


THE MODERATING ROLE OF TELECOMMUTING ON THE NODE OF EMPLOYEE ENGAGEMENT, ITS DIMENSIONS AND EMPLOYEE PERFORMANCE

Hangwani Raymond Ravhudzulo^A, Chukuakadibia Eresia-Eke^B



ARTICLE INFO	ABSTRACT
<p>Article history: Received: April, 18th 2024 Accepted: June, 18th 2024</p>	<p>Objective: To investigate the moderating effect of telecommuting on the relationship between employee engagement, its physical, cognitive, and emotional dimensions, and employee performance within the South African Information and Communication Technology (ICT) sector.</p>
<p>Keywords:</p> <p>Cognitive Engagement; Emotional Engagement; Employee Engagement; Employee Performance; Physical Engagement; Telecommuting.</p> <div data-bbox="172 1003 475 1249" style="text-align: center;">  </div>	<p>Theoretical Framework: This study adopted the Employee Engagement theory and Social Exchange Theory which provide a basis for understanding the variables under study.</p> <p>Method: A quantitative research design was adopted. An online survey was utilised to collect data. A combination of non-probability sampling methods was employed to gather a total of 478 complete responses from employees in the South African ICT sector. The data was analyzed using a range of statistical tools, including structural equation modelling, to derive empirical insights and test the proposed hypotheses.</p> <p>Results and Discussion: The results reveal that telecommuting moderates the relationship between cognitive engagement and employee performance, as well as the relationship between emotional engagement and employee performance. However, telecommuting did not moderate the relationship between physical engagement and performance, nor the relationship between employee engagement and performance. These findings suggest that telecommuting enhances employee performance primarily through its impact on cognitive engagement and emotional engagement.</p> <p>Research Implications: The study's findings imply that organizations, particularly in developing economies, should tailor their remote work policies to strengthen cognitive and emotional engagement among employees to optimize performance outcomes.</p> <p>Originality/Value: This study contributes to the existing literature by providing empirical evidence on the moderating role of telecommuting in the relationship between different dimensions of employee engagement and performance within the ICT sector in South Africa.</p> <p>Doi: https://doi.org/10.26668/businessreview/2024.v9i7.4778</p>

O PAPEL MODERADOR DO TELETRABALHO NO NÓ DO ENVOLVIMENTO DOS COLABORADORES, AS SUAS DIMENSÕES E O DESEMPENHO DOS COLABORADORES

RESUMO

Objetivo: Investigar o efeito moderador do teletrabalho na relação entre o envolvimento dos colaboradores, as suas dimensões física, cognitiva e emocional e o desempenho dos colaboradores no setor das Tecnologias de Informação e Comunicação (TIC) da África do Sul.

^A PhD Candidate in Business Management. Faculty of Economic and Management Sciences, University of Pretoria. Gauteng Province, South Africa. E-mail: hangwanir@gmail.com

Orcid: <https://orcid.org/0000-0002-4654-9061>

^B PhD in Management. Department of Business Management, Faculty of Economic and Management Sciences, University of Pretoria. Gauteng Province, South Africa. E-mail: chuks.eresia-eke@up.ac.za

Orcid: <https://orcid.org/0000-0003-4008-474X>

Referencial Teórico: Este estudo adotou a Teoria do Engajamento dos Colaboradores e a Teoria da Troca Social, que fornecem uma base para a compreensão das variáveis em estudo.

Método: Adotou-se um delineamento quantitativo de pesquisa. Foi utilizado um inquérito em linha para recolher dados. Uma combinação de métodos de amostragem não probabilística foi empregada para reunir um total de 478 respostas completas de funcionários do setor de TIC da África do Sul. Os dados foram analisados usando uma variedade de ferramentas estatísticas, incluindo modelagem de equações estruturais, para obter insights empíricos e testar as hipóteses propostas.

Resultados e Discussão: Os resultados revelam que o teletrabalho modera a relação entre o envolvimento cognitivo e o desempenho dos colaboradores, bem como as relações entre o envolvimento emocional e o desempenho dos colaboradores. No entanto, o teletrabalho não moderou a relação entre envolvimento físico e desempenho, nem a relação entre envolvimento e desempenho dos colaboradores. Estes resultados sugerem que o teletrabalho melhora o desempenho dos colaboradores principalmente através do seu impacto no envolvimento cognitivo e emocional.

Implicações da Pesquisa: As descobertas do estudo implicam que as organizações, particularmente em economias em desenvolvimento, devem adaptar suas políticas de trabalho remoto para fortalecer o envolvimento cognitivo e emocional entre os funcionários para otimizar os resultados de desempenho.

Originalidade/Valor: Este estudo contribui para a literatura existente ao fornecer evidências empíricas sobre o papel moderador do teletrabalho na relação entre diferentes dimensões do envolvimento e desempenho dos funcionários no setor de TIC na África do Sul.

Palavras-chave: Engajamento Cognitivo, Envolvimento Emocional, Envolvimento dos Colaboradores, Desempenho dos Colaboradores, Engajamento Físico, Teletrabalho

EL PAPEL MODERADOR DEL TELETRABAJO EN EL NODO DEL EMPLOYEE ENGAGEMENT, SUS DIMENSIONES Y EL DESEMPEÑO DE LOS EMPLEADOS

RESUMEN

Objetivo: Investigar el efecto moderador del teletrabajo en la relación entre el compromiso de los empleados, sus dimensiones físicas, cognitivas y emocionales, y el desempeño de los empleados dentro del sector sudafricano de las tecnologías de la información y la comunicación (TIC).

Marco Teórico: Este estudio adoptó la teoría del Compromiso de los Empleados y la Teoría del Intercambio Social, las cuales proporcionan una base para la comprensión de las variables en estudio.

Método: Se adoptó un diseño de investigación cuantitativo. Para la recolección de datos se utilizó una encuesta en línea. Se empleó una combinación de métodos de muestreo no probabilístico para reunir un total de 478 respuestas completas de empleados del sector sudafricano de las TIC. Los datos se analizaron utilizando una serie de herramientas estadísticas, incluido el modelado de ecuaciones estructurales, para obtener información empírica y probar las hipótesis propuestas.

Resultados y Discusión: Los resultados revelan que el teletrabajo modera la relación entre el compromiso cognitivo y el desempeño de los empleados, así como las relaciones entre el compromiso emocional y el desempeño de los empleados. Sin embargo, el teletrabajo no moderó la relación entre el compromiso físico y el rendimiento, ni la relación entre el compromiso y el rendimiento de los empleados. Estos hallazgos sugieren que el teletrabajo mejora el rendimiento de los empleados principalmente a través de su impacto en el compromiso cognitivo y emocional.

Implicaciones de la Investigación: Los hallazgos del estudio implican que las organizaciones, particularmente en las economías en desarrollo, deben adaptar sus políticas de trabajo remoto para fortalecer el compromiso cognitivo y emocional entre los empleados para optimizar los resultados de desempeño.

Originalidad/Valor: Este estudio contribuye a la literatura existente al proporcionar evidencia empírica sobre el papel moderador del teletrabajo en la relación entre las diferentes dimensiones del compromiso y el desempeño de los empleados dentro del sector de las TIC en Sudáfrica.

Palabras clave: Compromiso Cognitivo, Compromiso Emocional, Compromiso de los Empleados, Desempeño de los Empleados, Compromiso Físico, Teletrabajo.

1 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The COVID-19 pandemic has significantly accelerated the shift towards remote work arrangements across a multitude of industries, including the Information Communication Technology (ICT) sector in South Africa (De Klerk *et al.*, 2021; Mefi & Asoba, 2022). Prior to the pandemic, telecommuting (TC) was already gaining traction in the South African workplace, particularly within the tech-savvy ICT industry (Munyeka, 2024). However, the enforced lockdowns and social distancing measures imposed in response to the public health crisis propelled TC to the forefront of organisational strategies, forcing many ICT firms to rapidly adapt a distributed workforce model (Mojapelo, 2022).

Remarkably, the uncertainties surrounding business activities globally propelled organisations to take proactive measures in accelerating their transition to digital business operations, due to the envisaged trend towards a flexible and remote-friendly future of work, underpinned by a heightened emphasis on employee well-being (Gigauri, 2020). Furthermore, changes in rules, processes, workspaces, and collaboration systems have become increasingly important as the future of work brings more digital standards (Maheshwari, 2022). Subsequently, employee engagement (EE) has been touted as one of the key factors that can affect the success and effectiveness of TC (Tate *et al.*, 2019).

EE is a multidimensional construct that reflects the extent to which employees are committed, involved, and enthusiastic about their work and organisation (Sharafizad *et al.*, 2020). According to Adhitama and Riyanto (2020), EE can be conceptualized as having three dimensions namely, cognitive, emotional, and physical. Cognitive engagement (CogEng) refers to the degree of attention and absorption that employees have in their work; emotional engagement (EmoEng) refers to the degree of positive affect and identification that employees have with their work and organisation; and physical engagement (PhyEng) refers to the degree of effort and initiative that employees display in their work (Jabeen & Rahim, 2021; Mukhlis *et al.*, 2022). Notably, organisations are trying to ensure employees are engaged, because of the connection it has with employee performance (EP) (Rameshkumar, 2020).

Furthermore, Ferreira *et al.* (2021) posit that employees who telecommute may struggle to stay motivated, focused, and productive, leading to lower performance levels. EP and EE are mutually reinforcing, as employees who perform well receive positive feedback, recognition,

and rewards from their work and organisation (Dirani *et al.*, 2020; Saks, 2019). Both EP and EE are important for organisational success, as they are associated with higher productivity, quality, innovation, customer satisfaction, and retention (Dhir & Shukla, 2019; Khalaf *et al.*, 2019; Li *et al.*, 2019). However, the relationship between EE and EP is not linear or simple, and may depend on how TC affects the psychological, motivational, and behavioral aspects of work (Rizka *et al.*, 2022; Schaufeli, 2013).

1.2 RESEARCH GAP AND RATIONALE FOR THE PRESENT STUDY

Literature on the moderating role of TC on employee outcomes in the South African context is scant because organisations have implemented TC as a specific form of virtual work (Morrison *et al.*, 2019; Sucheran & Olanrewaju, 2021). This shows that the concept of TC is still at the developmental stage and not widely adopted (Lebopo *et al.*, 2020). Further, literature on TC as a moderator in the relationship between various variables is inconclusive (Aguilar, 2020; Urien & Erro-Garcés, 2024). For example, a study by Nobles (2024) conducted in the United States observes that TC was only shown to moderate the relationship between incivility and work-family conflict for those who were TC.

Similarly, a study by Giovanis (2018) conducted in Switzerland found that TC moderates the relationship between traffic and air pollution, which contribute to the work environment. In addition, a study conducted in Indonesia by Tan and Antonio (2022) asserts that TC interferes with the relationship between perceived e-leadership and organisational commitment. Likewise, Candel and Arnăutu (2021) conducted a study in Romania and concluded that TC moderates the direct and indirect relationships between psychological entitlement and three work outcomes (job satisfaction, counterproductive work behavior, and organisational citizenship behavior). On the contrary, a study by Golden and Eddleston (2020) conducted in the United States reports that TC normativeness does not moderate the relationship between the extent of TC and salary growth. In sum, although there is wide acceptance of TC, the understanding of its effects on employee outcomes is relatively unknown (Bélanger *et al.*, 2013; Caparrós Ruiz, 2022) and arguably, discordant.

1.3 RESEARCH PURPOSE AND OBJECTIVES

Given the mixed findings in the literature, further investigation is warranted to understand the nuanced role of TC in the node of EE, EE dimensions, and EP. This study aims to address this gap and provide empirical evidence that can inform organisational policies and practices. Therefore, this study seeks to interrogate the moderating effect of TC in the node of EE, EE dimensions and EP, in the context of South African ICT sector. The specific objectives governing the study are to investigate:

1. the moderating role of TC in the node of EE and EP;
2. the moderating role of TC in the node of EE dimensions (PhyEng, CogEng, EmoEng) and EP.

2 LITERATURE REVIEW

This study adopted the EE theory and Social Exchange Theory (SET) with the purpose of establishing a foundation upon which the research is being conducted, by integrating existing knowledge, theories, concepts, and models relevant to the study's objectives. The EE theory refers to psychological states, traits, and behaviours as well as their antecedents and outcomes (Macey & Schneider, 2008). According to Lai *et al.* (2020), engaged employees invest their physical, cognitive, and emotional energies in performing their work roles. Consequently, this study utilizes the EE theory as a comprehensive framework for examining the psychological states and behavioral outcomes exhibited by employees.

In understanding how these psychological states influence EP, this study utilizes the EE theory to examine how employee motivation, commitment, and willingness to invest effort in their roles ultimately affects their performance outcomes. Besides, the EE theory suggests that the more employees are engaged, they will perform better in their jobs (Soane *et al.*, 2012). Resultantly, this study adopts the EE theory for interpreting evaluating EP behavior. As the theoretical foundation for this study relates to TC, the SET is adopted as the theoretical prism. This is because according to Sholesi *et al.* (2023), the SET assumes that reward and cost drive relationship decisions and that both parties in a social exchange relationship assume accountability for each other's actions and depend on one another for support and cooperation. According to Hornung and Glaser (2010), the SET provides a known theoretical framework for social and psychological processes that underlie employees' behaviours toward the organisation.

Markedly, the advancement in ICT has offered employees the ability to choose where and when to execute assigned tasks without being present at a designated place called the office (McCalmon, 2023). The relocation of workers and the global restrictions of movement during the COVID-19 pandemic made it possible to evaluate the new way of working and business conditions in many ways (Raišienė *et al.*, 2021).

Notably, in studies on TC, conducted before the COVID-19 pandemic, employee decisions to work remotely were mostly voluntary, with a focus on interdependency and reciprocity between organisations and employees to explain why participating in telework improves employees' work attitudes (Ki & Lee, 2024). Meanwhile, organisational leaders are progressively encouraging their employees to transition back to in-office work, despite encountering substantial resistance from many employees who have become accustomed to the benefits associated with remote and hybrid work arrangements (Gibson *et al.*, 2023). This resistance underscores the challenges posed by shifting work dynamics and preferences, highlighting the evolving expectations and demands within modern workplaces. In addition, this has resulted in organisations implementing ongoing remote arrangements for their employees (Wheatley *et al.*, 2021).

Possibly, in the future of work, it will become increasingly significant that companies respond to the individual needs of their employees and offer flexible working models (Helmold, 2021). A study by Golden (2012) reports that telework during traditional hours does not moderate the relationship between work-to-family conflict and time-based family-to-work conflict. Likewise, a study conducted by Mihalca *et al.* (2024) found no moderation effect of the degree of telework on the self-goal-setting and performance relationship. Similarly, there was no evidence to suggest that the intensity of telework influences the relationship between telework and exhaustion in a study conducted by Chambel *et al.* (2023).

In addition, in their study, Chambel *et al.* (2022) conclude that telework did not act as a moderator in changing the work-family relationship in terms of conflict or enrichment. Curiously, a study conducted on 225 employees in a Canadian multinational organisation by Podolsky *et al.* (2022) reports that TC influences the relationship between group characteristics (idiosyncratic vs. normative) and EP to some extent but not universally across all group types. Interestingly, a study by Torner (2023) conducted on 448 employees in Colombia discovered that TC moderates the relationship between ethical leadership and creativity. Uchenna *et al.*'s (2018) study revealed a positive but weak impact of TC on the relationship between job satisfaction and performance.

Similarly, a study by Leung and Choo (2022) showed that TC interferes in the association between workplace flexibility and job involvement within a cohort of teachers. Leveraging their study's findings, Parent-Lamarche and Boulet (2021) concluded that TC plays a moderating role in the association between potential stressors and well-being. So, it is plausible as noted in a study by Jaafar and Rahim (2022) that TC disrupts the equilibrium between work and personal life, consequently impacting employee productivity.

While acknowledging these studies, Metselaar *et al.* (2023) still assert that findings in previous research are inconclusive regarding the effects of TC, particularly because only a few of them have thoroughly examined its use by employees. Though duly cognizant of this assertion, the available findings in extant literature lend some credence to the interference of TC on various relationships within the context of organisations and provides a compelling basis to anticipate that TC might moderate the relationship between EE and EP. This precedence provides impetus for the present study to hypothesize that in the studied cohort of employees in South Africa's ICT sector:

H₁: TC moderates the node of EE and EP

H₂: TC moderates the node of PhyEng and EP

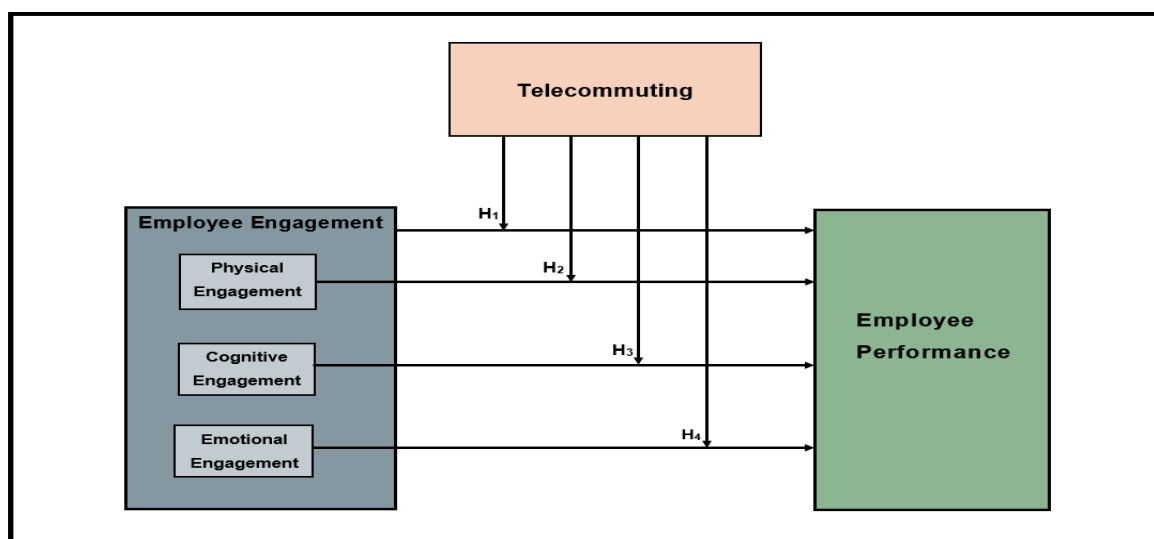
H₃: TC moderates the node of CogEng and EP

H₄: TC moderates the node of EmoEng and EP

These hypotheses that have been formulated for this study are illustrated in a conceptual framework as shown in Figure 1.

Figure 1

Conceptual framework for the study



3 RESEARCH METHODOLOGY

The study adopted a quantitative research methodology alongside a positivist philosophy, which focuses on the measurable and verifiable aspects of reality. By applying deductive reasoning, hypotheses were derived from the discussion of extant literature pivoting on the findings of other studies that examined the possible moderating role of TC in the interaction between different variables. This study employed an online survey strategy within the context of a cross-sectional time horizon that enabled data collection at a moment in time from a sample of TC employees. The online survey instrument was distributed to employees within the South African ICT sector, utilizing recruitment strategies that targeted professional networks encompassing platforms such as LinkedIn, Twitter, and WhatsApp. A total of 478 complete responses meeting the criteria for planned descriptive and inferential statistical analysis were included in this study.

In terms of gender, males accounted for 55.23 percent ($n = 264$) while females made up 44.77 percent ($n = 214$) of the respondent pool. As it concerns the demographic variable of age, the majority of the respondents were between the ages 41 to 50 years (41.63 percent, $n = 199$), whereas 40.17 percent ($n = 192$) were aged between 31 to 40 years. These age cohorts were, followed by respondents aged 21 to 30 years (9 percent, $n = 43$), 51 to 60 years (8.58 percent, $n = 41$), 61+ years (0.42 percent, $n = 2$) and those that were younger than 21 years (0.21 percent $n = 1$).

Furthermore, 70 percent ($n = 335$) and 30 percent ($n = 143$) of the study respondents were drawn from the private sector and the public sector, respectively. A 16-item scale developed by Rich *et al.* (2010) was used to measure EE. TC was measured with a six-item scale developed by Green (2019). The study's dependent variable, EP was measured using a 22-item scale developed by Pradhan and Jena (2017). The scales were presented in an online questionnaire which contained statements that were accompanied by 5-point Likert style answer options ranging from strongly disagree (1) to strongly agree (5).

4 RESULTS

The study utilized Hayes (2018) PROCESS macro moderation analysis technique which is a regression analysis-based approach. Hayes (2018) outlined that PROCESS utilizes an ordinary least squares or logistic regression-based path analytic framework for estimating direct and indirect effects in two-way and three-way interactions moderation models. More so,

bootstrap confidence intervals are implemented for inference about indirect effects, including various measures of effect size (Tofighi & Kelley, 2020). PROCESS macro was utilized chiefly because according to Hayes (2018), this streamlined process for bootstrapping generates visual moderation effect representations which aid the interpretation of results, offers robust control over statistical parameters and assumptions, enhancing moderation analysis accuracy and reliability. Further, this study relied on Cronbach's alpha to evaluate the reliability of the data, Average Variance Extracted (AVE) to assess the degree of relatedness between the measurement items and latent variables, as well as Heterotrait-Monotrait ratio of correlations (HTMT) ratios to evaluate the distinctiveness of the constructs. The reliability, convergent, and discriminant validity results are summarized in Table 1.

Table 1

Reliability, Convergent, and Discriminant Validity

	EE	TC	EP	CogEng	EmoEng	PhyEng
Cronbach α	0.965	0.935	0.945	0.897	0.947	0.922
AVE	0.902	0.69	0.939	0.710	0.762	0.620
EE						
TC	0.391					
EP	0.756	0.367				
CogEng		0.353	0.717			
EmoEng		0.394	0.664	0.822		
PhyEng		0.389	0.775	0.858	0.827	

The Cronbach's alpha values ranged between 0.897 and 0.965, suggesting excellent reliability. Additionally, EE, PhyEng, CogEng, EmoEng, TC, and EP had AVE's between 0.620 to 0.939, indicating a high degree of relatedness between measurement items and latent variables they intend to measure. As for discriminant validity, the HTMT values of the latent variables were below 0.900 suggesting that the latent variables are distinct. The moderation analysis undertaken illuminates the nuanced intricacies of the interactions between the study's variables. Primarily, the aim of a moderation analysis is to measure and test the differential effect of the independent variable on the dependent variable as a function of the moderator (Busenbark *et al.*, 2022) and the results obtained by the study in this regard are summarized in Table 2.

Table 2*Moderating effect of TC on the node of EE and EP*

Hypothesis	Est	t-value	p-value	f ²	Effect Size	ΔR ²	Conclusion
EE*TC → EP (H ₁)	-0.020	-1.260	0.208	0.011	None	0.002	No moderation effect

The moderating effect of TC in the node of EE and EP was negative and statistically insignificant ($\beta = -0.020$, $t = -1.260$, $p = 0.208$). Additionally, based on the results highlighted, there was no statistically significant three-way interaction ($f^2 = 0.011$, no effect) between TC, EE, and EP, and a minute ΔR^2 change of 0.002. This implies that TC has no moderating effect in the node of EE and EP. Consequently, **H₁** was not supported. The study further examined the moderation effects of TC in the node of EE dimensions (PhyEng, CogEng, and EmoEng), and EP. The results for the moderation effect of TC in the node of PhyEng and EP are presented in Table 3.

Table 3*Moderating effect of TC on the node of PhyEng and EP*

Hypothesis	Est	t-value	p-value	f ²	Effect Size	ΔR ²	Conclusion
PhyEng*TC → EP (H ₂)	0.010	0.588	0.557	0.011	None	0.000	No moderation effect

The moderating effect of TC in the node of PhyEng and EP was positive though it was statistically insignificant ($\beta = 0.010$, $t = 0.588$, $p = 0.557$). Moreover, there was no statistically significant three-way interaction since TC had no effect ($f^2 = 0.011$) in the node of PhyEng and EP with no change on R^2 ($\Delta R^2 = 0.000$). Therefore, **H₂** was not statistically supported. Furthermore, the findings of the present study highlight that TC has a negative and statistically significant ($\beta = -0.041$, $t = -2.675$, $p = 0.008$) moderating effect on the node of CogEng and EP. The three-way interaction between TC, CogEng, and EP was statistically significant ($f^2 = 0.044$), with a change in R^2 value of 0.008 ($\Delta R^2 = 0.008$) as summarized in Table 4. It can be concluded that TC has a weakening moderating effect in the node of CogEng and EP. In essence, hypothesis **H₃** was statistically supported.

Table 4*Moderating effect of TC on the node of CogEng and EP*

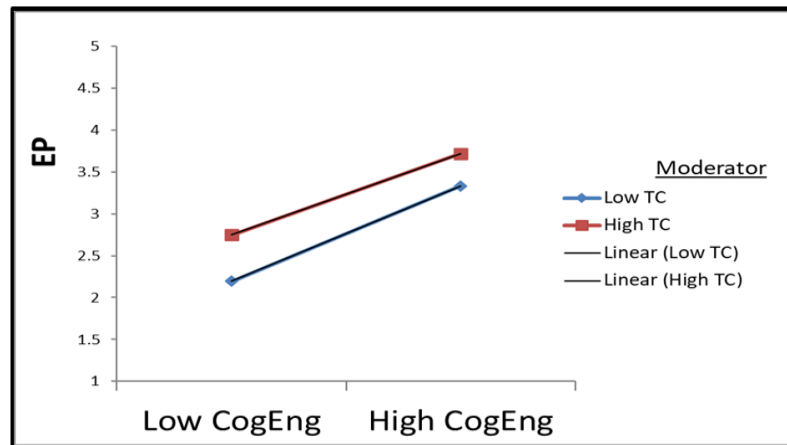
Hypothesis	Est	t-value	p-value	f ²	Effect Size	ΔR ²	Conclusion
CogEng*TC → EP (H ₃)	-0.041	-2.675	0.008	0.044	Small	0.008	Moderation effect
Conditional Effects of CogEng on EP based on the level of TC							
TC Level	Effect	t-value	p-value	Confidence Interval		Conclusion	
				LLCI	ULCI		
Low TC	0.428	17.354	0.000	0.380	0.477	TC dampening moderating effect in the node of CogEng and EP is stronger with low TC as opposed to high TC situations	
High TC	0.320	7.585	0.000	0.237	0.403		

The study examined the conditional effects for both low ($\mu - 1\sigma$)^C and high ($\mu + 1\sigma$) TC in the node of CogEng and EP for the cohort employees working in the South African ICT sector, that participated in the study. Low TC is indicated when the value of TC is below the mean (2.737) and high TC is evident when the value of TC is greater than the mean (5.000). The study results presented in Table 4 revealed that for low TC, the moderating effect of TC in the node of CogEng and EP was 0.428, whereas for high TC, the moderating effect of TC in the node of CogEng and EP was 0.320. This means that the dampening moderating effect of TC in the node of CogEng and EP is much stronger for low TC as compared to high TC situations. The study's findings further reveal that as TC increases, the dampening moderating effect of TC in the node of CogEng and EP becomes weaker, whereas as TC decreases, the negative moderating effect of TC in the node of CogEng and EP strengthens. The moderating effect of TC in the node of CogEng and EP is presented through a simple slope graph in Figure 2.

^C μ is mean; and σ is standard deviation.

Figure 2

Simple slope graph for TC moderating effect in the node of CogEng and EP



The results pertaining to TC moderating effect in the node of EmoEng and EP are summarized in Table 5. The study's findings highlight that the moderating effect of TC in the node of EmoEng and EP is negative and statistically significant ($\beta = -0.051$, $t = -3.467$, $p = 0.001$). The three-way interaction was statistically significant because of TC having a small effect size ($f^2 = 0.045$) in the node of EmoEng and EP with a change in R^2 value of 0.015 ($\Delta R^2 = 0.015$). These results imply that TC dampens the node of EmoEng and EP. Accordingly, this means that **H₄** was statistically supported.

Table 5

Moderating effect of TC on the node of EmoEng and EP

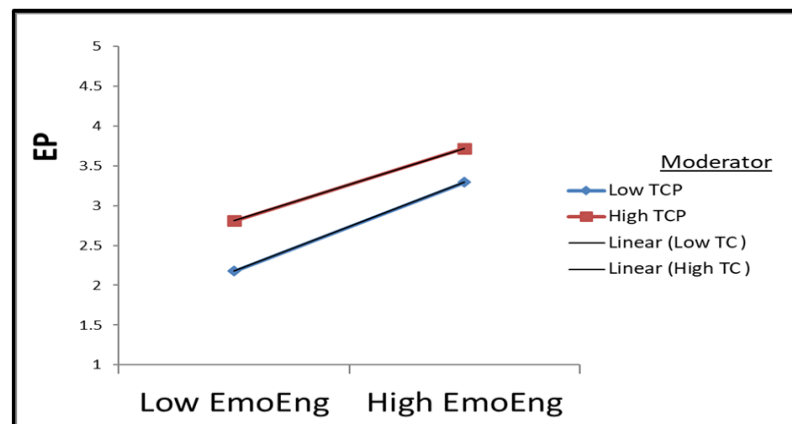
Hypothesis	Est	t-value	p-value	f ²	Effect Size	ΔR^2	Conclusion
EmoEng*TC → EP (H ₄)	-0.051	-3.467	0.001	0.045	Small	0.015	Moderation effect
Conditional Effects of EmoEng on EP based on the level of TC							
TC Level	Effect	t-value	p-value	Confidence Interval		Conclusion	
				LLCI	ULCI		
Low TC	0.384	16.049	0.000	0.337	0.431	The dampening moderating effect of TC in the node of EmoEng and EP is stronger in low TC as opposed to high TC situations	
High TC	0.251	6.463	0.000	0.175	0.327		

The results shown in Table 5 highlight that for high TC, the dampening moderating effect of TC in the node of EmoEng and EP is 0.251, whereas for low TC, it is 0.384. The results suggest that the dampening moderating effect of TC in the node of EmoEng and EP is stronger for low TC as opposed to high TC situations. Therefore, as TC increases, the

dampening moderating effect of TC in the node of EmoEng and EP weakens, however, as TC decreases, the dampening moderating effect of TC in the node of EmoEng and EP strengthens. The moderating effect of TC in the node of EmoEng and EP is further presented through a simple slope graph in Figure 3.

Figure3

Simple slope graph for TC moderating effect in the node of EmoEng and EP



5 DISCUSSION

5.1 OUTLINE OF THE RESULTS

The absence of moderation by TC in the node of EE and EP can be attributed to the diversity in TC experiences among employees, variations in job roles, their compatibility for TC, and difficulties related to technology and infrastructure. Consequently, engaged employees, irrespective of their TC, may continue to exhibit elevated levels of performance. Moreover, individual preferences and their adaptability to TC might vary, contributing to the absence of a consistent moderation effect. This outcome implies that less focus should be placed on TC since it does not influence the node of EE and EP. Further, there was no statistically significant three-way interaction between TC, PhyEng, and EP. This implies that the connection between PhyEng and EP remains consistent, regardless of employees' TC. In essence, the impact of PhyEng on EP is not necessarily altered by the presence of TC, since the core of PhyEng transcends the work location. In the context of the South African ICT sector where employees often engage in sedentary work tasks involving extensive computer use, promoting physical activity becomes relevant. These results diverge from

the SET because TC does not affect the quality and quantity of social exchanges between employees, their co-workers, and organisations.

The moderating role of TC between CogEng and EP suggests that TC weakens the node of CogEng and EP. This means that even if an employee is highly cognitively engaged in their work, the impact on their performance may not be as strong if they are TC. This could be due to various factors related to TC, such as distractions at home, lack of direct supervision, or challenges in communication and collaboration with colleagues. Instructively, the weakening node of CogEng and EP in TC scenarios can be attributed to factors such as unreliable internet connectivity and power outages which have become uncomfortably prevalent in South Africa. These incidents disrupt workflow and hinder CogEng. Additionally, the negative moderating role of TC may be explained by the fact that work-life balance struggles may arise as TC blurs the boundaries between work and personal life. These results affirm the SET, confirming that TC can have a positive or negative effect in the node of EE dimensions and EP.

The study findings further revealed that TC has a dampening moderating effect in the node of EmoEng and EP inferring that the benefits of EmoEng on EP may be reduced when employees telecommute. The attenuation of the node of EmoEng and EP due to TC can be ascribed to the constraints imposed by remote work, potentially restricting face-to-face interactions among employees and colleagues. This limitation may consequently erode employees' emotional attachment to the organization, which would inevitably affect the work that they do. Furthermore, the feelings of isolation from the workplace culture, necessitated by TC may reduce the extent to which the level of EmoEng among specific employees, contributes to their performance in the workplace.

6 CONTRIBUTIONS, IMPLICATIONS AND RECOMMENDATIONS

Organisations should consider this study's findings when developing strategies to foster EE and EP in the evolving work landscape. While the benefits of EE and EP are well-recognized, it is crucial to comprehend their significance to organisations within the transformed work environment. This is particularly pertinent where TC emerges as an optimal mechanism to leverage employee potential. To leverage this capability, organisations should focus on initiatives that enhance meaningful interactions, provide, and foster emotional connection among employees. Additionally, since TC was found to moderate the relationship between CogEng and EmoEng with EP, organisations should prioritize initiatives that enhance

TC, EmoEng, CogEng and EP. Further exploration of the concepts of EE, EE dimensions, and EP will be crucial for developing comprehensive frameworks that support the evolving nature of work in increasingly remote settings. Continuous monitoring and adaptation based on feedback will enable organisations to refine remote work strategies and effectively harness TC's moderating effects.

Finally, supporting employee well-being through initiatives that promote work-life balance and address feelings of isolation is essential for sustaining EE and EP. This study contributes to the existing body of knowledge on the moderating role of TC on EE, EE dimensions, and EP since no study was found to have established the moderating role of TC on the study's variables. Previous studies conducted on either EE, TC, or EP have been undertaken predominantly in the context of the western world (Austin-Egole *et al.*, 2020; Nazir *et al.*, 2021; Tensay & Singh, 2020). This profusely tints the discourse related to the concepts with the colors of a developed economy as opposed to those of Africa's developing economies. This study, therefore, extends existing literature on EE, its dimensions, TC, and EP as well as providing practical and useful recommendations for organisations with TC employees. To cap, the established differential impact of TC on the various EE dimensions underscores the importance of considering the unique characteristics of PhyEng, CogEng, and EmoEng when examining their relationships with EP.

7 LIMITATIONS AND CONSIDERATIONS FOR FUTURE RESEARCH

The results from the present study should be interpreted considering some limitations. Firstly, the findings of this study cannot be generalized to other countries owing to the non-probability sampling technique that was employed in the study. Future research should be extended to other sectors and countries with the aim of exploring the nature and impact of TC on EE and EP dimensions. In addition, future research should explore the moderated-moderation as well as moderated-mediation of demographic variables.

Secondly, this study relied on self-reported measures. Although the Cronbach's alpha values indicated excellent reliability, and the HTMT values of the latent variables confirmed that they are different. The evaluation of personal experiences by respondents may cause common method bias, which can affect the correlations between variables. Therefore, future studies should use other sources, such as measures reported by others, for example ratings by managers. Thirdly, considering that TC is a dynamic and contextual phenomenon that may

change over time, across situations (Biron *et al.*, 2023), this means that TC may have different effects on EE, EE dimensions, and EP at different levels of analysis, such as the individual, the team, the unit, or the organisation. Consequently, future research should use a longitudinal and multilevel design that tracks the changes and variations of TC and its effects on EE and EP over time and across levels of analysis.

8 CONCLUSION

The findings of this study illuminate the moderating role of TC in the node of EE, EE dimensions, and EP. The findings that TC moderates the relationship between CogEng and EP, as well as EmoEng and EP suggest that the remote work setting has a distinct impact on how employees cognitively and emotionally engage with their tasks, ultimately affecting their performance outcomes. Despite these observed effects of TC, this study did not identify a moderating influence of TC on the node of EE and EP, as well as the node of EE dimensions and EP. This study emphasizes the need for recognition that TC is not universally applicable, but rather a nuanced phenomenon influenced by factors like job characteristics, individual preferences, organisational culture, and environmental conditions.

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