

Teachers' Job Demands and Innovative Work Behavior: A Systematic Review

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ABSTRACT

This systematic review examines the relationship between job demands and teachers' innovative work behavior (IWB), addressing a gap in synthesizing empirical evidence within educational contexts. Grounded in the Job Demands-Resources model and related theories, it investigates direct and indirect pathways. A PRISMA-guided SLR identified 10 studies from Web of Science, Scopus, and EBSCOhost. Findings reveal that challenging demands positively predict IWB, while hindering demands negatively affect it. Specially, Teacher-research conflict significantly undermines IWB, whereas time pressure's impact remains inconclusive. However, excessively high demands of any type impair innovation. Three mechanisms emerged: stress and health damage, motivation and cognitive processing, and proactive reshaping. Organizational factors showed counterintuitive moderating effects. Theoretical gaps persist regarding demand interactions, resource buffering, and cultural specificity. The study underscores the need for context-sensitive frameworks and cross-cultural validation. Future research should integrate multidimensional demand assessments and test dynamic resource interactions to enhance predictive accuracy and practical relevance.

Keywords: job demand, JD-R, innovative work behavior, teacher, systematic literature review

INTRODUCTION

With the development of education, teachers' innovative work behavior (IWB) has evolved from a personal trait into a professional necessity. The educators must not only adopt new approaches but is also required to proactively create and implement innovative solutions to enhance student learning outcomes (Verhoeven et al., 2025; Zhou et al., 2025). While there are abundant research evidence supporting the benefits of IWB for educational sustainability (Balkar, 2024; Maun et al., 2023; Zainal et al., 2020), the antecedents of such behavior remain contested. Specifically, the teaching profession is characterized by high emotional and cognitive demands (Zhao et al., 2024; Skaalvik & Skaalvik, 2018). Excessive demands are often considered a source of pressure that stifles innovation, but specific pressures can become catalysts for solving problems and fostering innovation.

The Job Demands-Resources Model (JD-R) provides a stronger theoretical framework to address this complexity. This model views job demands as a cost of energy consumption (health impairment), and its latest developments further reveal the dual nature of job demands (Bakker & Demerouti, 2024, 2017; Demerouti et al., 2001). The existing empirical evidence presents contradictory findings, some studies reported a debilitating effect of job demands on IWB (Dediu et al., 2018), while others find positive (Martín et al., 2007) or a non-linear relationship (Montani et al., 2020). This inconsistency indicates that "job demands" are not a single negative construct. For teachers, job demands are more inclined towards high work pressure and student-related issues due to the unique nature of teaching (Admiraal & Kittelsen Røberg, 2023; Cheng et al., 2023; Skaalvik & Skaalvik, 2018).

Additionally, some researchers classification of job demands (JD) as hindrance and challenge demands (Lu et al., 2024; Kwon & Kim, 2020), aligned with the Challenge-Hindrance Stressor Framework (Podsakoff et al.,

2023; LePine et al., 2005). Specifically, distinguishing between hindering demands (constraints that impede growth) and challenging demands (pressures that yield potential benefits) provides a feasible pathway for understanding these contradictory research findings. However, there remains a lack of comprehensive studies that systematically apply this differentiated perspective to the teacher population.

Despite extensive research linking JD-R to teacher performances (Zhao et al., 2023; Cao & Zhang, 2022; Guo et al., 2022), the existing literature remains theoretically ambiguous on the topic of teachers' IWB. Current research tends to focus on single pathways of influence, obscuring the complex pathways through which certain needs may stimulate innovative work behavior. Current review studies still showed insufficient exploration in this field. For instance, Kwon and Kim (2020) identified a need for further research on various types of demands and their psychological/environmental mechanisms, while Srirahayu et al. (2023) focused solely on positive antecedents in public organizations. Consequently, this systematic review aims to reveal the transmission mechanisms between teacher job demands and innovative work behaviors by addressing four core questions:

- (1) What specific job demand variables have been operationalized in the literature, and how are they classified within the challenge-hindrance demand framework?
- (2) Which variables show relatively stronger evidence of influencing teachers' innovative work behaviors?
- (3) What mediating and moderating mechanisms explain the divergent effects of different job demands?
- (4) What theories underpin this relationship, and how do these theories explain the influence of job demands on teachers' IWB?

This study's contribution is to provide the first clear empirical review, clarifying the most direct impact of various job demands on teachers' innovative work behaviors, integrating key indirect influence mechanisms and some boundary effects, offering practical guidance for educational administrators and laying a foundation for future theoretical models.

METHODOLOGY

This systematic review was conducted according to the requirements of the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021). The review strategy was established in advance to ensure transparency and reproducibility.

Search strategy

Researchers selected three databases: Web of Science, Scopus, and EBSCO, for comprehensive coverage. Web of Science was chosen as the primary database due to its extensive research scope, timely updates, and user-friendly filtering tools. We used identical keywords across both Scopus and EBSCO to ensure no relevant articles or grey literature were overlooked (Polanin et al., 2017). The review focused on the intersection of "job demands" and "innovative work behavior" among teachers in a school context. Keywords included "teacher*", "job demand*", and "innovative work behavior*", encompassing variations such as "work demand*" and "innovative behavior." A "snowballing" strategy was employed by manually screening the reference lists of identified reviews to minimize publication bias (Wohlin et al., 2022).

The optimized search string for Web of Science was:

TS = ("teacher*" OR "educator*" OR "faculty") AND ("job demand*" OR "work demand*" OR "demand*") AND ("innovative work behavior*" OR "IWB" OR "innovation" OR "creative teaching")

Eligibility criteria

The study employed 6 criteria to determine article eligibility for inclusion in the systematic review. (1) The research sample must consist of currently employed teachers K-12 or higher education settings. (2) The study

must include at least one job demand variable or specific stressors (e.g., workload, conflict) as independent variables. (3) The study must use innovative work behavior or a highly related concept as a dependent variable. (4) The research type must be quantitative empirical research. (5) The articles must have been published between 2015 to 2025 within this ten-year period. (6) The full text of the study must be available in English.

Screening process

Following PRISMA guidelines (Page et al., 2021), a three-step screening process was conducted (Figure 1).

The original database searches across Web of Science (1309 articles), Scopus (675 articles), EBSCOhost (249 articles), and snowball strategy (3 articles) generated 2236 articles. A duplicate screening of articles was conducted using Rayyan (Ouzzani et al., 2016). This resulted in the removal of 115 duplicate articles. A total of 2,121 articles were included in the screening scope of this review. Title, abstract, and keyword screening by the first author excluded irrelevant studies based on predefined criteria, leaving 20 documents for full-text reviews. All full texts retrieved were eligible for further assessment.

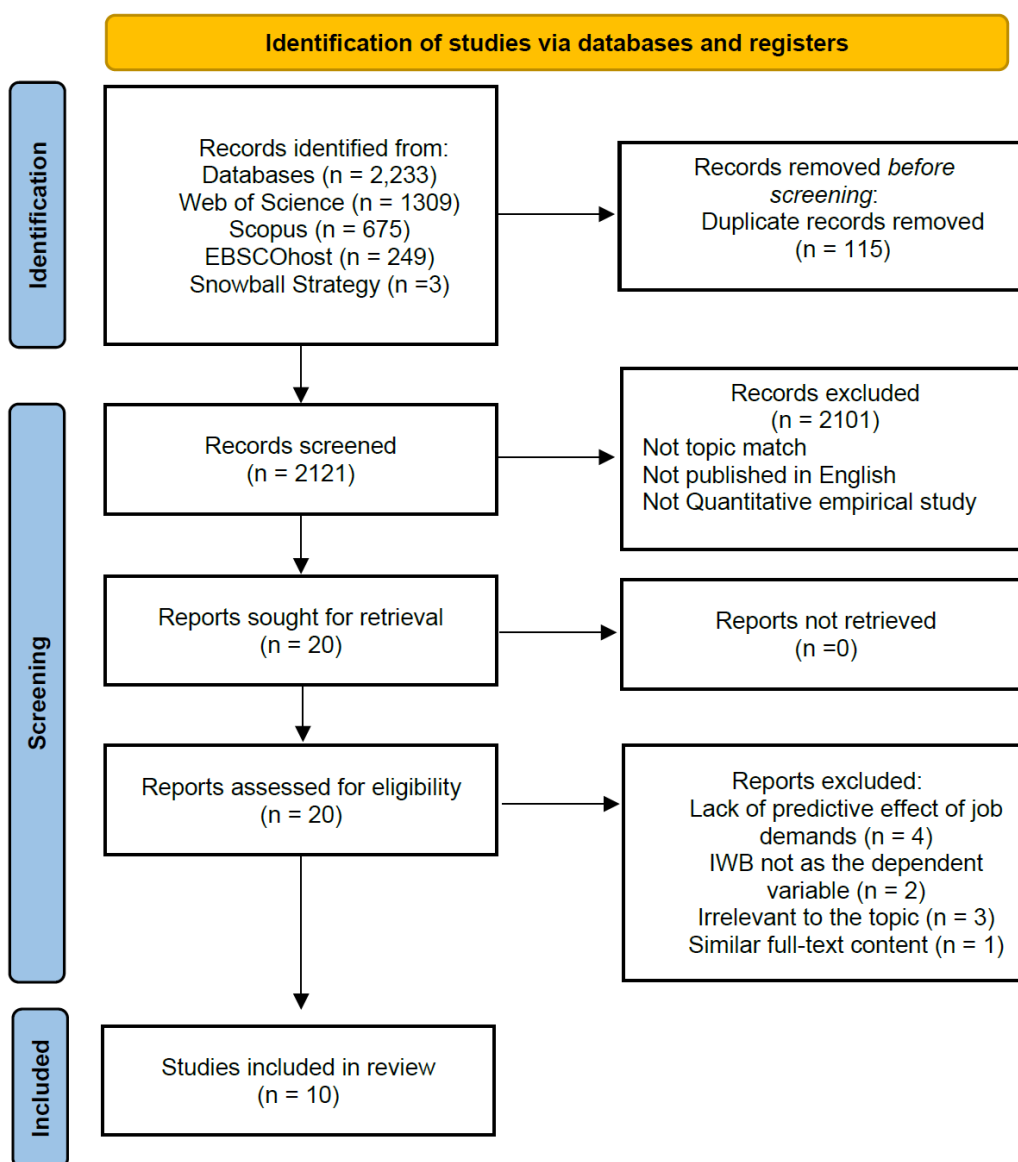


Figure 1 PRISMA flow diagram

Any uncertainties or questions that arose during the review process were thoroughly discussed with the second author to ensure consensus. After excluding papers, 10 studies met inclusion criteria and were retained for analysis. The third author validated the process, confirming the final selection of 10 articles published between 2015 and 2025.

RESULT

Summary of 10 studies

From the year distribution, research on this topic has shown a recent surge, with six studies published after 2024 and four prior to 2021, suggesting a gap in temporal continuity. Geographically, Chinese researchers have been the most active (n=4), followed by Indonesia and Germany (n=2) and single contributions from Vietnam and India, indicating a growing global interest in this area.

Theoretically, most studies are grounded in the job demands-resources (JD-R) theory (n=8), while others relied on conservation of resources (COR) theory (n=1), and the job demand-control-support (JD-CS) model (n=1). Concurrently, three articles combined COR with JD-R, reflected an increasing recognition of resource dynamics in work stress. Other theories included psychological stress and coping theory (n=1), person-vocation fit theory (n=1), and social learning theory (n=1), underscoring the interdisciplinary nature of the field.

The aggregate sample comprised 4327 teachers across diverse educational sectors: Five articles from K-12 (elementary, middle, and high schools), four from higher education (university lecturers), and one from vocational colleges. Quantitative cross-sectional surveys dominated (n=9), employing Structural Equation Modeling (SEM) or Partial Least Squares SEM (PLS-SEM) for analysis. One study utilized multiple linear regression (MLR), and another applied a longitudinal quasi-experimental comparative design. Lin and Liu (2025) uniquely combined variable-centered and person-centered approaches, identifying distinct teacher profiles based on resource-demand combinations. Details were summarized in Table 1.

Table 1 Study Characteristics Data of 10 Studies

Author and Year	Country	Theory	Target Sample	Research Design
1.Lin & Liu (2025)	China	JD-R theory	269 beginning teachers -246 teachers (91.4 %) in urban areas -female (n = 189, 80.1 %) -secondary school teachers (n = 250, 93 %)	Quantitative (Cross-sectional study, SEM; LPA)
2.Tran Huy et al. (2025)	Vietnam	Psychological Stress and Coping theory; JD-R theory; COR theory	1071 public school teachers -602 elementary school teachers -448 lower secondary teachers -230 upper secondary teachers	Quantitative (Cross-sectional study, PLS-SEM)
3.Jörg et al. (2025)	Germany	JD-R theory; Person-vocation fit theory	1,982 university graduates -368 teachers working in elementary, secondary, or vocational public schools -1,614 graduates in a wide range of occupations -512 university graduates in other traditional occupations -279 university graduates in other social service occupations	Quantitative (Longitudinal comparative design, SEM)
4.Wu et al. (2024)	China	Job Demand-Control-Support model (JD-CS); Social Learning theory	849 STEM teachers -407 (47.94%) elementary school teachers -231 (27.21%) are middle school teachers -211 (24.85%) high-school teachers	Quantitative (Cross-sectional study, CB-SEM)
5.Xu et al. (2024)	China	COR theory	208 high education teachers -97 males -111 females	Quantitative (Cross-sectional study, PLS-SEM)

6.Ariesta (2024)	Indonesia	JD-R theory	440 public middle school teachers	Quantitative (Cross-sectional study, PLS-SEM)
7.Rafsanjani et al. (2021)	Indonesia	JD-R theory	233 lecturers -131 males -102 females	Quantitative (Cross-sectional study, PLS-SEM)
8.Dixit & Upadhyay (2021)	Indian	JD-R theory	275 high education teachers	Quantitative (Cross-sectional study, PLS-SEM)
9.Cao et al. (2020)	China	JD-R theory; COR theory	375 university teachers -145 males -230 females	Quantitative (Cross-sectional study, CB-SEM)
10.Messmann et al. (2017)	Germany	JD-R theory; COR theory	239 vocational college teachers	Quantitative (Cross-sectional study, MLR)

Note: JD-R = job demands-resources theory; COR = conservation of resources theory; SEM = structural equation modeling; CB-SEM = covariance-based structural equation modeling; PLS-SEM = partial least squares structural equation modeling; MLR = multiple linear regression; LPA = latent profile analysis.

Variable and findings

Operationalizing job demands in existing literature revealed both integral and multidimensional approaches. Three studies treated job demands as a single latent variable (Wu et al., 2024; Ariesta et al., 2024; Messmann et al., 2017), six studies deconstructed them into specific stressors like time pressure, non-teaching workload, teacher-researcher conflict (TRC), and organizational politics, which enabled a more nuanced understanding of their differential impacts.

Consistent with the Challenge-Hindrance Stressor Framework (Podsakoff et al., 2023), the review categorized demands into two types. Hindrance demands, including non-teaching workload and perceived organizational politics, were found to significantly undermine IWB by increasing distress (Tran Huy et al., 2025). TRC was a significant negative predictor across studies ($\beta = -.35, p < 0.01$), suggesting conflicting professional identities deplete cognitive resources needed for innovation (Rafsanjani et al., 2021). In contrast, challenge demands, such as time pressure, workload, and mandated change, were consistently associated with higher IWB when perceived as growth opportunities (Jörg et al., 2025; Tran Huy et al., 2025; Xu et al., 2024).

The time pressure exhibited a more complex and context-dependent relationship with IWB. While Jörg et al. (2025) found it positively correlated with IWB as a challenge demand, Lin and Liu (2025) observed no direct association in their variable-centered analysis ($\beta = 0.06, p = .310$). Further, Xu et al. (2024) identified a significant positive effect of challenge stressors on IWB ($\beta = 0.493, p < .001$) among Chinese university teachers, while Wu et al. (2024) reported a significant direct effect of job demands on IWB in STEM teachers ($\beta = 0.27, p < .05$). These findings suggest that the functional impact of job demands is contingent on context, role, and resource availability.

About indirect effect, emotional exhaustion, distress, and work enthusiasm were variables associated with weakened teachers' IWB (Tran Huy et al., 2025; Rafsanjani et al., 2021; Cao et al., 2020). Meanwhile, work engagement, eustress, creative motivation, and task reshaping were variables positively influencing teachers' IWB (Ariesta et al., 2024; Dixit & Upadhyay, 2021; Tran Huy et al., 2025; Wu et al., 2024; Xu et al., 2024). Wu et al. (2024) have identified a sequential mediating role where challenging job demands combined with self-confidence stimulated teachers' creative motivation, thereby promoting the development of teachers' IWB.

However, the moderating effect primarily reflected organizational factors. Typically, a favorable employment relationship climate enhances the positive influence of challenging stressors on IWB ($\beta=0.098, p<0.05$) (Xu et al., 2024). The unintuitive finding was that job insecurity and low participatory security exhibited more positive effects in interaction with job demands (Cao et al., 2020; Messmann et al., 2017). Finally, the gender roles and social expectations shaped individuals' perceptions and coping strategies toward challenging demands (Hora et al., 2022). Detailed research variables and findings are presented in Table 2.

Table 2 A Review of Antecedent Variables in Teachers' Innovative Behavior

Source	Independent Variables	Mediating / Moderating Variables	Findings
1. Beginning teachers' innovative work behavior and stress towards change: examining the roles of adaptability and contextual influences	Perceived Autonomy Support (PAS), Time Pressure (TP)	Mediator: Adaptability	Variable-centered: TP showed no significant relationship with IWB ($\beta = 0.06, p = .310$), but significantly and positively predicted Stress Towards Change ($\beta = 0.28, p < .001$) Person-centered: The High-Resource-Pressured profile reported the highest IWB, indicating that high autonomy support and high adaptability significantly promote innovation under moderate time pressure
2. Workplace demands and teachers' work innovative behaviors: empirical study of public schoolteachers in Vietnam	Time Pressure, Non-Teaching Workload, Perceived Organizational Politics, Mandated Change	Mediator: Perceived Stress Moderator: Age Group, School Level	Time pressure can cause both positive and negative stress Non-teaching workload and perceived organizational politics increase negative stress and negatively impact positive stress Mandated changes only positively enhance positive stress Age moderates the relationship between time pressure and both types of stress Job demands can trigger positive and negative stress, and have different effects on IWB
3. Are early career teachers innovative? A comparison with other university graduates	Occupation (Grouping Variable), Openness, Risk-Taking, Autonomy, Time Pressure	Mediator: Autonomy, Time Pressure Control Variable: Gender, Contract Hours, School Type	Time pressure shows a slight positive correlation with innovative behavior Teachers tend to report lower levels of time pressure compared to other university graduates and those in other traditional professions
4. Job stressors and the innovative work behaviour of STEM teachers: serial multiple mediation role of creative self-efficacy and creative motivation	Job Demand, Job Control, Job Support	Mediator: Creative Motivation, Creative Self-Efficacy	JD positively influenced IWB ($\beta=.27, p = .026$) while significantly positively influencing both CM ($\beta=.61, p<.001$) and CSE ($\beta=.30, p<.001$) JD significantly mediated the relationship between CM and IWB (unstandardized effect = 0.341, 95% CI = [0.077, 0.695]) JD significantly influenced IWB through sequential mediation by CSE and CM (unstandardized effect = 0.361, 95% CI= [0.126, 3.401]) However, CSE mediated the relationship between JD and IWB independently and non-significantly Note: Values are reported exactly as they appear in the original source (Wu et al., 2024). The wide confidence interval corresponds to the reported standard error of 1.064.
5. The positive side of stress: investigating the	Challenge Stressors	Mediator: Task Crafting Moderator:	Challenge stressors significantly and positively influence higher education teachers' innovative work behavior ($\beta = 0.493, p <$

<p>impact of challenge stressors on innovative behavior in higher education</p>		<p>Employment Relationship Climate Control Variable: Gender</p>	<p>0.001) Task crafting partially mediates the relationship between challenge stressors and higher education teachers' IWB ($\beta = 0.139$, $p < 0.001$) Employment relationship climate positively moderates the relationship between challenging stressors and higher education teachers' IWB ($\beta = 0.098$, $p < 0.05$) Employment relationship climate did not moderate the mediating effect of task restructuring between challenging stressors and IWB ($\beta = 0.000$, $p > 0.05$) The effect of challenging stressors on innovative behavior differed significantly between male and female teachers ($t = 1.988$, $p < 0.05$) The moderating effect of employment relationship climate on the relationship between challenging stressors and IWB differed significantly between male and female teachers ($t = 2.207$, $p < 0.05$)</p>
<p>6. Analysis of the influence of the factors of innovative work behavior of SMPN teachers in the city of bogor mediated by work engagement and learning goal organization</p>	<p>Transformational Leadership, Leader-Member Exchange, Creative Self-Efficacy, Job Demand, Job Resource, Procedural Justice</p>	<p>Mediator: Work Engagement, Learning Orientation, Perceived Organizational Support</p>	<p>Job demands do not mediate the effect on innovative work behavior ($t = 0.994$, $p = 0.16$) Job demands do not directly influence work engagement ($t = 1.017$, $p = 0.155$)</p>
<p>7. Determinants of innovative teaching among the Indonesian lecturers</p>	<p>Teacher-Researcher Role Conflict (TRC)</p>	<p>Mediator: Emotional Exhaustion, Work Enthusiasm</p>	<p>TRC had a significant negative direct effect on innovative teaching ($\beta = -.35$, $p < .01$) Emotional exhaustion and work enthusiasm significantly mediated the relationship between TRC and innovative teaching, with effect sizes of ($\beta = -0.1786$, $p < .000$) and ($\beta = -0.0136$, $p < .004$)</p>
<p>8. Role of JD-R model in upticking innovative work behaviour among higher education faculty</p>	<p>Job Resources: Job Autonomy, Reward and Recognition Job Demands: Problem with Work</p>	<p>Mediator: Employee Engagement</p>	<p>Employee engagement exhibits a significant indirect (mediating) effect between problem with work and IWB ($\beta = -0.062$, $p = 0.007$)</p>
<p>9. Applying the job demands-resources model to exploring predictors of innovative teaching among university teachers</p>	<p>Job Demands: Teaching-Research Conflict Personal Resources: Teacher Self-Efficacy</p>	<p>Mediator: Emotional Exhaustion, Teaching Motivation Moderator: Job Insecurity</p>	<p>TR conflict positively predicted emotional exhaustion ($\beta = 0.42$, $p < 0.001$), but its prediction of innovative teaching was not significant ($\beta = 0.04$, $p > 0.05$) TR conflict on innovative teaching [95% CI (-0.053, 0.018)] were not significant.</p>
<p>10. Joint effects of job demands and job</p>	<p>Job Demands, Psychological</p>	<p>Moderator: Job Demands,</p>	<p>Job demands (JD) have no significant impact on IWB dimensions and have only a weak</p>

resources on vocational teachers' innovative work behavior	Empowerment, Participative Safety	Psychological Empowerment, Participative Safety	positive effect on idea generation. JD×PE (higher): Shows a significant positive interactive effect on idea promotion (IP) ($\beta = 0.20, p < 0.01$) JD×PS (lower): Shows a significant negative interaction effect on idea realization (IR) ($\beta = -0.17, p < 0.05$)
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DISCUSSION

This section provides further synthesis of the findings and results organized in the previous section, to answer the research questions.

This systematic review finds that job demands significantly influence teachers' innovative work behaviors (IWB). To clarify this relationship, researchers distinguish between challenging and hindering job demands. Challenging demands, including time pressure, mandated change, and challenge stressors (Jörg et al., 2025; Lin & Liu, 2025; Tran Huy et al., 2025; Xu et al., 2024) promote task completion and personal development. Conversely, hindering demands, such as non-teaching workload, perceived organizational politics, teaching-research conflict, and work problems (Tran Huy et al., 2025; Cao et al., 2020; Dixit & Upadhyay, 2021; Rafsanjani et al., 2021) impede these processes.

This classification was guided by Lazarus & Folkman's (1984) Transactional Theory of Stress, which posits that individuals appraised demands as threats or challenges. Threat appraisals trigger negative emotions, while challenge appraisals foster positive emotions and a growth mindset (Folkman, 2013). The Challenge-Hindrance Stressor Framework (CHSF) also solidifying this distinction (Podsakoff et al., 2023; LePine et al., 2005). This study categorizes job demands as hindering or challenging and summarizes identified stressors in Table 3 to address RQ1.

Table 3 Challenging and Hindering Job Demands Encompass Stressors

Challenging job demands	Hindering job demands
<ul style="list-style-type: none"> ● Time pressure (Lin & Liu, 2025; Tran Huy et al., 2025; Jörg et al., 2025) ● Mandated change (Tran Huy et al., 2025) ● Challenge stressor (Xu et al., 2024) 	<ul style="list-style-type: none"> ● Non-teaching workload (Tran Huy et al., 2025) ● Perceived organizational politics (Tran Huy et al., 2025) ● Teaching-research conflict (Rafsanjani et al., 2021; Cao et al., 2020) ● Problem with work (Dixit & Upadhyay, 2021)

RQ2 analysis revealed a complex relationship between job demands and teachers' innovative work behavior (IWB). Challenging stressors consistently emerge as positive predictors of IWB ($\beta = 0.493, p < 0.001$) among Chinese university teachers, suggesting that these demands can be perceived as growth opportunities (Xu et al., 2024). At the same time, time pressure was the most favored by researchers, with three studies predicting it as a job demand. However, these predictions were quite different. The contradictory findings regarding time pressure can be explained by the cultural context. In China, where teachers often faced strict accountability and high workload (Gupta & Zhao, 2024), excessive time pressure acted as a hindrance that induced stress. In contrast, German teachers, who reported lower pressure levels in the study by Jörg et al. (2025), perceived moderate time pressure as a challenge that stimulated innovation.

In addition, teacher-researcher conflict (TR conflict) frequently predicts lower IWB in higher education (Rafsanjani et al., 2021; Cao et al., 2020). Unlike K-12 teachers, with dual roles as both teacher and researcher, higher education teachers often experienced resource constraints (Xu, 2019; Simons & Elen, 2007). Rafsanjani et al. (2021) confirmed a significant negative direct effect of TR conflict on innovative teaching. However, Cao et al. (2020) found no significant effect ($\beta = 0.04, p = 0.456$), because of the inclusion of job insecurity as a moderator. This counterintuitive finding can be explained by the "resource investment principle" of COR theory. When facing resource threats (such as losing jobs), individuals not only fail to retreat but are forced to

invest more resources (e.g., demonstrating their value through innovative behaviors) to prevent spiraling losses (Hobfoll et al., 2018; Halbesleben et al., 2014). This strategy helps them prevent further resource loss, rather than simply retreating from the demands. This divergence in findings complicated the functional discussion of job demands.

Although our review synthesized the overall job demands of teachers, detailed analysis revealed that K-12 teachers and higher education teachers faced distinctly different structural pressures. This divergence comes from differing professional role expectations across the two educational levels. Higher education teachers mainly struggle with the conflict between teaching and research duties (Rafsanjani et al., 2021; Cao et al., 2020). K-12 teachers were often burdened by non-teaching administrative tasks (Tran Huy et al., 2025), which consumed the time and energy needed for innovation. Future interventions must consider these context-specific demands.

For RQ3, mediators included stress health damage mechanisms, motivation cognition mechanisms, and proactive reshaping mechanisms. Meanwhile, work-related factors play a significant moderating influence.

From a stressful health damage mechanism, job demands harm health and increase negative emotional stress, ultimately hindering IWB. This was especially true for higher education teachers, high emotional exhaustion would not only prevent the lecturer from creating a new teaching strategy or method (Rafsanjani et al., 2021) but also made them refrain from creating an attractive learning environment (Aldrup et al., 2017). This follows the “principle of the health impairment process” in JD-R theory. Second, motivation and cognitive mechanism explain how job demands influence innovative work behaviors through psychological states. For instance, by affecting teachers' work engagement (Dixit & Upadhyay, 2021), and reducing work enthusiasm (Nahrgang et al., 2011), job demands diminish teachers' enjoyment and commitment to their work, thereby lowering job performance, these phenomenon also explained by JD-R theory. When the nature of job demands shifts toward greater challenge, such demands are more likely to stimulate teachers' creative motivation, ultimately leading to increased IWB. The third mechanism is proactive reshaping. This reveals the positive aspect where teachers proactively reshape these job demands or stressors to achieve personal and professional growth when facing challenges (Xu et al., 2024). This corresponds to the principle of the gain spiral in job reshaping proposed by COR and JDR theories (Bakker & Demerouti, 2017; Hobfoll, 1989).

The moderating effect provides important insights into how organizational factors operate within boundaries. Typically, a positive and supportive employment relationship climate coupled with individual psychological empowerment helped teachers transform challenging stress into a driving force for innovation (Xu et al., 2024; Fan et al., 2022), which could be explained by the “buffer hypothesis.” Counterintuitively, both low participative safety and high job insecurity can enhance teacher innovation and motivation, challenging the assumption that psychological safety is always protective. When participative safety is low, moderate job demands may stimulate individual initiative, reducing groupthink and fostering innovation (Little, 1999; Janis, 1982). Conversely, high job insecurity can compel teachers to maintain teaching motivation despite role conflict, as survival depends on performance (Qian et al., 2022; Xu, 2019). Together, these findings suggest a non-linear relationship between psychological safety and teacher outcomes. This challenges the linear assumptions of the JD-R model and calls for future research to examine the dynamic interplay between different forms of psychological safety.

For RQ4, Job Demands-Resources (JD-R) theory is a dominant framework in this relationship. It posits that excessive job demands deplete job resources, leading to strain and hindering IWB (Bakker et al., 2023; Demerouti et al., 2001). When employees experienced higher levels of job strain, they found concentrating more difficult and make more mistakes (Van der Linden et al., 2005). The JD-R model also explained buffering effects, Messmann et al. (2017) found that psychological empowerment mitigated the negative impact of JD on IWB, while low participative security might have stimulated innovation by avoiding groupthink. This was the same perspective as Cao et al.'s (2020) finding that job insecurity buffers hindering demands on teaching motivation. It was worth noting that Dixit and Upadhyay (2021) indicated that job demands negatively impacted work engagement, leading to decreased employee motivation and subsequently weakening teachers' IWB, but Ariesta (2024) did not found this relationship. These findings stated interactions among different job demands and emphasized the need for cross-cultural research.

Conservation of Resources (COR) theory further explained these dynamics. Individuals tend to acquire, protect, and retain resources; resource loss triggers stress (Hobfoll, 1989). Tran Huy et al. (2025) observed that teachers under positive stress invest in innovation for future gains, while negative stress prompts resource protection. COR explains job crafting as a proactive strategy to balance demands and resources (Demerouti, 2025; Halbesleben et al., 2014), supporting Xu et al.'s (2024) study on innovative behavior.

Finally, social learning theory (Bandura, 1977) and psychological stress & coping theory (Lazarus & Folkman, 1984) offered complementary perspectives. Wu et al. (2024) demonstrated that JD influenced IWB indirectly through emotional experiences and psychological states. The JD can be a stimulus, which is perceived and evaluated by teachers, who ultimately respond through IWB as a problem-focused coping strategy (Tran Huy et al. 2025). These theories collectively deepened understanding of the JD to IWB transition by considering environmental factors, stress evaluation, and individual agency.

In summary, the job demands-resources theory, conservation of resources theory, social learning theory, and psychological stress and coping theory provided crucial theoretical foundations for understanding the relationship between job demands and teachers' innovative work behavior. These theories are complementary, enabling exploration of complex mechanisms and boundary conditions. Based on the above literature review findings and discussion, this study constructed the integrated theoretical model shown in Figure 2, which explains the mechanism through which the job demands influence teachers' innovative work behaviors.

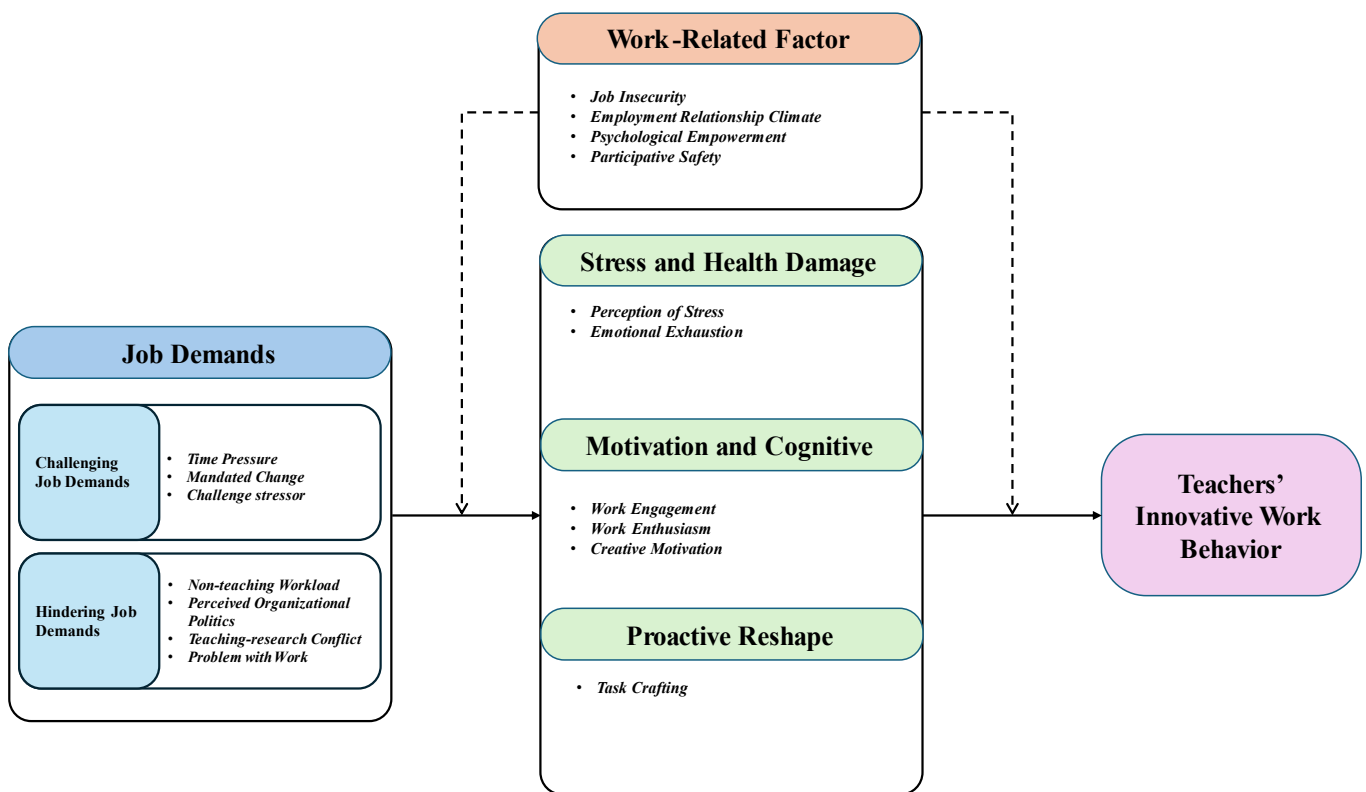


Figure 2 A Comprehensive Theoretical Model of the Influence of Job Demands on Teachers' Innovative Work Behaviors

THEORETICAL IMPLICATIONS

This review proposes a comprehensive model linking job demands (JD) to teachers' innovative work behavior (IWB). It deepens understanding of internal mechanisms, which are stress & health damage, motivation & cognition, and active reshaping, while elaborating on the distinct impacts of challenging versus hindering demands.

This research reinforces JD-R theory in educational management to explain the direct, indirect, and resource-buffering effects of demands. It is supplemented by COR theory, explaining how challenging demands trigger

proactive investment, and social learning theory, which validates how creative self-efficacy and motivation mediate environmental-psychological interactions.

This review has identified theoretical gaps, suggesting a need for further research addressing cross-cultural contexts and the unique requirements faced by teachers. A more nuanced framework is needed to explore the non-linear effects of demands interaction and resource buffering, while integrating gender roles and societal expectations to advance educational administration theories.

PRACTICAL IMPLICATIONS

Based on JD-R theory, this review identifies key job demands affecting IWB and proposes targeted interventions for educational administrators to reduce teacher stress and promote innovation.

Administrators should treat challenging demands, like time pressure, as growth opportunities by setting achievable deadlines to stimulate innovation. Conversely, hindering demands, such as non-teaching workloads, must be mitigated by streamlining organizational structures and adopting digital tools to reduce administrative burdens.

This study also highlights the role of job resources in buffering negative impacts on stress levels. When advancing educational reforms that require teachers to achieve specific teaching outcomes or quality standards, schools should provide teachers with sufficient job resources (such as autonomy or organizational support) to relieve the pressure they experience during their work. So that teachers will be easier to carry out their teaching duties and even engage in innovative practices. On the other hand, for higher education institutions where the teacher-researcher conflict poses significant pressure, university leaders should provide teachers with flexible career development pathways. By establishing research-focused lecturer positions or providing additional vacations, to relieve teachers pressure from role conflicts, enabling them to focus their energy on a single field and create opportunities for implementing innovation.

Interestingly, job insecurity can paradoxically drive innovation as a survival mechanism (COR theory). But excessively relying on such strategies may lead to teacher burnout. Educational administrators should foster psychological safety and implement fair promotion mechanisms to ensure teachers perceive innovative activities as beneficial rather than reactive measures.

Finally, a flexible work environment empowers educators to reshape their tasks, enabling them to effectively adjust their duties. By integrating technology for grading or experimenting with new teaching methods, educators can enhance efficiency while maintaining necessary support when needed. This approach encourages proactive resource allocation, promoting both innovation and effective task management.

LIMITATION

Readers must be aware of certain limitations of this review. First, the exclusive focus on English language publications may have missing relevant non-English scholarship. Additionally, this study broadened the scope to include teachers across all fields, variations in job levels and associated work contexts likely exist, potentially influencing causal relationships. However, the researchers tried to include all relevant studies within the scope of our review. Since the search was limited to articles published between 2015 and 2025, earlier studies may have been missing. Furthermore, although discussed the differences between K-12 and higher education, the integrated model (Figure 2) represents a generalization. The context-specific meta-analyses are warranted to refine pathways for each group. Moreover, reliance on cross-sectional data limits the ability to establish causal relationships, as it only captures a snapshot of the relationship at one point in time. In the end, most studies used self-reported questionnaires, which may introduce bias due to potential inaccuracies or lack of awareness about IWB.

Future research should prioritize longitudinal, experimental, and mixed methods designs to strengthen evidence of causality. Employing multi-source data collection (such as evaluations of teacher innovation by peers, leaders, or students) can mitigate self-report bias. Finally, cross-cultural and context-specific studies are crucial for generating more generalizable findings regarding JD and teacher IWB.

CONCLUSION

This study demonstrates the significant role of job demands in teacher innovative work behaviors, distinguished between challenging and hindering demand, identified three intrinsic transmission mechanisms. Integrating JD-R theory with supporting frameworks, we propose a model for understanding IWB influenced by mediating and moderating factors. However, due to the heterogeneity observed in the review, a more solid knowledge base in this field remains necessary. Future research should conduct more longitudinal studies, cross-cultural investigations, and research specifically targeting teacher populations to make significant contributions. Ultimately, this study provides valuable insights into the factors influencing teachers' innovative work behavior, assists teachers in managing and coping with job demands, and offers theoretical grounds for educational administrators to build teaching environments with appropriate job demands.

Ethics approval

This article does not contain any studies with human participants or animals performed by any of the authors.

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Availability

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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