International Journal of Computer Information Systems and Industrial Management Applications
ISSN 2150-7988 Volume 18(8s) 2026 pp. 1100-1111
https://doi.org/10.70917/ijcisim-2026-3983
Article

Transformational Leadership and Employee Performance: A Serial Mediation Model of Psychological Safety and Innovative Work Behaviour

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Abstract: This study aims to understand whether transformational leadership practices have an impact on the employees' performance in the Indian IT sector of Delhi/NCR. In this paper transformational leadership is considered as independent variable studied via serial mediation, where the indirect effect of leadership on performance is realized by two subsequent variables. Mediators are psychological safety and innovative work behavior, with psychological safety being a first mediator and innovative work behavior as a second mediator. The study is supported by Transformational Leadership Theory, Social Exchange Theory, and Conservation of Resources Theory. The study develops and study seven research hypotheses using a cross-sectional survey design. The research instrument consists of 26 items grouped in different sections. By using a non-probability judgmental sampling technique, the study focuses on 260 Indian IT professionals located in the Delhi/NCR, with every participant being a full-time employee, and uses Partial Least Squares Structural Equation Modelling (PLS-SEM) for analysis. The study finds that transformational leadership has an indirect influence on employee performance, with psychological safety and innovative work behaviour fully mediating the relationship. There is evidence of a direct link between transformational leadership and each of the mediated variable as well as between innovative work behaviour and employee performance. Thus, the study reveals that serial mediation partially explains the relationship between transformational leadership and employee performance. The study contributes to Conservation of Resources Theory by extending it to a four-construct model, provides insights for leadership development practice in high-performance industries, and outlines directions for future research.

Keywords: Transformational leadership, Psychological safety, Innovative work behaviour, Employee performance, Conservation of Resources Theory, Serial mediation, Indian IT industry

1. Introduction

Transformational leadership (TL) is among the most consistent predictors of employee performance (EP) in knowledge-intensive industries (Bass & Riggio, 2006; Wijaya, 2025), yet the psychological mechanism transmitting this influence remains only partially specified. One stream of research links TL to innovative work behaviour (IWB) directly or through climate and empowerment based mediators (Vu et al., 2025; Wijaya, 2025). A second stream shows that psychological safety (PS), the shared belief that a work environment tolerates interpersonal risk (Edmondson, 1999), mediates leadership's effect on IWB (Dar et al., 2022; Xu & Suntrayuth, 2022). A third stream, situated in the Indian IT sector, shows that serial, rather than single-step, mediation designs outperform single-mediator models in explaining TL's effect on job performance, using digital transformation and IWB as sequential mediators (Jain & Sharma, 2025, 2026). To the best of our knowledge, no study has yet integrated these three streams into a single tested chain in which psychological safety precedes innovative work behaviour, both preceding employee performance.

This gap is theoretical as much as empirical. Existing applications of Conservation of Resources (COR) Theory to leadership research (Hobfoll, 1989; Hobfoll et al., 2018) treat candidate mediators, climate, empowerment, safety, as broadly interchangeable carriers within a single resource caravan, without explaining why psychological safety specifically must precede, rather than merely accompany, innovative behaviour. Existing theories, in other words, do not explain why one psychological resource must be converted into a qualitatively different behavioural resource before performance gains follow; this, rather than the simple absence of a prior test, is the gap this study addresses. Methodologically, the closest precedent for serial mediation in the Indian IT sector (Jain & Sharma, 2026) substituted digital transformation for psychological safety, leaving the psychologically grounded chain unexamined with contemporary PLS-SEM diagnostics such as bootstrapped discriminant-validity confidence intervals and full-collinearity common method bias testing. Contextually, India's National Capital Region (NCR) remains understudied for this construct combination, as the area has been undergoing continuous technological disruption, making resource-based leadership practices particularly elusive. More practically, it is still unclear to IT-sector human resource managers whether leadership development and innovative training should be prioritized over each other or have overlapping budgetary utility.

The NCR was selected for this study for both convenience and representativity reasons. The NCR, which includes Delhi and other nearby cities such as Gurugram, Noida, Ghaziabad, and Faridabad, is one of India's three IT and IT-enabled-service clusters, along with Maharashtra and Karnataka, and hosts a considerable amount of domestic and international delivery centres (NASSCOM, 2023). This is important for two reasons. First, the availability of diverse recruitment pools, as opposed to a single large company, ensures that the sample includes employees with different organisational backgrounds, sizes, ownership forms, and areas of expertise on a single canvas. Second, working in the NCR implies working in conditions of continuous disruption, project-based employment, and extremely high competition for jobs, which are precisely the circumstances under which psychological safety is said to drive innovative behaviour, as theorised. Thus, while the convenience of sampling should not be overestimated, the sample can be considered fairly representative of the Indian IT workforce in terms of employment conditions and opportunities, with due caution as a non-probability sample.

This study aims to contribute to this stream of research in two ways. First, by partially advancing COR Theory towards a resource transformation mechanism involving transforming the resource of psychological safety, a relational-emotional resource, into innovative work behaviour, a behavioural resource, resulting in the resource outcome of employee performance. The study tests this mechanism, posing two research questions:

RQ1: Does psychological safety serially mediate the relationship transformational leadership and innovative work behaviour among Indian IT employees?

RQ2: Does innovative work behaviour, following from psychological safety, serially mediate the relationship between transformational leadership and employee performance?

Theoretically, the study focuses on establishing why psychological safety is a prerequisite resource, and not an alternative resource, mediating transformational leadership and employee performance. Second, methodologically, the study conducts a more comprehensive diagnostic test, including bootstrapped discriminant-validity confidence intervals, full-collinearity common method bias test, and PLS predict out-of-sample validation, than prior serial mediation studies in the literature. Contextually, the study contributes to resource-based leadership theories by providing evidence in the Indian IT context, providing practical implications for leadership and innovation investment sequencing. The remainder of the article is organised as follows: a review of the relevant literature and hypothesis development, methodology, measurement and structural model results, followed by a theoretical and practical discussion, limitations, and directions for future research.

2. Theoretical Background

Transformational Leadership Theory was introduced by Burns in 1978. Bass practiced it in 1985, followed by Bass and Riggio in 2006. This theory describes transformational leaders as those who can influence their subordinates' motivation and performance through idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, rather than through rewards and punishments. Transformational leadership is the independent variable in the proposed model to shows how psychological safety is achieved in teams with the support and guidance of Transformational Leadership. When leaders motivate their employees and provide individual attention, it helps to create a healthy environment where the followers/subordinates can share and take risks with new ideas. These ideas pave the path for the improved performance of employees.

Social Exchange Theory, proposed by Blau in 1964 and later by Cropanzano and Mitchell in 2005, explains how individual's actions get motivated by the expected results in return. Social relationships form based on an implicit deal where each party contributes something to benefit the other. transformational leadership leads to psychological safety. In the context of leadership, when a leader offers a relationship based on individual consideration, influence, motivation & stimulation followers feel safe and that leads to psychology saftey.

Conservation of Resources Theory, developed by Hobfoll in 1989 and expanded by Hobfoll et al. in 2018, people seek to obtain, retain, and protect valued resources. When employees have access to psychological resources and feel psychological safe, they channelize their energy and confidence to develop the idea, which leads to improved performance. The equational relationship among Transformational leadership- Psychological Safety-Innovative work Behaviour-Employee performance helps to understand the psychosocial experiences and behaviour. This idea refers to the idea of gain spirals. Gain spirals are the mechanism that makes this process work. A gain is defined in the theory as a resource gained and then used to obtain additional resources. Additionally, gain-spirals are the core process mechanisms of this study's conceptual model and will be used to explain how the proposed sequence of events will occur.

Hobfoll's gain spiral conceptualization is about the accumulation of similar types of resources; for example, if there is an increase in social support, this is likely to lead to further social support, and resource caravans, sets of resources of the same type, are assumed to substitute for each other (Hobfoll et al., 2018). Within the same caravan, resources are similar, so there is no reason to speculate about differences in their impact or to question why one resource is chosen over another as the mediator of a process. In other words, the psychological mediators that arise from COR-based leadership research, such as climate perception, empowerment, and safety, are seen as interchangeable within the theory's resource caravan framework. The current study proposes a mechanism that differs from the gain spiral logic. It involves resource transformation, where one resource is used up or changed into another type of resource before the next resource gain happens. Psychological safety is a relational-emotional resource gained through interactions between employees and leaders, as explained by Social Exchange theory. Innovative work behavior is a behavioural resource, representing a type of resource expenditure.

Since psychological safety and innovative work behavior are distinctly different resources, the former cannot replace the latter as an interchangeable mediator, as the resource caravan framework suggests. Instead, psychological safety must be used up to create innovative work behavior which leads to employee performance, similar to how raw materials turn into products. This point is important because it highlight the difference between resource substitution within a caravan and resource transformation that generates new types of resources. It clarifies why psychological safety must be established before innovative work behavior can occur. This forms the basis for studying two constructs as serial mediators.

COR theory, as it is currently formulated, explains the resource accumulation process, but not the resource transformation process. This paper adds to the theoretical framework by highlighting that resources must sometimes be transformed into other resources before they can support specific work behaviors, like innovative work behavior. The model of the current study underpins how psychological safety affects innovative work behavior by testing these two constructs as serial mediators

Self-Determination Theory (Deci & Ryan, 1985) considered as the theory presents the broad framework of motivation and personality. It describes the divergence of motivation, between intrinsic and extrinsic, but does not describe the ordering of psychological states. The theory assumes that the people are active and always inclined towards growth, enhance creativity, mastering skills. For the naturally development of these intrinsic skills requires favourable social environment and context. So in the present study to enhance the innovative work behaviour the role of the transformational leader plays a major role to provide psychological safety to the employees.

3. Conceptual Framework and Hypothesis Development

According to hemrajani et al. (2023) and Paul & Dhiman (2021), literature reviews provide research directions and are thus invaluable for constructing a conceptual framework. A literature search was thus the first task and was made in the databases, Scopus, Web of Science, and Google Scholar for work published in the intervening years 2016 to 2026. The critical-synthesis process was then initiated by focusing on areas of research rather than the authors themselves (see 5.1).

3.1 Transformational Leadership and Psychological Safety

Studies examining the link between TL and psychological safety are consistent in finding a positive connection, although they explore the theoretical links differently. Yin et al. (2020) found that all of the TL dimensions positively predicted psychological safety through the two psychological-safety-related mechanisms of action, in a sample of Chinese knowledge workers, and Xu et al. (2022) found that TL was positively related to psychological safety among university staff, with a stronger link among more culturally traditional respondents. However, neither of the study establishes a link between the concept of psychological safety to a downstream performance outcome, instead, treating it as an ultimate or near ultimate dependent variable, which this model seeks to address by extending the chain of mediation to employee performance via innovative work behaviour. The following hypothesis can be drawn based on the above discussion

H1: Transformational leadership is positively related to psychological safety.

3.2 Psychological Safety, Innovative Work Behaviour, and Employee Performance

Dar et al. (2022) and Xu and Suntrayuth (2022) confirm psychological safety's mediating role between contextual antecedents and innovative work behaviour, and Choi et al. (2021), grounding IWB explicitly in COR Theory, show that resource-accumulation processes anchored in organizational support and leader-member exchange predict innovative behaviour, offering indirect support for treating IWB as a resource-investment outcome. Where IWB has been linked forward to performance, as in Jain and Sharma (2026), the antecedent mechanism has been technological, digital transformation, rather than psychological, leaving the psychological-to-behavioural transformation step this study proposes empirically untested in the Indian IT literature specifically. Read together, these three streams reveal a consistent pattern: each study selects a single mediator, climate, empowerment, safety, or digital transformation, reports it as sufficient in isolation, and none tests whether these mechanisms are substitutable or sequentially dependent, precisely the ambiguity the resource transformation mechanism in designed to resolve.

H2: Psychological safety is positively related to innovative work behaviour.

H3: Innovative work behaviour is positively related to employee performance.

H4: Transformational leadership is positively related to innovative work behaviour.

H5: Transformational leadership is positively related to employee performance.

H6: Psychological safety is positively related to employee performance.

H7: Psychological safety and innovative work behaviour serially mediate the relationship between transformational leadership and employee performance.

Employee performance itself is a multidimensional construct encompassing task and contextual contribution (Williams & Anderson, 1991), consistently enhanced by reduced role ambiguity, felt safety, and innovative engagement. Existing evidence, read as a whole, remains limited in a specific and consequential way: studies examining transformational leadership's downstream effects have generally tested one candidate mediator at a time, climate, empowerment, psychological safety, or digital transformation, and each has reported that single mediator as a statistically sufficient explanation, without testing whether these mechanisms operate independently, in parallel, or in a dependent sequence. This pattern of isolated, single-mediator confirmation, rather than the mere fact that no study has combined these particular four constructs, is what motivates the present design: if psychological safety and innovative work behaviour are sequentially dependent resources of different kinds, as the resource transformation mechanism is proposed, then single-mediator and parallel-mediator designs could not, by construction, have detected that dependency even where it was empirically present in their data. Testing the full serial chain is therefore required by the very fact of its absence as a response to an uninvestigated possibility, but more importantly, because its exploration would be crucial in clarifying whether the apparent inconsistency across this literature truly reflects a substantive disagreement about mechanism, or instead merely reflects an inadequacy in research designs which failed to differentiate sequential dependency from substitutability. A conceptual framework encompassing the resulting seven hypotheses is proposed in Figure 1.

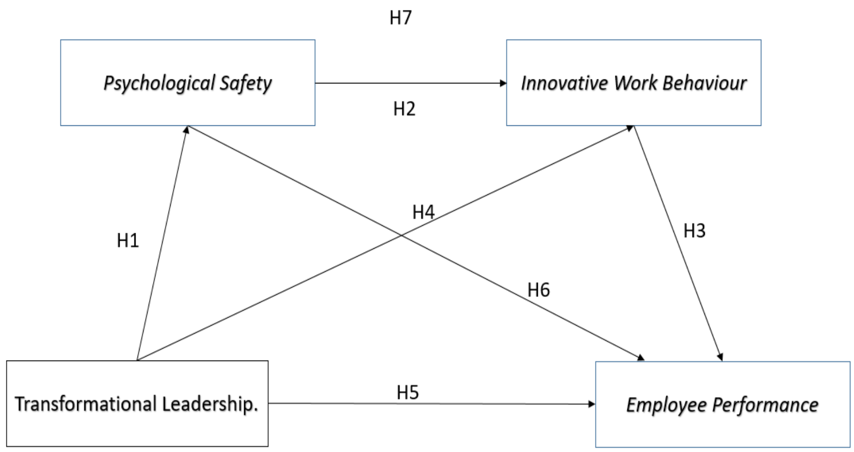

Figure 1. Conceptual Model

Cross-sectional studies assess relationships and their relative strength. Stronger associations and relationships can be identified for behavior analysis. As stated this approach limits the degree of causation. Item constructs included in the survey were: transformational leadership, innovative work behavior, performance, and psychological safety. The survey was administered as a pilot study to a small cohort of IT staff. This was done to assess the validity of the survey, item clarity, and the salience and cultural sensitivity of the survey. Respondents were asked to complete five sections. Section A captured demographic information: gender, age, years worked in IT, and years worked with the current supervisor. It also included the immediate supervisor's job role. Section B included a 5-point Likert scale with items for the respondent to rate perceptions of their supervisor's transformational leadership. The items were adapted from Carless et al.'s (2000) Global Transformational Leadership Scale. The section had seven items on transformational leadership. Section C captured psychological safety of the respondents in their work teams. The items were adapted from the Team Psychological Safety Scale developed by Edmondson (1999). This section had seven items. Section D captured innovative work behaviour of the respondents. The items were adapted from the innovative work behaviour scale developed by Scott and Bruce (1994). There were six items in this section measuring idea generation, promotion and implementation. The final section, section E captured the respondents' employee performance. There were six items in this section. The items were adapted from in-role performance scale developed by Williams and Anderson (1991). The questionnaire used a five-point Likert scale ranging from strongly disagree to strongly agree.

3.3 Selection of Respondents and Preliminary Model Testing

The target population of this study consisted of employees in IT and IT-enabled service companies who are based in Delhi NCR, including Gurugram, Noida, and Ghaziabad. As stated above NCR was selected as the primary location because, along with Maharashtra and Karnataka, it accounts for most of India's domestic and multinational IT companies (NASSCOM, 2023). Therefore, the population covers most of the organization's size classes, ownership forms, and functional scopes to secure a decent level of representation of the overall IT industry employees in India. The sampling strategy that was selected included non-probability sampling, specifically judgmental (purposive) selection, of the study's respondents (Etikan et al., 2016). In this case, only workers with at least six months of work experience with their current supervisor were eligible for inclusion in the sample. The choice of this strategy over truly random sampling was dictated by the fact that in many cases, particularly within organizational contexts, the pool of potential respondents cannot be defined with enough precision in advance.

Sample size followed the ten-times rule of thumb for PLS-SEM (Barclay et al., 1995; Hair et al., 2019), according to which the number of observations should be ten times the number of indicators. At the same time, a power analysis (Cohen, 1988) was conducted for the theoretically most complex equation in the model (employee performance predicted by three predictors), given that testing such relationships requires greater power and is more likely to benefit from larger sample sizes. Assuming the effect size of $f^2 = 0.15$ and alpha of .05, to achieve 80% power, one would need 65 observations. Therefore, 260 questionnaires provided an adequate margin above the theoretical minimum. The instruments were distributed via a Google Forms link and shared among professional and organizational networks. Responses were later filtered to exclude those who did not complete the form in full and those who failed the attention-check questions resulting in 260 responses. The analysis was performed in Smart PLS 4 (Ringle et al., 2024) because PLS-SEM is the preferred analysis technique when "a researcher's objective is to both test theory (i.e., confirm the proposed serial chain of relationships) and predict (i.e., assess out-of-sample predictive accuracy using PLS predict)" (Hair et al., 2019, p. 352). First, the reliability and validity of measurement model were assessed. Next, structural model was evaluated and estimated using bootstrapping with 5,000 samples to estimate path coefficients, effect sizes, and mediation. Common method bias was assessed via Harman's single-factor test and a full-collinearity test (Kock, 2015), alongside procedural remedies (randomized item order within construct blocks, assured respondent anonymity, and distinct section headers separating construct blocks; Podsakoff et al., 2003). The unrotated single factor explained 36.55% of variance, below the 50% concern threshold, and full-collinearity variance inflation factors (1.40–1.54 across constructs) remained well below the 3.3 threshold, together indicating that common method bias is unlikely to account for the study's findings. Cronbach's alpha ranged from 0.890 to 0.903 across constructs, indicating strong internal consistency. The study complied with the ethics, participation was voluntary, anonymous, and based on informed consent, with no personally identifiable information collected and no organizational access to individual responses.

4. Results and Discussion

A total of 260 completed and valid responses were included in the ultimate dataset after screening for incomplete responses and failed attention checks, which met the study's initial target sample size goal. Table 1 below contains the final sample sizes for the demographics

Table 1. Demographic Profile of Respondents (N = 260)

Category		**N**	**%**
Gender	Male	152	58.5
	Female	108	41.5
Age	21–25 / 26–30	48 / 86	18.5 / 33.1
	31–35 / 36–40 / 40+	58 / 43 / 25	22.3 / 16.5 / 9.6
IT experience	0–2 / 3–5 years	57 / 91	21.9 / 35.0
	6–10 / 10+ years	81 / 31	31.2 / 11.9
Job role	Developer/Engineer	116	44.6
	Analyst / PM / QA / Other	45 / 29 / 38 / 32	17.3 / 11.2 / 14.6 / 12.3

4.1 Assessment of Measurement and Structural Model

Reliability was satisfactory for all latent constructs since Cronbach's alpha was between 0.890 and 0.903 (Table 2), which is significantly higher than the theory threshold of 0.70. First, all items had standardised outer loadings above 0.70, with TL2 being the lowest at 0.717. Second, average variance extracted (AVE) was above 0.5 for all constructs, and composite reliability was over 0.90, confirming convergent validity (Fornell & Larcker, 1981; Hair et al., 2019). Therefore, it can be concluded that the variables reflected the same theoretical meaning, and the measurement model did not have issues with reliability, influencing the subsequent structural model evaluation. Third, item cross-loadings displayed that all items had the highest loading on their intended construct, thus establishing discriminant validity at item level, with TL2 being the lowest again (Table 2). Further, discriminant validity at the construct level was confirmed since all AVEs were higher than their corresponding maximum shared variances (MSVs) and square-root-of-AVE diagonals were higher than the respective correlation coefficients, as recommended by Fornell and Larcker (1981) and Hair et al. (2019). This was supported by heterotrait-monotrait ratio results (Table 3): all values were below 0.85, which was used as the threshold to signify discriminant validity. At the same time, 95% bootstrap bias-corrected confidence intervals did not include 1.00 as a discriminant validity threshold, which was a more stringent criterion than using the heterotrait-monotrait ratios (Hair et al., 2019). Overall, transformational leadership, psychological safety, innovative work behaviour, and employee performance were identified as distinct constructs in the given sample. It was necessary to establish discriminant validity since the subsequent analysis evaluated relationships between the variables. Collinearity was not an issue for the model since outer VIF scores were below 3 for all constructs, which surpassed the threshold of 2.5 (Hair et al., 2019). Finally, SRMR was 0.048, which was far below the threshold of 0.08, indicating goodness of fit (Henseler et al., 2014).

Table 2. Outcomes of the Measurement Model.

Latent Variable	**Item**	**Loading**	**α**	**AVE**	**CR**
Transformational Leadership	TL1–TL7	0.717–0.834	0.903	0.634	0.924
Psychological Safety	PS1–PS7	0.709–0.826	0.890	0.604	0.914
Innovative Work Behaviour	IWB1–IWB6	0.786–0.849	0.901	0.669	0.924
Employee Performance	EP1–EP6	0.755–0.861	0.892	0.651	0.918

Note: α, Cronbach's alpha; AVE, average variance extracted; CR, composite reliability. Individual item loadings are available from the authors on request.

Table 3. Outcome of Discriminant Validity.

Construct	**CR**	**AVE**	**MSV**	**TL**	**PS**	**IWB**	**EP**
Transformational Leadership	0.924	0.634	0.256	0.797*			
Psychological Safety	0.914	0.604	0.256	0.506	0.777*		
Innovative Work Behaviour	0.924	0.669	0.269	0.323	0.383	0.818*	
Employee Performance	0.918	0.651	0.269	0.370	0.457	0.519	0.807*

*Note: *Square root of AVE. CR, composite reliability; AVE, average variance extracted; MSV, maximum shared variance.*

The structural model's predictive power was satisfactory (Figure 2): transformational leadership explained 25.6% of variance in psychological safety (adjusted $R^2 = 0.254$), psychological safety and transformational leadership jointly explained 16.9% of variance in innovative work behaviour (adjusted $R^2 = 0.163$), and all three predictors jointly explained 35.8% of variance in employee performance (adjusted $R^2 = 0.350$), a moderate effect by Cohen's (1988) conventions and comparable to, or exceeding, the explanatory power reported in related single-mediator studies in this literature. All PLS predict Q^2 values were positive (0.095–0.247), confirming that the model retains meaningful out-of-sample predictive relevance for every endogenous construct and not merely in-sample explanatory fit, a distinction increasingly expected of PLS-SEM submissions to Q1-ranked journals (Shmueli et al., 2019). Psychological safety's comparatively higher Q^2 (0.247) relative to innovative work behaviour (0.095) suggests the model predicts the first-stage mediator with greater precision than the second-stage mediator, consistent with the additional unmodelled variability one would expect once a resource has been transformed rather than simply transmitted.

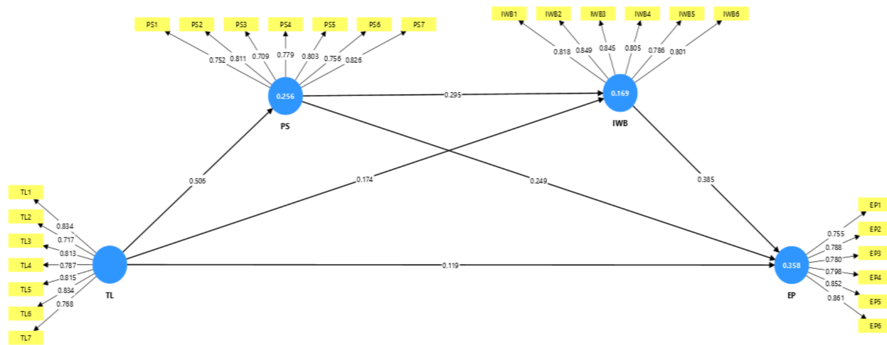

Figure 2. Structural Model

4.2 Impact of Transformational Leadership on Psychological Safety, Innovative Work Behaviour, and Performance

H1, H4, and H5 were supported: TL significantly predicted psychological safety (β = 0.506), innovative work behaviour (β = 0.174), and employee performance directly (β = 0.119; Table 4). The TL→PS coefficient, the strongest in the model, exceeds comparable Western and East Asian estimates (Yin et al., 2020; Xu et al., 2022). Why should this be so? One plausible explanation, consistent with Social Exchange Theory's reciprocity logic, is that India's more hierarchical baseline organizational culture affords transformationally led employees a proportionally larger increase in felt safety relative to a lower starting point than employees in flatter, already psychologically safer cultures; the same absolute leadership behaviour may simply have more relational "distance" to close in a hierarchical context, producing a larger observed effect. The statement provided constitutes a contextual contradiction to the initially generated arguments rather than an outright rejection. It postulates that the psychological benefits conferred by transformational leadership are, if anything, maximized in the organizational contexts where the use of coercive methods has been dominant.

TL's direct influence on performance (H5) was the weakest among supported relations, at p = .038, and the contribution of this influence, beyond mediators, was non-significant ($f^2 = 0.016$, p = .333). This was also the case, albeit less consistently, in the model with selected demographics as controls, where the direct link barely failed to reach significance at p = .072. Not a contradiction to support, however, since these results could have occurred when TL's coefficient was significantly different from zero while its contribution to the explained variance was non-significant due to the suppressive effect of other predictors. Substantively, this speaks to the relative lack of TL's direct impact on performance, beyond the influence pathways emphasized in this study, and therefore provides further validation of the serial mediation model. It brings the discussion in line with the findings of Wijaya (2025) and Vu et al. (2025) who also find TL's direct influence on performance to be non-trivial after accounting for mediators, and adds to the considerations of Conservation of Resources Theory in that direct influence, outside the specified conversions, appears to be limited.

Table 4. Outcomes of Hypotheses Testing.

Hypothesis	**Path**	**Coefficient (SE; t)**	**p**
Direct effects			
H1	TL → PS	0.506 (0.048; 10.623)	.000
H2	PS → IWB	0.295 (0.063; 4.716)	.000
H3	IWB → EP	0.385 (0.053; 7.197)	.000
H4	TL → IWB	0.174 (0.064; 2.694)	.007

H5	TL → EP	0.119 (0.057; 2.076)	.038
H6	PS → EP	0.249 (0.065; 3.830)	.000
Indirect effects (mediation)			
H7	TL → PS → IWB → EP	0.058 (0.016; 3.532)	.000
—	TL → PS → EP	0.126 (0.036; 3.539)	.000
—	TL → IWB → EP	0.067 (0.028; 2.409)	.016
—	TL → PS → IWB	0.149 (0.037; 4.076)	.000
—	TL → EP (total effect)	0.369	—

Note: TL, transformational leadership; PS, psychological safety; IWB, innovative work behaviour; EP, employee performance. All coefficients are standardized, bootstrapped estimates (5,000 resamples). All seven hypotheses were supported.

Considered together, the pattern across Table 4 is not one of overall support for the resource transformation mechanism, but rather a mixed picture, in which five out of seven hypotheses (H1, H2, H3, H7, H6) have both strong statistical and theoretical grounding, while two (H4, H5) are supported, but to a lesser extent, and require additional consideration of effect sizes and demographic-robustness issues, discussed below.

4.3 Psychological Safety, Innovative Work Behaviour, and Additional Predictors of Performance

H2, H3, and H6 were supported. Psychological safety was a significant predictor of innovative work behaviour ($\beta = 0.295$; H2), consistent with the results of Dar et al. (2022) and Xu and Suntrayuth (2022) but to a somewhat lesser degree than suggested by the single-mediator models in those studies. Why weaker here rather than stronger? Under a serial specification, psychological safety's total influence is distributed across its direct effect on IWB and its indirect effect on EP via IWB, rather than concentrated in one path as in single-mediator designs; the resource transformation mechanism in anticipates precisely this attenuation, since not every employee who feels safe converts that safety into observable innovative behaviour within a given period, consistent with a conversion process rather than an automatic pass-through.

Innovative work behaviour was the strongest and most robust predictor of employee performance ($\beta = 0.385$; $f^2 = 0.192$, a medium effect; H3), agreeing with and extending Jain and Sharma (2026) by showing IWB retains this primacy when its antecedent is reframed from digital transformation to psychological safety. Theoretically, this is consistent with the resource transformation mechanism's prediction that the behavioural resource, once produced, should be the most proximal and therefore most powerful predictor of the ultimate performance outcome, since fewer conversion steps separate it from EP than separate either TL or PS from EP. Psychological safety's direct effect on performance was significant but its incremental effect size was only marginal ($f^2 = 0.067$, $p = .075$; H6), suggesting psychological safety's practical value for performance is realized predominantly through, rather than independently of, its conversion into innovative behaviour, again consistent with the resource transformation logic in rather than a simple resource-accumulation account.

4.4 Mediation Analysis: The Serial Indirect Effect

H7, the study's central hypothesis, was supported: the serial indirect effect (TL→PS→IWB→EP) was significant ($\beta = 0.058$, $p < .001$), and the two-path indirect effects (TL→PS→EP; TL→IWB→EP) were significant as well. Because TL's direct effect on EP (H5) remained significant alongside these indirect effects, the mediation is classified as complementary, following Zhao et al.'s (2010) mediation framework, rather than full mediation. To the best of our knowledge, no prior study had tested psychological safety as the antecedent resource in this specific serial chain; this result indicates that psychological safety is a necessary antecedent resource whose conversion into innovative behaviour transmits transformational leadership's influence onto performance, extending COR Theory's gain-spiral logic into the more specific, falsifiable resource transformation claim. For Social Exchange Theory, the finding further confirms that the reciprocity norm activated by transformational leadership (H1) does not terminate in the safety it produces but sets in motion a further, distinct resource-investment process that SET alone does not explain, illustrating the explanatory division of labour between SET and COR Theory this study proposes: SET accounts for the relational origin of psychological safety, while the resource transformation mechanism accounts for its subsequent behavioural conversion.

5. Conclusion

This study set out to determine whether psychological safety and innovative work behaviour are substitutable, parallel mediators of transformational leadership's effect on employee performance, or sequentially dependent resources requiring conversion from one kind into another. The evidence, drawn from 260 Indian IT employees and analysed using PLS-SEM, supports the latter: transformational leadership significantly predicted psychological safety, psychological safety significantly predicted innovative work behaviour, and the full serial chain to employee performance was statistically confirmed, alongside a comparatively weaker, though still significant, direct effect of leadership on performance. Beyond confirming a seventh mediation hypothesis, the study's principal contribution is the resource transformation mechanism itself, which extends Conservation of Resources Theory beyond its conventional resource-caravan logic and explains why psychological safety must precede, rather than merely accompany, innovative behaviour. This reframing carries direct managerial weight: because transformational leadership's unmediated effect on performance is the least statistically robust path in the model, IT organizations that model leadership behaviour without deliberately cultivating psychological safety and innovative behaviour in sequence are likely to realize smaller performance returns than organizations that invest in the full chain. The sections that follow detail this contribution's theoretical, methodological, and practical implications, together with the study's limitations and an agenda for the longitudinal and cross-industry research needed to confirm and extend it.

6. Implications

6.1 Theoretical Implications and Future Research Suggestions

This study extends Conservation of Resources Theory (Hobfoll, 1989; Hobfoll et al., 2018) through a resource transformation mechanism that identifies psychological safety as a necessary antecedent resource, distinguishing this contribution from the theory's conventional gain-spiral and resource-caravan logic in the manner detailed whereas the gain spiral explains why resources of a similar kind accumulate together, the resource transformation mechanism explains why a resource of one kind, here relational-emotional, must be qualitatively converted into a resource of another kind, here behavioural, before a further gain follows. This distinction offers the wider leadership literature a candidate explanation for why single-mediator studies of transformational leadership's effects have reported seemingly inconsistent mediators, climate, empowerment, safety, digital transformation, without reconciling them: the inconsistency may reflect unrecognized sequential dependency among resources of different kinds rather than genuine disagreement about which mediator is correct. The study further clarifies the division of labour between Social Exchange Theory, which explains psychological safety's relational origin, and COR Theory, extended via the resource transformation mechanism, which explains its subsequent behavioural conversion (Blau, 1964; Cropanzano & Mitchell, 2005), a distinction not previously articulated in this literature. Methodologically, the study applies a fuller PLS-SEM diagnostic battery, bootstrapped discriminant-validity confidence intervals, full-collinearity common method bias testing, and PLS predict, than prior serial mediation studies in this literature (Jain & Sharma, 2026), providing a replicable diagnostic template for future serial mediation research. Contextually, it extends resource-based leadership research, previously concentrated in Western and East Asian samples, to the Indian IT sector specifically (Choi et al., 2021), a technologically dynamic, innovation-dependent environment plausibly generalizable to other similarly disrupted knowledge-work sectors.

This study has several limitations that qualify how its findings should be interpreted. First, and most consequentially, because data were collected at a single point in time, the cross-sectional design cannot establish the causal ordering implied by the hypothesized paths. The hypotheses assume transformational leadership shapes psychological safety, which shapes innovative work behaviour, which shapes performance; reverse or reciprocal relationships remain equally plausible with cross-sectional data. Employees who already perform well and innovate frequently may, for instance, be more likely to perceive their supervisors as transformational, or psychologically safer employees may selectively seek out more transformational led teams. Ruling out these alternative orderings requires longitudinal, time-lagged, or experimental designs this study cannot provide, and the reported coefficients should be read as evidence of association consistent with, rather than definitive proof of, the hypothesized direction of influence. Second, all constructs were self-reported by the same respondents at the same time, raising common method bias concerns, particularly for the IWB-EP relationship; diagnostics suggest this is unlikely to fully account for the findings, but shared-method variance cannot be entirely excluded. Third, non-probability judgmental sampling, while appropriate for identifying respondents with relevant leader-follower experience, limits statistical generalizability beyond the sampled population, notwithstanding the representativeness considerations as discussed. Fourth, the sample was restricted to IT organizations in NCR, which may limit generalizability to other regions, industries, or national cultural contexts. Finally, employee performance was self-reported rather than supervisor-rated.

Future research should adopt longitudinal or time-lagged designs to establish causal ordering; incorporate supervisor-rated or objective performance metrics; replicate across additional Indian IT hubs and other industries; and test whether the resource transformation mechanism generalizes to other resource pairs, including in AI-adopting workplaces where the distinction between relational and behavioural resources may sharpen further.

6.2 Practical Implications

For practitioners, four concrete actions follow from these findings, each tied directly to a specific result rather than offered as generic advice. First, because psychological safety is a necessary precondition for innovative behaviour rather than an optional accompaniment, HR functions should incorporate psychological safety metrics, drawn from validated instruments such as Edmondson's (1999) scale, into leadership appraisal systems and 360-degree review cycles, and should fund safety-building leadership development, individualized consideration and idealized influence specifically (Carless et al., 2000), before scaling innovation-specific training programmes. Second, because innovative work behaviour was the strongest and most reliable predictor of performance, performance-management systems should formally differentiate idea generation, promotion, and implementation from general task-completion metrics and set specific targets for each, rather than assuming that innovative performance is an inherent subset of general performance, as in (Jain & Sharma, 2026); concretely, this might take the form of scheduled quarterly ‘innovation sprints’ or tracked idea submission with demonstrable results, available only after psychological safety scores have risen above the starting threshold. Third, because IT teams are operating in an inherently disruptive domain, supervisors should treat psychological safety building efforts as an ongoing process requiring recurring reinforcement, such as by establishing regular blameless error-review meetings and implementing explicit procedures for distinguishing between human error and process failure, rather than a one-off initiative expected to produce enduring benefits (Hobfoll et al., 2018). Fourth, because TL’s direct influence was the weakest and least consistent of all predictors, capital allocation for leadership-development programs should have more nuanced metrics than ‘increased performance,’ ideally specifying the mediating role of psychological safety and innovative work behaviour. Overall, these recommendations highlight the importance of carefully timed, multi-faceted engagement with the key processes identified in the study, without which an organisation is likely to see only partial results from its managerial investments.

Declaration of Conflicting Interests

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

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

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