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Administrative leadership styles and educational outcomes in government-owned technical colleges: evidence from Lagos state, Nigeria

ABSTRACT

Technical and Vocational Education and Training (TVET) institutions depend on effective leadership to coordinate teaching, staff development, practical learning and alignment with labour-market requirements. This study examined the relationship between administrative leadership styles and educational outcomes in government-owned technical colleges in Lagos State, Nigeria. A quantitative cross-sectional survey design was used with 129 respondents comprising principals, vice principals, heads of department, heads of section, teachers and recent graduates. Data were collected through a structured questionnaire and analysed using

frequencies, percentages, means, standard deviations, Cronbach's alpha, Pearson product-moment correlation and simple linear regression. Transformational leadership was identified as the predominant leadership style (110 respondents; 85.3%), followed by innovative (8.5%), democratic (4.7%), visionary (0.8%) and transactional (0.8%) leadership. Administrative leadership was positively associated with staff productivity ($r = .662$, $p < .001$), student academic performance ($r = .670$, $p < .001$) and student placement in employment or entrepreneurial activity ($r = .596$, $p < .001$). Simple regression indicated that leadership explained 43.8% of the variance in staff productivity, 44.8% in student performance and 35.5% in placement. The findings support the relevance of transformational and adaptive leadership practices in technical education, while also indicating the importance of participation, mentoring, professional development, industry partnerships and technology-supported teaching. Because the design was cross-sectional and based on self-reported perceptions, the results should be interpreted as statistically significant associations and predictive relationships rather than causal effects. The study recommends systematic leadership development, participatory governance, stronger industry linkages and evidence-based institutional reforms.

Keywords: administrative leadership; transformational leadership; technical colleges; student academic performance.

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Estilos de liderazgo administrativo y resultados educativos en institutos técnicos de propiedad gubernamental: evidencia del estado de Lagos, Nigeria

RESUMEN

Las instituciones de Educación y Formación Técnica y Profesional (EFTP) dependen de un liderazgo eficaz para coordinar la enseñanza, el desarrollo del personal, el aprendizaje práctico y la articulación con las necesidades del mercado laboral. Este estudio examinó la relación entre los estilos de liderazgo administrativo y los resultados educativos en colegios técnicos públicos de Lagos State, Nigeria. Se empleó un diseño cuantitativo, transversal y correlacional con 129 participantes, entre ellos directores, subdirectores, jefes de departamento, jefes de sección, docentes y graduados recientes. Los datos se recopilaron mediante un cuestionario estructurado y se analizaron con frecuencias, porcentajes, medias, desviaciones estándar, alfa de Cronbach, correlación de Pearson y regresión lineal simple. El liderazgo transformacional fue identificado como el estilo predominante (110 participantes; 85,3%), seguido del innovador (8,5%), democrático (4,7%), visionario (0,8%) y transaccional (0,8%). El liderazgo administrativo presentó asociaciones positivas con la productividad del personal ($r = .662$, $p < .001$), el rendimiento académico estudiantil ($r = .670$, $p < .001$) y la inserción de los estudiantes en el empleo o el emprendimiento ($r = .596$, $p < .001$). La regresión indicó que el liderazgo explicó el 43,8% de la varianza de la productividad del personal, el 44,8% del rendimiento estudiantil y el 35,5% de la inserción laboral/emprendedora. Los resultados respaldan la relevancia de prácticas transformacionales y adaptativas en la educación técnica, junto con la participación, la mentoría, el desarrollo profesional, las alianzas con la industria y el uso de tecnologías. Debido al diseño transversal y al carácter autorreportado de los datos, los resultados deben interpretarse como asociaciones y relaciones predictivas estadísticamente significativas, no como efectos causales.

Palabras clave: liderazgo administrativo; liderazgo transformacional; colegios técnicos; rendimiento académico.

Estilos de liderança administrativa e resultados educacionais em institutos técnicos de propriedade governamental: evidências do estado de Lagos, Nigéria

RESUMO

As instituições de Educação e Formação Técnica e Profissional (EFTP) dependem de uma liderança eficaz para coordenar o ensino, o desenvolvimento dos profissionais, a aprendizagem prática e o alinhamento com as necessidades do mercado de trabalho. Este estudo examinou a relação entre os estilos de liderança administrativa e os resultados educacionais em colégios técnicos públicos do Estado de Lagos, Nigéria. Foi adotado um desenho quantitativo, transversal e correlacional, com 129 participantes, incluindo diretores, vice-diretores, chefes de departamento, chefes de seção, professores e recém-formados. Os dados foram coletados por meio de um questionário estruturado e analisados mediante frequências, percentuais, médias, desvios-padrão, alfa de Cronbach, correlação de Pearson e regressão linear simples. A liderança transformacional foi identificada como o estilo predominante (110 participantes; 85,3%), seguida pela liderança inovadora (8,5%), democrática (4,7%), visionária (0,8%) e transacional (0,8%). A liderança administrativa apresentou associações positivas com a produtividade dos profissionais ($r = .662$, $p < .001$), o desempenho acadêmico dos estudantes ($r = .670$, $p < .001$) e a inserção dos estudantes no emprego ou empreendedorismo ($r = .596$, $p < .001$). A regressão indicou que a liderança explicou 43,8% da variância da produtividade, 44,8% do desempenho acadêmico e 35,5% da inserção profissional/empreendedora. Os resultados apoiam a relevância de práticas de liderança transformacional e adaptativa na educação técnica, juntamente com participação, mentoria, desenvolvimento profissional, parcerias com a indústria e uso de tecnologia. Devido ao desenho transversal e ao caráter autorrelatado dos dados, os resultados devem ser interpretados como associações e relações preditivas estatisticamente significativas, e não como efeitos causais.

Palavras-chave: liderança administrativa; liderança transformacional; colégios técnicos; desempenho acadêmico.

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INTRODUCTION

Technical and Vocational Education and Training (TVET) is widely regarded as an important mechanism for developing occupational skills, strengthening employability and supporting economic participation. In Nigeria, government-owned technical colleges occupy a strategic position in the preparation of skilled human resources for industry and other productive sectors (Jobir, 2025; Mestry, 2025; NBTE, 2020). Their mission requires more than the transmission of theoretical knowledge: students must also develop practical competence, problem-solving ability, professional discipline and readiness for employment or entrepreneurship.

The achievement of these goals depends partly on institutional administration and leadership. Educational administration encompasses planning, organising, directing and controlling resources, as well as staff management, curriculum implementation, instructional supervision, student support and external collaboration (Patrice et al., 2025; Rodrigues & De Lima, 2021). Leadership style refers to the manner in which administrators influence, motivate and interact with staff and other stakeholders to achieve institutional objectives (Patrice et al., 2025; Rashid et al., 2021).

Educational institutions may employ transformational, transactional, democratic, autocratic, instructional, innovative and laissez-faire practices, either separately or in combination. Transformational leadership has attracted particular attention because it emphasises vision, motivation, intellectual stimulation, collaboration and professional growth (Bass, 1985; Bass & Riggio, 2006; Burns, 1978). Democratic practices can strengthen participation and shared decision-making, while transactional practices can support compliance and accountability.

Conversely, excessive authoritarianism or insufficient supervision may constrain participation, innovation and professional initiative (Ferdinandi & Kiwonde, 2023; Maqbool et al., 2024).

The relationship between leadership and student outcomes has also been documented across different educational contexts. A three-level meta-analysis of 108 studies reported a statistically significant positive association between school leadership practices and student outcomes, with particularly relevant mechanisms involving instructional management, teacher capacity building and stakeholder engagement (Tan et al., 2021). Evidence from Nigeria, Ghana, Tanzania, Uganda and other contexts similarly suggests that leadership practices can be associated with academic achievement, staff performance and institutional effectiveness (Adangabe & Boateng, 2022; Ferdinandi & Kiwonde, 2023; Sengendo & Eduan, 2024).

Within TVET, the relationship is especially relevant because leadership must connect educational processes with practical training and labour-market expectations. Studies of TVET institutions have linked leadership with institutional performance, teacher productivity, organisational commitment and workforce relevance (Etomes et al., 2024; Mestry, 2025; Ngwiri et al., 2025; Mu'imamah & Setiadi, 2026). However, much of the existing evidence comes from countries or educational levels outside the specific context of government-owned technical colleges in Lagos State. This study therefore contributes context-specific evidence by examining administrative leadership styles alongside staff productivity, student academic performance and student preparation for employment or entrepreneurship.

Statement of the Problem

Government-owned technical colleges are expected to produce graduates with relevant technical knowledge, practical competencies and entrepreneurial capabilities. Nevertheless, technical education systems may face challenges involving academic performance, practical skill development, resource provision, staff productivity and alignment with changing labour-market requirements. These challenges raise an important institutional question: to what extent are administrative leadership practices associated with the educational and organisational outcomes expected from technical colleges?

The literature indicates that leadership matters, but its effects are context dependent. Transformational and democratic practices are often associated with positive educational outcomes, whereas evidence concerning autocratic, transactional and laissez-faire approaches is more mixed (Ferdinandi & Kiwonde, 2023; Fitriani et al., 2025; Maqbool et al., 2024). In TVET settings, the need to combine educational quality with industry relevance makes leadership particularly consequential. However, direct empirical evidence on government-owned technical colleges in Lagos State remains limited. The present study addresses this research gap.

Purpose and Objectives of the Study

The purpose of the study was to examine the relationship between administrative leadership styles and educational outcomes in government-owned technical colleges in Lagos State, Nigeria. Specifically, the study sought to:

- identify the leadership styles reported as predominant among administrators;
- examine the relationship between administrative leadership and staff productivity;
- determine the relationship between administrative leadership and students' academic performance;
- examine the relationship between administrative leadership and students' preparation for employment or entrepreneurship; and
- identify strategies perceived as useful for strengthening administrative leadership in technical colleges.

Research Questions

- Which leadership styles are most prominently reported in the selected technical colleges?

- What is the relationship between administrative leadership and staff productivity?
- What is the relationship between administrative leadership and students' academic performance?
- What is the relationship between administrative leadership and students' preparation for employment or entrepreneurship?
- Which strategies are perceived as useful for improving administrative leadership?

Hypotheses

H0₁: There is no significant relationship between administrative leadership and staff productivity in technical colleges.

H0₂: There is no significant relationship between administrative leadership and students' academic performance in technical colleges.

H0₃: There is no significant relationship between administrative leadership and students' placement in employment or entrepreneurial ventures.

LITERATURE REVIEW

Administrative Leadership in Technical Education

Administrative leadership in technical education involves the coordination of people, curriculum, facilities, assessment, professional development and external partnerships. Effective leaders must therefore balance educational objectives with the practical requirements of vocational preparation. In technical colleges, leadership decisions can affect the quality of workshop-based instruction, teacher development, curriculum responsiveness and opportunities for workplace exposure (NBTE, 2020; Mestry, 2025).

Leadership style is not necessarily a single fixed behaviour. Contemporary educational leadership research increasingly recognises combinations of transformational, instructional, distributed, participatory and transactional practices depending on institutional circumstances (Fitriani et al., 2025). This is particularly important in TVET, where administrators may need to motivate staff, enforce safety and academic rules, respond to industry changes and establish partnerships simultaneously.

Transformational Leadership Theory

The study is theoretically anchored in Transformational Leadership Theory, originating in Burns (1978) and further developed by Bass (1985) and Bass and Riggio (2006). Transformational leadership describes leadership that motivates followers to transcend narrow self-interest and work toward shared organisational objectives. Its principal mechanisms include inspirational motivation, intellectual stimulation, idealised influence and individualised consideration.

The theory is relevant to technical colleges because teaching quality and student outcomes depend on staff commitment, innovation and continuous professional learning. Leaders who articulate shared goals, support staff development and encourage problem solving may create conditions favourable to instructional improvement. Recent TVET-oriented evidence similarly connects transformational practices with professional development, pedagogical innovation, institutional productivity and organisational commitment (Etomes et al., 2024; Matsila & Malebana, 2026; Mu'imamah & Setiadi, 2026).

The theoretical framework does not imply that transformational leadership is universally superior. Educational leadership is context dependent, and integrated approaches may be necessary where institutions must combine motivation, instructional supervision, accountability and rapid operational decision-making (Fitriani et al., 2025; Nadav et al., 2024). The present study therefore treats transformational leadership as the dominant reported style while examining administrative leadership more broadly.

Leadership and Staff Productivity

Staff productivity in educational institutions is reflected in effective teaching, professional development, achievement of work goals, responsiveness to institutional expectations and the capacity to adapt to curricular and industry changes. Evidence from Nigerian Federal Colleges of Education (Technical) has linked leadership practices with staff job performance (Musa, 2022), while broader evidence indicates positive relationships between transformational leadership and teacher productivity (Nadeem et al., 2026). In TVET, professional support and responsiveness to industry requirements are especially important because instructors must continuously update both pedagogical and occupational competencies.

Leadership and Student Academic Performance

Student academic performance in technical education should be understood broadly. It may include academic achievement, practical competence, problem solving, confidence, compliance with academic requirements and readiness for further training or employment (Karoli & Upadhyaya, 2024; Kwofie et al., 2021). Leadership can influence these outcomes indirectly through teacher support, instructional supervision, learning facilities, mentoring and curriculum development.

Empirical studies provide generally positive, though context-dependent, evidence. Adeyemi and Bolarinwa (2013) found significant relationships between principals' leadership practices and student academic performance in secondary schools in Ekiti State, while Angwaomaodoko (2025) reported a strong positive association between transformational leadership and academic performance in Ibadan North. International evidence similarly indicates that leadership practices are associated with student outcomes, although the magnitude and direction vary across institutional contexts (Tan et al., 2021; Sengendo & Eduan, 2024).

Leadership and Employment/Entrepreneurship Preparation

Technical colleges are expected to produce graduates whose competencies correspond to workplace and entrepreneurial needs. Leadership therefore has a workforce-development dimension: administrators can facilitate internships, industry partnerships, career guidance, entrepreneurship training, updated curricula and practical projects. The present study includes these outcomes because leadership effectiveness in technical education cannot be evaluated solely through examination-related indicators.

Methodology

Research Design and Participants

The study employed a quantitative, cross-sectional correlational survey design. This formulation is more consistent with the statistical procedures used in the source dataset than a purely descriptive survey designation because the study estimated associations through Pearson correlation and predictive relationships through simple linear regression. The target context was government-owned technical colleges in Lagos State, Nigeria. The available dataset contained 129 valid responses.

Respondents comprised principals, vice principals, heads of department, heads of section, teachers and recent graduates. Heads of section represented the largest group (55; 42.6%), followed by vice principals and heads of department (20 each; 15.5%). A total of 104 respondents (80.6%) reported holding a leadership position in the institution. The original results document contains an employer-oriented section, but its demographic table does not separately identify employer respondents; consequently, those items are interpreted here as perceptions of workforce preparation rather than as independently verified employer evaluations.

Table 1.

Respondent profile (N = 129)

Position	n	%
Principal	7	5.4
Vice Principal	20	15.5
Head of Department	20	15.5
Head of Section	55	42.6
Teacher	11	8.5
Recent Graduate (2021–2024)	16	12.4
Total	129	100.0

Source: authors' analysis of the supplied statistical results.

Leadership exposure	n	%
Hold a leadership position in the institution	104	80.6
Attended a leadership workshop/seminar	21	16.3
No formal leadership training	2	1.6
Completed a leadership certification program	2	1.6
Total	129	100.0

Instrument and Measurement

Data were collected using a structured questionnaire developed from the study objectives and relevant literature. The instrument included sections addressing respondent characteristics, predominant leadership style, leadership practices supporting the learning environment and staff motivation, staff productivity, student academic performance, workforce and entrepreneurship preparation, and strategies for improving leadership. The source results report content validation by experts and internal consistency through Cronbach's alpha.

Table 2.

Reliability of questionnaire constructs

Construct	Items	Cronbach's α
Leadership practices / conducive learning and staff motivation	10	.665
Staff productivity	11	.691
Student academic performance	11	.653
Employment/entrepreneurship preparation	10	.702
Employer-oriented workforce preparation	12	.547
Leadership improvement strategies	12	.611

Note. The .547 coefficient indicates comparatively weak internal consistency and warrants cautious interpretation of that construct. The source manuscript described all coefficients as acceptable; the present version reports the coefficients transparently without treating .547 as strong reliability.

Data Analysis

Descriptive statistics comprised frequencies, percentages, means and standard deviations. Pearson product-moment correlation was used to estimate associations among the composite leadership, staff productivity, student performance and placement measures. Simple linear regression was used to estimate the predictive relationship between leadership and each outcome. Statistical significance was evaluated at $\alpha = .05$. Because the data were collected at one point in time and the measures were perception based, regression results are interpreted as statistical prediction rather than proof of causal influence.

RESULTS

Predominant Leadership Styles

Transformational leadership was overwhelmingly the most frequently selected leadership style, with 110 of 129 respondents (85.3%). Innovative leadership was selected by 11 respondents (8.5%), democratic leadership by 6 (4.7%), and visionary and transactional leadership by one respondent each (0.8%).

Figure 1.

Reported predominant administrative leadership styles (N = 129).

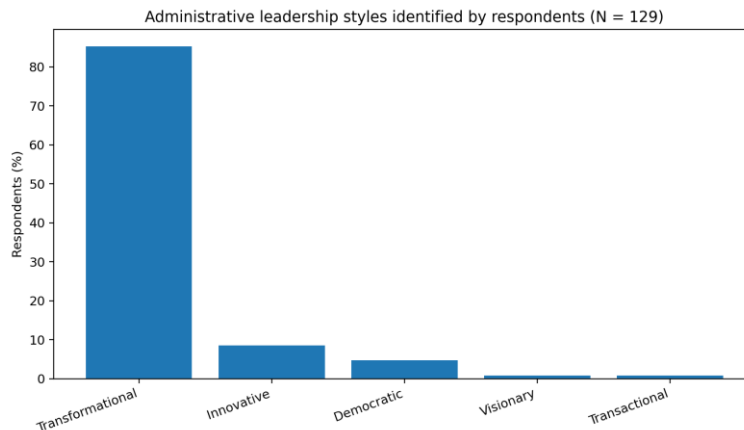


Table 3.

Reported predominant leadership styles

Leadership style	n	%
Transformational	110	85.3
Innovative	11	8.5
Democratic	6	4.7
Visionary	1	0.8
Transactional	1	0.8
Total	129	100.0

Leadership Practices Supporting the Learning Environment

Respondents reported high mean scores across the ten leadership-practice items. Teamwork received the highest mean ($M = 4.64$, $SD = 0.624$), followed by staff creativity ($M = 4.57$, $SD = 0.622$), mentorship and training ($M = 4.52$, $SD = 0.730$), and fairness and respect ($M = 4.52$, $SD = 0.663$). Allowing staff to contribute to decision-making had the lowest mean in this section ($M = 4.36$, $SD = 0.798$), although it remained above the midpoint of the five-point scale.

Table 4.

Selected descriptive indicators of leadership practices

Indicator	M	SD
Administrators promote teamwork among staff	4.64	0.624
Administrators encourage staff creativity	4.57	0.622
Administrators support mentorship and training	4.52	0.730
Administrators treat staff fairly and with respect	4.52	0.663
Administrators provide professional training	4.50	0.867
Administrators allow staff participation in decisions	4.36	0.798

Student Academic Performance

The student-performance section also produced high mean scores. Following academic rules recorded the highest mean ($M = 4.57$, $SD = 0.622$), followed by academic competition ($M = 4.56$, $SD = 0.749$), creativity ($M = 4.53$, $SD = 0.600$), confidence through practical learning ($M = 4.53$, $SD = 0.674$) and industry links supporting student careers ($M = 4.51$, $SD = 0.867$). The lowest mean was observed for the statement that administrators apply rules without considering student learning needs ($M = 4.22$, $SD = 1.172$). Because this item is negatively framed, its interpretation should be treated carefully when constructing any composite score.

Table 5.

Student academic performance indicators

Indicator	M	SD
Guide students to follow academic rules	4.57	0.622
Promote academic competition	4.56	0.749
Encourage student creativity	4.53	0.600
Improve confidence through practical learning	4.53	0.674
Build links with industries to support careers	4.51	0.867
Provide mentorship to students	4.47	0.685
Adjust leadership styles to help students perform	4.44	0.819
Provide good learning facilities	4.40	0.723
Allow students to share ideas	4.40	0.852
Make academic decisions without asking teachers	4.30	1.065
Apply rules without considering student learning needs	4.22	1.172

Employment and Entrepreneurship Preparation

The employment/entrepreneurship section showed that internships and apprenticeships received the highest mean ($M = 4.57$, $SD = 0.705$). Assistance with job-related skills, industry-standard training and career advice each recorded $M = 4.46$, while entrepreneurship-oriented thinking recorded $M = 4.44$. These results indicate that respondents perceived leadership as connected not only with academic development but also with practical transition into work and entrepreneurship.

Correlations among the Main Variables

Administrative leadership showed positive and statistically significant associations with all three outcomes. The strongest association was with student academic performance ($r = .670$, $p < .001$), followed closely by staff productivity ($r = .662$, $p < .001$). The association with placement was moderate-to-strong ($r = .596$, $p < .001$). Staff productivity was strongly associated with student performance ($r = .744$, $p < .001$), while student performance and placement were also strongly associated ($r = .745$, $p < .001$).

Figure 2.

Pearson correlations between administrative leadership and key outcomes.

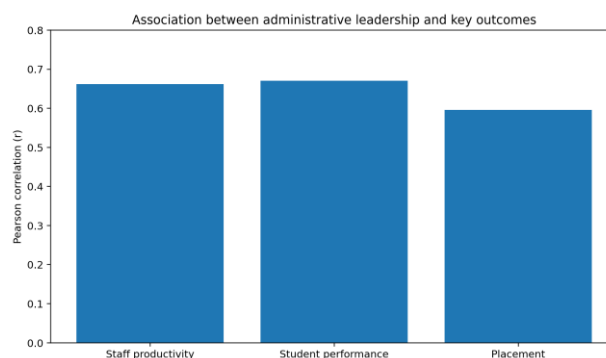


Table 6.

Pearson correlation matrix

Variable	Leadership	Staff productivity	Student performance	Placement
Leadership	1.000	.662**	.670**	.596**
Staff productivity	.662**	1.000	.744**	.665**
Student performance	.670**	.744**	1.000	.745**
Placement	.596**	.665**	.745**	1.000

Note. ** $p < .01$, two-tailed; $N = 129$.

Regression Results

Table 7.

Simple regression of leadership on staff productivity

Statistic	Value
R	.662
R ²	.438
Adjusted R ²	.433
Standard error of estimate	3.25165
Leadership B	.785
Leadership SE	.079
Standardized β	.662
t	9.941
p	< .001

The regression model explained 43.8% of the variance in staff productivity. The standardized coefficient was positive and statistically significant ($\beta = .662$, $t = 9.941$, $p < .001$). H_{01} was rejected.

Table 8.

Simple regression of leadership on student academic performance

Statistic	Value
R	.670
R ²	.448
Adjusted R ²	.444
Standard error of estimate	3.18462
Leadership B	.785
Leadership SE	.077
Standardized β	.670
t	10.162
p	< .001

The model explained 44.8% of the variance in student academic performance. Leadership had a positive statistically significant standardized coefficient ($\beta = .670$, $t = 10.162$, $p < .001$). H_{02} was rejected.

Table 9.

Simple regression of leadership on placement

Statistic	Value
R	.596
R ²	.355
Adjusted R ²	.350
Standard error of estimate	3.51096
Leadership B	.713
Leadership SE	.085

Standardized β	.596
t	8.363
p	.002 (constant); < .001 (leadership)

The model explained 35.5% of the variance in placement. Leadership had a positive statistically significant coefficient ($\beta = .596$, $t = 8.363$, $p < .001$). H_{03} was rejected.

DISCUSSION

The first major finding was the predominance of transformational leadership, selected by 85.3% of respondents. This pattern is compatible with the theoretical emphasis of the study and with recent evidence that transformational practices can support professional development, collaboration, innovation and institutional effectiveness in vocational and educational settings (Jobir, 2025; Mestry, 2025; Mu'imamah & Setiadi, 2026). However, the result should not be interpreted as evidence that transformational leadership is inherently superior in every circumstance. The instrument asked respondents to identify the style prevailing in their institution; it did not experimentally compare alternative leadership styles.

The second finding concerned the relationship with staff productivity. The correlation of .662 indicates a substantial positive association, and the regression model accounted for 43.8% of the observed variance. This is consistent with evidence connecting transformational and supportive leadership with teacher performance, professional growth and institutional productivity (Musa, 2022; Nadeem et al., 2026). The descriptive results reinforce this interpretation: respondents reported strong perceptions of teamwork, creativity, professional development, fairness and adaptive leadership.

The third finding was the positive relationship between administrative leadership and student academic performance ($r = .670$; $R^2 = .448$). This result is consistent with previous studies showing that educational leadership is associated with student outcomes. Tan et al. (2021) found a positive mean association across 108 studies, while Angwaomaodoko (2025) reported a strong positive relationship in a Nigerian secondary-school context. The present result therefore extends an established pattern into government-owned technical colleges in Lagos State.

The fourth finding was the relationship between leadership and placement in employment or entrepreneurship ($r = .596$; $R^2 = .355$). This is theoretically plausible in TVET because administrators influence opportunities for internships, apprenticeships, industry partnerships, career guidance and curriculum responsiveness. The descriptive data showed particularly strong support for internships and apprenticeships ($M = 4.57$), suggesting that workplace exposure is a visible component of the institutional leadership environment.

The high association between staff productivity and student performance ($r = .744$) is also noteworthy. Although the present design does not permit mediation analysis or causal claims, the result is compatible with the proposition that leadership may shape student outcomes partly through the quality and productivity of teaching personnel. Future studies should test this mechanism directly using longitudinal or multilevel designs.

The findings also support the literature's warning that educational leadership should be adaptive. The questionnaire included practices associated with different styles, including participation, rule enforcement, innovation and adjustment to changing circumstances. The high mean scores for flexible leadership, technology and innovation, mentorship and evidence-based reform in the strategies section suggest that respondents favour a blended approach rather than reliance on a single behavioural model.

Strategies for Strengthening Administrative Leadership

Respondents strongly endorsed all twelve proposed strategies. The highest-rated strategy was the use of reward systems to boost staff productivity ($M = 4.70$, $SD = 0.509$), followed by technology and innovation in teaching ($M = 4.69$, $SD = 0.570$) and research-based leadership reforms ($M = 4.66$, $SD = 0.523$). Mentorship programmes, delegation,

entrepreneurship-focused leadership programmes and staff/student participation also received high ratings.

Table 10.

Highest-rated leadership improvement strategies

Strategy	M	SD
Use reward systems to boost staff productivity	4.70	0.509
Use technology and innovation to improve teaching	4.69	0.570
Implement leadership reforms based on research evidence	4.66	0.523
Create mentorship programmes for staff and students	4.60	0.538
Delegate tasks and involve more staff in leadership	4.60	0.580
Introduce leadership programmes focused on entrepreneurship	4.60	0.605
Encourage staff and student participation in decisions	4.59	0.714
Organise regular leadership training	4.57	0.705

CONCLUSION

The study found a strong predominance of transformational leadership among the selected government-owned technical colleges in Lagos State. Administrative leadership was positively associated with staff productivity, student academic performance and student preparation for employment or entrepreneurship. The strongest leadership-outcome association concerned student academic performance ($r = .670$), while the regression model explained 44.8% of its variance. The results therefore provide empirical support for the importance of leadership capacity in technical education.

Meanwhile, the evidence should be interpreted within the limits of the design. The study was cross-sectional, relied on questionnaire responses, and used composite perception measures. Consequently, the statistically significant regression coefficients demonstrate predictive relationships within the observed sample but do not establish that leadership causes the reported outcomes. The study's contribution is best understood as context-specific evidence of substantial associations in Lagos State technical colleges.

Recommendations

- Technical college administrators should receive continuous professional development in transformational, instructional and adaptive leadership, with emphasis on motivation, supervision, communication and change management.
- Institutions should strengthen participatory decision-making so that teachers and other relevant stakeholders contribute to curriculum, academic and organisational decisions.
- Government and college management should expand access to modern teaching technologies, practical facilities and professional development resources.
- Technical colleges should deepen partnerships with industries through internships, apprenticeships, joint projects, career guidance and curriculum consultation.
- Leadership development programmes should incorporate entrepreneurship, innovation and labour-market responsiveness so that institutional leadership supports both academic and employability outcomes.
- Future studies should employ longitudinal, multilevel or mixed-method designs and, where feasible, incorporate objective academic records and independently verified employer outcomes.

Limitations

The study acknowledges notable limitations. First, the study used a cross-sectional design, which limits causal inference. Second, the sample was limited to 129 respondents and therefore should not be assumed to represent all technical colleges in Nigeria. Third, the principal outcome measures were based on perceptions rather than independently verified examination or employment records. Fourth, the employer-oriented section had a Cronbach's alpha of .547, indicating weak internal consistency relative to the other constructs. Finally,

the demographic table did not separately identify employer respondents even though one questionnaire section was labelled as reflecting employer perceptions.

Conflict of Interest

The authors declare that they have no conflict of interest related to the research, authorship, or publication of this article. No financial, personal, professional, or institutional interests influenced the design of the study, the collection or analysis of data, the interpretation of the results, or the preparation of the manuscript. All authors have approved the final version of the manuscript and agree to be accountable for its content.

Authors' Contributions

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