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Future proofing the academy: the nexus between stakeholder support and academic staff performance

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Evidence suggests that academic staff in Nigerian public universities are under-supported in ways that directly undermine the delivery of Sustainable Development Goal 4. Previous research has established that stakeholder engagement matters for educational quality, but only a few empirical studies have tested the specific institutional mechanisms through which this engagement produces performance outcomes in resource constrained African higher education systems. To date, studies have not examined how training and development programmes function as an institutional bridge between training and development plans and academic staff performance in this context. This study set out to investigate the extent to which stakeholder support drives academic staff performance, specifically highlighting how institutional training and development initiatives serve as the crucial bridge for this impact. Grounded in Stakeholder Theory and Social Exchange Theory, the study tests four hypotheses using a quantitative design. Data were collected from 197 academic staff across three public universities in South-West Nigeria, using stratified random sampling. Partial Least Squares Structural Equation Modelling was conducted using SmartPLS 4. Analysis showed that stakeholder support had a significant direct effect on academic staff performance ($\beta = 0.423$, $t = 5.935$, $p < 0.001$). Training and development programmes fully mediated the relationship between training and development plans and performance ($\beta = 0.210$, 95% CI [0.090, 0.353]), the study's hypothesised mediation pathway (H4). The results indicate a persistent gap between institutional planning and programme execution. A further exploratory finding is the fifth hypothesis (H5). A feedback path from programme execution back to stakeholder support (TDProg → KSS, $\beta = 0.511$, $p < 0.001$). This finding extends Freeman's (1984) instrumental framework. It adds nuance to Mitchell et al.'s (1997) salience theory by suggesting that visible programme quality can reinforce stakeholder commitment, rather than being solely a precondition for programme delivery. This pathway has not previously been documented in the African higher education literature and carries direct implications for institutional governance and SDG 4 policy coordination. The findings of this study carry implications for stakeholder coordination, institutional policy, and the delivery of SDG 4 in resource constrained higher education systems. Policy documents and strategic plans are necessary but insufficient. Decisive progress depends on funded, executed, and monitored training programmes backed by coordinated multi-stakeholder commitment.

KEYWORDS
academic staff development, higher education, institutional sustainability, SDG 4, stakeholder theory, training and development

1 Introduction

Universities carry a profound responsibility. They exist not only to award degrees but to prepare capable people who can contribute meaningfully to society. This mission is central to Sustainable Development Goal 4 (SDG 4), which calls on nations to ensure inclusive, equitable, and quality education for all by 2030 (Adipat and Chotikapanich, 2022). While faculty members are the driving force behind this mission, they cannot succeed in isolation. Fulfilling these goals requires a collaborative ecosystem, relying on the support of government bodies, university leadership, industry partners, and students alike. In the absence of well-supported lecturers and researchers, the promise of SDG 4 remains out of reach.

The global challenge of quality education is especially acute in sub-Saharan Africa. Zickafoose et al. (2024) argued that many African universities struggle with underfunding, inadequate infrastructure, and a shortage of skilled faculty. These barriers make it difficult to deliver the kind of teaching and learning envisioned by SDG 4. Nigeria, as one of the largest higher education systems on the continent, reflects many of these challenges. Investment in academic staff development is often delayed, irregular, and insufficient (Adebayo, 2022).

Academic staff development is not simply a human resources matter. It is a question of institutional sustainability and educational quality (Pham, 2021). When universities invest in their academic staff, they build the foundation for better teaching, stronger research, and deeper community engagement. Prabawati et al. (2024) demonstrated that human resource development in higher education plays a strategic role in achieving SDG 4 targets. Unfortunately, little empirical research has examined how different stakeholders contribute to this development in universities in developing countries. Adhikari and Shrestha (2023) noted that stakeholder perspectives are often absent from conversations about sustainable education goals.

This study addresses that gap. It investigates how government, university administration, private-sector partners, and students support academic staff development in Nigerian public universities and how that support shapes staff performance. The study is guided by one central question: how and to what extent does stakeholder support influence faculty performance within resource-limited settings, specifically examining the underlying institutional mechanisms at play?

Three contributions are made to the existing literature. First, the study provides an empirical test using PLS-SEM of how stakeholder support, training, and development planning jointly shape academic staff performance in Nigerian public universities, a context underrepresented in the global SDG 4 literature. Second, it establishes training and development programmes as the mechanism through which training and development plans translate into academic staff performance (H4), advancing the instrumental dimension of Stakeholder Theory in higher education. Third, the study formalises and tests a feedback-path hypothesis from programme execution to stakeholder support (TDProg → KSS, $\beta = 0.511$, $p < 0.001$). The finding extends Freeman's (1984) instrumental framework by suggesting that the relationship between stakeholder support and institutional outcomes is not purely unidirectional when universities deliver well-designed training programmes. The visible quality of those programmes may reinforce stakeholder commitment. It also adds nuance to Mitchell et al.'s (1997) salience theory. This pathway has not previously been documented in the African higher education literature.

The first section of this article presents the theoretical framework and hypotheses. The second covers the methodology. The third presents the results. The fourth discusses the findings. The last section covers practical implications, limitations, and directions for future studies.

2 Theoretical framework and hypotheses

Stakeholder Theory provides the conceptual foundation for this study. Freeman (1984) established that organisations are shaped by, and in turn shape, the expectations of a wide community of actors. In the context of higher education, relevant actors include governments, university leadership, academic staff, students, and private sector partners (Adhikari and Shrestha, 2023). Mitchell et al. (1997) extended this framework by identifying power, legitimacy, and urgency as the three attributes that determine stakeholder salience. Stakeholder Theory explains why academic staff development is not purely an internal matter but a shared responsibility that depends on collective engagement. Critically, however, neither Freeman (1984) nor Mitchell et al. (1997) examined whether the quality of institutional programme delivery can itself reinforce and amplify stakeholder commitment. This study formulates and tests that possibility directly, as a fifth confirmatory hypothesis (H5) presented at the end of this section, and in doing so extends both frameworks.

Stakeholder Theory operates on three levels (Donaldson and Preston, 1995; Freeman, 1984). The normative level asks what universities ought to do for their people. The descriptive level shows what actually happens in practice. The instrumental level shows that institutions that nurture strong stakeholder relationships are better placed to achieve their goals. This study draws primarily on the instrumental perspective, testing whether coordinated stakeholder engagement produces measurable improvements in staff performance. Stakeholder Theory is preferred over the Resource-Based View (Barney, 1991) and Human Capital Theory (Becker, 1964) because it uniquely accommodates the complexity of multiple simultaneous actors with differentiated influence. This makes it the most appropriate lens for examining how government, administration, industry, and students jointly shape academic staff development.

2.1 Stakeholder support and training and development plans

In the higher education context, stakeholder support encompasses the financial contributions, policy backing, and institutional advocacy provided by government agencies, university administrators, private partners, and students to academic staff. Leal Filho et al. (2021) argued that teaching staff

who receive sustained institutional support demonstrate greater competence in areas related to educational quality. Khan et al. (2022) further demonstrated that open innovation among institutional investors, the government, and universities creates new pathways to achieving SDG 4. No single stakeholder can carry this responsibility alone.

Training and development plans represent the university's formal strategic intentions to build staff capacity. Berchin et al. (2021) found that institutions that embed sustainability into staff development planning produce more innovative teaching, stronger research, and deeper community engagement. However, Holst et al. (2024) identified significant gaps in monitoring and accountability for SDG 4 in lower-income countries, noting that where no one tracks whether academic staff receive training, improvement becomes very difficult. When stakeholders provide consistent and meaningful support, universities are better positioned to establish structured professional development plans.

H1: Stakeholder support has a significant positive relationship with training and development plans for academic staff.

2.2 Training and development plans and training and development programmes

Training and development plans outline institutional intentions. Training and development programmes represent actual execution. These are not the same thing. Serafini et al. (2022), in a systematic review of the SDG literature in higher education, found that most institutions, especially in developing economies, announce their commitment to the SDGs in policy documents without making the structural changes needed to act on those commitments. Koros and Sophie (2023) observed that African universities often face a disconnect between stated commitments to quality education and the practical steps required to achieve them. Plans must be funded, scheduled, and converted into concrete programmes before any benefit can reach academic staff

Pham (2021). described academic staff professional development as the backbone of institutional quality. Radha and Arumugam (2023) showed that teacher training programmes aligned with SDG principles produce more capable and more committed educators. This argument applies equally at the university level. Well-formulated institutional plans should translate into well-designed programmes. This translation process is itself a critical institutional outcome worth examining empirically.

H2: Training and development plans have a significant positive relationship with training and development programmes.

2.3 Stakeholder support and academic staff performance

The direct relationship between stakeholder support and academic staff performance is grounded in Social Exchange Theory (Blau, 1964). Social Exchange Theory holds that social behaviour is an exchange of activities governed by the norm of reciprocity. When one party acts favourably toward another, the recipient feels obligated to reciprocate (Gouldner, 1960). In the higher education context, when governments, administrators, and students provide tangible support to academic staff, those staff are expected to reciprocate by exerting greater effort. Social Exchange Theory complements Stakeholder Theory by explaining the psychological and relational mechanisms through which stakeholder engagement translates into individual performance outcomes. It provides a micro-level foundation for the macro-level instrumental argument advanced in Stakeholder Theory.

Academic staff performance encompasses teaching quality, research output, and community engagement. These three indicators represent the core dimensions of quality education under SDG 4. As detailed in Section 3.2, this study operationalises and measures them using the six-item Academic Staff Performance scale (KPI1-KPI6). These are the primary channels through which universities deliver on the SDG 4 mandate of quality education (Prabawati et al., 2024). Mbithi et al. (2021) argued that academic staff who lack access to professional development opportunities are unable to teach relevant skills effectively. This creates a cycle of underperformance that directly undermines SDG 4. Leal Filho et al. (2023) confirmed that when universities treat SDG 4 as a genuine institutional priority, academic staff development improves and educational quality follows.

H3: Stakeholder support has a significant direct positive relationship with academic staff performance.

2.4 The mediating role of training and development programmes

Stakeholder support may influence academic staff performance not only directly but also indirectly through the institutional mechanisms it activates. Training and development programmes are the most proximate of these mechanisms. They represent the practical tools through which capacity is actually built. Berchin et al. (2021) posited that institutions that channel resources into structured staff development achieve the greatest improvements in educational quality and research output. Kohl et al. (2022) called for a whole-institution approach in which SDG commitments are embedded in governance structures and staffing policies. Within such a framework, stakeholder contributions are systematically converted into programme opportunities.

The theoretical argument for mediation rests on a two-stage process. Stakeholder support first shapes institutional planning (H1) and then translates those plans into programmes (H2). Those programmes, in turn, improve staff performance. Consequently, the primary mediation model operates through a specific sequential pathway: training and development plans lead to formal training programs, which in turn enhance academic staff performance. The indirect pathway from stakeholder support, through training and development programmes, to

academic staff performance captures the institutional mechanism by which external engagement produces educational outcomes. Preacher and Hayes (2008) recommended bootstrapped confidence intervals as the appropriate standard for testing such mediated relationships. This approach is adopted here.

H4: Training and development programmes mediate the relationship between training and development plans and academic staff performance.

2.5 Feedback path from programme execution to stakeholders' support

This study advances a novel counter-causal dynamic. Specifically, when universities visibly deliver exceptional programmes, stakeholders respond by supporting and expanding their backing. This flips the traditional logic of Freeman's (1984) instrumental framework and introduces much-needed flexibility to Mitchell et al.'s (1997) salience theory, which conventionally treats attributes like power and legitimacy strictly as drivers rather than results of stakeholder engagement.

H5: Training and development programmes have a significant positive relationship with key stakeholders' support.

The hypothetical model is shown in Figure 1. Stakeholder support is positioned as both a direct predictor of academic staff performance and as an upstream driver of the planning and programme pathway. Training and development programmes serve as the mediating mechanism between plans and performance, and as a construct that, in turn, feeds back into stakeholder support.

3 Materials and methods

3.1 Sample

The study was conducted in three public universities in South-West Nigeria: the University of Ibadan (first generation), Lagos State University (second generation), and Federal University Oye-Ekiti (third generation). This combination provided a broad view of the Nigerian academic experience across diverse institutional histories. Drawing the sample from institutions of three different generations, within the same geopolitical zone, helps offset the single-zone limitation. A total of 256 questionnaires were distributed to academic staff using stratified random sampling across the three institutions. Of these, 202 were returned, yielding a return rate of 78.9 per cent. Five partially completed questionnaires were excluded from analysis, leaving 197 fully usable responses.

This sample size is adequate for PLS-SEM. Applying the 10-times rule recommended by Hair et al. (2019), a minimum of 40 cases is required, given the maximum of four predictors pointing to any single endogenous construct. The achieved sample exceeds this threshold by approximately five times. Respondents were drawn from across career stages and academic disciplines, including professors, senior lecturers, lecturers, and assistant lecturers. Participation was voluntary and anonymous. All three universities have active academic staff unions and operate under the National Universities Commission regulatory framework.

3.2 Measures

The research instrument was a structured questionnaire grounded on the study's theoretical frameworks and existing literature. Responses were recorded on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Four latent constructs were measured. Key Stakeholders' Support comprised seven items (SS1, SS2, SS4, SS5, SS6, SS7, SS8; SS3 was removed during scale purification due to a subthreshold outer loading), developed from stakeholder engagement theories (Freeman, 1984; Leal Filho et al., 2021; Mitchell et al., 1997), with a Cronbach's alpha of 0.934. Training and Development Plans comprised four items (TDPlan1, TDPlan2, TDPlan3, TDPlan4) drawn from organisational training needs assessment models (Goldstein and Ford, 2002), with a Cronbach's alpha of 0.813. Training and Development Programme comprised five items (TDPR1 to TDPR5) measuring the quality and reach of implemented programmes (Falola et al., 2014), with a Cronbach's alpha of 0.881. Academic Staff Performance comprised six items (KPI1 to KPI6) capturing teaching quality, research output, and community service (Gital et al., 2025), with a Cronbach's alpha of 0.880. A pilot study at Lagos State University confirmed instrument reliability prior to full data collection.

3.3 Statistical analyses

Common method variance was first assessed using Harman's single-factor test (Podsakoff et al., 2003). The largest factor accounted for 31.4 per cent of total variance, below the conventional threshold of 50 per cent, indicating that common method bias does not substantially distort the results.

The measurement model was subsequently assessed using confirmatory procedures within SmartPLS 4 (Ringle et al., 2022), following the two-step approach recommended by Hair et al. (2019). In Step 1, indicator reliability (outer loadings), internal consistency reliability (Cronbach's alpha and composite reliability), convergent validity (Average Variance Extracted), and discriminant validity (Heterotrait-Monotrait ratio) were assessed. In Step 2, the hypotheses were tested by examining path coefficients, R-squared values, f-squared effect sizes, and variance inflation factor statistics. Bootstrapping with 5,000 subsamples was used to generate t-statistics, p-values, and 95 per cent bias-corrected confidence intervals for all paths.

H5 introduces a feedback loop from TDProg to KSS; the model implicitly generates several secondary indirect pathways, such as TDProg → KSS → ASP (combining H5 and H3). Table 5 details the bootstrapped estimates for these paths. These are provided purely to map the full structural implications of H5. Predictive relevance was further assessed using the blindfolding procedure in SmartPLS 4 to generate Q-squared

values for each endogenous construct. Q-squared values greater than zero confirm that the structural model has predictive relevance beyond the average (Hair et al., 2019). Results confirmed predictive relevance across all three endogenous constructs: Q^2 (ASP) = 0.330; Q^2 (KSS) = 0.330; Q^2 (TDProg) = 0.335, all exceeding zero and confirming adequate predictive accuracy.

4 Results

4.1 Descriptive statistics and correlations

Table 1 presents the means, standard deviations, Cronbach's alphas, and inter-construct correlations. All constructs showed satisfactory internal reliability, with alphas ranging from 0.813 to 0.934. All inter-construct correlations were positive and significant at $p < 0.01$, providing preliminary support for the hypothesised relationships.

4.2 Measurement model

Table 2 presents the construct reliability and validity statistics. Cronbach's alpha values ranged from 0.813 to 0.934. Composite reliability values (rho_c) ranged from 0.877 to 0.947. Average Variance Extracted values ranged from 0.624 to 0.718. All constructs exceeded the recommended thresholds of alpha > 0.70, rho_c > 0.70, and AVE > 0.50 (Fornell and Larcker, 1981; Hair et al., 2019). All item loadings exceeded 0.70, ranging from 0.715 to 0.874, confirming indicator reliability.

Table 3 presents discriminant validity using the Heterotrait-Monotrait ratio. All HTMT values fell below the 0.85 threshold

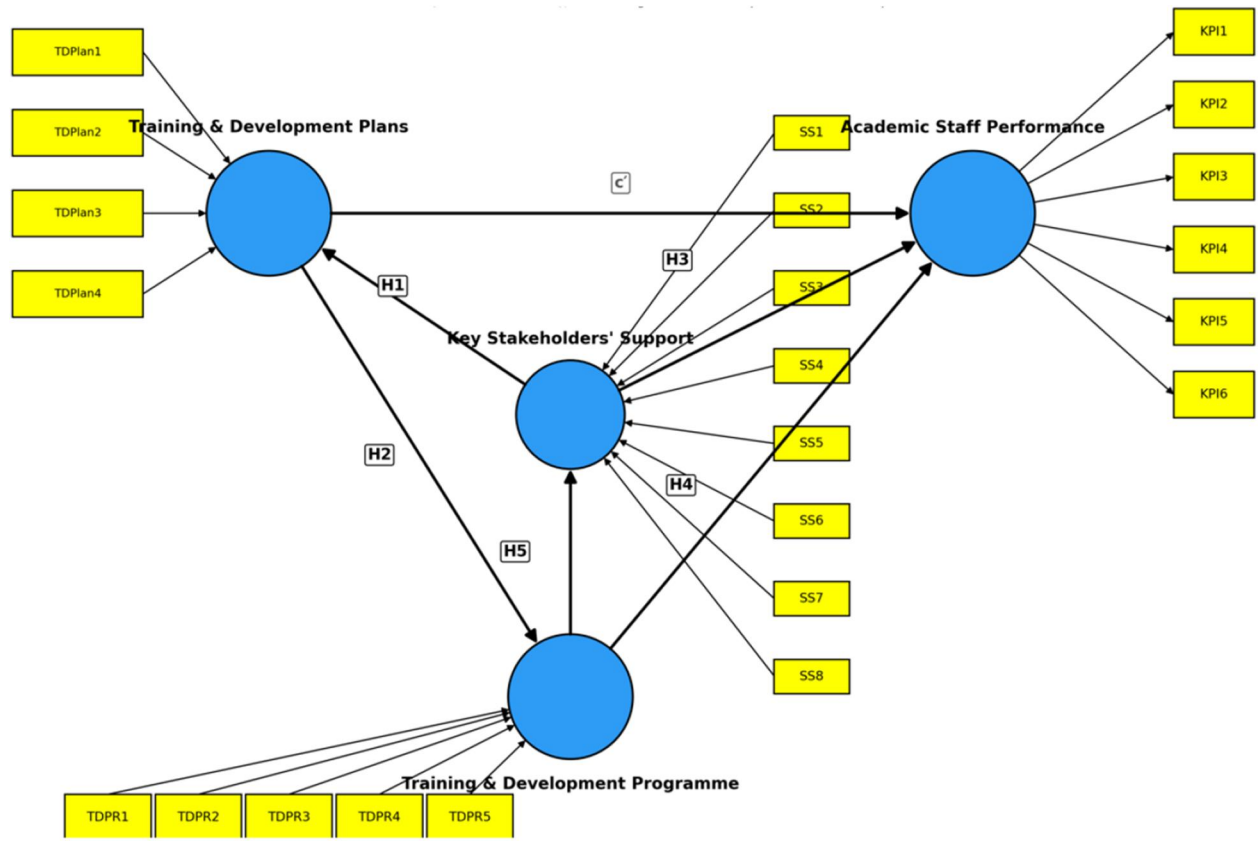


FIGURE 1
Hypothetical model of the study.

TABLE 1 Means, standard deviations and correlations.

Construct	M	SD	1	2	3	4
1. Key stakeholders' support (KSS)	3.57	1.10	(0.934)			
2. Training and development plans (TDPlan)	3.15	0.97	0.586[a]	(0.813)		
3. Training and development programme (TDProg)	3.30	0.85	0.670[a]	0.709[a]	(0.881)	
4. Academic staff performance (ASP)	3.36	0.92	0.693[a]	0.580[a]	0.666[a]	(0.880)

[a]Reliability coefficient.

TABLE 2 Construct reliability, convergent validity, and item loadings.

construct/item	*N*	Cronbach's alpha	rho_a	rho_c	AVE	Loading
Academic staff performance (ASP)	6	0.880	0.890	0.909	0.624	
KPI1						0.784
KPI2						0.835
KPI3						0.715
KPI4						0.809
KPI5						0.821
KPI6						0.771
Key stakeholders' support (KSS)	7	0.934	0.935	0.947	0.718	
SS1						0.823
SS2						0.857
SS4						0.834
SS5						0.874
SS6						0.829
SS7						0.846
SS8						0.864
Training and development plans (TDP)	4	0.813	0.814	0.877	0.640	
TDPlan1						0.804
TDPlan2						0.800
TDPlan3						0.820
TDPlan4						0.775
Training and development programme (TDProg)	5	0.881	0.882	0.913	0.677	
TDProg1						0.817
TDProg2						0.796
TDProg3						0.830
TDProg4						0.856
TDProg5						0.815

TABLE 3 Discriminant validity - heterotrait-monotrait ratio (HTMT).

Construct	ASP	KSS	TDPlan	TDProg
Academic staff performance (ASP)				
Key stakeholders' support (KSS)	0.749			
Training and development plans (TDPlan)	0.677	0.667		
Training and development programme (TDProg)	0.747	0.738	0.836	

(Henseler et al., 2015), confirming that the four constructs are conceptually and empirically distinct. Outer VIF values ranged from 1.834 to 3.472, and inner model VIF values ranged from 1.000 to 2.508, all below the threshold of 5.0, confirming the absence of multicollinearity.

4.3 Test of the hypotheses

Tables 4, 5 present the path coefficients, R-squared values, effect sizes, and indirect effects.

With the principle of structural equation modelling tests, all null hypotheses were rejected while the alternatives were accepted.

H1 was accepted. Stakeholder support had a significant positive relationship with training and development plans ($\beta = 0.224$, $t = 2.339$, $p = 0.019$, 95% CI [0.040, 0.411]). This result is consistent with the instrumental argument of Stakeholder Theory: when stakeholders provide meaningful support, universities are better positioned to establish structured professional development plans.

H2 was accepted. Training and development plans had a strong positive effect on training and development programmes ($\beta = 0.709$, $t = 16.272$, $p < 0.001$, 95% CI [0.623, 0.791]). The f-squared value of 1.012 indicates a large effect size (Cohen, 1988). This path explained 50.3 per cent of the variance in training and development programmes ($R^2 = 0.503$). Well-formulated institutional plans translate strongly into programme execution.

H3 was accepted. Stakeholder support had a significant direct positive effect on academic staff performance ($\beta = 0.423$, $t = 5.935$, $p < 0.001$, 95% CI [0.275, 0.555]). The f-squared value of 0.215 represents a medium effect size. Training and development programmes also had a significant positive path to academic

TABLE 4 Path coefficients, explanatory power, and effect sizes.

Path	Beta	SD	*t*	*p*	LL 95%	UL 95%
H1: KSS → TDPlan	0.224	0.096	2.339	0.019[a]	0.040	0.411
H2: TDPlan → TDProg	0.709	0.044	16.272	<0.001[c]	0.623	0.791
H3: KSS → ASP (direct)	0.423	0.071	5.935	<0.001[c]	0.275	0.555
H5: TDProg → KSS	0.511	0.090	5.662	<0.001[c]	0.326	0.679
TDProg → ASP	0.297	0.089	3.328	0.001[b]	0.131	0.476
TDPlan → ASP (direct)	0.122	0.078	1.550	0.121ns	−0.032	0.277

[a]Significant at $p < 0.05$$.
[b]Significant at $p < 0.01$$
[c]Significant at $p < 0.001$$ - highly significant.

TABLE 5 Bootstrap results for indirect effects.

Indirect path	Beta	SE	*t*	LL 95% CI	UL 95% CI
H4: TDPlan → TDProg → ASP	0.210	0.067	3.141	0.090	0.353
TDPlan → TDProg → KSS	0.363	0.069	5.285	0.232	0.501
TDProg → KSS → ASP	0.216	0.049	4.386	0.122	0.315
TDPlan → KSS → ASP	0.095	0.045	2.107	0.016	0.188
TDPlan → TDProg → KSS → ASP	0.153	0.036	4.265	0.087	0.228

staff performance ($\beta = 0.297$, $t = 3.328$, $p = 0.001$, 95% CI [0.131, 0.476]). Together, these predictors explained 56.2 per cent of the variance in academic staff performance ($R^2 = 0.562$, adjusted $R^2 = 0.555$).

H4 was accepted. The indirect effect of training and development plans on academic staff performance through training and development programmes was significant ($\beta = 0.210$, $t = 3.141$, $p = 0.002$, 95% CI [0.090, 0.353]). The confidence interval excludes zero, confirming the mediating role of training and development programmes. The direct path from training and development plans to academic staff performance was not significant ($\beta = 0.122$, $t = 1.550$, $p = 0.121$, 95% CI [−0.032, 0.277]), indicating full mediation through the programme mechanism. The total effect of training and development plans on academic staff performance was 0.580 ($t = 11.329$, $p < 0.001$). Model fit was acceptable: SRMR = 0.063 and NFI = 0.820 (Henseler et al., 2016).

H5 was accepted. Training and development programmes had a significant positive relationship with key stakeholders' support ($\beta = 0.511$, SE = 0.090, $t = 5.662$, $p < 0.001$, 95% CI [0.326, 0.679]). This path was estimated as part of the confirmatory model described in Section 2.5.

5 Discussion

This study aimed to test the mediating role of training and development programmes in the relationship between stakeholder support and academic staff performance, and to examine the feedback from programme execution on stakeholder support. The study tested five hypotheses. All five were accepted. This section discusses the analytical significance of each finding and situates the results within the existing literature.

5.1 Stakeholder support and training and development plans (H1)

The acceptance of H1 aligns with the instrumental argument of Stakeholder Theory. When stakeholders provide meaningful support, universities are better positioned to establish structured professional development plans. This result is consistent with Khan et al. (2022), who argued that progress in academic development depends on the willingness of multiple actors to contribute their unique resources. No single stakeholder can carry sole responsibility. Berchin et al. (2021) similarly found that institutions that embed sustainability in staff development planning produce more innovative teaching and stronger research. However, the effect size for H1 ($\beta = 0.224$) is modest relative to the other paths. This suggests that stakeholder support is a necessary but not dominant upstream condition for planning. The bottleneck lies further downstream, in the conversion of plans into programmes.

5.2 Training and development plans and programmes (H2)

The strong acceptance of H2 ($\beta = 0.709$, $f^2 = 1.012$) is the most important structural finding of this study. It reveals that training and development plans translate powerfully into actual programmes. While this result supports the finding of Serafini et al. (2022), which noted that institutional SDG commitments often remain limited to policy rhetoric, it refines their diagnosis. The primary bottleneck is not the conversion of plans into active programmes, which appears strong here, but the failure of institutions, which frequently struggle to produce adequately resourced plans in the first place (H1, $\beta = 0.224$). Consequently, mere policy commitment falls short, often stalling before the planning phase altogether. However, once rigorous planning is properly funded, translation into action follows smoothly. Within this study's findings, investing in well-resourced planning emerges as a high-leverage driver for SDG 4 progress.

5.3 Stakeholder support and academic staff performance (H3)

The confirmation of H3 shows that stakeholder support has a direct and substantial effect on academic staff performance, independent of the programme pathway. This result extends the findings of Prabawati et al. (2024), who showed that strategic human resource development is a critical enabler of SDG 4 targets. The medium effect size ($f^2 = 0.215$) indicates that the overall quality of the stakeholder support environment is itself a meaningful organisational resource for academic staff. Stakeholder support is not merely an upstream driver of training infrastructure. It independently motivates performance. This finding is consistent with Social Exchange Theory (Blau, 1964): when staff perceive their institutional environment as genuinely supportive, they reciprocate through higher performance effort. The implication for institutional governance is clear. Symbolic gestures of support, such as policy statements without accompanying resources, do not activate this reciprocity mechanism.

5.4 The mediating role of training and development programmes (H4)

The confirmation of H4, with a bootstrapped confidence interval that excludes zero, demonstrates that training and development programmes serve as the institutional mechanism through which planning benefits eventually reach academic staff performance. The non-significant direct path from plans to performance ($\beta = 0.122$, $p = 0.121$) shows that plans alone produce no measurable performance benefit. Full mediation through programme execution is the decisive pathway. This finding corroborates Radha and Arumugam's (2023) argument that teacher training programmes aligned with SDG principles produce more capable and committed educators, and are consistent with the broader argument advanced by Serafini et al. (2022) that plans without resourced implementation do not translate into measurable outcomes.

5.5 The feedback loop from programme execution to stakeholder support

A further noteworthy finding emerges from the indirect effects analysis. The significant path from training and development programmes to key stakeholders' support ($\beta = 0.511$, $p < 0.001$) reveals a feedback loop within the structural model: programme execution reinforces stakeholder engagement rather than being solely a product of it. This finding extends the instrumental logic of Stakeholder Theory in an important direction. When universities successfully translate plans into programmes, the visible quality of those programmes strengthens the commitment and confidence of key stakeholders, who in turn intensify their support. This virtuous cycle has direct implications for institutional governance. Delivering well-designed training programmes is not merely a downstream outcome of stakeholder support. It is also a mechanism for sustaining and amplifying that support. Future studies should examine whether this feedback pathway differs by stakeholder type, particularly between government agencies, which respond to institutional accountability, and student communities, which respond to visible improvements in teaching quality.

Data collection observations suggest that government and university administration, despite their formal authority, are among the least effective providers of support in practice. Students, by contrast, contributed meaningfully through informal encouragement and advocacy. This pattern is consistent with Heleta and Bagus (2021), who argued that the SDG agenda in higher education risks leaving many institutions behind because formal support mechanisms are unevenly distributed and often ineffective. It should be noted that these observations are descriptive and exploratory. The study measured stakeholder support as a composite construct and cannot produce differential structural path estimates by stakeholder type. This limitation is addressed in the directions for future research.

6 Practical implications

These findings carry several practical implications for university leaders and policymakers working to advance SDG 4 through academic staff development. These include:

Funding the foundation before demanding delivery: Good intentions and stakeholder buy-in mean little without financial backing. The findings reveal a strong link between well-resourced plans and successful execution ($\beta = 0.709$), making early-stage financing a critical leverage point. Consequently, government agencies and institutional funders should secure adequate budgets before rolling out new programmes. A proactive strategy that future empirical research should test by directly pairing funding data with performance outcomes.

Cultivating an ecosystem of transparent support: Beyond formal structures, the overall environment of stakeholder support directly drives staff performance ($\beta = 0.423\$$). While this study did not test specific interventions, university administrators can foster this supportive climate through regular communication, transparent resource allocation, and meaningful recognition of academic labour, thereby naturally boosting staff engagement.

Institutionalise informal student encouragement: As noted in Section 5.5, students already provide valuable informal support. Universities can harness and formalise this dynamic through modest investments in feedback mechanisms, joint curriculum development, and staff-student recognition events, effectively strengthening the broader support network.

Harmonise stakeholder networks via SDG frameworks: Universities should establish coordination platforms to align the contributions of governments, administrators, industry partners, and students around shared professional development goals. By integrating these aligned efforts with SDG 4 monitoring frameworks, institutions can easily track progress and demonstrate their impact to external regulators, leveraging what Griebeler et al. (2022) identify as one of the most actionable sustainability indicators for higher education.

7 Limitations and future research

Several limitations point to future research priorities. The first is geographic scope. The study drew data from three universities in South-West Nigeria. While this combination captures important institutional diversity, the findings cannot be directly generalised to other geopolitical zones in Nigeria, other African countries, or higher education systems elsewhere. To mitigate regional limitations, the study sampled universities across three distinct institutional eras, enriching the variety of organisational backgrounds within South-West Nigeria. Future research should extend the sample to include universities from other zones and from comparable systems in East and Southern Africa. Comparative studies across countries with different governance structures would further enrich the understanding of how stakeholder dynamics shape academic staff development in diverse settings.

The second limitation concerns research design. The cross-sectional nature of the study prevents causal inference. The relationship between stakeholder support and academic staff performance is dynamic. Academic staff move through different states of institutional attachment at different points in their careers. A longitudinal study would allow more robust testing of the causal chain among stakeholder support, training plans, programmes, and performance, and would enable examination of retroactive loops among these constructs. Nevertheless, to test whether the causal ordering presented here was correct, the hypothetical model was compared against alternative construct orderings, as recommended for cross-sectional SEM studies (Anderson and Gerbing, 1988). The specified model provided a substantially better fit than alternative orderings.

The third limitation concerns the composite measure of stakeholder support. The study aggregates contributions from four distinct stakeholder groups into a single construct. Despite its inability to distinguish among specific stakeholder types, the composite measure demonstrated strong internal consistency (Cronbach's alpha = 0.934), indicating that the aggregated items effectively measure a single, cohesive stakeholder construct. Disaggregating this into separate sub-constructs for government, university administration, private sector, and students would allow future studies to formally test whether differential effects by stakeholder type exist and to apply Mitchell et al.'s (1997) salience framework to distinguish high-salience from low-salience actors within each institutional context.

The fourth limitation concerns outcome measurement. The study relied on academic staff self-reports of their own performance. To mitigate potential self-reported data bias, Harman's single-factor test for common method bias was conducted. The results confirmed that no single factor accounted for the majority of the variance. This indicates that the findings are not critically distorted. This statistical check minimises rather than fully eliminates the risk of method bias. Future studies should triangulate self-reported performance with institutional records such as student evaluation scores, research publication counts, and community engagement metrics.

8 Conclusion

This study contributes to understanding how stakeholder support shapes academic staff development and performance in Nigerian public universities. Five hypotheses (H1-H5) were tested, and all received empirical support. Stakeholder support was associated with academic staff performance both directly and through the hypothesised mediating role of training and development programmes, which operate on training and development plans (H2 and H4), a distinct pathway from the direct effect of stakeholder support tested under H3. The mediating effect was complete: plans without execution produce no measurable performance benefit. This is not a nuanced finding. It is a fundamental challenge to the way many universities manage their SDG 4 commitments.

This study makes two primary contributions. First, it provides empirical, context-specific data on these dynamics within a previously overlooked Nigerian public university. Secondly, and most notably, it introduces and tests a reciprocal feedback loop (H5) where programme execution directly influences stakeholder support. This finding challenges the traditional, one-way model of stakeholder influence established by Freeman (1984) and Mitchell et al. (1997), offering a more dynamic perspective on organisational relationships.

These results are consistent with the instrumental logic of Stakeholder Theory in the higher education context. They are also consistent with the argument, made by Serafini et al. (2022) among others, that the SDG 4 imperative for quality education cannot be met through policy declarations alone. Resourced and executed training programmes appear, in this data, to be a decisive lever. This study encourages university leaders and government stakeholders to create conditions that foster both formal and informal support for academic staff, because this support is the starting point for the institutional mechanisms that this study associates with educational quality.

From a theoretical standpoint, this study advances Stakeholder Theory by demonstrating empirically that stakeholder influence in higher education operates through both direct and mediated pathways. The support found for a feedback path from programme execution back to stakeholder engagement (H5, TDProg → KSS, $\beta = 0.511$, $p < 0.001$) points toward a possible extension of Freeman's (1984) instrumental framework, in a direction not previously reported in the African higher education literature. The finding that formal stakeholder power does not automatically translate into effective support adds important nuance to Mitchell et al.'s (1997) salience theory as applied in educational governance.

For policymakers and university leaders, the central message of this study is clear. Stakeholder commitments must be backed by resources and converted into structured, executed programmes. Policy documents and strategic plans are necessary but insufficient. The decisive levers are adequate funding, accountability frameworks, and coordination among all four stakeholder groups: government, university administration, private sector partners, and students. Institutions that invest in these coordination mechanisms will be better placed to deliver on the SDG 4 mandate and to demonstrate measurable progress to external accountability bodies.

The path forward for Nigerian universities and for similar higher education systems across sub-Saharan Africa is demanding. Building inclusive, accountable, and stakeholder-driven staff development ecosystems requires political will, institutional commitment, and sustained investment over time. This study has shown that, where these conditions are met, the benefits to academic staff performance are statistically significant, substantively meaningful, and ultimately traceable to the quality of education students receive. Future research should adopt longitudinal designs, disaggregate the stakeholder support construct, and link staff performance data to objective student outcome measures.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by UKZN Humanities and Social Sciences Research Ethics Committee. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was not obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article because The images are outputs of the study.

Author contributions

OO: Writing – review & editing, Conceptualization, Writing – original draft, Investigation. MS: Writing – review & editing, Supervision, Writing – original draft, Validation. KN: Project administration, Resources, Supervision, Writing – review & editing, Writing – original draft. GO: Writing – original draft, Formal analysis, Data curation, Writing – review & editing, Software.

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