



The Efficiency Drain: Analysing Invisible Work Load and Cognitive Overload

Ms. Maria Sahaya Vergilia¹, mariasahaya30@gmail.com
Research Scholar, Department of Human Resource Management,
Stella Maris College, Cathedral Road,
Poes Garden, Chennai, Tamil Nadu, India

Dr. P. Vijayalakshmi², pvijaya@stellamariscollege.edu.in
Assistant Professor, Department of Human Resource Management,
Stella Maris College, Cathedral Road,
Poes Garden, Chennai, Tamil Nadu, India

How to Cite this Article:

Vergilia, M. S. (2026). The Efficiency Drain: Analysing Invisible Work Load and Cognitive Overload. International Journal of Creative and Open Research in Engineering and Management, 2(3).
<https://doi.org/10.55041/ijcope.v2i3.227>

License:

This article is published under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and the source are credited.

© The Author(s). Published by International Journal of Creative and Open Research in Engineering and Management.



<https://doi.org/10.55041/ijcope.v2i3.227>

Abstract

As pressure mounts on employee production and performance, the impact of invisible workloads and cognitive overload on work efficiency remains underexplored. Employees often handle hidden tasks and mental commitments beyond their official job descriptions, leading to increased stress, mental exhaustion, decreased concentration, and reduced efficiency. Organizations typically focus on visible outputs, overlooking invisible work. This study examines the relationship between invisible workload, cognitive overload, and work efficiency. The study uses a structured questionnaire to examine the relationship among study variables using 105 respondents from a public railway service organization. The findings imply that policies aimed at reducing cognitive overload and invisible workload can foster healthier, more efficient work environments. The results highlight practical implications for educators, policymakers, and employers, emphasizing the importance of tailoring workloads to match employee capacity, boosting efficiency and well-being.

Keywords: Invisible workload, cognitive overload, work efficiency, workload, overload



1. Introduction

In today's work landscape, companies often expect employees to juggle multiple roles or tasks simultaneously. This shift is driven by factors like accelerated project timelines, heightened competition, tech advancements, and evolving processes. Employees today work in workplaces where they have immediate connections to their jobs through email, instant messaging, and video meeting technologies. As a result, employees may sometimes feel expected to maintain availability even after working hours and respond quickly to work-related issues, while also managing multiple modes of communication at the same time. This constant connectivity to work can emotionally and cognitively overwhelm employees and lead to cognitive overload and decreased cognitive performance. However, despite this situation, most organizations still evaluate employee performance based on visible outcomes such as task completion and measurable results, while ignoring the invisible mental and emotional workload involved in achieving those results. The lack of acknowledgment of this element of employee performance highlights the need to include invisible mental and emotional workloads within each organization's definition of employee performance to ensure accurate evaluations.

1.1 Invisible Workload

Invisible workload is commonly found in service-oriented roles or office-based roles where a major part of employees' time is spent completing tasks that cannot easily be seen or measured. Examples include coordinating with other employees on a daily basis, planning future tasks, anticipating potential problems, remembering deadlines, and managing interpersonal interactions and emotional stressors such as calming themselves and maintaining a positive attitude. Employees may also continue performing these tasks even when supervisors or managers do not provide recognition for them. When employees are not acknowledged for these efforts, they may begin to feel undervalued, which can lead to reduced motivation to work for the organization and a decreased intention to remain with the organization in the long term.

Emotional labour is a significant component of invisible workloads. Employees are often required to display emotions that are considered appropriate by their supervisors, customers, or colleagues, even when they may be experiencing stress, frustration, or fatigue. Emotional labour may involve supporting new employees, covering for absent coworkers, assisting colleagues without being asked and resolving conflicts among team members. Although these actions contribute positively to teamwork and organizational functioning, they also increase the mental workload that employees are expected to manage. Over time, the accumulation of these unrecognized responsibilities can lead to emotional exhaustion and decreased job satisfaction.

1.2 Cognitive Overload

Cognitive overload refers to a situation in which an individual faces more mental demands than they can effectively manage. In today's work environment, employees are frequently exposed to large amounts of information, constant workplace distractions, and the need to manage multiple tasks simultaneously. Activities such as decision-making, problem-solving, learning new technologies, and multitasking require significant mental resources. When these demands accumulate without sufficient time for mental and emotional recovery, employees may experience cognitive overload. This condition can reduce concentration, slow information processing, and increase the likelihood of errors.

Cognitive overload has increased due to the excessive flow of information that employees receive daily through emails, messages, reports, and notifications. Constant task switching also increases cognitive strain because it requires the brain to repeatedly refocus on different tasks. Over time, this continuous mental stimulation can reduce attention span and decision-making quality. Additionally, time pressures and high performance expectations may force employees to make rapid decisions without adequate time for reflection. Prolonged exposure to these conditions can decrease both individual and organizational productivity.



1.3 Work Efficiency

An employee's ability to perform assigned duties accurately within a specific timeframe using available resources reflects their level of work efficiency. Work efficiency is influenced by several factors, including employee skills, motivation, organizational support, and the quality of the work environment. However, work efficiency can also be affected by invisible workload and cognitive overload, as employees may need to direct mental and emotional energy toward managing these hidden demands rather than focusing entirely on task completion. Excessive invisible workload may lead to burnout, reduced concentration, and mental fatigue, while cognitive overload can impair decision-making and increase the likelihood of errors.

Employee productivity is closely related to their well-being and engagement at work. Employees who experience unrecognized invisible workloads and high cognitive demands may feel less motivated and less satisfied with their jobs, leading to lower engagement levels. In contrast, organizations that acknowledge and support the invisible and cognitive demands placed on employees create environments where workers can maintain their energy, focus on their tasks, and perform more effectively.

Cognitive overload and invisible workload are important yet often underestimated aspects of modern work that affect employee effectiveness and well-being. The mental fatigue and stress created by these hidden demands can reduce employees' ability to perform efficiently over time. Understanding the theoretical relationship between invisible workload, cognitive overload, and work efficiency can help organizations develop effective workload management strategies. By addressing these hidden demands, organizations can reduce employee burnout, improve overall work-life quality, and create more sustainable and productive work environments.

2. Review of Literature

Sırakaya (2025) highlights the unseen demands on modern employees, revealing how implicit roles like emotional labour, invisible work, and psychological support contribute to an "invisible burden". This leads to burnout, role conflict, and reduced commitment, disproportionately affecting female employees, especially with inadequate support systems. The study emphasises the need for psychological safety, clear roles, and recognition of emotional and social labour demands.

Yen (2024) explores how job demands and tech overload drove work stress during COVID-19, using the SOR model to link job demands to stress via tech overload. Surveying 253 Taiwanese employees, the study finds info, communication, and system overloads fuel stress, especially with multi-function video-conferencing tools. Tech self-efficacy helps buffer this stress. The study highlights the need for coping resources in tech-heavy work environments.

Lu, Guo et al. (2023) examined the impact of mental overload on human error and accidents, arguing traditional methods miss key performance-shaping factors (PSFs) like time pressure and task complexity. Their VACP-based model integrates PSFs to assess mental overload, using Bayesian Networks to calculate overload probability. Applying this to a helicopter crash case shows improved accuracy in identifying overload conditions. The study underscores recognizing and measuring mental overload for better safety and performance.

Clarke et al. (2022) shed light on the invisible labor in academic libraries, revealing how traditional assessment systems overlook the vast, valuable work of librarians and staff. Their survey highlights the financial value of unseen tasks, showing how conventional metrics focus on budgets and resources, eclipsing the human effort behind library services. The authors advocate for making this labor visible to accurately convey library value and address employee workload and stress.

Tang and Vandenberghe (2021) explored the effect of role overload on employee performance, revealing how excessive responsibilities and limited resources lead to psychological strain (stress, depression), ultimately reducing in-role performance, job dedication, and voice. Leader-member exchange (LMX) helps mitigate these effects, but can't fully offset the strain's impact. The study underscores the importance of managing workloads and fostering supportive relationships.



Soria-Oliver et al. (2017) revealed the complex link between mental workload and decision quality, finding an inverted U-shape relationship where moderate workload yields best decisions. Surprisingly, decision quality suffered when actual workload matched expectations, highlighting the interplay between perception and reality. The study shows too little or too much workload impairs decision-making, underscoring the need for optimal workload management.

Ellwart et al. (2015) studied information overload in virtual teams, introducing STROTA, a method guiding teams through awareness and planning stages to manage overload. Teams using STROTA saw reduced overload and stronger shared mental models, boosting collaboration. The study shows structured adaptation can curb communicative chaos in virtual environments.

3. Hypotheses of the study

Hypothesis 1 (H1): There exists a significant influence of invisible workload on work efficiency.

Hypothesis 2 (H2): There exists a significant influence of cognitive overload on work efficiency.

4. Methodology

4.1 Measures

A structured questionnaire was used to collect data, including demographic details such as age, gender, and professional degree of the participants. The independent variables in this study namely Invisible workload, which has 15 items adopted from the Ryah NAI Amin (2024), Cognitive overload scale from Lequorre et al., (2013) having 4 items and Work efficiency scale adopted from Avallone (2007) having 10 items. All items were rated on a 5-point Likert scale.

4.2. Sample and Analysis

Convenience sampling was adopted as it enabled quick access to respondents within the academic setting. A total of 105 valid responses were collected from a public railway service organization, representing diverse backgrounds in terms of age, gender and the name of the professional degree. The demographic details of the respondents are presented in the following table for clarity and further analysis.

Table 1 – Demographic Details
Demographic characteristics of Respondents (N = 105)

Characteristics	Frequency	Percentage
Gender		
Female	51	48.6
Male	54	51.4
Age		
25-34	48	45.7
35-44	38	36.2
45-54	14	13.3
55 and Above	5	4.8
Professional Degree		
Diploma	4	3.8
Undergraduate Degree	35	33.4
Postgraduate Degree	66	62.8
Types of employment		
Permanent	24	22.9
Contract	81	77.1
Year of experience in the present organization		
Less than 1 Years	40	38.1
1-3 Years	51	48.6



4-6 Years	12	11.4
Above 6 Years	2	1.9
Working hours per day		
Less than 6 Hours	3	2.9
6-8 Hours	48	45.7
9-10 Hours	51	48.6
More than 10 Hours	3	2.9

The demographic details of the respondents are presented in Table 1. Of the 105 participants, 49% were female and 51% were male. In terms of degree of study, the majority was postgraduate students, and nearly 46% of the respondents belonged to the 25-34 age group. Among the respondents, 77% were contract employees, 49% had less than 3 years of experience, and the majority (49%) of employees worked 9-10 hours per day.

5. Results

5.1 Reliability Analysis

The reliability of a measurement instrument is evaluated based on its internal consistency, with a Cronbach's alpha value of 0.7 or higher indicating satisfactory internal consistency. The scale reliability in this study is high, as it has a Cronbach's value of 0.83 for invisible workload with 15 items, 0.82 for cognitive overload with 4 items and 0.91 for work efficiency with 10 items.

5.2 Correlation analysis

Table 2 showing correlation between Invisible workload, Cognitive overload, and work efficiency

Correlation		Invisible Workload	Cognitive Overload	Work Efficiency
Invisible Workload	Pearson Correlation	1	.323***	.362***
	Sig. (2-tailed)		< .001	< .001
	N	105	105	105
Cognitive Overload	Pearson Correlation	.323***	1	.438***
	Sig. (2-tailed)	< .001		< .001
	N	105	105	105
Work Efficiency	Pearson Correlation	.362***	.438***	1
	Sig.(2-tailed)	< .001	< .001	
	N	105	105	105

Correlation is significant at the 0.001 level (2-tailed).

The above table shows the Pearson correlation between Invisible Workload, Cognitive Overload, and Work Efficiency. Invisible Workload has a moderate positive relationship with Cognitive Overload ($r = .323, p < .001$) and Work Efficiency ($r = .362, p < .001$). Cognitive Overload also has a stronger positive relationship with Work Efficiency ($r = .438, p < .001$). Since all correlations are significant at the 0.001 level, there is a significant relationship between Invisible Workload, Cognitive Overload, and Work Efficiency.



5.3 Regression analysis

Hypothesis 1 and Hypothesis 2 proposes that Invisible Workload and Cognitive Overload, and significantly impacts Work Efficiency. Table 3 and Table 4 indicate the causal relationship between the variables to support the hypothesis. The R² value associated with this influential relationship was statistically significant R² = 0.496, estimate =0.246 (Invisible Workload), estimate =0.359 (Cognitive Overload), p<0.001) concluding that invisible workload and cognitive overload has 24.6% influence on work efficiency.

Table 3 - Representing Regression: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.496 ^a	.246	.231	6.29562

a. Predictors: (Constant), Cognitive Overload. Invisible workload

Table 4 - Representing Regression: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	20.637	3.343		6.173	<.001
	Invisible Workload	.182	.067	.246	2.705	.008
	Cognitive Overload	.727	.184	.359	3.953	<.001

a. Dependent Variable: Work Efficiency

6. Discussion

This study aimed to examine the impact of invisible workload and cognitive overload on work efficiency. The findings clearly indicate that invisible workload, which includes unrecognized responsibilities, informal support activities, and additional mental and emotional efforts, plays a significant role in influencing employee performance. Employees often perform tasks beyond their formal job descriptions, and these hidden responsibilities contribute to increased mental strain.

The organization should identify and reduce invisible workload by clearly defining roles and responsibilities to prevent employees from feeling overburdened (Kim et al., 2022). Management can introduce workload monitoring systems to ensure fair task distribution among employees. This promotes fairness, balance, and transparency, allowing managers to identify and redistribute tasks effectively preventing burnout and increase work efficiency (Alves et al., 2024). Regular training programs can be conducted to help employees manage cognitive overload and improve focus and productivity. Providing stress management workshops and counselling support can help employees cope with mental strain. Flexible working arrangements may help reduce excessive workload and improve work efficiency. Encouraging open communication between employees and management can help address hidden work pressures.



The organization should promote a healthy work-life balance to enhance employee well-being and overall performance. The study also found that cognitive overload, characterized by continuous concentration, sustained attention, and constant mental engagement, has a noticeable effect on employees' ability to maintain efficiency. When employees are required to think continuously, manage multiple tasks, and remain constantly attentive, it may lead to fatigue, reduced focus, and lower productivity over time. The combined effect of invisible workload and cognitive overload can therefore negatively influence overall work efficiency.

7. Conclusion

This study reveals the significant impact of invisible workload and cognitive overload on work efficiency. Unrecognized responsibilities and excessive mental demands lead to strain, fatigue, and reduced productivity. To unlock employee potential, organizations must recognize hidden contributions, manage workloads, and prioritize well-being. By doing so, they can boost efficiency, performance, and employee satisfaction.

Although employees may possess the necessary skills and competencies to perform their roles effectively, unmanaged hidden workload and excessive cognitive demands can limit their performance potential. The results of this study highlight the importance of recognizing invisible contributions and implementing structured workload management practices. Organizations should ensure fair task distribution, reduce unnecessary mental pressure, and provide supportive systems that promote employee well-being.

References

- Alves, I., Limão, M., & Lourenço, S. M. (2024). Work overload, work-life balance and auditors' turnover intention: the moderating role of motivation. *Australian Accounting Review*, 34(1), 4-28.
- Clarke, R., Stanton, C., Grimm, A., & Zhang, Y. (2022). Invisible labor, invisible value: Unpacking traditional assessment of academic library value. *College & Research Libraries*, 83(4), 612-630.
- Ellwart, T., Happ, C., Gurtner, A., & Rack, O. (2015). Managing information overload in virtual teams: Effects of a structured online team adaptation on cognition and performance. *European Journal of Work and Organizational Psychology*, 24(5), 812-826.
- Kim, K. Y., Messersmith, J., Pieper, J., Baik, K., & Fu, S. (2022). High-performance work systems and employee mental health: The roles of psychological empowerment, work-role overload, and organizational identification. *Journal of Applied Psychology*, 107(4), 623-639.
- Lequorre, J., Gillet, N., Ragot, C., & Fouquereau, E. (2013). Validation of a French questionnaire measure to job requests and resources. *International Journal of Social Psychology*, 26(4), 93-124.
- Pepe, S. J., Farnese, M. L., Avalone, F., & Vecchione, M. (2010). Work Self-efficacy Scale and Search for Work Self-efficacy Scale: A validation study in Spanish and Italian cultural contexts. 26(3), 201-210.
- Sırakaya, E. (2025). The invisible burden: The individual oppressed between institutional roles. *Journal of Social and Organizational Studies*, 12(1), 45-62.
- Soria-Oliver, M., López, J. S., & Torrano, F. (2017). Relations between mental workload and decision-making in an organizational setting. *Psicothema*, 29(3), 385-392.
- Tang, W., & Vandenberghe, C. (2021). Role overload and work performance: The role of psychological strain and leader-member exchange. *Journal of Management*, 47(2), 321-345.
- Yen, Y. S. (2024). Job demands and technology overload influencing work stress in organizations during the COVID-19 pandemic. *Information & Management*, 61(1), 103789.