



Teacher Fatigue, Management Support, and Instructional Performance: The Mediating Role of Sit-Stand Flexibility among School Teachers

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ABSTRACT

Instructional performance is one of the most important key factors for educational effectiveness. Despite its importance, increased educational demands have intensified concerns regarding the serious consequences affecting instructional performance. Drawing on the Job Demands-Resources Theory (JD-R), Organizational Support Theory, and Ergonomics Theory, this study will shed light on the effects of teacher fatigue and management support on instructional performance, while investigating the mediating role of Sit-Stand Flexibility among schoolteachers. Instructional effectiveness is expected to diminish due to teacher fatigue. It seriously affects the physical, cognitive, and emotional resources that are required for effective classroom delivery. At the same time, management support is another critical organizational pillar that enhances performance. The study further proposes that the mediating role of Sit-Stand Flexibility also contributes to the instructional performance of schoolteachers. A quantitative, cross-sectional research design is proposed using survey data collected from 180 schoolteachers. The findings are expected to contribute to educational management and ergonomics literature.



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1. Introduction

Instructional performance is one of the most important pillars of educational effectiveness. The teacher plays a vital role in students' learning outcomes, academic achievement and classroom engagement. In the present era rising workloads, administrative responsibilities, technological changes and curriculum reforms have made school environments very demanding. The amplified workloads have intensified concerns about teacher fatigue, as it has emerged as a significant challenge affecting both teacher well-being and instructional effectiveness (Nwoko et al., 2024). In Developing countries like Pakistan, schoolteachers have very less flexibility to alter their posture during while conducting classes. Standing for prolonged periods during lecture delivery is often a strict instruction from school management. Evidence from recent studies indicates well-being of a teacher and easily adoptable working conditions are essential for maintaining good quality instruction practice and educational effectiveness (Bermejo-Toro et al., 2015). These physically tough demands of school administration make the educational sector particularly relevant for analyzing ergonomic flexibility.

Recent studies found that constant fatigue reduces teaching efficiency, while increasing emotional exhaustion and job-related stress (Werang et al., 2025). In teaching fatigue is a multidimensional factor resulting in physical and psychological collapse. Meta-analytic evidence also confirms that teacher well-being is strongly linked with instructional performance and is influenced by contextual factors (Wartenberg et al., 2023). Common cause of fatigue is extended exposure to work related demands. In present day school environment, the schoolteachers are supposed to stand for longer duration for teaching and monitoring students. Besides classroom activities teachers must additionally perform administrative duties at school. Due to such over-burdened tasks, the teachers face musculoskeletal discomfort which ultimately reduces work efficiency (Ansah-Hughes et al., 2017). Consequently, teaching performance and quality of lecture are directly affected by teacher fatigue. On the other hand, contradictory evidence suggested that in schools where teacher have autonomy at workplace, or ergonomics flexibility, the negative effect of fatigue on instructional performance is substantially undermined. These inconsistencies may lead to contextual differences in workload, institutional resources, and academic policy matters rather than differences in the underlying academic mechanisms (Bridwell-Mitchell & Sherer, 2016).

Management support is another variable in this study, which plays an important role in instructional performance of schoolteachers. It is one of the elements of organizational resources that can assist in fighting against the negative effects of professional demands. Empirical evidence proved that resilient and supportive school management helps to strengthen teacher resilience, health, and teaching efficiency across different educational settings (Costantine & Nemes, 2025). Management support includes multiple roles but mainly it includes guidance with teaching staff, timely flow of information, emotional support and administrative support. Encouraging leadership has been linked with improved teacher well-being, resilience, and work engagement (Cherkowski, 2018; Marcel). Schools that ensure effective management support for instructional staff are more likely to achieve better teaching outcomes and maintain high-quality educational standards.

In this study, theories such as Job Demands–Resources Theory (JD-R), Organizational Support Theory, and Ergonomics Theory are incorporated. The JD–R Theory explains that excessive job burden such as fatigue, decrease employee resources and performance; whereas organizational resources enhance motivation and efficiency (Bakker & de Vries, 2021). Organizational Support Theory suggests that better management provided by an organization to its employees contributes toward positive work attitudes and positive organizational outcomes. Ergonomics Theory highlights the significance of workplace design and the physical work environment to improving health, comfort level and performance (Adiga, 2023).

Despite extensive research on psychological and organizational aspects of teacher performance; workplace ergonomics in educational settings has received limited attention. This study introduces distinct mediating concepts, “Sit-Stand Flexibility” in educational sector which remains underexplored. Unlike studies conducted in past which primarily focused on psychological, organizational, or general ergonomic factors, this study will discuss teachers' ability to freely alternate between sitting and standing while taking class or performing other administrative tasks (Amoakohene, 2020). Sit-Stand Flexibility refers to teachers' ability to alternate efficiently between sitting and standing positions according to task requirements and physical comfort while conducting classes or performing administrative tasks. Ergonomics research highlights that flexibility in posture and movement contributes to enhanced health, comfort, and performance outcomes (Adiga, 2023). Recent studies emphasized that physical working environment remains an underexplored area of teacher well-being research despite being an important aspect for maintaining good quality education (Kwon et al., 2020). However, empirical research examining this concept among school teachers remains limited.

A critical gap is addressed in this study by placing “Sit-Stand Flexibility” as a mediating variable between two independent variables (teacher fatigue & management support) and one dependent variable (instructional performance). Ergonomic support, workplace comfort, postural behaviour, and teacher well-being have been separately discussed in existing literature whereas positioning of Sit-Stand Flexibility as mediating

mechanism has not been studied. Latest literature evidence speaks that studies emphasized psychosocial and organizational factors, while the role of teachers' physical state during instructional activities remains underexplored (Costantine & Nemes, 2025). Particularly Sit-Stand Flexibility has not been discussed as a distinct mediator linking teacher fatigue and management support with instructional performance. Whereas contemporary studies recommend that integration of organizational support with ergonomic flexibility helps to improve teacher performance and long-term well-being (Haider & Khan, 2025). Fatigued teachers experience lower physical strength and are less capable to sustaining efficient teaching performance. On the other hand, supportive management may facilitate ergonomic practices and improved work environments that enhance physical mobility and performance (Ryabova et al., 2020). Consequently, Sit-Stand Flexibility ensures a meaningful mechanism through which individual and organizational factors affect instructional performance. In this context, Pakistan's school sector needs attention because most of the time teachers had to face high workloads with limited resource limitations, and physically demanding classroom environment, making ergonomic flexibility especially relevant.

2. Literature Review

2.1. Teacher Fatigue and Instructional Performance

In present-day educational settings, teacher fatigue is an important concern due to excessive workloads. Fatigue is defined as a multidimensional state of physical, cognitive, and emotional exhaustion which results from extended exposure to work-related demands (Ilies et al., 2015). Within educational environments, teachers often teach for periods of 40-45 minutes while standing in each class for instructional purposes. Many times, it has been observed that delivering lessons while standing in classroom is a strict order from school management. Moreover, lesson planning, student assessment, and extracurricular responsibilities are additional tasks that contribute to accumulated fatigue. Whereas recent research indicates that teachers' occupational fatigue has a very strong association with instructional quality, classroom engagement, and professional tasks (Wang et al., 2023).

The Job Demands-Resources (JD-R) Theory states that excessive job demands consume employee's psychological and physical resources, ultimately causing reduced work performance and increased stress (Bakker & Demerouti, 2017). Fatigued teachers may experience low-quality classroom delivery, less effective instructional practices, physical discomfort and difficulty in responding effectively to students' diverse learning needs.

Contemporary studies indicate that teacher fatigue results in lower quality instruction, diminished job satisfaction, higher absenteeism, and a greater intention to leave the profession (Pandey & Sayed, 2024). The findings suggest that teacher fatigue is a significant challenge to educational effectiveness. Keeping in view the foregoing discussion, teacher fatigue is likely to have a negative influence on instructional performance among schoolteachers.

2.2. Management Support and Instructional Performance

Management support refers to perceived support provided by administrative staff in terms of professional guidance, policy implementation, resources, recognition, communication, and other assistance required by teachers. Organizational Support Theory suggests that a positive perception of organizational support ensures a healthy work environment and employees reciprocate this through hard work and better performance. Contemporary research says that if school leadership is supportive and recognizes hard work of its teachers, it results in more dedicated teacher commitment and effective instructional performance (Liu et al., 2024).

Management support plays an important role in the organizational context within the JD-R framework. Organizational resources provide support to employees, enabling them to cope with job demands and maintain a high level of performance (Bakker & de Vries, 2021). Although most studies support positive effects of management support and ergonomic flexibility, contradictory evidence suggests these relationships are context-dependent and may be weaker in highly autonomous or well-resourced schools where teachers already possess substantial professional discretion (Walters et al., 2021).

Teachers' positive perception of organizational support leads to positive work-related outcomes. Consequently, management support plays a major role in enhancing the instructional performance of schoolteachers.

2.3. Sit-Stand Flexibility and Instructional Performance

Ergonomics Theory emphasizes the significance of designing work environments that encourage comfort, safety, health, and efficiency. Conventionally, research in the field of ergonomics has concentrated on workplace design, posture, and movement patterns with the aim to reduce physical burden and enhance employee performance (Adiga, 2023). The five-item scale was adopted to assess Sit-Stand Flexibility from ergonomic research on occupational posture variation, and movement flexibility and contextualized for schoolteachers (Mihir & Padroo, 2025). Within educational settings, teachers often alternate between multiple activities, including classroom instruction, delivering lectures while standing, and performing administrative tasks. These activities require prolonged standing. Sit-Stand Flexibility refers to teachers' ability to adjust their working postures and movement behaviors according to task requirements and physical comfort.

Recent ergonomic study has confirmed that freedom of movement and posture reduces musculoskeletal pain, improves physical well-being, and enhances work performance (Zadem et al., 2024). Moreover, a recent study suggests that opportunities to alternate between sitting and standing positions contribute to improved comfort, reduced fatigue, and greater productivity. Therefore, Sit-Stand Flexibility is expected to positively influence instructional performance among schoolteachers.

2.4. Teacher Fatigue and Sit-Stand Flexibility

Fatigue can drastically affect an individual's capability to maintain effective physical performance and adaptability in the workplace. Prolonged standing postures and mental pressures often increase discomfort and restrict employees' ability to adjust their work behaviors according to job demands. The direction proposed by mediating variable is justified by the Job Demands-Resources (JD-R) Theory and Ergonomics Theory. Teachers experiencing high levels of fatigue may have less flexibility to adopt the required postures of sitting or standing throughout the workday. Research suggests that fatigue is associated with musculoskeletal discomfort, reduced physical endurance, and impaired occupational functioning (Ras et al., 2022). Therefore, fatigued teachers may experience lower levels of ergonomic flexibility, which may further contribute to reduced instructional effectiveness. Reduced Sit-Stand Flexibility may increase discomfort, which further intensifies fatigue. Hence, teacher fatigue is expected to negatively influence Sit-Stand Flexibility. Therefore, teacher fatigue logically reduces Sit-Stand Flexibility, which ultimately affects instructional performance.

2.5. Management Support and Sit-Stand Flexibility

To develop a suitable working environment, management support plays a vital role in boosting morals and employee well-being. School administration can facilitate ergonomic practices by providing appropriate resources, welfare policies, and fostering a culture that prioritizes employee interest. Recent ergonomic research suggests that organizational support contributes significantly to the successful implementation of workplace health initiatives and ergonomic interventions (Anang Ankamah-Lomotey, 2025) (Anang Ankamah-Lomotey, 2025). By recognizing the importance of teacher physical and mental well-being, well-reputed institutions promote ergonomic awareness and encourage movement flexibility during teaching, thereby enhancing teachers' instructional performance.

Keeping in view the Organizational Support Theory, a supportive organizational culture enhances employees' perceptions of worry and value. The theory suggests that employees are motivated to adopt positive workplace behaviors. Consequently, management support is likely to facilitate greater Sit-Stand Flexibility among teachers.

2.6. Mediating Role of Sit-Stand Flexibility

According to Organizational Support Theory, a cooperative organizational culture enhances employees' perceptions of their workplace and contributes to a positive culture. The theory motivates employees to adopt behaviors that can bring positive outcomes. Consequently, management support is expected to promote greater Sit-Stand Flexibility while teachers are conducting classes or performing any other task. Sit-Stand Flexibility represents a meaningful pathway through which teacher fatigue and management support influence instructional performance among schoolteachers. Existing literature suggests that by integrating ergonomic and organizational support improves teachers' physical wellbeing and instructional performance, supporting the incorporated mediator (Biswas et al., 2022).

The JD-R framework further supports this mediation mechanism by suggesting that job demands (teacher fatigue) and job resources (management support) influence performance through intermediate processes that affect employees' physical and psychological functioning (Schaufeli & Taris, 2014). Improved posture flexibility helps in reducing physical pressures, conserves energy level, and enables better instructional performance, thereby translating job demands and organizational resources into instructional performance. This combined effect is supported by integration of JD-R Theory, Organizational Support Theory, and Ergonomics Theory.

2.7. Theoretical Foundation

2.7.1. Job Demands-Resources (JD-R) Theory

The Job Demands-Resources (JD-R) Theory posits that every occupation consists of job demands and job resources. Job demands refer to the physical, psychological, social, or organizational aspects of work that require sustained effort and are therefore associated with physiological and psychological costs. On the other hand, job resources assist employees in accomplishing job tasks, reducing workload, and promoting personal growth.

In the present-day school environment, teachers face very high job demands, including instructional and administrative tasks. Such heavy job demands may lead to fatigue, eventually reducing instructional effectiveness. In the light of the JD-R framework, heavy job demands lead to teacher fatigue which causes physical and psychological stress, thereby affecting classroom performance. Conversely, organizations can minimize this effect by providing strong management support to teachers so that they can cope with professional demands and maintain high-quality instructional practices.

According to the JD-R Theory, workload effects and issues pertaining to resources often work through intermediate mechanisms. In this study "Sit-Stand Flexibility" is represented as a mediating mechanism. Restrictions on ergonomics practices while performing a physically tough task may cause fatigue. However, if sympathetic management support is available and ergonomic flexibility is ensured by school administration, it may lead to improved instructional performance.

2.7.2. Organizational Support Theory (OST)

According to Organizational Support Theory (OST), perceived positive organizational support motivates employees to develop a sense of responsibility to reflect through stronger commitment, positive attitude, and enhanced work performance. In the field of education, management support refers to teachers' perceptions of professional assistance, administrative support, acknowledgment, and welfare policies. When the administration is guided by welfare-oriented leadership, teachers are more likely to work with greater motivation. Ultimately, they become more committed and work sincerely to ensure high-quality educational practices.

OST supports the mediating role of Sit-Stand Flexibility. Supportive school administration may encourage healthy work practices, offer ergonomic facilities, and promote a work environment that ensures teacher well-being. As a result, teachers are likely to perform effectively in a flexible environment with motivation and energy for the betterment of the institution and future generation.

2.7.3. Ergonomics Theory

Ergonomics Theory (ET) suggests that physical working conditions and the workplace environment appreciably affect employees' physical condition and work performance. Teaching at school is a physically challenging job that often requires standing for prolonged periods, movement within a restricted space, and the challenging process of lesson preparation. Negative effects of poor ergonomic conditions may cause fatigue, musculoskeletal discomfort, reduced work capacity, and low performance. ET suggests that allowing employees to adapt to flexible working postures can reduce physical strain and improve performance outcomes.

In this study, Sit-Stand Flexibility is teachers' ability to adjust their working postures. Teaching staff that have greater ergonomic flexibility remain more comfortable and maintain higher energy levels. This flexibility enables them to deliver better instructional performance. Therefore, ET provides the conceptual basis for using Sit-Stand Flexibility as a mediating variable between teacher fatigue, management support, and instructional performance.

2.7.4. Integrated Theoretical Framework

The JD-R Theory, OST, and ET are integrated to provide a comprehensive explanation of instructional performance among schoolteachers. Instead of discussing separately, the three theories discuss successive but complementary mechanisms within a single integrated framework. The JD-R Theory identified teacher fatigue as a job demand which has significant effects on physical and psychological resources. Management support functions as a job resource that affects performance at workplace. OST discusses why teaching staff need management support for motivation, inspiration and more dedication to adopt positive performance attitudes. Psychological and organizational conditions are explained by Ergonomics theory. According to ET they are translated into improved physical work practices through Sit-Stand Flexibility. It enables teachers to adjust posture, reduce distress, conserve teaching energy, and ensure better instructional performance. Accordingly, Sit-Stand Flexibility serves as a mediator that connects job demands, organizational resources, and ergonomic practice for valuable educational outcome. This integration of these theories demonstrates that sympathetic management support directly increases performance and reduces negative consequences of fatigue by incorporating ergonomic flexibility, whereas excessive fatigue undermines teachers' capacity to make use of ergonomic adaptations efficiently.

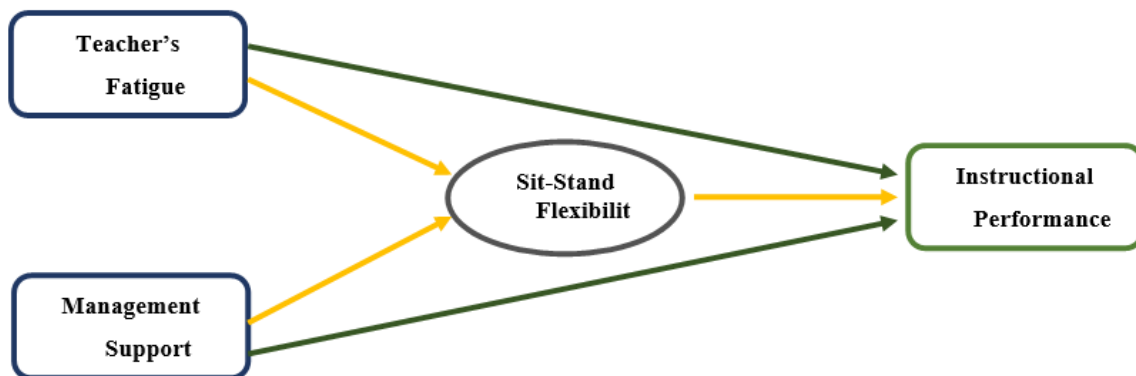


Figure 1: Theoretical Framework

2.8. Hypotheses

H1: Teacher fatigue negatively affects instructional performance among schoolteachers.

H2: Management support positively affects instructional performance among schoolteachers.

H3: Teacher fatigue negatively affects Sit-Stand Flexibility.

H4: Management support positively affects Sit-Stand Flexibility.

H5: Sit-Stand Flexibility positively affects instructional performance.

H6: Sit-Stand Flexibility mediates the relationship between teacher fatigue and instructional performance.

H7: Sit-Stand Flexibility mediates the relationship between management support and instructional performance

3. Methodology

The design of the study was cross-sectional and quantitative. Data was collected from schoolteachers. A structured questionnaire was used to measure responses on a five-point Likert scale (1= Strongly Disagree to 5= Strongly Agree. The sample size consisted of 180 schoolteachers. The target population was from Army Public School, The City School, Beacon House School, and Root IVY School in Pakistan. Total 210 questionnaires were distributed among schoolteachers, responses from 180 participants were received (response rate = 85.7%). The sample of received response included 135 female teachers (75%) and 45 male teachers (25%). Convenience sampling was used. Permission was obtained from the school administrations. Questionnaires were distributed both physically and electronically. Voluntary and confidential participation was encouraged. For the measurement of the variables, Teacher Fatigue was measured using 6 items scale (Bakker & Demerouti, 2017). Management Support was measured using 6 items with Likert scale adapted from perceived organizational support literature (Sun, 2019). Sit-Stand Flexibility was measured with Likert scale using 5 items (Soares et al., 2023). The variable Sit-Stand Flexibility was contextualized for schools while preserving the conceptual meaning of the original instrument. Sample items consist of questions like; whenever I experience physical discomfort, I can change my working posture. This variable examined movement variations and occupational posture flexibility. Instructional Performance consisted of 6 items from TEACHER EVALUATION QUESTIONNAIRE of Estaji & Shafaghi (Estaji & Shafaghi, 2018). SPSS and PROCESS Macro Model 4 were used for data analysis. Analyses included reliability, descriptive statistics, Pearson correlation, regression, and mediation analysis. As mediation model PROCESS Macro Model 4 was incorporated. The two independent variables (Teacher Fatigue and Management Support) were analyzed simultaneously, Sit-Stand Flexibility was entered as the mediator, and the outcome variable was Instructional Performance. While testing both predictors in the same mediation model it was particularly control for shared variance, thereby providing the unique direct and indirect effects of each predictor while holding the other constant.

4. Results

4.1. Reliability Analysis

Reliability analysis was conducted using Cronbach's Alpha. It helped to assess the internal consistency of the measurement scales. According to the results obtained it was found that all variables exceeded the recommended threshold of 0.70 (as shown in Table I). The findings indicate that all measurement scales possess strong reliability and are appropriate for further statistical analysis.

Table 1

Reliability Analysis

Variables	Items	Cronbach's Alpha
Teacher Fatigue	6	0.88
Management Support	6	0.90
Sit-Stand Flexibility	5	0.86
Instructional Performance	6	0.91

4.2. Validity Analysis/ Measurement Model

Confirmatory factor analysis (CFA) was used to establish measurement validity. Standardized factor loadings, Composite Reliability (CR), Average Variance Extracted (AVE), and Discriminant validity were incorporated to evaluate construct validity. CR values ranged from 0.86 to 0.92 and all standardized factor loadings values exceeded 0.70, range of CR value was from 0.86 to 0.92, and recommended threshold of 0.50 was exceeded in AVE values, which finally confirmed adequate convergent validity. To establish Discriminant validity the Fornell-Larcker criterion was used, the result showed that for each construct, square root of AVE exceeded its inter-construct correlations. The results (as shown in Table II) indicate satisfactory factor structure; construct reliability, convergent validity, and Discriminant validity. The obtained results also support the adequacy of the measurement model before hypothesis testing.

Table 2
Validity Analysis

Construct	Loading	CR	AVE	Status
Teacher Fatigue	>0.70	0.88	0.61	Valid
Management Support	>0.70	0.90	0.65	Valid
Sit-Stand Flexibility	>0.70	0.86	0.59	Valid
Instructional Performance	>0.70	0.91	0.67	Valid

4.3. Descriptive Statistics

The central tendency and variability of the study variables were calculated using descriptive statistics (as shown in Table III). A moderate level of fatigue and relatively high perceptions of management support, Sit-Stand flexibility, and instructional performance were reported. The low standard deviations indicate that respondents' opinions were relatively consistent across the sample.

Table 3
Descriptive Statistics

Variables	Mean	SD
Teacher Fatigue	3.42	0.71
Management Support	3.68	0.65
Sit-Stand Flexibility	3.55	0.62
Instructional Performance	3.89	0.58

4.4. Correlation Analysis

To determine the relationships among the study variables, Pearson correlation analysis was conducted. There was a negative association between Teacher Fatigue and Sit-Stand Flexibility and Instructional Performance ($r = -.48$, $p < .001$). This indicated that increased fatigue reduces flexibility and performance ($r = -.41$, $p < .001$). Management Support demonstrated positive relationships with both Sit-Stand Flexibility ($r = .52$, $p < .001$) and Instructional Performance ($r = .57$, $p < .001$). Moreover, it suggested that supportive school management enhances teachers' effectiveness. Sit-Stand Flexibility had a positive relationship with Instructional Performance ($r = .46$, $p < .001$).

4.5. Regression Analysis

The findings and results obtained from regression analysis are as under: -

Table 4
Regression Analysis

	Relations	Beta/prob values
a.	Teacher Fatigue → Instructional Performance	($\beta = -.36$, $p < .001$)
b.	Management Support → Instructional Performance	($\beta = .42$, $p < .001$)
c.	Teacher Fatigue → Sit-Stand Flexibility	($\beta = -.31$, $p < .001$)
d.	Management Support → Sit-Stand Flexibility	($\beta = .49$, $p < .001$)
e.	Sit-Stand Flexibility → Instructional Performance	($\beta = .28$, $p < .001$)

4.6. Mediation Analysis

Process Macro Model 4 with 5,000 bootstrap samples was employed to test the mediating role of Sit-Stand Flexibility. According to Hypothesis 6 (Teacher Fatigue → Sit-Stand Flexibility → Instructional Performance) the confidence interval did not include zero, therefore Sit-Stand Flexibility significantly mediated the relationship between Teacher Fatigue and Instructional Performance. Higher fatigue reduced Sit-Stand Flexibility, which subsequently reduces Instructional Performance. Moreover, according to Hypothesis 7 (Management Support → Sit-Stand Flexibility → Instructional Performance) the confidence interval excluded zero, indicating significant mediation. Management Support enhanced Sit-Stand Flexibility, which subsequently improved Instructional Performance. The PROCESS Model 4 specification was used for mediation analysis. As predictors, the two independent variables (Teacher Fatigue and Management Support) were analyzed simultaneously. With

the help of this approach, unique indirect effect of each predictor through Sit–Stand Flexibility was estimated while statistically controlling for the other predictor. Ultimately it provided robust mediation estimates and minimized variable bias.

Table 5
Regression Analysis Summary

Hypothesis	Statement	Result
H-1	Teacher Fatigue → Instructional Performance	Supported
H-2	Management Support → Instructional Performance	Supported
H-3	Teacher Fatigue → Sit–Stand Flexibility	Supported
H-4	Management Support → Sit–Stand Flexibility	Supported
H-5	Sit–Stand Flexibility → Instructional Performance	Supported
H-6	TF → SSF → IP	Supported
H-7	MS → SSF → IP	Supported

5. Discussion

The study gives clear understanding of outcome variable “instructional performance” by explaining how teacher fatigue and management support function through ergonomic flexibility. Instead of repeating the statistical results, the findings emphasize on the mechanisms through which these relationships are initiated within the educational sector of Pakistan. The integrated viewpoint of the JD–R Theory, OST, and ET propose that instructional performance depends on physical comfort, organizational support, and apparent working environment.

Instructional performance is negatively affected by teacher fatigue because prolonged standing in classroom, continuous classroom activities, lesson preparation, assessment procedure, and administrative responsibilities gradually consume teachers’ cognitive, emotional, and physical resources. This negative relationship is further researched, who reported that work-related pressures contribute to teacher fatigue through psychological mechanisms such as depression, ultimately adversely affecting classroom functioning (Nwoko et al., 2023). The JD–R Theory suggests that when teacher workload exceeds available resources, teachers experience physical exhaustion which ultimately affects concentration, motivation, creativity, and persistence. Capability of teachers is negatively affected if experiencing fatigue and it has serious consequences on classroom engagement, response towards learning needs, and instructional quality. Contemporary study supports this fact by providing evidence that chronic fatigue and burnout reduce instructional performance, spoils classroom climate, and physical well-being (Henrietta, 2023).

Instructional performance is enhanced with the help of management because supportive leadership provides assistance in terms of emotional reassurance, professional guidance, recognition, and adequate resources. OST suggests that organizational care of employees is reciprocated through stronger commitment and improved performance. In schools, supportive management staff including heads of institution assist in uncertainty reduction, improve morale, and encourage teachers to invest greater effort in teaching. These findings are consistent with recent research which reported that supportive leadership improves teacher engagement and instructional quality. Research further emphasized that organizational support and friendly work condition leave positive effects on teachers’ psychological well-being, whereas excessive workload undermines positive work outcomes (Wang, 2023).

The relationship between teacher fatigue and Sit–Stand Flexibility is explained in a befitting manner. Fatigue restricts willingness and physical ability of a teacher to remain flexible in class, move around the classroom, and adopt ergonomically favorable working environment. As discomfort creates physical barriers, teachers become gradually more constrained in adapting their movements, thereby negatively affecting ergonomic flexibility. On the other hand, management support facilitates ergonomic practices by encouraging movement, providing suitable resources where possible, allowing reasonable flexibility while conducting class at school, and promoting teaching staff well-being. This mechanism explains why organizational resources strengthen ergonomic adaptability.

Sit-Stand Flexibility contributes to instructional performance because flexibility in posture reduces physical discomfort, conserves energy, and enables teachers to stay active throughout the school timings. This observation agrees with recent evidence that ergonomic flexibility functions as an important mechanism linking organizational support with instructional performance (Hutabarat & Vitasari, 2025). ET suggests that design of workplace and flexibility in movement improves both work effectiveness and physical burden. Rather than highlighting only physical comfort, function of Sit-Stand Flexibility is linked to behavioral mechanism through which teachers preserve energy for instructional tasks.

The findings are generally consistent with recent educational and ergonomics literature. However, few studies have reported weaker relationships where teacher resilience, autonomy, or favorable working environment buffered the adverse effects of fatigue. In the same way, some ergonomic studies concluded that sit-stand practices alone do not mechanically improve performance unless they are accompanied by supportive organizational policies. These differences may reflect variations in national context, school culture, workload, and availability of ergonomic resources. Pakistani schools frequently face larger class sizes, heavier workloads, and fewer ergonomic facilities, making physical flexibility more influential than in highly resourced educational systems.

The study has integrated three complementary theories into a single explanatory framework. The JD-R theory points out resource depletion, OST lead to reciprocal behavioral responses of supportive management, and ET explains how physical adaptability translates these organizational conditions into improved instructional performance. Previous teacher-performance research is extended in this study by positioning Sit-Stand Flexibility as the mediating mechanism.

The findings further indicate that school management should shed away unnecessary workload, provide positive leadership support, promote teacher well-being initiatives, and integrate ergonomic practices. Providing flexibility to sit or stand freely in class, ensure better refreshment opportunities and provision of comfortable environment while performing other administrative tasks may help preserve teacher energy and sustain instructional quality over time. As positive association between supportive organizational conditions and instructional performance affects teachers' self-efficacy and pedagogical competence significantly, this leads to higher instructional quality and strong teacher commitment. These recommendations are particularly relevant for schools operating under demanding resource constraints.

6. Conclusion

The study was conducted to analyze the effects of teacher fatigue and management support on instructional performance among schoolteachers. Sit-Stand Flexibility was analyzed as a mediating variable. The findings suggest that teacher fatigue has a negative effect on instructional performance. Management support has a positive influence on Instructional performance. Instructional performance can be improved through Sit-Stand Flexibility. The mediating variable significantly mediated the relationships between teacher fatigue, management support, and instructional performance. Furthermore, it confirmed that through ergonomic adaptability individual job demands and organizational resources have significant impact on teacher performance.

The robust measurement model has contributed methodologically. The constructs enjoy adequate reliability and validity of the constructs is confirmed through satisfactory CFA results, together with acceptable Composite Reliability (CR) and Average Variance Extracted (AVE) values. According to the obtained results it has been observed that relationships among independent variables (teacher fatigue and management support), mediator (Sit-Stand Flexibility), and dependent variable (instructional performance) can be interpreted with greater confidence.

The study makes an important contribution to existing literature by integrating three theories (JD-R, OST and ET). Moreover, the study emphasized on connection between mediating mechanism "Sit-Stand Flexibility" and outcome variable "Instructional

performance". Sit-Stand Flexibility is highlighted as a variable connecting the workplace environment to instructional outcomes. Basically, the findings recommend that educational setups should take steps to reduce teacher fatigue, provide essential management support, and ensure implementation of ergonomic workplace policies, including workload management, sympathetic leadership, ergonomic guidance, and flexible classroom planning. Explicit inclusion criteria, ethical procedures, an adequate response rate, and measures to ensure common method bias further reinforce the methodological rigor and trustworthiness of the study.

Despite these contributions, the use of a cross-sectional design, convenience sampling, and self-reported measures restricts the ability to establish causal relationships, and there is a possibility of common method bias. The study is subject to several limitations. Future research should adopt experimental or longitudinal research designs. More representative sampling techniques should be employed across different educational contexts. To further elucidate these relationships, future studies should investigate additional mediating and moderating variables influencing teacher performance and overall educational quality.

Author Contributions

Tariq Hameed: Wrote the initial draft of research paper

Tauqir Ahmad Ghauri: Supervised during the whole the research execution and write up

Syed Muhammad Javed Iqbal: Reviewed and proofread the research paper

Conflict of Interests/Disclosures

The authors declared no potential conflicts of interest w.r.t the research, authorship and/or publication of this article.

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