e-communication and work engagement, and there is a significant difference between different work motives. The findings of the study provide theoretical basis and practical support for moderately controlling non-work time and work-related e-communication and enhancing college teachers' work engagement.

Keywords: higher education faculty, non-work time and work-related electronic communication, work engagement, boundary resilience capacity, work motivation

1. Introduction

With the rapid development of ICT and new office forms (e.g., telecommuting), as well as the high expectations of organizations for employees' out-of-hours work connectivity, electronic communication has become an essential part of people's daily work and life. According to statistics, nearly 50% of employees worldwide have had or are experiencing work-related e-communication during non-work time periods (Ferguson et al., 2016), and non-work time work-related e-communication has become a common phenomenon in all industries and has been on a continuous upward trend since 2002 (Cheng Huan et al., 2023). In recent years, this phenomenon has not only been hotly debated among employees in organizations and companies, but has also received extensive attention from academics.

Unlike traditional telecommuting or overtime work, work-related electronic communication during non-working hours is a non-fixed, non-compulsory and unpaid behavior (Qianqiu Wang, 2023), which usually affects employees in two ways. On the one hand, with the help of technological means to eliminate time and space barriers, it is convenient for members of the organization to keep in touch at any time and any place to deal with work affairs in a timely manner, which enhances the flexibility and autonomy of employees in work-life transition, and is conducive to enhancing the efficiency of teamwork as well as improving the individual's work performance (Li Yinfang, 2022); on the other hand, e-communication during non-work time is prone to cause the employees to have a work-nonwork On the other hand, e-communication during non-working hours is prone to cause conflicts between employees' work and non-work, making it difficult for employees to detach themselves from their work and affecting their normal life, which in turn reduces their sense of well-being and induces emotional exhaustion (Ru Yucheng, 2022). However, most of the current research on non-work time and work-related e-communication is based on corporate employees, and only a relatively small amount of literature focuses on college teachers. In

fact, it is extremely common for college teachers to engage in work-related e-communication during non-work time, and college teachers have mixed feelings about this work status. Moreover, the question of under what circumstances work-related e-communication during non-working hours can have a positive impact and under what circumstances it can have a negative impact needs to be further explored based on different work motivations.

Self-determination theory emphasizes that the motivation for a behavior largely determines its aftereffects (Deci & Ryan, 2000). Based on the different nature of motivation, self-determination theory specifically divides it into two basic categories: autonomous and controlled motivation. Autonomous motivation stems from an individual's intrinsic interest in and identification with a behavior, reflecting the individual's perception of the importance and value of the behavior; whereas controlled motivation stems from the stimuli of the external environment, and is more often reflected in the motivation to avoid external punishment or pursue external rewards (Ohly, 2014). Behavior driven by an individual's intrinsic autonomous motivation tends to better satisfy his or her basic needs and form positive aftereffects such as positive affective states and engagement (Xinying Lu, 2024). In contrast, when an individual's behavior is driven by external controlled motivation, it tends to pose a limitation on the individual's autonomy and diminish his or her intrinsic source of motivation, which in turn is more likely to lead to negative affect and reduce the individual's level of engagement and concentration (Deci & Ryan, 2000). Therefore, from the perspective of both autonomous and controlled dual motivation, exploring the effects of and comparing the differences in the influence of non-work time and work-related electronic communication on work engagement among college teachers is conducive to making differentiated recommendations for college teachers under different behavioral motivations, which is of greater practical significance.

This paper focuses on University A, a comprehensive university in Beijing with a total of more than 2,550 faculty members and 1,547 full-time teachers (data as of September 2023). In recent years, the use of electronic communication tools such as cell phones and computers to communicate at work during non-working hours has become more common among teachers in University A. The boundaries between teachers' work and non-work are becoming more and more blurred, and the impacts on teachers are different. It is necessary to explore in depth the impacts of non-working hours and work-related electronic communication on work engagement as well as differences under different behavioral motives based on the actual situation in University A, with a view to helping A teachers in colleges and universities to continuously maintain a good state of work engagement.

In view of this, this paper takes teachers in college A as the research object, analyzes the impact of non-working time and work-related electronic communication on teachers' work engagement in college A, discusses in depth the reality, impact effect and mechanism of the current work-life boundary blurring of teachers in colleges and universities, and furthermore, this study pays attention to the moderating role that boundary resilience may play in this impact path, and ultimately proposes targeted strategies and suggestions for moderately controlling non-working time and work-related electronic communication and enhancing teachers' work engagement in colleges and universities. Finally, in light of the current situation of electronic communication and work engagement of teachers in college A, this study puts forward targeted strategies and suggestions, aiming to provide theoretical basis and practical support for moderately controlling the non-work time and work-related electronic communication and enhancing the work engagement of teachers in colleges and universities.

2. Rationale and Research Hypothesis

2.1 Self-Determination Theory

Self-Determination Theory (SDT) is a theory of human motivation that emphasizes the central role of intrinsic motivation and basic psychological needs in individual behavior. According to Self-Determination Theory, motivation is viewed as a continuum that covers the progression from unmotivated to controlled to autonomous motivation, and it is believed that motivations of different natures possess a greater ability to predict an individual's behavior as compared to a different number of motivations (Deci & Ryan, 2000). Individuals' motivation can be categorized into two basic categories: autonomous and controlled motivation, and the key to distinguishing between these two types of motivation is the source of the motivation: whether it stems from external pressures or from the individual's inner true will; specifically, the measurement of controlled motivation involves external and introjected regulation, whereas the measurement of autonomous motivation encompasses identity regulation, integrative regulation, and internal regulation (Deci & Ryan, 2000). 2000).

2.2 Theory of Boundary Elasticity

Boundary Flexibility Theory (BFT) is a theory that explains the behavior and intentions of individuals to make role transitions. The theory suggests that flexibility ability is an individual's cognitive assessment of the characteristics of the situation in which they find themselves, particularly with regard to the assessment of the situation that affects their ability to leave their current domain role to fulfill another domain role. In research on

work-family balance, it has been noted that employees tend to experience lower levels of psychological disengagement when their boundary resilience is underperforming, and that this lower state of psychological disengagement significantly exacerbates work-family conflict (Ye Shuang, 2022), whereas, on the contrary, employees with high boundary resilience will have a positive contribution to their individual prosperity (Xu Xue, 2022).

2.3 Resource Conservation Theory

Conservation of Resources (COR) is a theory of motivation that explains how individuals respond to environmental stresses and challenges. The theory suggests that individuals have a general tendency to conserve and maintain existing resources and to acquire new ones, so that stress responses may be triggered when individuals face actual resource losses, threats of potential losses, or mismatches between resource inputs and returns (Hobfoll & Stevan, 1989). In organizational behavior, resource preservation theory has been used to explain the psychological and behavioral generating motivations of employees, such as work engagement, job satisfaction, and organization-member relations (Liao Hwa Hwa et al., 2022). Related studies have also shown that stress caused by the lack of work resources is one of the important factors affecting employees' time encroachment behaviors (He, Yujie & Yu, Jing, 2020).

2.4 Out-of-Hours Work-Related Electronic Communication and Work Inputs

As a form of online labor, work-related electronic communication during non-work time brings a significant sense of relative exploitation to employees due to its occupation of private time and consumption of physical and mental resources, which not only makes employees physically and mentally exhausted, but also prevents them from achieving psychological disengagement (Yuan Xiaoya, 2021). "Work engagement" represents the psychological connection between employees and their work roles and involves their full commitment of physical, emotional, and cognitive resources at work (Christian et al., 2011). While work-related electronic communication during non-work hours has facilitated the efficient exchange and sharing of resources to some extent, at the same time, it has expanded work boundaries and gradually infiltrated work into family life, making it difficult for individuals to achieve effective relaxation and relief at both the physical and psychological levels, which negatively affects sleep quality and limits participation in leisure and recreational activities (Lanaj et al., 2011). Lanaj et al.,2014), which can increase workload and produce negative perceptions of work experience, thus reducing engagement in work (Zhao Yue et al.,2024). Breaking the state of psychological disengagement has been found to increase fatigue or anxiety, reduce resource reserves, and have a negative effect on the next day's work engagement (Wanjin et al., 2023).A College teachers' work engagement is also affected by this continuous work engagement, which may have a negative impact on work performance. Based on this, this paper proposes the following hypothesis

H1: Non-work time and work-related electronic communication is detrimental to teachers' work engagement in A university.

2.5 The Moderating role of the Elastic Capacity of the Boundary

In the study of the moderating role of boundary flexibility, foreign scholars Mathews et al. (2010) found that the higher the boundary flexibility, the easier it is for people to cope with the psychological needs related to the transition between the work and family domains. Individuals with higher boundary resilience ability will significantly enhance their perceptions of the support of boundary strategies and imply that individuals can effectively narrow or expand the boundary between family and work to flexibly cope with and meet the needs of family or work (Ye Shuang, 2022). Existing research points out that boundary flexibility ability plays an important moderating role in stressors and stress responses, arguing that for individuals with more limited boundary flexibility ability, when faced with nontraditional or unconventional work tasks, it is often difficult to achieve smooth role transitions between the work and family domains, resulting in the blurring of the boundaries between work and family, which exacerbates the conflict between the two (Jie Xu, 2018).

Teachers in university A generally have high boundary resilience ability, and have more excellent role switching ability when encountering work-related electronic communication during non-working hours, and are able to switch between work and family flexibly with ease, effectively alleviating potential conflicts between work and family, and demonstrating high work-family balance ability, which enables them to be more dedicated to their work. Based on this, this paper proposes the following hypotheses:

H2: The stronger the boundary resilience capacity, the stronger the role of work-related electronic communication during non-work time as a hindrance to work engagement.

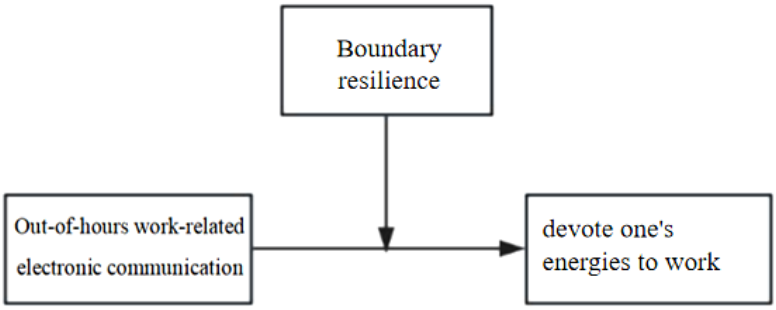

Figure 1. Research model

3. Research Design and Measurement of Variables

3.1 Selection of Research Subjects

The research focus of this paper centers on the group of teachers engaged in teaching and research types in University A. University A is a comprehensive university in Beijing, which has a higher percentage of teaching and research type teachers compared to other types of teachers. The survey utilized a combination of electronic and paper questionnaires to pre-interview the working and living conditions of teachers in University A and conduct a small-scale questionnaire-based survey. In the formal stage of the survey, both electronic and paper questionnaires were used for distribution in order to cover the target population more widely. Further screening of the questionnaires eliminated invalid questionnaires that were incompletely filled out or had obvious logical errors. The questionnaire survey totaled 200 questionnaires, 12 invalid questionnaires were screened out, and 188 valid questionnaires were received, with a recovery rate of about 94%.

According to the analyzed survey data, the largest share of female teachers in college A is 70.21%. As for the marital status, the proportion of married and childbearing teachers is the highest, reaching 71.28%. The specific sample distribution is shown in Table 1.

Table 1. Distribution of the survey data sample

Category	sample distribution	Percentage (%)	Category	sample distribution	Percentage (%)
Gender	Male	29.79	Teaching experience	≤1 year	4.26
	Female	70.21		1~5 years	15.96
(a person's) Age	≤30 years old	7.45		6 to 10 years	11.70
	31~35 years old	15.96		11-20 years	30.85
	36~ 45 years old	21.28		≥21 years	37.23
	46-55 years old	44.67	Type of position	Teaching-oriented	28.73
	≥56 years old	10.64		Research-oriented	14.89
Education level	Bachelor's degree	7.45		Teaching and Research	56.38
	Master's degree	38.3	Type of instruction	Public course	28.72
	Doctoral degree	54.25		Specialized subject	48.94
	junior	5.32		Both	22.34
Professional title	Intermediate	52.13	Marital status	Unmarried	11.70
	Associate Senior	30.85		Married without children	17.02
	Full Senior	11.70		Married with children	71.28

3.2 Measurement of Variables

In this paper, the four variables of non-work time and work-related electronic communication, work engagement, boundary flexibility, and autonomous and controlled motivation were measured by means of well-established domestic and international scales, all using the Likert five-point scale, with scores ranging from "Strongly

Disagree" to "Strongly Agree" on a scale of 1-5, with higher scores indicating that the descriptions of the items are more consistent with the actual situation. "The higher the score, the more consistent the description of the situation is with the actual situation. The higher the score, the more frequent the communication was in the non-working time and work-related electronic communication scale.

1. For the measurement of work-related electronic communication during non-working hours, this paper adopts the scale developed by the research of Hongyu Ma and other scholars (2016), which includes the question "How often do people related to my work contact me through the above communication tools during non-working hours because of work-related matters?" and other three question items.

2. For the measurement of work engagement, this paper adopts the nine-item work engagement scale developed by Schaufeli et al. (2002), which consists of nine items such as "I feel strong and energized when I work".

3. For the measurement of boundary resilience ability, this paper chooses the Work-Family Boundary Resilience Scale, which was revised and widely used by scholars such as Ma Hongyu (2016), as a research tool and focuses on two key dimensions for in-depth analysis, namely, the work resilience ability dimension and the family resilience ability dimension, such as: "I am able to leave halfway through my work when I have something at home that needs to be taken care of. ", "I am able to work late without compromising the fulfillment of my family duties if my work requires it" and "I am willing to put aside my family duties when I receive a work assignment at home".Court affairs to get the job done," etc.

4. Measurement of autonomous and controlled motivation, the scale in this paper is taken from Grant et al. (2011) and includes twelve items such as "I do not want to fail because my job is a very important part of my life", "I do this job mainly to get a salary. " and twelve other question items.

4. Empirical Analysis

4.1 Reliability Test

The results of the reliability test of all the scales are shown in Table 2, the Cronbach's α value of the Non-Working Time and Work-Related e-Communication Scale is 0.917, the Cronbach's α value of the Work Engagement Scale is 0.760, and the Cronbach's α value of the Boundary Flexibility Capacity is 0.839, which is greater than 0.7, and the scales used in this paper have good reliabilities and can be used for further research and analysis.

Table 2. Results of confidence test

variant	Number of questions	Cronbach's alpha
Out-of-hours work-related electronic communication	3	0.917
devote one's energies to work	9	0.760
Boundary resilience	8	0.839

The results of the validity test of all the scales are shown in Table 3, the KMO values of the Non-Working Time and Work-Related e-Communication Scale, the Work Input Scale, and the Boundary Flexibility Ability are all greater than 0.7. In addition, after the Bartlett's spherical test, the significance of the Non-Working Time and Work-Related e-Communication and Work Input Scale is 0.001, and that of the Boundary Flexibility Ability Scale is 0.000, all of which are less than 0.05, indicating that the scales used in this paper all have good validity in measuring the relevant variables.

Table 3. Validity test results

variant	KMO value	Barthelle's Spherical Value	(number of) degrees of freedom (physics)	signific ance
Out-of-hours work-related electronic communication	0.742	206.140	3	0.001
devote one's energies to work	0.763	176.258	36	0.001
Boundary resilience	0.824	438.898	28	0.000

4.2 Correlation Analysis

Correlation analysis as a statistical analysis tool aims to explore the potential association between two or more random variables. In this study, the correlation analysis of non-working time with work-related e-communication,

work engagement, and boundary resilience ability was conducted with the help of SPSS27.0, and the results are shown in Table 5, which shows that there is a significant negative correlation between non-working time with work-related e-communication and individual's work engagement of teachers in A university (r=-0.420, P<0.01). Meanwhile, there was a significant positive correlation between non-work time and work-related e-communication and an individual's boundary resilience ability (r=0.321, P<0.01). The findings of the correlation analysis provided some support for the subsequent hypothesis testing.

Table 4. Results of correlation analysis

variant	Out-of-hours work-related electronic communication	devote one's energies to work	Boundary resilience
Out-of-hours work-related electronic communication	1		
devote one's energies to work	-0.420**	1	
Boundary resilience	0.321**	0.029	1

Note. * denotes p < 0.05, ** denotes p < 0.01

4.3 Regression Analysis

In this paper, with the help of SPSS 27.0 software, we analyze the direct impact of non-working time and work-related e-communication on work input and further explore the moderating role of boundary elasticity capacity between the two, and the regression results are shown in Table 5, according to Model 1, the regression coefficients of non-working time and work-related e-communication of teachers in college A on work input are negative and at a high level of significance (β = -0.258, and P < 0.01), indicating that non-working time and work-related e-communication has a significant negative effect on work engagement of teachers in university A. H1 is verified.

In order to reduce the influence of multicollinearity on the results of regression analysis, the variables involved in the interaction term were centered before testing the moderating effect. From Model 2 in Table 5, boundary resilience ability was found to play a positive moderating role (β = 0.141, p < 0.05) in the facilitation effect of work-related electronic communication on work engagement during non-work time, and H2 was verified.

Table 5. Results of regression analysis

variant	devote one's energies to work	
	Model 1	Model 2
Out-of-hours work-related electronic communication	-0.258***	-0.230***
	(0.056)	(0.061)
Boundary resilience		0.049
		(0.084)
Out-of-hours and work-related electronic communication× Boundary resilience capabilities		0.141**
		(0.060)
distinguishing between the sexes	-0.041	-0.013
	(0.124)	(0.126)
(a person's) age	0.153*	0.147
	(0.091)	(0.089)
educational attainment	-0.050	-0.028
	(0.093)	(0.091)
length of teaching experience	-0.223**	-0.201**
	(0.082)	(0.080)
F	5.824***	5.529***
Adjusted R^2	0.206	0.254

Note. * indicates significant at the 0.1 level, ** indicates significant at the 0.05 level, *** indicates significant at the 0.01 level; values in parentheses represent standard errors.

In order to be able to more intuitively show the moderating effect of boundary elasticity capacity on the relationship between non-working time and work-related e-communication and work input, this paper plots the moderating

effect as described in the previous section. As shown in Figure 2, the solid and dashed lines represent low boundary elasticity capacity and high boundary elasticity capacity, respectively, and the slopes of the two lines are both negative, indicating that the relationship between non-work time and work-related e-communication and work input is negative. The results in the figure show that the slope is smaller when the boundary elasticity capacity is at a high level, and at this time the negative impact of non-work time and work-related e-communication on work input is smaller than when the boundary elasticity capacity is low. This shows that the boundary elasticity capacity has a negative moderating effect in the relationship between non-working time and work-related e-communication and work input, which reduces the negative impact of non-working time and work-related e-communication on work input.

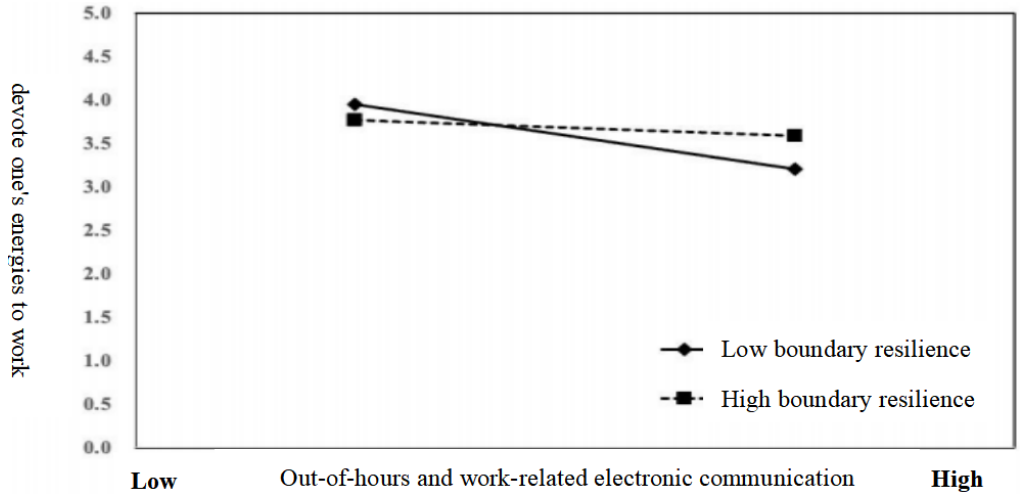

Figure 2. Moderating effect of boundary resilience capacity on non-work time and work-related electronic communication and work engagement

4.4 Heterogeneity Analysis

This paper analyzes heterogeneity from the perspective of different levels of autonomous and controlled motivation. Specifically, taking the mean value of autonomous and controlled motivation as the division point, autonomous motivation is divided into low autonomous motivation and high autonomous motivation, and controlled motivation is divided into low controlled motivation and high controlled motivation. The results, as shown in Table 6, under high levels of autonomous motivation, the negative effect of non-working time and work-related electronic communication on work engagement is weakened, and the moderating effect of boundary elasticity competence is more significant; while under high controlled motivation, the negative effect of non-working time and work-related electronic communication on work engagement is deeper, but the negative moderating effect of boundary elasticity competence can be manifested only under low levels of controlled motivation.

Table 6. Results of heterogeneous analysis

variant	devote one's energies to work			
	Low autonomous motivation	Highly autonomous motivation	Low-control motives	Highly Controlled Motivation
Out-of-hours work-related electronic communication	-0.314**	-0.203**	-0.183**	-0.302**
	(0.108)	(0.064)	(0.068)	(0.111)
Boundary resilience	0.049	-0.046	0.058	-0.018
	(0.093)	(0.136)	(0.095)	(0.149)
Out-of-hours work-related electronic communication x Boundary resilience capability	0.076	0.297**	0.155**	0.092
	(0.061)	(0.108)	(0.065)	(0.110)
distinguishing between the sexes	-0.031	0.102	-0.090	-0.084
	(0.163)	(0.179)	(0.165)	(0.208)

(a person's) age	0.205*	-0.055	0.243**	-0.098
	(0.104)	(0.136)	(0.094)	(0.177)
educational attainment	-0.019	0.074	-0.161	0.113
	(0.117)	(0.128)	(0.109)	(0.149)
length of teaching experience	-0.225**	-0.079	-0.286***	-0.023
	(0.092)	(0.122)	(0.082)	(0.165)
F	4.061**	3.490**	5.354***	2.123*
Adjusted R^2	0.333	0.262	0.393	0.149

Note. *, **, *** denote significant at the 0.1, 0.05, and 0.01 levels, respectively; values in parentheses are standard errors.

5. Conclusions and Implications of the Study

5.1 Conclusions of the study

This paper takes teachers in college A as the research object, using descriptive statistics, correlation analysis, regression analysis and other methods, on the basis of grasping the status quo of non-working time and work-related electronic communication and work input of teachers in college A, revealing the role relationship between non-working time and work-related electronic communication and work input and the moderating role of boundary flexibility ability from different levels of autonomous motivation and controlled motivation Heterogeneity analysis was conducted. The results of empirical analysis show that non-work time and work-related e-communication are negatively correlated with work engagement, and boundary elasticity ability plays a negative moderating role between non-work time and work-related e-communication and work engagement among teachers in university A. The results of heterogeneity analysis show that high level teachers are more likely to have a negative relationship between non-work time and work-related e-communication. The results of heterogeneity analysis show that college A teachers with a high level of autonomous motivation can effectively mitigate the negative impact of non-work time and work-related e-communication on work engagement, and the moderating effect of boundary elasticity will be more significant; whereas college A teachers with a high level of controlled motivation will exacerbate the negative impact of non-work time and work-related e-communication on work engagement, and boundary elasticity will be more significant only in the case of a low level of controlled motivation. The negative moderating effect of boundary resilience of HEI A teachers with high levels of controlled motivation is only manifested at low levels of controlled motivation.

5.2 Implications of the Study

HEI A should tighten control over the duration of teachers' non-work time and work-related electronic communication, for example, by specifying the maximum time required for teachers to engage in non-work time and work-related electronic communication and to complete related work on a daily basis; HEI A should take a number of measures to increase teachers' autonomous motivation, reduce controlled motivation, develop more flexible and personalized work and rest time schedules, and reorganize the work pattern; and HEI A should be keenly aware that management strategies that overly require teachers to maintain constant work contact during non-work time are not a long-term solution. Recognize that management strategies that overly require teachers to be in constant contact with their work during non-working hours are not sustainable and may not be effective in contributing to teachers' long-term performance.

A Colleges and universities should pay more attention to teachers' mental health and implement targeted measures, such as training in psychological disengagement strategies, to enhance teachers' ability to regulate their mental health, so that they can restore their physical and mental resources in time to show a higher level of commitment to their work. Colleges and universities can also conduct regular mental health surveys and organize lectures for teachers to teach them about mental health and methods of self-regulation.

A Colleges and universities should strengthen humanistic care for teachers and advocate happy work and happy life. For example, university A can implement a humanized management model, understand teachers' needs, care about their work and living conditions, and provide necessary family-friendly support policies. It should also moderately improve teachers' welfare benefits, such as housing, children's schooling, medical insurance, health care and hardship assistance, to alleviate teachers' worries and role conflict pressure, so that they can devote themselves to their work and family roles in a positive and happy mood, and enhance their family life performance.

References

Ferguson, M., Carlson, D., Boswell, W., et al. (2016). Tethered to work: A family systems approach linking mobile

device use to turnover intentions. *Journal of Applied Psychology*, *101*(4), 520. https://doi.org/10.1037/apl0000075

Cheng, H., Chen, S., & Guo, K. (2023). A review of research on non-working hours and work-related electronic communication and future prospects. *China Human Resource Development*, *40*(1), 6–20.

Wang, Q. (2023). *Research on the effect of non-working time electronic communication on employees' work withdrawal behavior* [Master's thesis, Beijing University of Information Science and Technology].

Li, Y. (2022). *The effect of off-hours work connectivity behavior on employee proactive behavior: The role of employee dynamics and segmentation preferences* [Master's thesis, Southwest University of Finance and Economics].

Ru, Y. (2022). *The effects of electronic communication on emotional exhaustion during non-working hours* [Master's thesis, Southwest University of Finance and Economics].

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Ohly, S., & Latour, A. (2014). Work-related smartphone use and well-being in the evening: The role of autonomous and controlled motivation. *Journal of Personnel Psychology*, *13*(4), 174–183. https://doi.org/10.1027/1866-5888/a000114

Lv, X., & Shen, Z. (2024). A study on the influencing factors of international Chinese learners' motivation in a blended learning context. *Journal of Hainan Normal University (Social Science Edition)*, *37*(5), 109–117.

Boswell, W. R., Olson-Buchanan, J. B., Butts, M. M., et al. (2016). Managing "after hours" electronic work communication. *Organizational Dynamics*, *45*(4), 291–297. https://doi.org/10.1016/j.orgdyn.2016.10.004

Gadeyne, N., Verbruggen, M., Delanoeije, J., et al. (2018). All wired, all tired? Work-related ICT-use outside work hours and work-to-home conflict: The role of integration preference, integration norms and work demands. *Journal of Vocational Behavior*, *107*, 86–99. https://doi.org/10.1016/j.jvb.2018.03.008

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, *33*(4), 692–724. https://doi.org/10.2307/256287

Britt, T. W., Adler, A. B., & Bartone, P. T. (2001). Deriving benefits from stressful events: The role of engagement in meaningful work and hardiness. *Occupational Health Psychology*, *6*(1), 53–63. https://doi.org/10.1037/1076-8998.6.1.53

Schaufeli, W. B., Salanova, M., González-Romá, V., et al. (2002). The measurement of engagement and burnout: A confirmative analytic approach. *Journal of Happiness Studies*, *3*(1), 71–92. https://doi.org/10.1023/A:1015630930326

Clark, S. C. (2000). Work/family border theory: A new theory of work/family balance. *Human Relations*, *53*(6), 747–770. https://doi.org/10.1177/0018726700536001

Matthews, R. A., & Barnes-Farrell, J. L. (2010). Development and initial evaluation of an enhanced measure of boundary flexibility for the work and family domains. *Journal of Occupational Health Psychology*, *15*(3), 330. https://doi.org/10.1037/a0019302

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*(3), 513–524. https://doi.org/10.1037/0003-066X.44.3.513

Hobfoll, S. E., Halbesleben, J., Neveu, J. P., et al. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*(1), 103–128. https://doi.org/10.1146/annurev-orgpsych-032117-104640

Ye, S. (2022). *Noncompliance tasks and work-family conflict: The mediating role of psychological disengagement and the moderating role of boundary resilience competencies* [Master's thesis, Henan University].

Xu, X. (2022). *The effect of boundary flexibility ability on individual prosperity of new generation employees: The mediating role of work-family gain and the moderating role of boundary flexibility willingness* [Master's thesis, Jiangxi University of Finance and Economics].

Liao, H., Huang, L., & Hu, B. (2022). Resource conservation theory in organizational behavior: Evolution and challenges. *Advances in Psychological Science*, *30*(2), 449–463. https://doi.org/10.3724/SP.J.1042.2022.00449

He, Y., & Yu, J. (2020). The effect of non-working time electronic communication on employees' time encroachment behavior: Based on the perspective of resource preservation theory. *China Human Resource Development*, *37*(1), 54–67.

Yuan, X. (2021). *A two-path study of the effects of non-work time work-related electronic communication on employees' work engagement* [Master's thesis, Shanxi University].

Christian, M. S., Garza, A. S., & Slaughter, J. E. (2011). Work engagement: A quantitative review and test of its relations with task and contextual performance. *Personnel Psychology*, *64*(1). https://doi.org/10.1111/j.1744-6570.2010.01203.x

Zhao, Y., Wang, Y., Wang, C., et al. (2024). A meta-analytic study of non-work time work connectivity behaviors affecting work feelings and work behaviors. *Applied Psychology*, 1–18. https://doi.org/10.20058/j.cnki.CJAP.024043

Lanaj, K., Johnson, R. E., & Barnes, C. M. (2014). Beginning the workday yet already depleted? Consequences of late-night smartphone use and sleep. *Organizational Behavior & Human Decision Processes*, *124*(1), 11–23. https://doi.org/10.1016/j.obhdp.2014.01.001

Wan, J., Zhou, W., Zhou, H., et al. (2023). Effects of psychological disengagement on work engagement: Facilitation or inhibition? *Advances in Psychological Science*, *31*(2), 209–222. https://doi.org/10.3724/SP.J.1042.2023.00209

Xu, J., & Lu, H. (2018). Work-family conflict and turnover propensity—The moderating role of boundary resilience capacity. *Technology and Management*.

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

Ma, H., Xie, J., Tang, H., et al. (2016). Work-based communication tool use and the well-being of dual-career couples: An analysis based on spillover–crossover effects. *Journal of Psychology*, *48*(1), 48–58. https://doi.org/10.3724/SP.J.1041.2016.00048

Ma, H., Shen, C., Yang, J., et al. (2014). The relationship between boundary flexibility and work-family conflict and gain: A perspective based on person-environment matching. *Journal of Psychology*, *46*(4), 540–551. https://doi.org/10.3724/SP.J.1041.2014.00540

Grant, A. M., Gino, F., & Hofmann, D. A. (2011). Reversing the extraverted leadership advantage: The role of employee proactivity. *Academy of Management Journal*, *54*(3), 528–550. https://doi.org/10.5465/amj.2011.61968043

Ni, Q., Pan, C., & Lu, Y. (2022). A study on the impact of dual time pressure on the work prosperity of young college teachers. *Journal of Beijing University of Chemical Technology (Social Science Edition)*, (1), 22–31, 82.

Robinson, C., & Schumacker, R. E. (2009). Interaction effects: Centering, variance inflation factor, and interpretation issues. *Multiple Linear Regression Viewpoints*, *35*(1), 6–11.