



# Balancing Demands and Flexibility in Remote Work on Job Performance among Faculty Members in Public Universities in Shandong Province, China: The Mediating Role of Employee Engagement

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## Abstract

Remote working has become an increasingly important feature of digitally mediated academic work in China's higher education sector, where faculty members perform teaching, research, student supervision, academic service, and administrative responsibilities across different times and locations. Although remote working can provide greater autonomy and flexibility, it may also increase workload, work pace, time pressure, and difficulties in maintaining work-life boundaries. Previous studies have examined work intensity and work flexibility separately, but limited attention has been given to how these contrasting remote working conditions jointly influence faculty members' job performance and the psychological mechanism through which these effects occur. Guided by Job Demands-Resources (JD-R) Theory and Work Engagement Theory, this paper develops a framework linking work intensity and work flexibility to faculty job performance through employee engagement. Work intensity is conceptualised as a job demand, whereas work flexibility is conceptualised as a job resource. Employee engagement is proposed as the mediating mechanism through which these contrasting remote working conditions influence job performance. The proposed study focuses on full-time faculty members with remote working experience in three public universities in Jinan City, Shandong Province, China. A quantitative cross-sectional survey design is proposed, using purposive sampling and Partial Least Squares Structural Equation Modelling (PLS-SEM) for hypothesis testing. This paper contributes to the literature by distinguishing the demand and resource characteristics of remote work, examining their contrasting relationships with engagement and performance within one framework, and extending remote working research to the underexamined context of Chinese public higher education.

**Keywords:** Remote Working; Work Intensity, Work Flexibility, Employee Engagement, Job Performance, Public Universities

## Introduction

Faculty members' job performance has become an important issue in higher education research and practice because faculty work encompasses multiple responsibilities, including teaching, research, academic service, and administration (Sun & Yoon, 2025). At the same time, remote working has become an increasingly established feature of digitally mediated work as information and communication technologies allow employees to perform work beyond conventional workplaces (Allen et al., 2015). Research suggests that remote working should not be treated as a uniform work arrangement because its outcomes depend on how it is designed, implemented, and experienced by employees (Allen et al., 2015; Wang et al., 2021). Remote working can increase autonomy and reduce work–family conflict, while more recent evidence from a randomised trial shows that hybrid working can improve job satisfaction and retention without reducing employee performance (Gajendran & Harrison, 2007; Bloom et al., 2024). This mixed nature of remote working is particularly relevant to higher education, where faculty members perform multiple academic responsibilities across different times, locations, and digital environments.

The importance of studying remote working lies in the specific demands and resources that faculty members experience within these working arrangements. Two conditions are particularly relevant to this issue: work intensity and work flexibility. Work intensity reflects the amount and pace of work and the sustained effort required to complete work responsibilities, whereas work flexibility concerns employees' ability to exercise greater control over when and where their work is performed (Spector & Jex, 1998; Hill et al., 2008). These conditions represent contrasting aspects of remote working from a Job Demands–Resources perspective. High work intensity may consume employees' physical and psychological resources, whereas work flexibility may provide greater autonomy and facilitate more effective organisation of work (Bakker & Demerouti, 2017). For faculty members who must coordinate teaching, research, assessment, academic service, and administrative responsibilities, understanding how these demands and resources influence engagement and performance is particularly important.

China's higher education sector provides a relevant context for examining these relationships. The continuing digital transformation of higher education has expanded the use of online teaching, digital platforms, virtual communication, smart education systems, and technology-supported academic collaboration. National education digitalisation initiatives have encouraged the integration of digital technologies into university teaching, research, and academic management (Ministry of Education of the People's Republic of China, 2022, 2023). In 2024, China had 3,119 higher education institutions and 2.1635 million full-time teachers in higher education, demonstrating the substantial scale of the academic workforce affected by digital transformation (Ministry of Education of the People's Republic of China, 2025). Recent empirical evidence further indicates that digital transformation positively predicts faculty performance through digital self-efficacy, with task–technology fit shaping this relationship (Sun & Yoon, 2025). Shandong Province has likewise promoted the integration of digital technologies into education, while Jinan City has a substantial concentration of higher education institutions and faculty members. These developments provide an appropriate context for examining how remote working demands and resources may influence faculty members' job performance.

Within this context, work intensity and work flexibility may have contrasting implications for faculty members' job performance. Work intensity can be understood as a job demand involving greater amounts of work, faster work pace, and sustained effort, which may require employees to invest considerable physical and psychological resources (Spector & Jex, 1998; Bakker & Demerouti, 2017). In remote working environments, continuous digital connectivity, extended availability, overlapping responsibilities, and blurred boundaries between work and non-work may further increase the demands experienced by employees (Wang et al., 2021). In contrast, work flexibility reflects employees' ability to make choices regarding when, where, and for how long they perform work-related tasks (Hill et al., 2008). Temporal and spatial flexibility may provide faculty members with greater control over their working arrangements and enable them to coordinate different academic responsibilities more effectively. Examining these two dimensions together therefore allows remote working to be understood as a combination of a central job demand and a central job resource rather than simply as the location from which work is performed.

This topic is worth studying because existing empirical evidence indicates that the effects of remote and flexible working depend substantially on the working conditions experienced by employees. Naqshbandi et al. (2024) found among university employees that flexible work positively influenced both work engagement and job performance, whereas telework itself had no significant effect on either outcome. Arifah et al. (2025) similarly found among university lecturers that flexible working arrangements were positively associated with work engagement and lecturer performance, with work engagement serving as an important mechanism linking flexibility to performance. In contrast, evidence reviewed by Mauno et al. (2023) shows that quantitative work intensification, characterised by increased pace, workload, and effort, is generally associated with adverse motivational and performance-related outcomes, including lower work engagement and poorer work-related performance. These findings indicate that the consequences of remote working may depend less on remote working itself than on the balance between the demands and resources embedded within the arrangement. This provides the primary motivation for examining work intensity and work flexibility together rather than treating remote working as a single and uniform condition. Such an approach may provide a more complete account of the conditions under which remote academic work supports or constrains faculty members' engagement and performance.

Against this background, the present study proposes an integrated framework explaining how work intensity and work flexibility may influence faculty members' job performance in selected public universities in Jinan City, Shandong Province, China. Drawing on Job Demands–Resources Theory and Work Engagement Theory, the framework conceptualises work intensity as a job demand and work flexibility as a job resource, with employee engagement proposed as the psychological mechanism through which these contrasting conditions may influence job performance. Engagement is characterised by vigour, dedication, and absorption (Schaufeli et al., 2002), and higher levels of engagement have been associated with stronger job performance (Rich et al., 2010; Christian et al., 2011). High work intensity may reduce engagement by consuming employees' energy and limiting opportunities for recovery, whereas work flexibility may strengthen engagement by increasing autonomy and enabling faculty members to organise their work more effectively. The study therefore examines the direct relationships between work intensity and work

flexibility and faculty members' job performance, as well as the mediating role of employee engagement. The contribution of the study lies in bringing a demand-related and a resource-related dimension of remote working together within one explanatory framework, while using employee engagement to examine the psychological mechanism linking both conditions to faculty job performance. It also extends the empirical discussion of remote working to faculty members in Chinese public universities, a context in which academic responsibilities are increasingly performed across digitally mediated and flexible working arrangements.

### *Remote Working*

Remote working refers to arrangements in which employees perform some or all of their regular duties away from a conventional central workplace through the use of information and communication technologies (Allen et al., 2015; Wang et al., 2021). In higher education, remote working enables faculty members to undertake activities such as online teaching, research collaboration, student communication and supervision, virtual meetings, academic service, and administrative work beyond the traditional university workplace. The continuing digitalisation of higher education has therefore increased the relevance of remote and technology-mediated academic work.

Previous research demonstrates that remote working can generate both benefits and challenges. Gajendran and Harrison (2007) found that telecommuting was generally associated with greater perceived autonomy, lower work–family conflict, and favourable work outcomes. Allen et al. (2015) further showed that the consequences of telecommuting vary according to factors such as its extent, job characteristics, and organisational context. Wang et al. (2021) identified work–home interference, ineffective communication, procrastination, and loneliness as major remote working challenges and highlighted the roles of workload, autonomy, social support, monitoring, and self-discipline. These findings suggest that remote working itself does not automatically improve or reduce employee performance. Rather, its consequences depend substantially on the specific working conditions employees experience. This paper therefore focuses particularly on work intensity as a job demand and work flexibility as a job resource.

### *Work Intensity*

Work intensity refers to the degree of effort employees are required to expend during working time and is commonly reflected in the amount and pace of work, time pressure, and sustained effort (Green, 2004). It differs conceptually from working hours because it concerns how demanding work is during the available working period rather than simply how long employees work. In remote working environments, work intensity may involve heavy workloads, rapid work pace, time pressure, extended availability, multitasking, and sustained effort. These conditions require continued physical and psychological resources and may therefore represent an important job demand.

Previous research indicates that excessive work intensity can negatively affect employee outcomes. Mauno et al. (2020) reported adverse relationships between work intensification and employee performance across different occupational groups. Soucek et al. (2024) further found that greater work intensity was positively associated with emotional exhaustion and negatively associated with work engagement. In remote and digitally mediated work, extended availability and blurred work–non-work boundaries may further contribute to

intensified working conditions. For faculty members who must simultaneously manage teaching, research, student supervision, assessment, academic service, meetings, and administrative responsibilities, excessive work intensity may consequently reduce their ability to maintain energy, concentration, and effective performance.

### *Work Flexibility*

Work flexibility refers to employees' ability to exercise choice over when, where, and for how long they perform work-related tasks (Hill et al., 2008). It commonly involves temporal and spatial flexibility and provides employees with greater control over their work schedules and work locations. In remote academic work, temporal flexibility may allow faculty members to organise teaching preparation, research, assessment, student supervision, and administrative responsibilities according to task requirements, while spatial flexibility may enable appropriate academic activities to be performed away from the conventional university workplace.

Previous research generally indicates favourable relationships between work flexibility and employee outcomes, although these relationships may vary according to how flexible working arrangements are implemented. Gajendran and Harrison (2007) found that telecommuting was associated with greater perceived autonomy and favourable work outcomes. Delanoeije and Verbruggen (2020) reported that employees experienced higher daily work engagement and job performance on teleworking days than on office-working days, although these effects were not evident at the overall person level. More directly relevant to higher education, Naqshbandi et al. (2024) found that flexible work positively influenced both work engagement and job performance among university employees. Arifah et al. (2025) likewise found that flexible working arrangements were positively associated with work engagement and lecturer performance. These findings support the conceptualisation of work flexibility as a job resource that may enhance autonomy, engagement, and performance.

### *Employee Engagement*

Employee engagement refers to a positive and fulfilling work-related psychological state characterised by vigour, dedication, and absorption (Schaufeli et al., 2002). Vigour reflects high levels of energy, mental resilience, effort, and persistence at work. Dedication refers to strong involvement in work accompanied by enthusiasm, significance, inspiration, pride, and challenge, whereas absorption reflects being fully concentrated and immersed in work. In the present study, employee engagement is conceptualised from this work-engagement perspective and reflects the energy, involvement, and concentration faculty members invest in their work.

Previous studies consistently indicate that engagement is associated with favourable performance outcomes. Rich et al. (2010) found that greater job engagement contributed to stronger job performance, while Christian et al. (2011) provided meta-analytic evidence supporting the positive relationship between work engagement and performance. Evidence from higher education further supports the role of engagement as an explanatory mechanism. Naqshbandi et al. (2024) found that work engagement significantly mediated the relationship between flexible work and job performance among university employees. Arifah et al. (2025) similarly identified work engagement as an important mechanism linking flexible working arrangements with lecturer performance. Employee engagement is therefore

positioned in the present study as the psychological mechanism through which work intensity and work flexibility may influence faculty members' overall job performance.

### **Theoretical Foundations**

#### *Job Demands–Resources Theory*

Job Demands–Resources Theory provides the primary theoretical foundation for this paper. JD-R theory proposes that job demands require sustained physical or psychological effort and may generate corresponding physiological or psychological costs, whereas job resources help employees achieve work goals, reduce job demands and their associated costs, and stimulate motivation and development (Demerouti et al., 2001; Bakker & Demerouti, 2017). In this study, work intensity is conceptualised as a job demand because it involves workload, work pace, time pressure, and sustained effort, while work flexibility is conceptualised as a job resource because it provides employees with greater control over when and where they perform their work. This distinction provides a theoretical basis for explaining the contrasting effects of work intensity and work flexibility on employee engagement and job performance.

#### *Work Engagement Theory*

Work Engagement Theory explains the psychological mechanism through which work intensity and work flexibility may influence job performance. Employee engagement is characterised by vigour, dedication, and absorption (Schaufeli et al., 2002). Excessive work intensity may consume employees' physical and psychological resources and reduce their ability to remain engaged, whereas work flexibility may provide greater autonomy and control that help employees sustain their engagement. Previous research indicates that job resources are important predictors of work engagement (Schaufeli & Bakker, 2004), while higher work engagement is positively associated with stronger job performance (Christian et al., 2011). Employee engagement is therefore positioned as a mediator between work intensity and job performance and between work flexibility and job performance.

#### *Research Gaps and Hypothesis Development*

Four research gaps justify the present framework. First, existing remote working research has often examined work intensity, work flexibility, and broader remote working arrangements separately, while relatively limited attention has been given to comparing work intensity and work flexibility within the same framework as contrasting job demand and job resource conditions. Second, theoretical integration remains limited, as the demand–resource distinction provided by Job Demands–Resources Theory and the psychological mechanism explained through Work Engagement Theory have received limited joint examination in explaining how remote working conditions influence employee engagement and job performance. Third, empirical evidence focusing specifically on faculty members in Chinese public universities remains limited, although their teaching, research, academic service, administrative responsibilities, and digitally mediated working conditions may create distinctive experiences of work intensity and flexibility. Fourth, limited research has simultaneously examined the complete mechanism proposed in this study, in which employee engagement mediates the relationships between work intensity and job performance and between work flexibility and job performance. These gaps justify testing the proposed framework among faculty members in public universities in Shandong Province, China.

Based on the above reasoning, the following hypotheses are proposed:

| Hypothesis | Statement                                                                                                                                                            |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| H1         | There is a negative relationship between work intensity in remote working and job performance among faculty members in public universities of Shandong Province in   |
| H2         | There is a positive relationship between work flexibility in remote working and job performance among faculty members in public universities of Shandong Province in |
| H3         | There is a negative relationship between work intensity in remote working and employee engagement among faculty members in public universities of Shandong           |
| H4         | There is a positive relationship between work flexibility in remote working and employee engagement among faculty members in public universities of Shandong         |
| H5         | There is a positive relationship between employee engagement and job performance among faculty members in public universities of Shandong Province in                |
| H6         | Employee engagement mediates the relationship between work intensity in remote working and job performance among faculty members in public universities of           |
| H7         | Employee engagement mediates the relationship between work flexibility in remote working and job performance among faculty members in public universities of         |

### Conceptual Framework

Figure 1 presents the proposed conceptual framework. Remote working is positioned as the independent variable and comprises two dimensions: work intensity and work flexibility, while job performance is positioned as the dependent variable. Employee engagement is positioned as a mediator between the two remote working dimensions and job performance. The framework proposes that work intensity, representing the demand-related dimension of remote working, and work flexibility, representing the resource-related dimension, influence faculty members' job performance both directly and indirectly through employee engagement. In this way, the framework illustrates how different dimensions of remote working may shape faculty members' job performance through their effects on employee engagement.

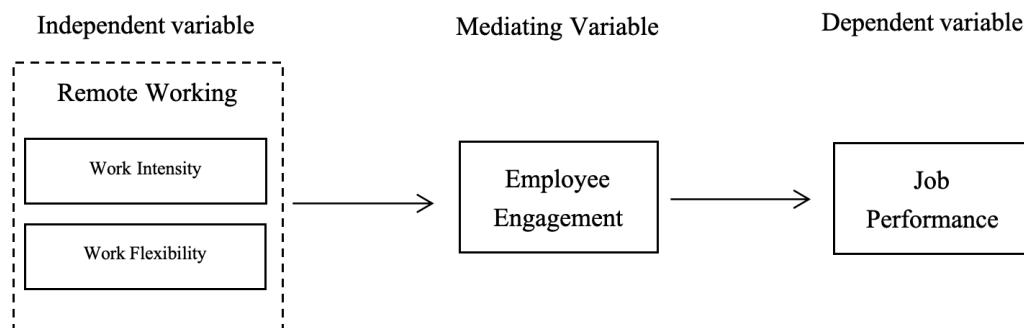


Figure 1. Conceptual framework of the present study

**Proposed Methodology**

The proposed study adopts a positivist, deductive, quantitative, cross-sectional, and correlational research design. Data will be collected at one point in time using a structured self-administered questionnaire. This design is appropriate because the study tests theoretically derived relationships among remote working, employee engagement, and job performance, including both direct and mediating effects, in a natural higher education work setting.

The individual faculty member is the unit of analysis. The accessible population comprises 7,960 full-time faculty members at Shandong University, the University of Jinan, and Shandong University of Commerce and Technology in Jinan City. Eligible respondents must be full-time faculty members, hold a Teacher Qualification Certificate for Higher Education, have worked at the same university for at least one year, and have experience performing academic duties under remote working arrangements.

Purposive sampling will be used because participation depends on these specific eligibility criteria. The study plans to distribute 266 questionnaires proportionally across the three universities and seeks at least 140 valid responses. Human resources offices or designated university coordinators will assist with questionnaire distribution and collection. Participants will receive information about the study's purpose, anonymity, confidentiality, and voluntary nature before responding.

For the present paper, 28 measurement items from the broader questionnaire will be analysed across four constructs. Remote working is represented by two dimensions: work intensity and work flexibility. Work intensity is measured with five items from the Quantitative Workload Inventory developed by Spector and Jex (1998), while work flexibility is measured with six temporal and spatial flexibility items adopted from Hartner-Tiefenthaler et al. (2023). Employee engagement is measured using the nine-item Utrecht Work Engagement Scale developed by Schaufeli et al. (2006), and job performance is measured with eight items adapted from Rahmadani et al. (2020), based on Goodman and Svyantek (1999), to reflect faculty members' academic and institutional responsibilities. A pilot study with 30 eligible faculty members produced Cronbach's alpha values of 0.939 for work intensity, 0.874 for work flexibility, 0.755 for employee engagement, and 0.826 for job performance, indicating acceptable internal consistency across the four constructs.

Data will first be screened and summarised using SPSS 28. The measurement and structural models will then be assessed using Partial Least Squares Structural Equation Modelling in SmartPLS 4. The analysis will examine indicator reliability, internal consistency reliability, convergent validity, discriminant validity, collinearity, path coefficients, explanatory power, predictive relevance, and bootstrapped direct and indirect effects, following established PLS-SEM procedures (Hair et al., 2017). The indirect effects of work intensity and work flexibility on job performance through employee engagement will be examined to evaluate the proposed mediating relationships.

**Contributions and Practical Implications**

This paper offers four theoretical contributions. First, it integrates work intensity and work flexibility within one remote working framework, while distinguishing work intensity as a job

demand and work flexibility as a job resource. Second, it integrates Job Demands–Resources Theory and Work Engagement Theory to explain how contrasting remote working conditions influence employee engagement and job performance. Third, it positions employee engagement as a common psychological mechanism through which both work intensity and work flexibility may influence job performance, allowing the indirect effects of a demand-related dimension and a resource-related dimension of remote working to be examined within the same model. Fourth, it contextualises the framework within Chinese public universities, where faculty members perform multiple teaching, research, academic service, and administrative responsibilities under increasingly digital and flexible working conditions. The framework also has practical implications for faculty members, academic leaders, and university managers. For faculty members, the study highlights how excessive work intensity may weaken engagement and job performance, while appropriate work flexibility may provide greater autonomy and support the effective coordination of academic responsibilities. For academic leaders, the framework emphasises the importance of recognising the different effects of work demands and work resources on faculty engagement and of avoiding excessive workload and time pressure while preserving meaningful flexibility. For university managers, the findings can inform remote working practices by managing work intensity, providing appropriate temporal and spatial flexibility, and creating working arrangements that support employee engagement. Together, these practices may help improve faculty members' job performance and support the effective management of public universities in an increasingly digital working environment.

## Conclusion

This paper develops an integrated framework to explain how remote working conditions influence the job performance of faculty members in Chinese public universities. By focusing on faculty members in public universities in Shandong Province, China, the paper conceptualises remote working through two dimensions: work intensity and work flexibility. The proposed framework argues that these dimensions may influence job performance both directly and indirectly through employee engagement, with work intensity representing a demand-related dimension and work flexibility representing a resource-related dimension of remote working.

Overall, the paper contributes to remote working and higher education research by integrating Job Demands–Resources Theory and Work Engagement Theory within one coherent framework. It also provides a clear theoretical foundation for empirically testing the direct and mediating relationships among work intensity, work flexibility, employee engagement, and faculty job performance in Chinese public universities.

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