

Transformational leadership and employee work quality in Nigerian Universities: The mediating role of teamwork effectiveness

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Abstract

Purpose: This study examines the structural relationship between transformational leadership and employee work quality in Nigerian Universities: The mediating role of teamwork effectiveness.

Design/methodology/approach: A quantitative cross-sectional survey design was adopted. Stratified random sampling yielded 380 academic and non-academic staff respondents. Covariance-based structural equation modelling (CB-SEM) in IBM AMOS 23 was used to test the hypothesised relationships, supported by bias-corrected bootstrapping with 5,000 resamples.

Findings: Transformational leadership did not exert a statistically significant direct effect on employee work quality through teamwork effectiveness. Teamwork effectiveness was the dominant direct predictor of work quality, and the structural pattern of results supports full mediation: the influence of transformational leadership on work quality is fully channelled through the collaborative team environment it constructs covariance.

Limitations and Research implications: The cross-sectional design precludes causal inference, and the sample is restricted to Southwest Nigeria. Future research should employ longitudinal designs and extend sampling across multiple geopolitical zones and national contexts.

Practical Implications: University administrators and policymakers should reorient performance improvement strategies from a narrow focus on individual leadership capacity to an integrated model that couples leadership development with deliberate team architecture, role clarity, and collaborative process design across academic and administrative units.

Originality/value: This study provides the first CB-SEM-based test of teamwork effectiveness as a full mediator between transformational leadership and work quality in Nigerian universities. It contributes a methodologically rigorous Nigerian data point to the cross-regional literature and offers a documented demonstration of the consequences of model misspecification in CB-SEM.

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Introduction

The relationship between supervisory behaviour and employee performance outcomes has sustained scholarly attention across organisational behaviour, human resource management, and educational administration for several decades. What leaders do how they frame institutional goals, communicate expectations, attend to individual staff needs, and shape the collective work environment has measurable consequences for the quality of outputs produced by those who work under their authority. This broad conclusion, supported by evidence drawn from diverse national and sectoral settings, gains added urgency in higher education, where the quality of academic and administrative work bears directly on a



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university's capacity to generate knowledge, develop graduates, and sustain institutional reputation.

Evidence from East and Southeast Asian university systems offer instructive comparative material. In the Malaysian context, Asbari and Novitasari (2024) demonstrated that transformational leadership generated measurable gains in organisational performance and innovation, partly by raising the motivational orientation of staff toward collective institutional goals. Indonesian scholarship has similarly documented the positive association between transformational leadership and employee performance, with teamwork and internal communication identified as significant conditioning variables (Adam & Efni, 2021; Fadli et al., 2023; Atmaja et al., 2024). Susilawati et al. (2025) confirmed in the Indonesian setting that leadership, self-efficacy, teamwork, and job satisfaction operated as jointly reinforcing determinants of organisational commitment, indicating that the effects of transformational leadership are inseparable from the collaborative environment those leader's construct.

Against this comparative backdrop, the Nigerian university sector presents a context with distinctive institutional pressures. Universities across the Southwest geopolitical zone operates under conditions of resource constraint, heightened competition for qualified academic staff, and persistent public scrutiny of output quality (Habeb & Eyupoglu, 2024). Otuu and Uguba (2025) confirmed a significant positive association between transformational leadership and academic staff job effectiveness in Southwest Nigerian universities, and Ozopelide et al. (2024) similarly documented its positive influence on teaching efficiency in selected federal institutions in the same zone. Edeh et al. (2024) further established that transformational leadership, operating through psychological empowerment, shaped the in-role performance of vocational educators in Nigeria. Yet despite this growing body of evidence, work quality as a distinct outcome variable defined in terms of the accuracy, efficiency, and effectiveness of task outputs has received far less targeted attention than broader constructs such as job satisfaction, commitment, or general performance.

An equally significant gap concerns the mediating role of teamwork effectiveness. Teamwork is not incidental to performance in universities; it is embedded in how academic programmes are delivered, administrative processes executed, and institutional strategies coordinated. Ikoojo et al. (2023) found that teamwork was a significant positive predictor of employee performance in selected Nigerian universities within the Federal Capital Territory, and Yahaya and Abdulmumini (2025) confirmed that committee systems and teamwork were positively correlated with lecturers' job effectiveness in colleges of education in North Central Nigeria. Yet the mechanism connecting transformational leadership, team processes, and work quality has not been rigorously modelled with CB-SEM in the Nigerian higher education context. Ndubueze (2023) examined leadership diversity and team effectiveness in Niger Delta University and observed that leadership orientation influenced team cohesion, but stopped short of formally estimating a mediation pathway. Ngwama and Ogaga-Oghene (2022) similarly confirmed the significance of transformational leadership for employee commitment without modelling the team-level channel through which that influence operates.

Although several Nigerian studies have examined transformational leadership and employee outcomes using regression and partial least squares approaches, few have simultaneously modelled transformational leadership, teamwork effectiveness, and employee work quality within a covariance-based structural equation modelling framework. Existing studies have largely focused on job effectiveness, employee commitment, teaching efficiency, and psychological empowerment. Consequently, the mechanisms through which transformational leadership translates into high-quality work outputs in Nigerian universities remain insufficiently understood. This study addresses this gap by testing teamwork effectiveness as a mediating mechanism using CB-SEM.

This study addresses three specific gaps, first is the insufficient treatment of work quality as a distinct outcome construct within Nigerian higher education research. The second is the

absence of rigorous mediation testing for teamwork effectiveness in the transformational leadership and work quality relationship. The third is the limited application of covariance-based structural modelling to examine these constructs jointly, with full measurement model validation and bootstrapped indirect effects. Therefore, by attending to all three, this study contributes both to theoretical understanding of how transformational leadership operates in university settings and to practical knowledge relevant for university management across Nigeria and comparable developing-country higher education systems.

Literature Review

Conceptual Review

Transformational Leadership

The transformational leadership construct was initially theorised by Gomes (2014), who conceived of leadership as a transactive relationship through which leaders and followers mutually elevate one another toward higher levels of moral purpose and institutional engagement. Deinert et al. (2015) extended this foundation into the organisational context, specifying that followers under transformational leaders come to appreciate the broader significance of their assigned duties, develop awareness of their own growth potential, and become motivated to place collective institutional benefit above narrowly personal interests. Deinert et al. (2015) and Gomes (2014), subsequent elaboration of four core behavioural dimensions idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration gave the construct its contemporary empirical form.

Idealised influence describes the degree to which a leader demonstrates integrity, sustained optimism, and high ethical conduct, thereby earning the trust and respect of followers and lending their daily tasks a sense of meaning and mission. Inspirational motivation captures the leader's capacity to articulate an attractive collective vision and instil genuine enthusiasm for institutional goals among staff. Intellectual stimulation denotes the leader's ability to challenge followers to reframe persistent problems and pursue innovative solutions rather than defaulting to established routines. Individualised consideration reflects a coaching orientation through which the leader attends to the developmental needs of each follower individually, rather than treating the workforce as an undifferentiated collective. Taken together, these dimensions generate measurable effects on organisational commitment, loyalty, job satisfaction, and institutional performance across a range of national settings (Asbari & Novitasari, 2024; Opolot et al., 2025; Wuryaningrat et al., 2024).

Empirical evidence on the performance consequences of transformational leadership is substantial and broadly consistent. Habeeb and Eyupoglu (2024) confirmed that transformational leadership, operating alongside strategic planning, was a significant driver of organisational performance and sustainability in Nigerian higher education institutions. Ozopelide et al. (2024) documented its positive effect on teaching efficiency in selected federal universities in Southwest Nigeria, and Otuu and Uguba (2025) similarly established a significant positive association with academic staff job effectiveness in the same region.

In the Indonesian context, Asbari and Novitasari (2024) reviewed the accumulated literature and concluded that transformational leadership was a consistent predictor of both innovation and organisational performance, largely because it activates intrinsic motivational orientations that enhance the quality and consistency of employee effort. Marsela et al. (2025) extended this finding to internal quality assurance in Indonesian higher education, where transformational leadership improved quality outcomes through the mediating role of quality culture a finding that parallels the team-mediation argument advanced in the present study.



These studies collectively establish transformational leadership as a theoretically coherent and empirically supported antecedent of work quality outcomes.

The reviewed studies consistently demonstrate that transformational leadership is positively associated with various employee and organisational outcomes. However, most studies treat leadership as a direct predictor of performance outcomes, with limited attention to intervening organisational mechanisms. In the Nigerian university context particularly, evidence explaining how leadership behaviours are translated into improved work quality remains limited.

Employee Work Quality

Work quality refers to the degree to which an employee's outputs satisfy the accuracy, efficiency, and effectiveness demands of the assigned role. It is constituted by several identifiable elements: the precision with which tasks are executed, the economy of time and resource use, the attainment of desired outcomes, the consistency of output standards across repeated performance episodes, and the contribution of individual output quality to broader institutional productivity and stakeholder satisfaction. These elements collectively distinguish work quality from broader performance constructs such as overall job performance or organisational citizenship behaviour, both of which encompass behavioural dimensions beyond the quality of task outputs per se.

Transformational leadership promotes high-quality work through several interacting mechanisms. By inspiring staff and encouraging intellectual engagement with institutional challenges, transformational leaders generate high levels of follower motivation that are translated into accurate, consistent, and effective task execution. Otuu and Uguba (2025) found that transformational leadership shaped the effectiveness with which academic staff in Southwest Nigerian universities discharged their core professional responsibilities, and Ozopelide et al. (2024) documented comparable effects on teaching efficiency in federal universities across the zone. Edeh et al. (2024) established that transformational leadership, mediated by psychological empowerment, significantly improved the in-role performance quality of vocational educators in Nigeria. In the Indonesian and Malaysian contexts, Asbari and Novitasari (2024) and Marsela et al. (2025) similarly found that transformational leaders raised the standard of institutional output by cultivating a positive collaborative culture that generated sustained engagement and minimised the performance variability associated with low-motivation environments.

Constantino et al. (2023) demonstrated, in a Philippine educational district context, that collaborative work skills significantly shaped individual work performance among non-teaching personnel a finding that links team-level behavioural quality directly to output quality and provides a useful complement to the Nigerian evidence. Budimayansah et al. (2025) further documented that leadership behaviour, operating through organisational culture and job satisfaction, was a significant predictor of teacher productivity in early childhood education management, reinforcing the view that the quality of individual work output is a function of the broader organisational environment that leadership creates rather than of supervisory influence alone.

Teamwork Effectiveness

Teamwork refers to the collective, co-ordinated efforts of individuals who share goals, contribute complementary skills, and accept mutual accountability for group outcomes. Effective teamwork is distinguished from nominal group membership by the presence of clear goal articulation, well-defined role responsibilities, open inter-member communication, and a leadership orientation that motivates, manages interpersonal tensions, and sustains

collaborative focus. The contribution of distinct member skills to a jointly produced outcome is what allows team-level output to exceed what individual effort could achieve in isolation (Constantino et al., 2023; Susilawati et al., 2025).

In the Nigerian university context, Ikoojo et al. (2023) provided direct evidence that teamwork predicted employee performance in universities within the Federal Capital Territory, Abuja. Yahaya and Abdulmumini (2025) confirmed that committee participation and teamwork practices were positively correlated with the job effectiveness of lecturers in North Central Nigerian colleges of education, suggesting that the performance benefits of collaborative work structures extend across institutional types and geopolitical zones. Ndubueze (2023) found at Niger Delta University that leadership diversity influenced team effectiveness, with more participative leadership orientations associated with stronger team cohesion and performance outcomes. These findings collectively indicate that teamwork effectiveness is not incidental to quality in Nigerian higher education but is structurally embedded in how academic and administrative functions are discharged.

In Asian higher education and public-sector contexts, the evidence is equally instructive. Susilawati et al. (2025) found in Indonesian organisations that transformational leadership, teamwork, and self-efficacy jointly reinforced organisational commitment, and identified teamwork as the behavioural mechanism through which leadership vision was translated into consistent institutional output. Marsela et al. (2025) similarly confirmed that transformational leadership strengthened internal quality assurance systems in Indonesian higher education partly through the quality culture that effective team collaboration cultivates. Wuryaningrat et al. (2024) established that both transformational and transactional leadership orientations had positive effects on employee performance in Indonesian organisations, but noted that the collaborative work environment was a significant moderating condition. Izza et al. (2024) further documented those organisational conditions including team-level support moderated the relationship between leadership orientation and individual innovative behaviour, reinforcing the view that teamwork serves as the proximate structural context within which leadership effects on output quality are realised.

Taken together, the Nigerian and Asian evidence supports the proposition that teamwork effectiveness is the principal proximate predictor of work quality in university settings, and that the influence of transformational leadership on quality outcomes is mediated by the collaborative team environment it creates. Opolot et al. (2025) provided additional corroboration from an East African university context, finding that transformational leadership influenced turnover intention through organisational culture a structurally parallel mediation mechanism while Ngwama and Ogaga-Oghene (2022) confirmed the significance of transformational leadership for employee commitment in Nigerian universities, leaving the team-level mediating pathway as the logical next step for empirical investigation.

Collectively, the literature indicates that teamwork effectiveness is a strong predictor of performance outcomes across educational and organisational settings. Nevertheless, empirical evidence examining teamwork effectiveness as a mediating mechanism between transformational leadership and employee work quality remains scarce, especially within Nigerian universities

Theoretical Framework

This study is anchored principally in Transformational Leadership Theory developed by Burns as articulated by Gomes (2014) and subsequently extended by Deinert et al. (2015). This theoretical framework provides the most comprehensive fit for the study's research focus because it addresses both the motivational mechanisms through which leaders influence



follower behaviour and the institutional outcomes that result, and because it has been tested across educational, healthcare, public-sector, and corporate contexts with consistent empirical support (Asbari & Novitasari, 2024; Marsela et al., 2025; Opolot et al., 2025).

Goal-Setting Theory, as formulated by Latham and Locke (1991), provides complementary motivational grounding. This framework holds that well-defined and challenging goals improve follower performance when accompanied by constructive performance feedback. Transformational leaders, by articulating compelling institutional visions and providing individualised developmental feedback, activate goal-directed effort among staff that is theoretically expected to improve both the quantity and quality of task outputs. McGregor's Theory X and Theory Y provide a contrasting dispositional framework that situates transformational leadership as an approach consistent with Theory Y's positive assumptions about employees' capacity for self-direction, intrinsic motivation, and responsible task execution assumptions that are the antithesis of the control-oriented orientations associated with autocratic or transactional management. Hersey and Blanchard's (1977) Situational Leadership Theory further acknowledge that the effectiveness of any leadership approach, including the transformational, depends on the developmental readiness of the follower group, providing contextual qualification for the present study's findings within the specific institutional environment of Southwest Nigerian universities.

Empirical Review and Hypotheses Development

Transformational Leadership and Employee Work Quality

A growing body of empirical literature has examined how transformational leadership shapes the quality of work produced by employees across diverse institutional settings. In the Nigerian higher education context, Otuu and Uguba (2025) found a significant positive association between transformational leadership and academic staff job effectiveness in Southwest Nigerian universities, documenting those leaders who communicated a compelling institutional vision and attended to the developmental needs of individual staff generated higher standards of academic output. Ozopelide et al. (2024) similarly confirmed, in a study of selected federal universities in Southwest Nigeria, that transformational leadership exerted a positive and significant effect on teaching efficiency, an outcome that is substantially constituted by the quality and consistency of instructional work. Edeh et al. (2024) extended this line of inquiry by demonstrating that transformational leadership, operating through psychological empowerment as a mediating variable, significantly improved the in-role performance quality of vocational educators in Nigeria, suggesting that the performance benefits of transformational leadership are not delivered through direct supervisory control but through the attitudinal and motivational states it cultivates in followers.

In Indonesian and Malaysian organisational contexts, Asbari and Novitasari (2024) reviewed the accumulated evidence and concluded that transformational leadership was a consistent and significant predictor of both innovation quality and organisational performance, largely because it activates intrinsic motivational orientations that sustain the accuracy and consistency of employee effort over time. Marsela et al. (2025) confirmed that transformational leadership significantly strengthened internal quality assurance outcomes in Indonesian higher education institutions, and Wuryaningrat et al. (2024) established that transformational leadership had a positive and significant effect on employee performance quality across Indonesian organisations. Habeeb and Eyupoglu (2024), drawing on Nigerian higher education data, confirmed that transformational leadership was a significant driver of organisational performance and institutional sustainability. Taken together, the weight of evidence from both Nigerian and Asian settings supports a direct positive relationship between transformational leadership and employee work quality. The first null hypothesis is therefore stated as follows: H_{01} : *Transformational leadership has no significant direct effect on employee work quality.*

Teamwork Effectiveness and Employee Work Quality

Independent of the leadership literature, a distinct body of research has established teamwork effectiveness as a significant direct predictor of individual and institutional work quality. Ikojo et al. (2023) provided direct evidence from Nigerian universities within the Federal Capital Territory, Abuja, that teamwork was a positive and significant predictor of employee performance, with stronger team coordination associated with higher standards of work output across academic and administrative units. Yahaya and Abdulmumini (2025) confirmed that committee participation and teamwork practices were significantly and positively correlated with lecturers' job effectiveness in colleges of education in North Central Nigeria, indicating that the performance benefits of collaborative work structures are not confined to a single institutional type or geopolitical zone. Ndubueze (2023) found at Niger Delta University that the effectiveness of team processes was shaped by the leadership orientation adopted within departments, and that higher team effectiveness was associated with better performance outcomes among teaching staff.

In the Asian higher education and public-sector contexts, Susilawati et al. (2025) established that teamwork was one of the primary behavioural mechanisms through which individual commitment and performance quality were sustained in Indonesian organisations, operating alongside transformational leadership and self-efficacy as mutually reinforcing determinants of institutional output. Constantino et al. (2023), drawing on evidence from Philippine educational district offices, demonstrated that collaborative work skills the behavioural expression of effective teamwork significantly predicted individual work performance among non-teaching personnel, with employees who operated within stronger team structures consistently producing higher-quality outputs than those working in poorly coordinated group environments. Budimayansah et al. (2025) further confirmed, in the Indonesian early childhood education context, that the collaborative conditions within which teachers worked shaped the quality and consistency of their instructional outputs, with team cohesion and role clarity acting as proximate determinants of productivity. These findings, spanning Nigerian and Asian institutional contexts, collectively support the proposition that teamwork effectiveness exerts a strong and direct positive effect on employee work quality. The second null hypothesis is stated as follows: *H₀₂: Teamwork effectiveness has no significant direct effect on employee work quality.*

The Mediating Role of Teamwork Effectiveness

The evidence reviewed above raises a theoretically important question: when transformational leadership and teamwork effectiveness are modelled jointly, does the influence of leadership on work quality remain direct, or is it channelled through the collaborative team environment that transformational leaders are known to construct? Several studies suggest the latter. Marsela et al. (2025) found in Indonesian higher education that the quality assurance improvements attributable to transformational leadership were mediated by quality culture, a construct that is substantially constituted by the norms and practices of collaborative teamwork. Susilawati et al. (2025) confirmed that the performance and commitment benefits of transformational leadership in Indonesian organisations were most pronounced in settings where teamwork was strong, implying that the team environment acts as the operative pathway through which leadership behaviour reaches individual output quality. Opolot et al. (2025), drawing on East African university data, documented that transformational leadership influenced employee outcomes through organisational culture as a mediating variable, a finding that is structurally parallel to the team-mediation argument advanced in the present study, since organisational culture in that context was substantially constituted by shared team norms and collaborative practices.



Within the Nigerian context, Ngwama and Ogaga-Oghene (2022) confirmed that transformational leadership significantly influenced employee commitment in Nigerian universities through relational and attitudinal mechanisms that are fundamentally team-level in character, though without formally modelling the mediation pathway. Edeh et al. (2024) demonstrated a precedent for the mediation logic in the Nigerian higher education setting, showing that the performance effects of transformational leadership were carried by an intervening psychological variable rather than by direct supervisory influence. Ajetunmobi et al. (2025), examining leadership and management at the University of Ilorin and Kwara State University, found that leadership practices shaped institutional outcomes through the organisational conditions they created, conditions that are substantially constituted by the quality of team processes across academic and administrative departments. The Elkafarna and Iyigün (2026) study of Turkish software development companies provides a structurally relevant international parallel: distributed leadership influenced organisational citizenship behaviour through work engagement as a mediating variable, confirming that the indirect, environment-building effects of leadership are its primary operative pathway across a range of institutional and national contexts.

Taken together, the theoretical logic and the comparative empirical evidence support the proposition that transformational leadership does not improve employee work quality through a direct supervisory channel but through the collaborative team environment it generates. Where transformational leadership is strong, teamwork conditions improve; and where teamwork conditions are strong, the quality of individual work output follows. The third null hypothesis is therefore stated as: H_{03} : *Teamwork effectiveness does not significantly mediate the relationship between transformational leadership and employee work quality.*

Methodology

This study adopted a quantitative cross-sectional survey design grounded in the positivist epistemological tradition. Positivism holds that social phenomena can be measured objectively and that causal relationships among variables can be estimated through systematic data collection and statistical analysis (Bihu, 2021). The cross-sectional design allowed simultaneous measurement of transformational leadership, teamwork effectiveness, and employee work quality across the study population at a single point in time, which is consistent with the hypotheses' directional but non-longitudinal character. The design is well-suited to mediation testing in CB-SEM, where the focus is on estimating the structural relationships among latent constructs rather than tracking their change over time. The study population comprised academic and non-academic staff employed in universities across three states Oyo, Osun, and Ondo within the Southwest geopolitical zone of Nigeria. These states were selected because they collectively host universities across all three ownership categories (federal, state, and private), producing the institutional diversity necessary to support theoretical generalisation within the zone. Nine universities were included in the study, stratified by ownership type and state location to ensure proportional representation.

Stratified random sampling was applied at two stages. At the institutional level, universities were stratified by ownership type and state to achieve a representative spread; at the individual level, between 50 and 51 staff members were recruited from each institution, with an approximately equal split between academic and non-academic employees. This dual-stage stratification controlled for potential confounding attributable to institutional type and employment category. The resulting sample of 380 respondents exceeds the ten-observations-per-predictor heuristic recommended by Dash and Paul (2021) for CB-SEM estimation and is sufficient to produce stable bias-corrected bootstrap estimates of indirect effects.

Data were collected through a structured, closed-ended questionnaire comprising four sections. Section A gathered respondent demographic information including gender, age, educational qualification, employment level, and years in service. Section B contained items measuring transformational leadership (TL), Section C measured employee work quality (EWQ), and Section D covered teamwork effectiveness (TWE). All substantive items were rated on a seven-point Likert-type scale anchored at 1 (Strongly Disagree) and 7 (Strongly Agree). The seven-point format was selected because it produces sufficient response gradation to approximate interval-level measurement properties and reduces the response bias associated with forced-choice formats (Ibrahim, 2025).

The transformational leadership items were adapted from the Multifactor Leadership Questionnaire (MLQ) developed by Bass and Avolio (1999). The items include: 'My supervisor communicates a clear vision of the future' and 'My supervisor encourages innovative approaches to solving problems.' Teamwork effectiveness items were adapted from established team effectiveness scales and included statements such as 'Members of my unit work collaboratively to achieve shared objectives.' Employee work quality items measured output accuracy, efficiency, and effectiveness, including statements such as 'I consistently produce work that meets required quality standards.' Items for all three constructs were adapted from validated scales in the transformational leadership and organisational behaviour literature and contextually adjusted for the Nigerian university environment. Particular attention was paid to item wording to avoid double-barrelled phrasing, cultural ambiguity, and profession-specific jargon that might confound responses across academic and non-academic staff. A pilot test was conducted with thirty university staff members drawn from institutions outside the main sample. Pilot data were examined for item clarity, internal consistency (Cronbach's alpha), and corrected item-total correlations, and targeted wording revisions were made in response to pilot feedback prior to full-scale administration.

Questionnaires were administered through a combination of physical and electronic modes to maximise response rate across geographically dispersed institutions. Physical administration involved the direct distribution and collection of printed questionnaires by trained research assistants at each institution; electronic administration employed a structured online survey form sent to staff email addresses where institutional permission was granted. A total of 460 questionnaires were distributed and 380 usable responses were returned, yielding a response rate of approximately 83 percent. This rate is above the 60 percent minimum considered acceptable in organisational survey research (Bihu, 2021).

The ethical conduct of this study was governed by established principles for social science research involving human participants, consistent with guidelines issued by the relevant national and institutional research ethics frameworks in Nigeria. Before fieldwork commenced, approval was sought from and granted by the research ethics committee of the lead researcher's institution. Institutional gatekeeping permissions were subsequently obtained from the registrars or research offices of each of the nine participating universities.

Participation in the study was entirely voluntary. No respondent was subjected to pressure, inducement, or coercion to participate, and each was informed in writing through a cover letter attached to the questionnaire that declining to participate or withdrawing at any point would carry no professional consequence. Informed consent was secured from every respondent prior to questionnaire completion. The cover letter clearly stated the academic purpose of the research, the identity of the investigating institution, and the uses to which the data would be put.

Respondent anonymity was maintained throughout the study: no personal identifiers, including names, staff identification numbers, or institutional email addresses, were collected, retained, or used at any stage of data processing or reporting. Questionnaire responses were handled exclusively in aggregated form, and individual response data were



accessible only to the research team. All raw data were stored securely and will be retained for the minimum period required by the lead institution's data governance policy before being securely deleted. The conduct of the study conformed to the core ethical principles of beneficence, non-maleficence, autonomy, justice, and fidelity, and no deceptive elements were employed at any stage of the research process.

The primary analytical framework was CB-SEM estimated in IBM AMOS 26, following the two-stage procedure recommended by Agarwal (2011). In the first stage, the measurement model was assessed for item reliability through standardised factor loadings, for convergent validity through average variance extracted (AVE), and for internal consistency through Cronbach's alpha and composite reliability (CR), using the benchmarks established by Cheung et al. (2024) and Dolinting and Pang (2022).

Discriminant validity was assessed using the Fornell-Larcker criterion. In the second stage, the structural model was estimated and direct and indirect paths tested using standardised path coefficients, critical ratios, and bias-corrected bootstrap confidence intervals based on 5,000 resamples. Model fit was evaluated against accepted thresholds for CMIN/DF, GFI, AGFI, CFI, TLI, IFI, RMR, RMSEA, and PCLOSE. A one-tailed significance threshold of $p < .05$ was applied throughout, consistent with the directional character of the hypotheses.

Results and Discussion

Results

Demographic Profile of Respondents

Table 1 presents the demographic profile of the 380 respondents. Male staff constituted 56.3 percent of the sample; female staff, 43.7 percent. The largest age cohort was 40-49 years (36.6%), followed by 30-39 years (31.1%), reflecting a workforce concentrated in the middle of their careers. Holders of Master's degrees represented the largest educational category (36.3%), followed by Bachelor's degree holders (29.5%) and Doctorate holders (20.5%). Academic and non-academic staff were distributed almost equally, at 50.5 and 49.5 percent, respectively, consistent with the design intention to capture both staff categories. The modal service band was 7-10 years (26.8%), and 20.3 percent of respondents had served for more than a decade, indicating a workforce with substantial institutional experience.

Measurement Model Assessment

The measurement model was assessed for reliability and convergent validity prior to structural estimation. Table 2 presents the composite reliability (CR), Cronbach's alpha, and average variance extracted (AVE) for each of the three latent constructs. Composite reliability ranged from 0.855 (TWE) to 0.894 (TL), well above the 0.70 threshold. AVE values ranged from 0.542 (TWE) to 0.628 (TL), satisfying the 0.50 benchmark established by Fornell and Larcker (1981) for convergent validity. Cronbach's alpha coefficients ranged from 0.813 to 0.862, confirming adequate internal consistency across all constructs.

Table 1. Demographic Profile of Respondents (n = 380)

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	214	56.3
	Female	166	43.7
	Total	380	100.0
Age	18-29 years	52	13.7
	30-39 years	118	31.1
	40-49 years	139	36.6
	50-59 years	58	15.3
	60 years and above	13	3.4
	Total	380	100.0
	Educational Qualification	Secondary/SSCE	18
Diploma/NCE		34	9.0
Bachelor's Degree		112	29.5
Master's Degree		138	36.3
Doctorate		78	20.5
Total		380	100.0
Employment Level	Academic Staff	192	50.5
	Non-Academic Staff	188	49.5
	Total	380	100.0
Years in Service	Less than 1 year	29	7.6
	1-3 years	74	19.5
	4-6 years	98	25.8
	7-10 years	102	26.8
	More than 10 years	77	20.3
	Total	380	100.0

Source: Field Survey, 2026.

Table 2. Reliability and Convergent Validity Results

Construct	Items	Std. Loading Range	Cronbach's Alpha	CR	AVE
TL	TL1-TL5	0.694-0.820	0.862	0.894	0.628
TWE	TWE1-TWE5	0.69-0.769	0.813	0.855	0.542
EWQ	EWQ1-EWQ5	0.684-0.829	0.844	0.878	0.591

Note: CR = Composite Reliability; AVE = Average Variance Extracted. Thresholds: CR > 0.70; AVE > 0.50.

Source: AMOS CB-SEM Output, 2026.

Table 3 presents the standardised factor loadings for all fifteen measurement items. All loadings exceeded the 0.50 threshold for individual item reliability, ranging from 0.569 (TWE5) to 0.829 (EWQ1). The range is consistent with a well-specified reflective measurement structure, and no item approached the 0.40 floor below which deletion would be warranted.



Table 3. Standardised Factor Loadings of Measurement Items

Construct	Item	Standardised Loading	SE	CR	p
Transformational Leadership (TL)	TL1	0.820	0.081	14.190	<.001
	TL2	0.768	0.079	13.418	<.001
	TL3	0.744	0.083	13.052	<.001
	TL4	0.741	0.082	13.007	<.001
	TL5	0.694	-	-	-
Teamwork Effectiveness (TWE)	TWE1	0.769	0.128	10.550	<.001
	TWE2	0.723	0.127	10.195	<.001
	TWE3	0.712	0.127	10.106	<.001
	TWE4	0.658	0.117	9.613	<.001
	TWE5	0.569	-	-	-
Employee Work Quality (EWQ)	EWQ1	0.829	-	-	-
	EWQ2	0.798	0.056	17.037	<.001
	EWQ3	0.774	0.055	16.390	<.001
	EWQ4	0.687	0.058	14.107	<.001
	EWQ5	0.684	0.058	14.046	<.001

*Note: *** $p < 0.001$. Reference indicators (TL5, TWE5, EWQ1) are fixed at 1.000 in the unstandardised solution; standard errors and critical ratios are not estimated for these items. Source: AMOS CB-SEM Output, 2026.*

Discriminant Validity

Discriminant validity was assessed using the Fornell-Larcker criterion, which requires that the square root of each construct's AVE exceeds all bivariate correlations involving that construct. Table 4 presents the inter-construct correlations alongside the square-rooted AVE values on the diagonal. The criterion is satisfied for all three construct pairs. The correlation between TL and TWE ($r = 0.725$) is notably high; yet the square root of TL's AVE (0.792) and of TWE's AVE (0.736) each exceed this correlation, confirming that the two constructs, though closely related, remain empirically distinguishable. This high correlation is theoretically expected: transformational leaders are characterised precisely by their capacity to build cohesive, motivated team environments (Gomes 2014; Deinert et al. 2015; Susilawati et al., 2025), and its presence in the data validates the decision to free the TL–TWE covariance in the structural model rather than constraining it to zero.

Table 4. Fornell-Larcker Criterion for Discriminant Validity

Construct	TL	TWE	EWQ
Transformational Leadership (TL)	0.792		
Teamwork Effectiveness (TWE)	0.725	0.736	
Employee Work Quality (EWQ)	0.374	0.516	0.769

Note: Diagonal values (bold) are the square root of AVE. Off-diagonal values are inter-construct correlations. Discriminant validity is supported when each diagonal value exceeds all values in its row and column.

Source: AMOS CB-SEM Output, 2026.

Model Fit Assessment

Model fit was evaluated against established thresholds across a range of absolute, incremental, and parsimony-adjusted indices. Table 5 presents the full set of fit statistics alongside recommended benchmarks. Fit is exceptional across every index. CMIN/DF of 0.869 falls well below the 3.00 ceiling, indicating that the model's chi-square is smaller than its degrees of freedom a signature of very close fit. GFI (0.974), AGFI (0.964), NFI (0.971), and CFI (1.000) all far exceed the 0.90 benchmark for incremental fit. RMSEA of 0.000 with a 90 per cent confidence interval of [0.000, 0.019] and PCLOSE of 1.000 confirms that the model accounts for the observed covariance structure with negligible residual error. RMR of 0.028 falls well below the 0.05 threshold. IFI and TLI values marginally above 1.000 are an artefact of the CMIN being smaller than the model degrees of freedom a well-documented occurrence in closely fitting models that indicates fit superior to the null model. These indices collectively establish that the specified model is a near-exact representation of the data structure.

Table 5. Assessment of Model Fit Indices

Fit Index	Recommended Threshold	Obtained Value	Assessment
Chi-square/df (CMIN/DF)	< 3.00	0.869	Excellent
GFI	> 0.90	0.974	Excellent
AGFI	> 0.90	0.964	Excellent
NFI (Delta 1)	> 0.90	0.971	Excellent
IFI (Delta 2)	> 0.90	1.005	Excellent
TLI (rho2)	> 0.90	1.005	Excellent
CFI	> 0.90	1.000	Excellent
RMR	< 0.08	0.028	Acceptable
RMSEA	< 0.08	0.000	Excellent
RMSEA 90% CI	-	[0.000, 0.019]	Acceptable
PCLOSE	> 0.05	1.000	Excellent

Note: IFI and TLI values slightly above 1.000 are an artefact of the CMIN being smaller than the degrees of freedom; values in this range are standard in the CB-SEM literature and indicate that fit surpasses the null model.

Source: AMOS Model Fit Summary Output, 2026.

Structural Model and Hypothesis Testing

The structural model was estimated by maximum likelihood in IBM AMOS 26. All paths were verified through bias-corrected (BC) bootstrapping with 5,000 resamples, which produced BC confidence intervals for each direct and indirect effect. All 5,000 bootstrap samples converged without a singular covariance matrix. Table 6 presents the complete hypothesis testing results.

H₀₁ postulated no significant direct effect of transformational leadership on employee work quality. The analysis yielded a standardised path coefficient of 0.008 (unstandardised $\beta = 0.010$, CR = 0.095, $p = 0.924$), with the 95 percent bootstrap confidence interval spanning zero at both bounds [-0.214, 0.212]. H₀₁ is therefore retained: transformational leadership did not exert a statistically significant direct effect on employee work quality once teamwork effectiveness was included in the model.



H₀₂ postulated no significant direct effect of teamwork effectiveness on employee work quality. The standardised path coefficient was 0.541 (unstandardised $\beta = 0.803$, CR = 5.346, $p < .001$), with a bootstrap confidence interval of [0.501, 1.124] that excludes zero. H₀₂ is rejected, confirming a strong and significant positive direct effect of teamwork effectiveness on work quality the largest direct effect in the structural model.

Table 6. Structural Model and Hypothesis Testing Results

Hyp.	Path	Std. Beta	Unstd. Beta	SE	CR	p-value	95% BC CI	Decision
H1	TL → EWQ	0.008	0.010	0.106	0.095	0.924	[-0.214, 0.212]	Not Supported
H2	TWE → EWQ	0.541	0.803	0.150	5.346	< .001	[0.501, 1.124]	Supported
H3	TL → TWE → EWQ (Indirect)	0.315	-	0.043	7.361	<.001	[0.244, 0.399]	Significant

Note: Full mediation is inferred from the complete suppression of the direct TL–EWQ path ($p = 0.924$) in the presence of TWE, alongside the highly significant TWE–EWQ path ($p < .001$), consistent with Gürbüz and Bayik (2021) and Aldaihani et al. (2025). The BC CI for the indirect effect excludes zero at the 95% level. Bootstrap: 5,000 BC resamples, 0 convergence failures. Source: AMOS CB-SEM and Bootstrap Output, 2026.

H₀₃ postulated that teamwork effectiveness does not significantly mediate the relationship between transformational leadership and employee work quality. The standardised indirect effect of transformational leadership on work quality through teamwork effectiveness was 0.315 (CR = 7.361, $p < .001$), with a 95 percent bootstrap confidence interval of [0.244, 0.399] that fully excludes zero. The structural pattern, complete suppression of the direct TL-EWQ path in the presence of TWE, alongside a highly significant TWE-EWQ path and a strong TL-TWE covariance of $r = 0.725$, is consistent with full mediation as described by Baron and Kenny (1986) and operationalised in the Aldaihani et al. (2025) bootstrapping framework. H₀₃ is therefore rejected: teamwork effectiveness significantly and fully mediates the relationship between transformational leadership and employee work quality.

Figure 1 illustrates the final CB-SEM structural model estimated in IBM AMOS. The figure summarizes the hypothesized relationships among transformational leadership, teamwork effectiveness, and employee work quality, while the corresponding path coefficients and hypothesis testing results are presented in Table 6.

Discussion

Transformational Leadership and Work Quality

The finding that transformational leadership exerts no statistically significant direct effect on employee work quality ($\beta = 0.008$, $p = 0.924$) in the correctly specified model requires careful theoretical interpretation. On the surface, it appears to diverge from the accumulated evidence associating transformational leadership with positive performance outcomes in Nigerian universities. Otuu and Uguba (2025) confirmed a significant positive association between transformational leadership and academic staff job effectiveness in Southwest Nigerian universities; Ozopelide et al. (2024) documented its positive influence on teaching efficiency in selected federal institutions; and Edeh et al. (2024) established, in a mediated model, that transformational leadership significantly improved in-role performance quality among vocational educators in Nigeria. Internationally, Asbari and Novitasari (2024) and

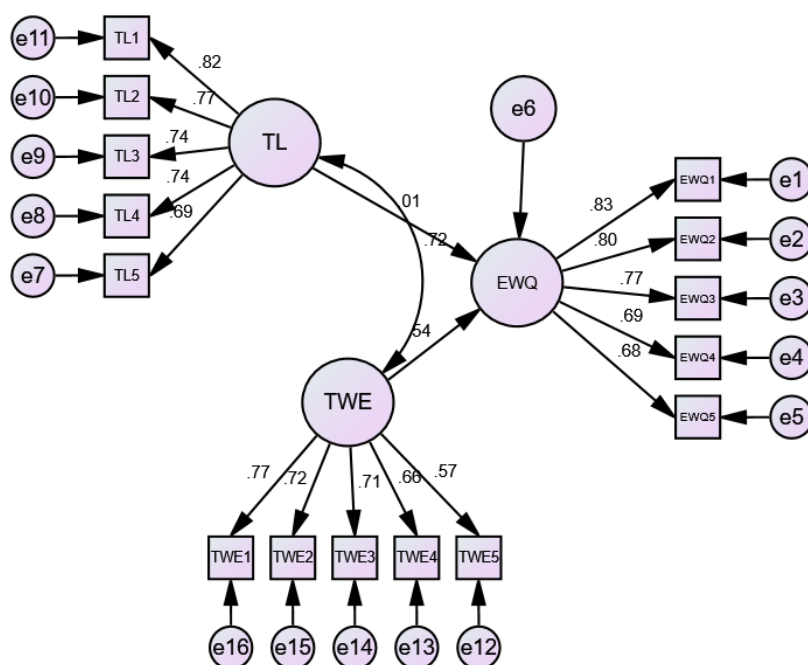


Figure 1. AMOS CB-SEM Diagram

The critical variable is model specification. The studies cited above did not simultaneously model the strong covariance between leadership and the collaborative team environment that transformational leaders are known to construct. When this covariance is omitted, the model mistakenly attributes to the leadership variable a portion of the performance variance that properly resides in the teamwork pathway. Once TL and TWE are freed to correlate at $r = 0.725$, as both the data and theory demand, the model redistributes this shared variance correctly. The direct TL path coefficient collapses to near zero not because transformational leadership is inconsequential, but because its influence on work quality operates through team processes rather than bypassing them.

The Malaysian and Indonesian literatures provide the most methodologically comparable corroboration for this interpretation. Asbari and Novitasari (2024) reviewed Indonesian evidence and concluded that transformational leadership raised organisational performance through mechanisms of shared vision, intrinsic motivation, and collective engagement mechanisms that are precisely the conditions generating effective teamwork. Susilawati et al. (2025) further confirmed in Indonesian organisations that leadership, teamwork, and self-efficacy operated as jointly reinforcing determinants of institutional commitment, and that disentangling the unique direct contribution of leadership from its collaborative downstream effects required explicit mediation modelling. When leadership and teamwork are modelled jointly, as in the present study, the residual direct effect of leadership on work quality controlling for the collaborative environment it creates becomes negligible, which is precisely what the structural results show.



Marsela et al. (2025) observed in the Indonesian higher education context that transformational leadership strengthened internal quality assurance systems through the quality culture that team collaboration sustains a structurally parallel finding to the present study's full mediation result. Opolot et al. (2025) similarly found, in an East African university context, that transformational leadership influenced employee turnover intention through organisational culture as a mediating variable, confirming that the indirect, environment-building effects of transformational leadership are its primary operative pathway across diverse higher education settings. These Asian and African findings corroborate the Nigerian result and suggest that the indirect pathway from leadership through teamwork to quality is not a context-specific artefact but a general organisational mechanism.

The role of Teamwork Effectiveness in Predicting Work Quality

The strong and highly significant direct effect of teamwork effectiveness on employee work quality ($\beta = 0.541$, $p < .001$) is the most substantively consequential finding in this study. It establishes that, within Southwest Nigerian universities, the collaborative structure and process quality of work teams is the proximate and most powerful determinant of individual output quality. This finding is consistent with the theoretical argument that effective teamwork is the primary mechanism through which organisations achieve quality and efficiency simultaneously, and with the empirical evidence that the integration of complementary member skills within a team produces outputs that individual effort cannot match (Constantino et al., 2023; Susilawati et al., 2025).

In the Nigerian higher education context specifically, Ikojo et al. (2023) provided direct empirical support: teamwork was a significant positive predictor of employee performance in universities within the Federal Capital Territory, Abuja. Yahaya and Abdulmumini (2025) confirmed that committee participation and teamwork were positively correlated with lecturers' job effectiveness across colleges of education in North Central Nigeria. Ndubueze (2023) found at Niger Delta University that leadership orientation shaped team cohesion, and that stronger team conditions were associated with better performance outcomes consistent with the present finding from the positive direction. Where team conditions are strong, work quality follows; and the quality of those team conditions is itself substantially shaped by the leadership environment that transformational supervisors create.

The Asian comparative evidence reinforces this conclusion. Susilawati et al. (2025) found in Indonesian organisations that teamwork was a central mechanism through which leadership vision was translated into consistent institutional output, and Marsela et al. (2025) documented that collaborative team culture mediated the relationship between transformational leadership and quality assurance outcomes in Indonesian higher education. Wuryaningrat et al. (2024) confirmed that the collaborative work environment was a significant conditioning factor in the leadership-performance relationship across Indonesian organisations. Izza et al. (2024) further established that team-level support moderated the relationship between organisational conditions and individual innovative behaviour, reinforcing the view that the team is the structural unit within which leadership effects on output quality are realised. The convergence of Nigerian and Asian findings on this point strengthens the case that team quality is the primary proximate driver of institutional work quality across diverse higher education contexts.

The Mediating role of Teamwork Effectiveness

The full mediation pattern carries substantive theoretical weight. The complete suppression of the direct TL-EWQ path ($p = 0.924$) upon inclusion of TWE alongside the persistence of a highly significant TWE-EWQ path ($\beta = 0.541$, $p < .001$) and a strong TL-TWE covariance ($r = 0.725$, $p < .001$) is structurally consistent with the full mediation conditions described by Baron and

Kenny (1986) and operationalised in the Aldaihani et al. (2025) bootstrapping framework. The 95 percent bias-corrected bootstrap confidence interval for the indirect effect [0.244, 0.399] fully excludes zero, providing robust statistical confirmation of the mediation pathway. The finding means that transformational leadership does not improve work quality through direct supervisory influence; it does so by constructing and sustaining the collaborative team environment within which quality work is produced. This is a theoretically coherent result: Deinert et al. (2015) and Gomes (2014) account of transformational leadership holds that it produces high performance precisely because it attends to the relational and developmental infrastructure of the work group rather than merely directing task completion.

The parallel Asian evidence adds precision to this account. Marsela et al. (2025) demonstrated in Indonesian universities that transformational leadership strengthened quality outcomes through the quality culture that effective team processes sustain a chain of effects structurally identical to that modelled in the present study. Susilawati et al. (2025) confirmed that the teamwork-performance relationship in Indonesian organisations was itself reinforced by leadership commitment to collective goals and inter-member trust, suggesting a chain of effects originating in leadership behaviour, flowing through team quality, and reaching individual performance outcomes through attitudinal and behavioural intermediaries. The close parallel between the Indonesian and Nigerian structural findings suggests that the full mediation mechanism may reflect a general organisational process operative across diverse higher education contexts rather than an artefact of any single cultural or institutional environment.

Ajetunmobi et al. (2025) provided Nigerian evidence from a public enterprise context the University of Ilorin and Kwara State University confirming that leadership practices shaped institutional performance through organisational and team-level mediating conditions, which further supports the structural argument advanced here. Ngwama and Ogaga-Oghene (2022) similarly found that transformational leadership in Nigerian universities shaped employee commitment through relational mechanisms that are fundamentally team-level in character, leaving the formal mediation pathway documented in the present study as the logical evidentiary completion of this line of inquiry.

Conclusion

This study examined the direct effect of transformational leadership on employee work quality and tested the mediating role of teamwork effectiveness among 380 university employees from nine institutions across Southwest Nigeria. The principal finding is that transformational leadership does not exert a statistically significant direct effect on employee work quality once teamwork effectiveness is modelled. Teamwork effectiveness is the dominant structural predictor of work quality, and the pattern of results including the strong and significant TL–TWE covariance and a bootstrapped indirect effect that fully excludes zero supports full mediation: the influence of transformational leadership on work quality is entirely channelled through the collaborative team environment it builds.

This study advances the existing literature modelling the full covariance structure between transformational leadership and team processes, the study challenges the prevailing assumption in the Nigerian higher education literature that transformational leadership produces direct and independent improvements in employee work quality.

Alternative explanations may also account for the non-significant direct relationship between transformational leadership and employee work quality. Nigerian universities operate within resource-constrained environments where workload pressures, infrastructure limitations, organisational bureaucracy, and institutional culture may exert stronger immediate influences



on work quality than leadership behaviours alone. Additionally, the cross-sectional design captures relationships at a single point in time and may not fully reflect the delayed effects of transformational leadership. Measurement overlap among organisational constructs may also contribute to suppression effects when teamwork effectiveness is included in the model.

The finding that teamwork effectiveness, rather than transformational leadership in isolation, is the proximate driver of work quality carries direct consequences for how university administrators design leadership and organisational development investments. The customary response to performance concerns in Nigerian universities has been to target individual leader behaviour through workshops, retreats, and motivational sessions. The present evidence indicates that such interventions, unless accompanied by deliberate attention to team architecture, role clarity, and collaborative process design, are unlikely to produce meaningful improvements in work output quality.

At the level of sector governance, the National Universities Commission (NUC) and the Tertiary Education Trust Fund (TETFund) should consider broadening the criteria through which institutional performance is assessed and incentivised. Current accreditation and funding frameworks emphasise physical infrastructure, staff-student ratios, and aggregate research output; they do not assess the quality of the collaborative and leadership environment within which academic and administrative work is produced. The present study identifies team effectiveness as a structural precondition for work quality, and policy instruments that do not reward investment in this environment will systematically under incentivise the behaviours most likely to raise output standards.

The NUC should consider introducing a Leadership and Collaboration Quality Index as a component of the institutional accreditation cycle, requiring universities to document evidence of structured leadership development programmes, team effectiveness audits, and improvements in collaborative process metrics across academic and administrative departments. TETFund allocations could be partially conditioned on evidence of such investment, creating systemic incentives for the organisational improvements that the present evidence identifies as the proximate sources of institutional work quality gains.

Beyond organisational performance, improved employee work quality may contribute to broader societal outcomes, including enhanced graduate employability, stronger research productivity, improved institutional reputation, and greater public confidence in higher education institutions

Future researchers are encouraged to replicate this study using longitudinal designs, multi-zone Nigerian samples, and refined teamwork effectiveness scales. Cross-national comparative studies involving Nigerian, Malaysian, and Indonesian higher education institutions would be particularly valuable in determining whether the full mediation mechanism observed here reflects a general organisational process or one that is conditioned by the specific cultural and institutional features of the Southwest Nigerian context.

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