

Employee engagement, telecommuting propensity, and employee performance in the virtual workplace

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ABSTRACT

The COVID-19 pandemic catalysed a monumental shift in the traditional workplace, compelling organisations worldwide to rapidly embrace telecommuting. This unplanned experiment has challenged assumptions about productivity and collaboration, while raising crucial questions about the intricate interplay between employee engagement, telecommuting propensity, and employee performance. This study aims to illuminate the dynamics underpinning the virtual workplace, offering insights to inform effective strategies for optimising employee performance in the evolving work landscape of the South African ICT sector. Leveraging the employee engagement theory, social exchange theory, and the Triarchy Model of employee performance, the study examines the relationships between these pivotal constructs. The population for this study is employees working in South Africa's ICT sector. Data collected from 478 respondents was analysed through structural equation modelling. The study discovers direct relationships among the constructs. Employee engagement is positively associated with employee performance, and telecommuting propensity. However, the study found no relationship between telecommuting propensity and employee performance. The research findings suggest that the studied employees working in the South African ICT sector exhibit heightened engagement and performance when telecommuting, despite telecommuting propensity not being a direct determinant of performance. These insights offer valuable implications for organisational strategies and practices to foster employee engagement, productivity, and overall effectiveness in the evolving work landscape.

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1. Introduction

The proliferation of digital technologies and the advent of the COVID-19 pandemic have catalysed a paradigm shift in the traditional work environment (Amankwah-Amoah et al., 2021), giving rise to the virtual workplace (VW) that has compelled employees to adapt to digital replacements for collaboration activities (Jackowska & Lauring, 2021). According to Stich (2020), the VW refers to an environment where the majority, if not all, of the work is conducted remotely, often utilising digital tools and communication technologies. These technological advancements and the digital revolution have reshaped the contemporary work environment, giving rise to new organisational structures and work arrangements (Golden & Gajendran, 2019; Rodríguez-Modroño & López-Igual, 2021).

One of the most prominent manifestations of this transformation is the emergence of telecommuting, which enables employees to work remotely, either partially or entirely, utilising digital communication and collaboration tools (Nakrošienė et al., 2019). While digital tools create opportunities to work in new ways, organisations have the responsibility of looking into the future and considering how these tools might be applied to support changes in employee behaviour as work is automated (Kane et al., 2021). This is important given that the adoption of telecommuting has been accelerated by global events, such

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as the COVID-19 pandemic, which necessitated remote work arrangements for numerous organisations (Carnevale & Hatak, 2020).

Due to these changes and an intensely competitive work environment, the uptake of telecommuting has presented challenges for both employees and organisations, such as communication difficulties, isolation, reduced supervision, blurred boundaries between work and personal life (Karjalainen, 2023; Simeli et al., 2023), among others. Arguably, some of these have had ramifications for the extent to which employees remain engaged at their workplaces. Unsurprisingly therefore, as organisations strive to remain competitive by leveraging employees' contributions, the premium on the notion of employee engagement (EE) has become heightened and this explains why Turner (2020) has called for further research related to it. Unfortunately, while there may be a growing number of studies that focus on EE and other antecedents of performance, almost all of them are conducted in the context of the developed world (Ohemeng et al., 2020). Consequently, it is, from a developing world context, imperative, to understand for instance, how telecommuting influences employee performance (EP) (Bhattacharya & Mittal, 2020), given that EP is crucial in an organisation's efforts to achieve its goals (Nguyen et al., 2020).

Indeed, the examination of the interactions of EE, telecommuting, and EP are still inconclusive and so there is a substantial need for more empirical evidence (Ajibola et al., 2019; Silva et al., 2022; Steidelmüller et al., 2020) that engender improved understanding of the complex relationships that may exist between the constructs in the VW. This is more so because there is a lack of comprehensive understanding of employee outcomes in the VW (Hill et al., 2024). Emboldened by these gaps in literature, the present study aims to investigate the nexus between EE, telecommuting propensity (TCP), and EP in the context of the VW in the South African ICT sector.

This study offers several contributions. First, it advances the fields of business management, human resources, organisational management, and business strategy. This study suggests and examines associations as well as enhancing the comprehension of the study constructs, despite the existence of literature predominated by western narratives. Second, this study broadens the knowledge of current theoretical views, namely the EE theory, Triarchy model of EP and the Social Exchange Theory (SET) in the context of a developing country.

2. Literature review

EE, which is considered to be a positive, fulfilling, work-related state of mind, characterised by vigour, dedication, and absorption (De-la-Calle-Durán & Rodríguez-Sánchez, 2021), has been linked to favourable organisational and employee outcomes (Ibrahim et al., 2020). More specifically, as observed by Crichlow (2023), EE plays a critical role in an organisation's remote work team experiences. Notably, EE is not a static or universal phenomenon, but rather a dynamic and context-dependent one, influenced by various individual, organisational, and environmental factors (Jo & Hong, 2022; Piotrowski & Besta, 2022) and yet imbued with the potential to contribute to the success of the organisation (Takale & Chavan, 2023). Tussey (2023) contends that, the role of EE in the pursuit of positive organisational outcomes becomes critical, especially when employees are telecommuting. This may be because employees in professional, scientific, and technical services, that discharge managerial roles tend to be the ones with higher telecommuting propensities (Chalabi & Dia, 2024).

TCP is the likelihood or inclination of individuals to engage in telecommuting, which has become popular in developing countries (Nayak & Pandit, 2021). TCP may vary by education, industry, organisation size, and geographic location (Beckel & Fisher, 2022; Grzegorzczak et al., 2021). This suggests that context and role-specific factors may help maintain employees' experiences of TCP (Caringal-Go et al., 2022). This notwithstanding, Heiden et al. (2021) report that there is little evidence on whether certain levels of TCP are detrimental to employees and their performances. While telecommuting may be advantageous for certain employees, it poses challenges for others, notably manifesting in diminished EP and a decline in team productivity, particularly as the number of telecommuting colleagues increases (Van der Lippe & Lippényi, 2020). This testifies to the fact that contextual nuances, arguably, influence the nature of the association that may exist between TCP and EP, making it all the more necessary to examine these constructs from a developing world context and in a specific industrial sector.

From a theoretical framework perspective, EE theory as conceptualised by Kahn (1990) informs this study's understanding of EE. The EE theory postulates that employees who are highly engaged in their work roles not only focus their physical effort on the pursuit of role-related goals but are also cognitively vigilant and emotionally connected to their work (Rana et al., 2019). The goals at the organisational level encompass EP which stems from a cluster of behaviours dictated by an employees' knowledge, abilities, and skills (Sony & Mekoth, 2016). EP is an essential determinant in the organisation because it will improve organisational performance (Wijayati et al., 2022). Accordingly, the elucidation of EP in this study is within the framework of the Triarchy model as conceived by Pradhan and Jena (2017). Finally, TCP is explicated within the framework of the SET as formulated by Blau (1964). This theory postulates that individuals seek social situations that maximise their beliefs and minimise personal disadvantages (Ghahtarani et al., 2020). So, employees who benefit from flexibility policies such as telecommuting, are likely to reciprocate with more favourable work attitudes and behaviours (Kim et al., 2023).

2.1. The Nexus between employee engagement and employee performance

Characteristically, EE tends to act as a key driver of EP (Awan et al., 2020; Svensson et al., 2021). Indeed, a key competitive advantage that organisations have today stems from the performance of their employees (Govender & Bussin, 2020). So, it is logical that engaged employees become more productive in those organisations that prioritise EE and create a positive work environment. This is because according to Teo et al. (2020), in a workplace where employees experience negative behaviours and excessive pressures, this exerts a detrimental influence on organisational outcomes. Instructively, the uncertainty and changes caused by a highly competitive business world have introduced variations in how EE affects EP (Bakker & Leiter, 2017). Some studies remonstrate that EE affects EP (Linggiallo et al., 2021). For example, using a sample of 587 employees from a variety of industries, Halbesleben and Wheeler (2008) report that EE only has a minor effect on EP. Riyanto et al. (2021) assert that EE does not directly affect employee performance. In harmony with this view, Noercahyo et al. (2021) insist that EE does not significantly affect organisational performance. It may well be that low levels of EE and decreased job satisfaction may intensify organisational challenges, potentially leading to adverse outcomes for both the organisation and its employees.

On the contrary, previous studies have shown that EE can enhance EP by increasing employees' motivation, commitment, satisfaction, and well-being (Kim & Kim, 2021; Salas-Vallina et al., 2021). The general perception is that employees with high levels of engagement are likely to put more effort in their jobs and, as a result, tend to display higher levels of performance (Sarwar et al., 2020). So, whether the relationship between EE and EP is positive, negative, or statistically inconsequential remains to be completely comprehended. This is more so in the context of the ICT industry in South Africa where no studies interrogating such relationships in a post-COVID era exist. Nonetheless, duly cognisant of the various positions in extant literature as it pertains to the relationship or lack thereof between EE and EP, this study elects to hypothesise that with specific respect to employees in the South African ICT sector, telecommuting employees in South Africa's ICT sector:

H₁: EE has a positive relationship with EP

2.2. The Nexus between employee engagement and telecommuting propensity

EE is, essentially, a concept that organisations cannot afford to ignore as it is a significant factor in organisational success (Soni & Rastogi, 2019). The importance of EE for the organisation, combined with increasing adoption in telecommuting, heightens the necessity to explore the interaction between both constructs (Raghavan et al., 2021), largely driven by the observation of Weideman and Hofmeyr (2020). The desire for smooth operations and increased competitiveness (Alzoubi et al., 2020) makes it important for managers to maintain acceptable EE levels even when their employees are telecommuting in a bid to boost employee morale (Jallow, 2021). In harmony with this view, Crichlow (2023) reports that EE is especially necessary for telecommuting employees.

Wontorczyk and Rożnowski (2022) posit that there is no difference in terms of any type of work engagement, regardless of the form in which it is performed, including telecommuting contexts. Although Miglioretti et al. (2022) argue that work engagement is related to telecommuting quality, Aggarwal et al. (2020) opine that work engagement has a negative impact on employee psychological withdrawal behaviour. While contributing to the literary discourse, Ugwu et al. (2023) suggest that there is a negative association between work engagement and work-life balance. While examining work engagement and telework, Steidelmüller et al. (2020) found that the constructs are statistically related. In tandem with this position, and in reinforcing this Osoian and Petre (2022) assert that a positive correlation, specifically is evident between work engagement and telecommuting.

This study is expedient partly because of the concern expressed by Tate et al. (2019) that it is crucial to foster engagement among employees, especially those who telecommute, as this can be particularly beneficial for organisations in telecommuting settings. The lack of consensus in extant literature as it pertains to the relationship between EE and TCP can be attributed to the diversity of organisational contexts, the changing work environment, and the evolution of telecommuting. Consequently, understanding the complex relationship between EE and TCP in the context of the evolving work landscape (EWL) is essential for organisations. This underscores the need for pragmatic research and a more nuanced understanding of this relationship. And so, towards contributing to the body of knowledge, this study anticipates that under evolving conditions of work, EE would influence TCP and so it is hypothesised that:

H₂: There is a statistically significant positive relationship between EE and TCP

2.3. The Nexus between telecommuting propensity and employee performance

Telecommuting tends to be promoted as an approach to improve EP outcomes (Malik et al., 2017). According to Abilash and Siju (2021), EP remains largely unaffected when employees are working remotely. Moreover, in a study conducted by Alfanza (2021), telecommuting intensity did not correlate with employees' job performance, indicating that there is no difference in the percentage of work done and the amount of time spent to finish a job at home and at the office. Further, a study by Cheng and Zhang (2023) found that telecommuting reduces the performance of employees because they rarely feel psychological detachment from work during their free time. Additionally, in a study conducted on 155 employees at a private organisation in Malaysia, Jaafar and Rahim (2022) observed that employees perceived that telecommuting does not jeopardise their job performance. Moreover, according to Baek (2021) prior studies on telecommuting are often unable to provide causal evidence on the impact that telecommuting has on employee performance.

In light of some concerns that remote work might lead to a decline in performance, a study by Kuppachi (2023) suggests a more optimistic and nuanced perspective, highlighting the potential positive outcomes associated with telecommuting. Also, according to Wang et al. (2022), improving employees experience when they are telecommuting can enhance EP. Zhang (2020) argue that telecommuting may bring advantages like higher productivity as it directly affects the work-life balance of employees. In addition, Beauregard et al. (2019) posit that the benefits of telecommuting lend credence to the argument that it is effective. Owing to the different positions canvassed by scholars, accurately forecasting the exact nature of the relationship that TCP might demonstrate with EP in a specific context such as the ICT sector in South Africa becomes a complex and difficult proposition. However, cognisant of the findings from extant literature related to the possible relationship between TCP and EP, yet mindful of the effects of the recent COVID-19 pandemic and the EWL in a developing economy like South Africa, the study elects to hypothesise that in the specific context of the ICT sector:

H₃: There is a statistically significant positive relationship between TCP and EP.

The hypotheses formulated in this study are illustrated in a conceptual framework as shown in Figure 1.

3. Methods

This study adopted a quantitative research approach to investigate the relationship between EE, TCP, and EP among employees working in the South African ICT sector, post the COVID-19 pandemic. With the knowledge that it was impractical to reach all the employees in the South African ICT sector, the study relied on the use of a sample and employed a survey instrument for data collection.

3.1. Data collection

A survey was hosted on *Qualtrics* where respondents who received the anonymous link through social media platforms such as LinkedIn, Twitter, and WhatsApp could respond. The respondents reported their levels of TC, EE, and EP based on statements accompanied by 5-point Likert-type answer options anchored by 1 (strongly disagree) to 5 (strongly agree). A deliberate effort was made in the present study to target a sample size of 1000 employees working in the South African ICT sector in the months of July to September 2023. Respondents were selected through a combination of snowball, purposive, and self-selection sampling techniques. A total of 1368 questionnaires were distributed online with 1054 responses collected, of which 576 responses were unusable due to incomplete responses. Consequently, this study proceeded with 478 complete responses that were considered adequate for the intended descriptive and inferential statistical analysis. This implies that the study achieved an effective response rate of approximately 45%.

3.2. Data

The data collected from employees working in the South African ICT sector is stored on the University of Pretoria research data repository (10.25403/UPresearchdata.25782492), in Excel format (282 kb). Further, the data that supports the findings of this study are available from the corresponding author, HR, upon reasonable request.

3.3. Ethical considerations

Respondents were requested to provide their written consent through an informed letter of consent that explained the aims of the study and the guidelines for participation. In addition, respondents were assured of confidentiality and anonymity, as their answers could not be linked to their individual identities. The study did not offer any incentives to induce responses from respondents and maintained adherence to ethical research standards throughout its execution. Ethical approval was granted (Protocol number: EMS019/23) for this study by the committee for research ethics at the University of Pretoria, to which the authors are affiliated.

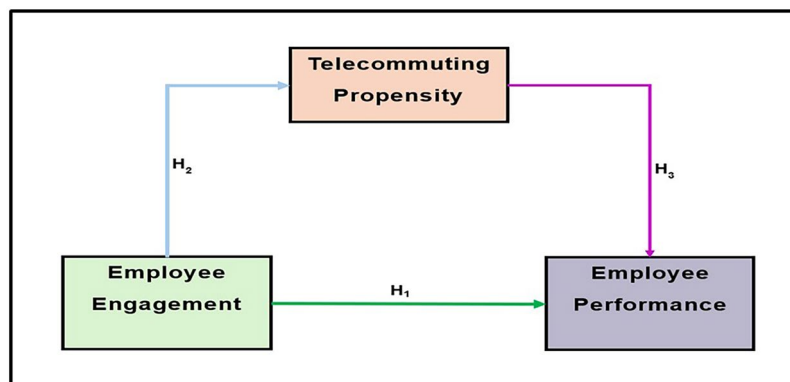


Figure 1. Conceptual framework of the study.

3.4. Measurement

To measure EE, TCP and EP, the study utilised scales established in extant literature. EE was measured through the 16-item scale developed by Rich et al. (2010). The study measured TCP through a six-item scale adopted from Green (2019). Further, the study measured EP utilising a 22-item scale developed by Pradhan and Jena (2017).

3.5. Statistical analysis

For the purpose of data analysis, this study opted for Structural Equation Modelling (SEM), a parametric statistical method used to analyse structural relationships between observed and latent variables. SEM assumes specific parametric forms for the relationships between variables and typically involves estimating parameters such as regression coefficients, factor loadings, and variances-covariances (Li, 2021). These parametric assumptions allow researchers to make specific inferences about the relationships between variables and to test hypotheses about the underlying structure of the data (Ariens et al., 2020). To assess the reliability of scales, the Cronbach's alpha test, was utilised, whilst convergent validity was analysed using average variance extracted (AVE) and discriminant validity was tested through heterotrait-monotrait ratio of correlations (HTMT).

4. Results

This section of the study outlines the findings. The study measured the respondents' perceptions on EE, TCP and EP in the ICT sector of South Africa and the results are summarised in Table 1. The mean value for EE was 4.374 with standard deviation of 0.970 indicating that on the average, the respondents agreed that employee engagement is a feature of their respective organisations. As for TCP, the mean was 3.737 which translates to the fact that at an aggregate level, the study's respondents had relatively high TCP levels. For EP, the average response to questionnaire items bordered on the option of 'agree' as evidenced by the realised mean score of 4.576. This signals the respondents' conviction that they were achieving acceptable levels of performance.

4.1. Assessment of the measurement model

The measurement model used in the study was evaluated through CFA and it is shown in Figure 2. In the present study, a threshold of 0.7 was adopted as the cut-off point for weak observable items as recommended by Jannah et al. (2020). From the 16-item scale utilised for measuring EE, one item was dropped because it had an indicator reliability below 0.7 whilst the other item loadings, as depicted in Figure 2, ranged from 0.73 to 0.87 for EE and 0.73 to 0.91 for TCP. Notably, 8 items for EP were removed since they had item loadings below 0.7. Subsequently, item loadings attained for the EP scale were in the range of 0.70 to 0.81.

In this study, the examination of internal consistency reliability extended to the evaluation of both convergent and discriminant validity for EE, TCP, and EP with summarised findings presented in Table 2.

A review of the results in Table 2 highlights a Cronbach's alpha value of 0.965 for EE with a composite reliability (CR) of 0.966. For TCP, Cronbach's alpha and CR values obtained, were 0.935 and 0.930 respectively. EP had a Cronbach's alpha value of 0.945 with a CR value of 0.945. The Cronbach's alpha and CR values for EE, TCP and EP confirm the internal consistency reliability of the scales employed in the current study. As it pertains to the issue of convergent validity, AVE scores were 0.669 for EE, 0.689 for TCP, and 0.569 for EP. These results indicate that the observable variables converge to form the constructs. In

Table 1. Selected measures of central tendency related to EE, TCP, and EP ($n=478$).

	Mean	Std. Dev	Minimum	Maximum
TCP	3.737	1.540	1	5
EE	4.374	0.970	1	5
EP	4.576	0.581	1	5

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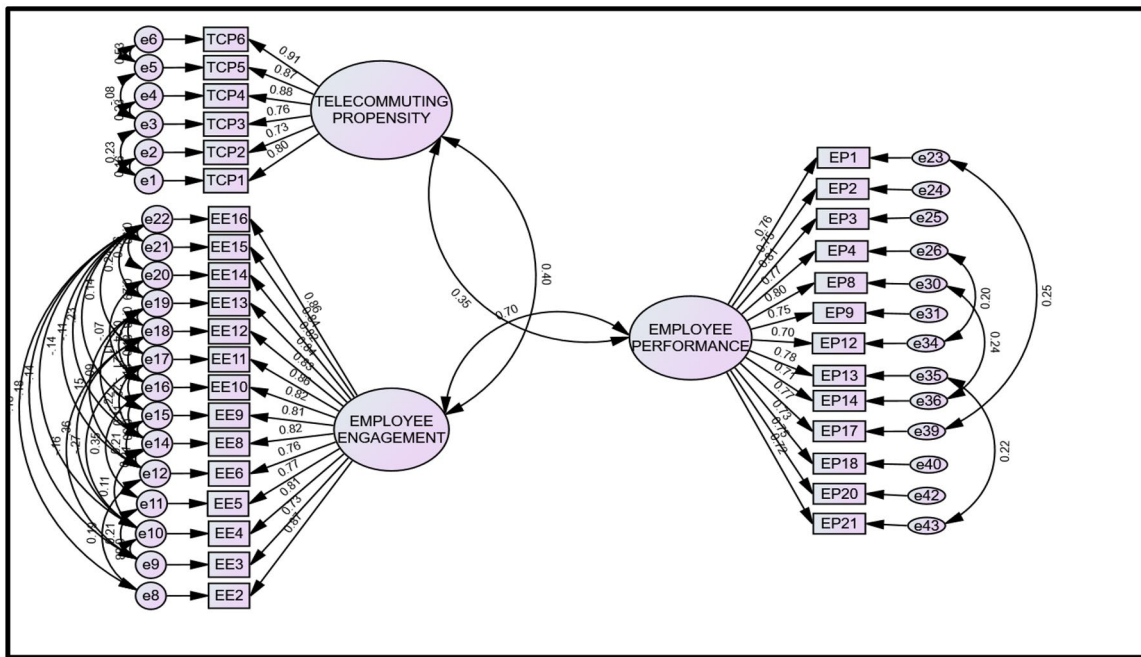


Figure 2. EE, TCP, and EP measurement model.

Table 2. Reliability, convergent and discriminant validity results.

	Cronbach's α	CR	AVE	HTMT		
				EE	TCP	EP
EE	0.965	0.966	0.669			
TCP	0.935	0.930	0.689	0.397		
EP	0.945	0.945	0.569	0.698	0.342	

The significance of color as highlighted through the p -value.

addition, the HTMT ratios for all the constructs were between 0.342 and 0.698. Since the HTMT correlation ratios fall below the 0.900 discriminant validity criteria, it can be concluded that the factors are discriminant of each other. The results, as presented in Table 2, therefore confirm adequate item reliability, internal consistency reliability, satisfactory convergent validity, and acceptable discriminant validity. Consequently, there is ample justification to assert that the data collected in the present study aligns with the proposed theoretical model.

4.2. Structural model and hypotheses testing

To examine the direct relationship between EE, TCP, and EP, a path analysis model was developed as shown in Figure 3. The fit indices for the model are within the acceptable range as stipulated by Hong et al. (2019) and Yaşlıoğlu and Yaşlıoğlu (2020). The fit indices are $CMIN/df = 2.195 < 3$; $RMSEA = 0.050 < 0.05$, $SRMR = 0.042 < 0.05$; $CFI = 0.962 > 0.95$; $TLI = 0.955 > 0.95$; $GFI = 0.889 > 0.80$; $NFI = 0.933 > 0.90$ and $AGFI = 0.862 > 0.80$.

From the path analysis model results depicted in Figure 3, the path coefficient for the direct relationship between EE and EP is 0.67 whilst that associated with TCP and EP is 0.08. The path coefficient for the direct relationship between EE and TCP is 0.40. These coefficients alongside associated t -values, p -values and hypothesis-related statistical decisions are presented in Table 3.

The results presented in Table 3 indicate that the direct relationship model for EE, TCP with EP has an R^2 value of 0.50. This suggests that a 50% variance in EP is accounted for by EE and TCP. For the predictive model which expresses the direct relationship between EE and TCP an R^2 of 0.164 was obtained. This implies that 16.4% of the variance in TCP is accounted for by EE in the cohort of employee in the ICT sector of South Africa who participated in the study.

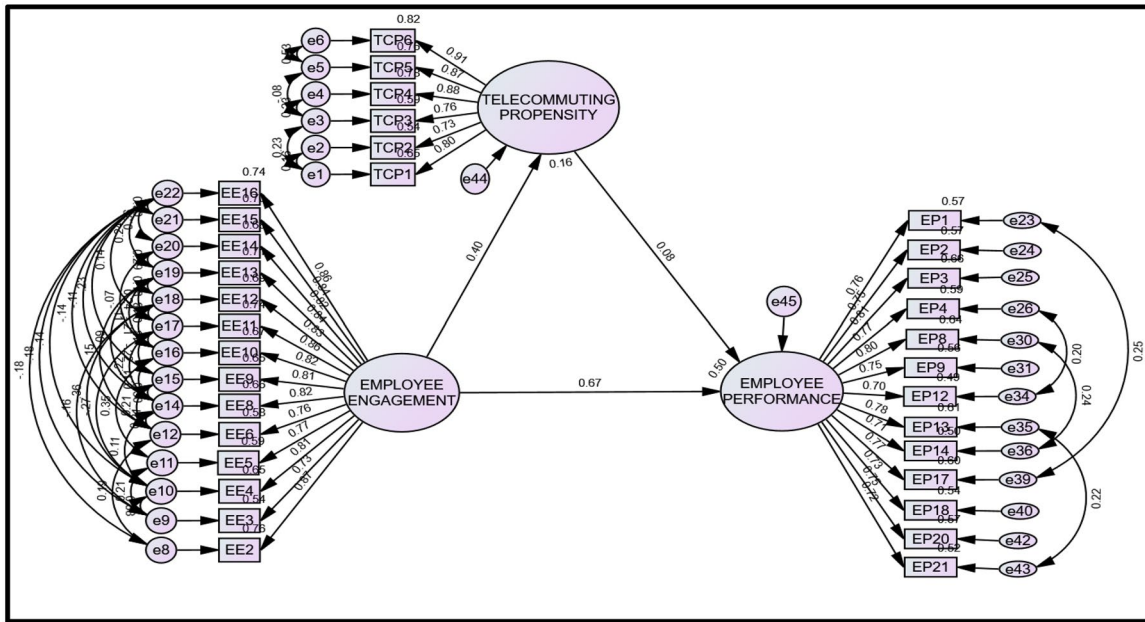


Figure 3. EE, TCP, and EP Measurement Model.

Table 3. Structural model results for direct relationships between EE, TCP, and EP.

Hypothesised Relationship	Estimate	t-value	p-value	Decision
EE, TCP, and EP				
EE \Rightarrow EP (H_1)	0.67	13.41	< 0.001	Supported
TCP \Rightarrow EP (H_3)	0.08	1.88	0.060	Not Supported
R ² for EP predictive model	0.50			
EE and TCP				
EE \Rightarrow TCP (H_2)	0.40	8.453	<0.001	Supported
R ² for TCP predictive model	0.16			

The significance of color as highlighted through the p-value.

The SEM findings showed that the impact of EE on EP was positive and statistically significant ($\beta=0.67, t=13.41, p<0.001$). In consideration of H_1 , the hypothesis was statistically supported, and so it is concluded that EE positively affects EP in the cohort of employees in the South African ICT sector, that participated in the study. Further, the impact of EE on TCP was shown to be positive and statistically significant ($\beta=0.40, t=8.45, p<0.001$). On this score, the hypothesis (H_2) that suggested the existence of a significant positive relationship between EE and TCP was statistically supported. Conversely, the study’s results show that though the relationship between TCP and EP was positive, it was statistically insignificant ($\beta=0.08, t=1.88, p=0.06>0.001$). Consequently, H_3 which proposed that there is a statistically significant positive relationship between TCP and EP was not supported. The findings suggest that EE fosters both TCP and EP, whereas TCP has no statistically significant association with EP.

5. Discussion

The study’s findings revealed that EE engenders EP in the respondent population of the study pooled from the South African ICT sector. In essence, engaged employees feel empowered to contribute more productively to the pursuit of the objectives of the organisation, which customarily translates to improved EP. Buoyed by the empirical findings obtained, the position of the study is that relative to an employee that is disengaged, an engaged employee would achieve better performance. This is crucial for the EWL as the confirmation of the link between EE and EP implies that the creation of a work culture that reinforces EE, can foster performance improvement.

The study’s results that show the existence of a statistically significant positive relationship between EE and TCP implies that as EE increases, there is a corresponding increase in employees’ propensity to telecommute. This shift signifies a move towards more flexible work arrangements where employees may

not be bound by traditional office hours or physical presence requirements. It reflects a recognition that engagement with work can be maintained or even enhanced outside of the traditional office setting. This transformation in work paradigms aligns with broader trends in remote work and flexible working arrangements, driven by advancements in technology and changing attitudes towards work-life balance. The pivotal transition in work paradigms towards increased flexibility in telecommuting presents notable benefits for engaged employees who prioritise remote work arrangements. With the convenience and comfort inherent in telecommuting, engaged employees tend to exhibit a preference for this mode of work. Essentially, in the context of pronounced levels of EE, it would seem that the essence of the physical location of work becomes diminished.

In the studied cohort of employees working in the South African ICT sector, the study's finding is that TCP exhibits no statistically tenable relationship with EP. This finding suggests that employees did not perceive their TCP to be associated with their performance. The lack of a significant relationship between TCP and EP in the context of the ICT sector in South Africa indicates that TCP is not a direct determinant of EP. Rather, TCP tends to be an enabler imbued with the potential of facilitating a more substantial contribution of different factors to EP. These factors may include, the technical skills of employees, the availability of resources, a conducive work environment, and an engaged workforce. Arguably, TCP may, in the presence of these prove efficacious for EP. Contrarily, in the absence of factors that have a direct bearing on EP, the intensity of telecommuting may have scant implications for productivity in the EWL.

This is important since Newman and Ford (2021) assert that performance outcomes can be achieved in both traditional and telecommuting settings. This assertion rests on the assumption that requisite resources and skills for undertaking the ICT related work are available. Crucially, to facilitate a hybrid work model encompassing both in-person and remote work options to suit the different needs of employees and the nature of their roles, it is essential to understand the diverse EWL and additionally, the difference between direct determinants of EP and facilitators of EP. Based on the present study's results, it is clear that TCP appears to be a facilitator. More so, in their study, Wang et al. (2022) aver that the performance of telecommuting employees is highly variable in the post-pandemic era. This variability may be explained by the mix of ICT capabilities that attends to any given work situation.

6. Conclusion

The purpose of this study was to determine if relationships exist between EE, TCP, and EP. The study realised its purpose as it established that there is a positive relationship between EE and EP, EE affects employees TCP, yet TCP has no impact on employees' performance. Drawing from the results in this study, it can, therefore, be argued that the multi-faceted role of managers in organisations is increasingly important and will require them to understand EE and EP behavioural aspects to promote employees' successful achievement of organisational goals. In the context of South Africa's ICT sector, particularly in the organisations of the study's respondents, recognising the correlation between employee engagement and performance suggests that focusing on strategies to boost engagement levels can lead to favourable performance-related outcomes within the sector. The discovery from this study's findings that EE influences TCP implies that by prioritising engagement initiatives, some organisations can encourage the adoption of remote work practices. This is critical as organisations in the ICT sector, from where the study's respondents were drawn, can benefit from increased EE and EP when employees are telecommuting, in consonance with the changing trends of the VW.

7. Recommendations

Organisations and managers have the responsibility of ensuring that the work environment in the EWL is inclusive, collaborative, sustainable, and human centred. Organisations may need to reevaluate their telecommuting policies and provide adequate support and resources to ensure EE and EP in the VW. In addition, managers need to adopt new communication strategies, provide clear goals and expectations, and leverage technology to facilitate collaboration and connection among virtual team members. Considering that EE, TCP, and EP are central to the success of the VW, as the workplace continues to evolve, it is imperative for organisations to adapt and leverage these insights to thrive in an increasingly

digital world. In addition, organisations should ensure that the EWL is inclusive, collaborative, sustainable, and human centred.

8. Limitations

Research examining EE, TCP, and EP in developing economies within Sub-Saharan Africa is notably sparse (Ansong & Boateng, 2018; Atatsi et al., 2019; Brenyah & Obuobisa-Darko, 2017). So, the scarcity of relevant literature specific to the research context represented a limitation for the study. Inevitably, this necessitated reliance on literature derived from alternative contexts. The quantitative method adopted in the present study relied on respondents self-reported data and this could potentially mean that some respondent biases attended the gathered data. This is the case as the lure of social desirability or acquiescence biases may have prompted some respondents to provide responses they perceived as anticipated or agreeable to the researcher. Given that this study employed non-probability sampling techniques, its findings cannot be generalised in divergent settings or the entire population of the ICT sector in South Africa.

9. Contributions

Currently, EE, TCP, and EP are under-researched especially as it concerns the EWL. Moreover, most of the studies conducted on EE, TCP, and EP are predominantly in the western part of the world and this profusely tints the discourse related to the concepts with the colours of a developed economy as opposed to those of Africa's developing economies.

Theoretically, conducting this study in the context of South Africa, a developing country, enriches the understanding of the study constructs despite the existence of literature predominated by western narratives. In the main, the study contributes towards improved theoretical understanding of the nexus of employee engagement, performance, and telecommuting propensity.

10. Considerations for future research

As organisations continue to adapt and innovate in the EWL, this study serves as a stepping stone for further research, offering a foundation for deeper exploration on the multifaceted relationships between EE, TCP, and EP. Consequently, further investigation is warranted to explore the mechanisms through which TCP impacts the intricate relationship between EE dimensions and EP dimensions. Additionally, in light of potential sectoral idiosyncrasies of EE and EP, future research may explore similar inquiries across different sectors. Furthermore, future research should broaden the theoretical model of TCP by adding other relevant concepts, such as work-life balance, organisational commitment, or job satisfaction.

Ethical considerations

Ethical approval with the Clearance number EMS019/23 was obtained from the committee for research ethics, University of Pretoria, to which the authors are affiliated.

Informed consent statement

Informed consent was obtained from respondents involved in the study.

Authors' contributions

H.R.R. and C.E.E have contributed equally to the conceptualisation, methodology, planning, researching, data collection, analysis, structuring, writing, and review of this study.

Disclaimer

The authors hereby declare that this study is their own original work and has not been published under consideration for publication elsewhere.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

The data sets analysed during the current study that supports the findings of this study are available from the corresponding author, H.R, upon reasonable request.

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