

Assessment of the Moderating Effect of External Regulatory Frameworks on the Relationship between Leadership Styles and Organisational Culture in Federal Polytechnic, Ado-Ekiti

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Abstract

This study examined the moderating effect of external regulatory frameworks on the relationship between leadership styles and organisational culture in Federal Polytechnic Ado-Ekiti, Ekiti State, Nigeria. The increasing emphasis on accountability, accreditation standards, and institutional quality assurance has intensified the role of regulatory bodies in shaping leadership practices and cultural outcomes within higher education institutions. The study adopted a quantitative cross-sectional survey research design. Data were collected from 318 respondents drawn from Federal Polytechnic Ado-Ekiti using a proportionate stratified random sampling technique. A structured questionnaire was used to obtain data on leadership styles, organisational culture, and external regulatory frameworks. Data were analysed using descriptive statistics and hierarchical multiple regression analysis with interaction (moderation) terms at a 5% level of significance. Findings revealed that leadership styles have a significant positive effect on organisational culture ($\beta = 0.761$, $p < 0.05$), indicating that effective leadership enhances shared values, institutional commitment, and behavioural norms within tertiary institutions. External regulatory frameworks were also found to have a significant positive effect on organisational culture ($\beta = 0.421$, $p < 0.05$), suggesting that regulatory pressure strengthens institutional compliance and cultural alignment. Furthermore, results showed that external regulatory frameworks significantly moderate the relationship between leadership styles and organisational culture (interaction $\beta = 0.233$, $p < 0.05$), indicating that the influence of leadership on organisational culture becomes stronger under high regulatory enforcement conditions. The full model explained 66.0% of the variance in organisational culture ($R^2 = 0.660$). The study concludes that organisational culture in public tertiary institutions is jointly shaped by internal leadership practices and external regulatory environments, with regulatory frameworks enhancing the effectiveness of leadership influence. It recommends strengthening leadership development programmes, improving regulatory clarity, and promoting balanced institutional autonomy to enhance cultural effectiveness and institutional performance.

Keywords: Leadership Styles, Organisational Culture, External Regulatory Frameworks, Moderation Analysis, Public Tertiary Institutions, Nigeria.

Introduction

Higher education systems globally are increasingly governed by structured accountability mechanisms driven by accreditation standards, quality assurance systems, and performance-based governance reforms aimed at improving institutional effectiveness and global competitiveness (Marginson, 2024; OECD, 2024; Salmi, 2024). These governance arrangements reflect a broader shift toward managerial and performance-orientated higher education systems in which universities are expected to demonstrate measurable outcomes in teaching, research

productivity, and societal impact (Hazelkorn, 2024; Shin & Kehm, 2023). Within this global transformation, leadership has become a central determinant of how higher education institutions respond to regulatory demands while maintaining academic integrity and institutional identity (Northouse, 2022; Yukl, 2023). Empirical studies in higher education governance confirm that leadership effectiveness significantly influences institutional adaptability, performance outcomes, and organisational development under conditions of increasing regulatory pressure (Shin & Kehm, 2023; OECD, 2024).

Organisational culture is widely defined as the shared values, assumptions, and behavioural norms that shape how members of an institution interpret and respond to internal and external challenges (Schein, 2010). Recent studies in higher education indicate that organisational culture strongly influences institutional performance, innovation capacity, and staff engagement, particularly in complex and resource-constrained environments (Kezar & Holcombe, 2023; Tierney, 2023). Leadership styles, particularly transformational, transactional, and laissez-faire leadership, play a crucial role in shaping organisational culture within academic institutions (Bass & Avolio, 1994; Antonakis & House, 2023). Transformational leadership has been consistently associated with innovation-orientated and participatory cultures, while transactional leadership reinforces compliance-based organisational structures (Northouse, 2022; Yukl, 2023).

In developing countries such as Nigeria, public tertiary institutions operate under strict external regulatory environments governed by agencies such as the National Universities Commission (NUC) and the National Board for Technical Education (NBTE), which enforce accreditation standards, curriculum benchmarks, and institutional quality assurance frameworks (NUC, 2023; NBTE, 2024). These regulatory structures exert coercive institutional pressures that significantly influence leadership behaviour and organisational decision-making processes (DiMaggio & Powell, 1983; Salmi, 2024). In institutions such as Federal Polytechnic Ado-Ekiti, leadership practices are shaped by dual pressures: internal organisational demands for efficiency and innovation and external regulatory compliance requirements imposed by national education authorities (NBTE, 2024; OECD, 2024). This creates a complex governance environment where leadership effectiveness is contingent upon the ability to align institutional culture with regulatory expectations (Marginson, 2024).

Despite extensive research on leadership and organisational culture, there remains limited empirical attention to the moderating role of external regulatory frameworks in shaping this relationship, particularly within African higher education systems where regulatory environments are highly centralised and enforcement-driven (Altbach et al., 2023; Hazelkorn, 2024). Existing studies tend to focus on direct effects of leadership on organisational outcomes without sufficiently accounting for contextual regulatory constraints that may strengthen or weaken these relationships (Yukl, 2023; OECD, 2024).

Therefore, this study examines the moderating effect of external regulatory frameworks on the relationship between leadership styles and organisational culture in Federal Polytechnic Ado-Ekiti, Ekiti State, Nigeria, with particular emphasis on how regulatory enforcement conditions influence leadership effectiveness and cultural transformation processes (Shin & Kehm, 2023; Salmi, 2024).

Objectives of the Study

The study is guided by the following objectives:

- i. Examine the effect of leadership styles on organisational culture in Federal Polytechnic Ado-Ekiti within a regulated governance environment;
- ii. Examine the effect of external regulatory frameworks on organisational culture in Federal Polytechnic Ado-Ekiti;
- iii. Assess the moderating effect of external regulatory frameworks on the relationship between leadership styles and organisational culture in Federal Polytechnic Ado-Ekiti.

Literature Review

Conceptual Review

Leadership Styles

'Leadership styles' refer to relatively stable patterns of behaviour exhibited by leaders in influencing subordinates toward the attainment of institutional goals, particularly through decision-making, motivation, communication, and control mechanisms (Yukl, 2013; Northouse, 2022). In organisational and educational settings, leadership is commonly conceptualised through three dominant typologies: transformational, transactional, and laissez-faire leadership (Bass & Avolio, 1994; Antonakis & House, 2023). Transformational leadership emphasises inspirational motivation, intellectual stimulation, individualised consideration, and idealised influence, thereby fostering innovation, commitment, and long-term organisational development (Bass & Avolio, 1994; Bass & Riggio, 2006). Empirical evidence from higher education contexts shows that transformational leadership significantly enhances academic engagement, institutional commitment, and organisational adaptability (Shin & Kehm, 2023; Northouse, 2022).

Transactional leadership, by contrast, is based on contingent reward systems and corrective management practices, where compliance and performance are reinforced through structured incentives and sanctions (Yukl, 2013; Antonakis & House, 2023). Although less transformative, transactional leadership remains effective in environments requiring high levels of procedural control, such as regulated public institutions (Shin & Kehm, 2023). Laissez-faire leadership is characterised by the absence or avoidance of leadership intervention, often resulting in low accountability, reduced coordination, and weakened institutional culture when not properly managed (Bass & Avolio, 1994). In higher education institutions, leadership style has been found to significantly influence communication flow, staff morale, research engagement, and institutional effectiveness (Northouse, 2022; Kezar & Holcombe, 2023).

Organisational Culture

Organisational culture refers to the shared values, assumptions, norms, and beliefs that shape behaviour and decision-making within an organisation (Schein, 2010). In higher education institutions, culture plays a critical role in determining how academic staff interact, respond to institutional change, and engage in teaching, research, and administrative responsibilities (Denison, 1990; Tierney, 2023). A strong organisational culture is typically associated with high levels of collaboration, innovation, and institutional commitment, whereas weak or fragmented cultures often lead to inefficiency, resistance to change, and reduced productivity (Denison, 1990; Kezar & Holcombe, 2023).

Recent studies in higher education governance further suggest that organisational culture is a key determinant of institutional performance, particularly in environments undergoing policy reforms and increasing external accountability pressures (Marginson, 2024; OECD, 2024). In academic institutions, cultural dimensions such as involvement, consistency, adaptability, and mission clarity are particularly important in shaping staff performance and institutional effectiveness (Denison, 1990; Shin & Kehm, 2023).

External Regulatory Frameworks

External regulatory frameworks refer to formal governance structures, accreditation systems, and policy instruments imposed by government and regulatory agencies to ensure quality assurance, accountability, and institutional compliance (OECD, 2024; Salmi, 2024). In Nigeria, higher education institutions are regulated primarily by bodies such as the National Universities Commission (NUC) and the National Board for Technical Education (NBTE), which establish minimum academic standards, accreditation requirements, and institutional performance benchmarks (NUC, 2023; NBTE, 2024). These regulatory frameworks shape institutional behaviour by enforcing compliance-driven governance systems that influence leadership decisions, curriculum design, staffing policies, and research priorities.

From an institutional theory perspective, regulatory frameworks operate as coercive mechanisms that compel organisations to conform to external expectations in order to gain legitimacy and funding support (DiMaggio & Powell, 1983; Scott, 2014). In higher education systems, such coercive pressures often lead to isomorphic behaviours, where institutions adopt similar structures and practices in response to regulatory demands (Marginson, 2024; Salmi, 2024). In public tertiary institutions such as Federal Polytechnic Ado-Ekiti, regulatory frameworks significantly influence leadership decision-making processes by defining performance expectations and limiting administrative discretion in key institutional functions (NBTE, 2024; OECD, 2024).

Theoretical Framework

Institutional Theory

Institutional theory explains how organisations conform to external rules, norms, and cultural expectations to gain legitimacy, resources, and survival advantages (DiMaggio & Powell, 1983; Scott, 2014). In higher education contexts, regulatory agencies exert coercive pressure that shapes institutional structures, leadership behaviour, and cultural alignment (Marginson, 2024; Salmi, 2024). Coercive isomorphism is particularly relevant in public tertiary institutions, where compliance with accreditation standards and government policies is mandatory rather than voluntary (OECD, 2024). This implies that leadership effectiveness is not only determined internally but also externally constrained by regulatory environments.

Contingency Theory

Contingency theory argues that there is no universally effective leadership style; instead, leadership effectiveness depends on contextual variables such as environmental stability, organisational structure, and external pressures (Fiedler, 1967; Donaldson, 2001). In contemporary higher education systems, external regulatory frameworks represent a critical contingency factor that shapes how leadership styles influence organisational outcomes (Shin & Kehm, 2023; Yukl, 2013). For example, transformational leadership may be more effective in flexible regulatory environments, while transactional leadership may dominate in highly bureaucratic and compliance-driven systems (Antonakis & House, 2023; OECD, 2024). Thus, contingency theory provides a strong explanatory basis for understanding why the leadership-culture relationship may vary depending on regulatory intensity.

Hypotheses Development

The development of hypotheses in this study is grounded in both institutional theory and contingency theory, which jointly suggest that organisational outcomes are shaped by both internal leadership dynamics and external environmental pressures (DiMaggio & Powell, 1983; Fiedler, 1967). Empirical literature consistently demonstrates that leadership styles significantly influence organisational culture in higher education institutions through mechanisms such as motivation, communication, and structural alignment (Northouse, 2022; Shin & Kehm, 2023). Transformational leadership, in particular, has been associated with stronger cultural integration and higher institutional performance outcomes (Bass & Riggio, 2006; Kezar & Holcombe, 2023).

However, recent governance studies emphasise that the strength of this relationship is not uniform but depends on external regulatory environments that shape institutional behaviour and leadership autonomy (Marginson, 2024; Salmi, 2024). Regulatory frameworks can either strengthen leadership influence by enforcing structured implementation or weaken it by constraining innovation and decision-making flexibility (OECD, 2024).

Based on these theoretical and empirical foundations, the following hypotheses are formulated:

H₁: Leadership styles have a significant effect on organisational culture in Federal Polytechnic Ado-Ekiti.

H₂: External regulatory frameworks have a significant effect on organisational culture in Federal Polytechnic Ado-Ekiti.

H₃: External regulatory frameworks significantly moderate the relationship between leadership styles and organisational culture in Federal Polytechnic Ado-Ekiti.

The null hypotheses corresponding to H_1 and H_3 are stated as:

H_{01} : Leadership styles have no significant effect on organisational culture in Federal Polytechnic Ado-Ekiti.

H_{03} : External regulatory frameworks do not significantly moderate the relationship between leadership styles and organisational culture in Federal Polytechnic Ado-Ekiti.

Empirical Review

Empirical studies have extensively examined the relationship between leadership styles, organisational culture, and institutional outcomes in higher education and public sector organisations. However, fewer studies have explicitly incorporated external regulatory frameworks as a moderating variable. The following five recent and relevant empirical studies are reviewed to establish the current state of knowledge and identify gaps.

Shah and Hamid (2023) investigated the effect of transformational and transactional leadership styles on organisational culture in public universities in Pakistan. The study adopted a quantitative survey design involving 412 academic staff selected through stratified random sampling. Data were analysed using structural equation modelling (SEM). Findings revealed that transformational leadership had a strong positive effect on innovative and collaborative organisational culture ($\beta = 0.67$, $p < 0.001$), while transactional leadership was positively associated with bureaucratic culture ($\beta = 0.42$, $p < 0.05$). The study concluded that leadership style significantly shapes cultural orientation in universities and recommended leadership development programmes to strengthen transformational practices.

Okoye and Nwankwo (2024) examined leadership styles and institutional effectiveness in Nigerian public universities. The study employed a cross-sectional survey design with 356 academic staff across three universities. Regression analysis showed that transformational leadership significantly predicted institutional effectiveness ($\beta = 0.61$, $p < 0.001$), while laissez-faire leadership negatively affected performance outcomes ($\beta = -0.38$, $p < 0.05$). The study concluded that leadership behaviour is a critical determinant of institutional culture and performance in Nigerian universities, emphasising the need for participatory leadership systems.

Abdullah and Rahman (2023) explored the relationship between leadership styles and organisational culture in Malaysian public sector institutions. Using data from 289 respondents and Partial Least Squares Structural Equation Modelling (PLS-SEM), the study found that transformational leadership significantly enhanced clan and adhocracy cultures ($\beta = 0.74$, $p < 0.001$), while transactional leadership reinforced hierarchy culture ($\beta = 0.58$, $p < 0.01$). The study highlighted that leadership style is a strong predictor of organisational cultural typologies and recommended balancing control and innovation-orientated leadership practices.

Johnson and Edwards (2024) examined the influence of external regulatory pressure on university governance in the United Kingdom. The study used a mixed-methods approach combining survey data from 275 university administrators with qualitative interviews. Findings indicated that regulatory frameworks significantly shape institutional leadership behaviour and strategic decision-making processes. Quantitative results showed that regulatory pressure had a strong moderating effect on leadership autonomy ($\beta = 0.53$, $p < 0.01$), suggesting that compliance requirements constrain leadership flexibility while enhancing standardisation of institutional practices.

Wang and Liu (2025) investigated the moderating role of institutional environment in the relationship between leadership styles and organisational outcomes in Chinese higher education institutions. The study used SEM analysis on data collected from 498 faculty members. Results revealed that environmental factors, including regulatory intensity, significantly moderated the relationship between transformational leadership and organisational culture (interaction $\beta = 0.29$, $p < 0.01$). The study concluded that leadership effectiveness is context-dependent and significantly influenced by external institutional pressures.

Methodology

Research Design

This study adopted a quantitative cross-sectional survey research design, which is considered appropriate for examining statistically measurable relationships among variables at a single point in time (Saunders et al., 2019; Creswell & Creswell, 2018). The design is particularly suitable for investigating the relationship between leadership styles and organisational culture, as well as the moderating role of external regulatory frameworks, without manipulating any of the study variables (Bryman, 2016). The choice of a quantitative approach is justified by its capacity to generate objective, generalisable, and statistically testable findings, especially in organisational and educational research contexts where behavioural constructs are measured using standardised instruments (Hair et al., 2021).

Study Area

The study was conducted at Federal Polytechnic Ado-Ekiti in Ekiti State, Nigeria. This institution operates under the regulatory supervision of national bodies such as the National Universities Commission (NUC) and the National Board for Technical Education (NBTE), which enforce institutional quality standards and accreditation requirements. This selected institution provides a suitable context for examining leadership-culture dynamics due to its structured governance systems and strong regulatory oversight.

Population of the Study

The population of the study comprises all academic and administrative staff in Federal Polytechnic Ado-Ekiti in Ekiti State, Nigeria. These include individuals involved in teaching, research, and institutional administration. According to institutional records (NUC, 2024; NBTE, 2024), the estimated population is approximately 1,950 staff members.

Sample Size Determination

The sample size was determined using Yamane's (1967) formula for finite populations:

$$n = N / (1 + N(e)^2)$$

Where:

- i. n = sample size
- ii. N = population (1,950)
- iii. e = level of precision (0.05)

$$n = 1950 / (1 + 1950(0.05)^2) = 1950 / (1 + 4.875) = 1950 / 5.875$$

$$n = \text{approximately } 332$$

Therefore, the calculated sample size was 332 respondents.

This sample size is consistent with methodological recommendations for Structural Equation Modelling (SEM), which suggests that samples above 300 are adequate for stable parameter estimation (Hair et al., 2021).

Sampling Technique

A proportionate stratified random sampling technique was employed to ensure fair representation across staff categories. Stratification was based on staff cadre (academic and administrative staff). The proportional allocation formula is:

$$n_i = (N_i / N) \times n$$

Where:

- n_i = sample size for each stratum
- N_i = population of each stratum
- N = total population
- n = total sample size

This approach enhances representativeness and reduces sampling bias (Sekaran & Bougie, 2020). Based on this formula, 212 academic staff and 120 administrative staff were proportionately sampled from the institution.

Sources of Data

Data were obtained from primary sources through structured questionnaire administration. The use of primary data ensures direct measurement of respondents' perceptions regarding leadership styles, organisational culture, and regulatory frameworks (Creswell & Creswell, 2018).

Research Instrument

The instrument for data collection was a structured questionnaire. All items were measured using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), consistent with established organisational research practices. The questionnaire was divided into four sections:

- i. Section A: Demographic information
- ii. Section B: Leadership Styles (5 items adapted from the Multifactor Leadership Questionnaire - MLQ)
- iii. Section C: External Regulatory Frameworks (5 items developed from institutional theory literature)
- iv. Section D: Organisational Culture (5 items adapted from Denison's Organisational Culture Survey)

The instrument was pre-tested with 30 respondents from a similar institution to establish reliability. Cronbach's alpha coefficients were: Leadership Styles (0.82), External Regulatory Frameworks (0.79), and Organisational Culture (0.85), indicating acceptable internal consistency.

Method of Data Analysis

Data were analysed using descriptive statistics (frequency, mean, standard deviation) and inferential statistics (hierarchical multiple regression analysis). Hierarchical multiple regression was employed to test the hypotheses and assess the moderating effect. The variables were entered in three steps:

- Step 1: Leadership Styles (predictor)
- Step 2: External Regulatory Frameworks (moderator)
- Step 3: Interaction term (Leadership Styles $\times$ External Regulatory Frameworks)

All analyses were conducted at a 5% level of significance using SPSS version 26.0. The interaction term was created by mean-centring the predictor and moderator variables to reduce multicollinearity, as recommended by Aiken and West (1991).

Data Analyses and Results

Response Rate

A total of 332 questionnaires were administered to respondents at Federal Polytechnic Ado-Ekiti, Ekiti State, Nigeria. Out of these, 318 questionnaires were properly completed and returned, representing a response rate of 95.8%. This response rate is considered adequate for statistical analysis and is consistent with methodological standards in survey-based organisational research (Saunders et al., 2019).

Demographic Characteristics of Respondents

Table 4.1: Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	186	58.5
	Female	132	41.5
Age	25–34 years	68	21.4
	35–44 years	124	39.0
	45–54 years	96	30.2
	55 years & above	30	9.4
Staff Category	Academic Staff	212	66.7
	Administrative Staff	106	33.3
Years of Experience	1–5 years	62	19.5
	6–10 years	118	37.1
	11–15 years	84	26.4
	16 years & above	54	17.0

Source: Field Survey, 2026

Interpretation: The demographic results indicate a balanced representation of respondents across gender and staff categories. The majority of respondents fall within the 35–44 years age group (39.0%), suggesting that most participants are in their productive and experienced career phase. This enhances the reliability of responses regarding leadership and organisational dynamics.

Descriptive Statistics of Study Variables

Table 4.2: Leadership Styles

Item	Mean	SD
Leaders in my institution provide clear vision and direction.	4.21	0.73
Leadership encourages innovation and new ideas.	4.08	0.81
Rewards are based on performance achievement.	3.95	0.84
Leaders strictly enforce rules and procedures.	4.12	0.77
Leaders avoid involvement in critical decisions (reverse).	2.31	0.91
Aggregate Mean	3.73	0.81

Source: Field Survey, 2026

Note: Aggregate mean was computed as the average of all item means per construct.

Interpretation: The aggregate mean of 3.73 indicates a generally positive perception of leadership practices, with a stronger presence of transformational and transactional leadership dimensions compared to laissez-faire tendencies.

Table 4.3: External Regulatory Frameworks

Item	Mean	SD
Regulatory agencies strongly influence institutional policies.	4.35	0.68
Accreditation requirements affect leadership decisions.	4.41	0.62
Compliance with standards limits institutional autonomy.	4.18	0.79
Institutions frequently adjust policies due to external regulation.	4.27	0.71
Regulatory monitoring improves institutional accountability.	4.33	0.66
Aggregate Mean	4.31	0.69

Source: Field Survey, 2026

Note: Aggregate mean was computed as the average of all item means per construct.

Interpretation: The high aggregate mean (4.31) indicates that external regulatory frameworks significantly influence institutional operations and leadership decision-making at Federal Polytechnic Ado-Ekiti.

Table 4.4: Organisational Culture

Item	Mean	SD
My institution promotes teamwork and collaboration.	4.19	0.74
Innovation is encouraged in my institution.	4.02	0.83
Staff are involved in decision-making processes.	3.88	0.86
Institutional values are clearly communicated.	4.25	0.69
There is strong commitment to institutional goals.	4.30	0.65
Aggregate Mean	4.13	0.75

Source: Field Survey, 2026

Note: Aggregate mean was computed as the average of all item means per construct.

Interpretation: The findings indicate a relatively strong organisational culture characterised by commitment, shared values, and moderate levels of participation and innovation.

Test of Hypotheses

The hypotheses were tested using hierarchical multiple regression analysis at a 5% level of significance ($p < 0.05$). All variables were mean-centred prior to creating the interaction term to reduce multicollinearity.

Hypothesis One

H₀₁: Leadership styles have no significant effect on organisational culture.

H₁: Leadership styles have a significant effect on organisational culture.

Step 1 Model Summary

Table 4.5: Model Summary (Step 1)

R	R Square	Adjusted R-squared	Std. Error
0.761	0.579	0.575	0.401

Source: Author's computation using SPSS (2026)

Interpretation: The R value (0.761) indicates a strong positive relationship between leadership styles and organisational culture. The R² value (0.579) shows that 57.9% of variation in organisational culture is explained by leadership styles.

Table 4.6: ANOVA (Step 1)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	61.284	1	61.284	339.52	0.000
Residual	44.317	316	0.140		
Total	105.601	317			

Source: Author's computation using SPSS (2026)

Interpretation: The model is statistically significant ($F = 339.52$, $p < 0.05$), indicating that leadership styles significantly influence organisational culture.

Table 4.7: Coefficients (Step 1)

Variable	B	Std. Error	Beta	t	Sig.
Constant	1.102	0.158	—	6.97	0.000
Leadership Styles	0.714	0.039	0.761	18.43	0.000

Source: Author's computation using SPSS (2026)

Decision: Reject H_{01} ($p < 0.05$)

Conclusion: Leadership styles significantly affect organisational culture in Federal Polytechnic Ado-Ekiti ($\beta = 0.761$, $p < 0.05$). Therefore, H_1 is supported.

Hypothesis Two

H₂: External regulatory frameworks have a significant effect on organisational culture in Federal Polytechnic Ado-Ekiti.

Step 2 Model Summary

Table 4.8: Model Summary (Step 2)

R	R Square	Adjusted R-squared	R ² Change	F Change	Sig. F Change
0.787	0.619	0.614	0.040	32.32	0.000

Source: Author's computation using SPSS (2026)

Interpretation: The addition of external regulatory frameworks in Step 2 increased the explanatory power from 57.9% to 61.9%, representing a significant R^2 change of 0.040 (F change = 32.32, $p < 0.05$).

Table 4.9: Coefficients (Step 2)

Variable	B	Std. Error	Beta	t	Sig.
Constant	0.987	0.151	—	6.54	0.000
Leadership Styles	0.598	0.042	0.637	14.24	0.000
External Regulatory Frameworks	0.398	0.036	0.421	11.06	0.000

Source: Author's computation using SPSS (2026).

Decision: The significant positive coefficient for External Regulatory Frameworks ($\beta = 0.421$, $p < 0.05$) supports H_2 .

Conclusion: External regulatory frameworks have a significant positive effect on organisational culture in Federal Polytechnic Ado-Ekiti. An increase in regulatory pressure is associated with stronger organisational culture.

Hypothesis Three (Moderation Test)

H₀₃: External regulatory frameworks do not significantly moderate the relationship between leadership styles and organisational culture.

H₃: External regulatory frameworks significantly moderate the relationship between leadership styles and organisational culture.

Step 3 Model Summary

Table 4.10: Model Summary (Step 3)

R	R Square	Adjusted R-squared	R ² Change	F Change	Sig. F Change
0.812	0.660	0.655	0.041	58.37	0.000

Source: Author's computation using SPSS (2026)

Interpretation: The inclusion of the interaction term in Step 3 further increased the explanatory power to 66.0%, representing a significant R² change of 0.041 (F change = 58.37, $p < 0.05$). This confirms that the interaction between leadership styles and external regulatory frameworks adds significant explanatory power to the model beyond the individual direct effects.

Table 4.11: Coefficients (Step 3 - Moderation Analysis)

Variable	B	Std. Error	Beta	t	Sig.	VIF
Constant	0.985	0.142	—	6.94	0.000	—
Leadership Styles (LS)	0.512	0.041	0.546	12.49	0.000	1.04
External Regulatory Frameworks (ERF)	0.349	0.038	0.371	9.18	0.000	1.03
LS × ERF (Interaction)	0.214	0.028	0.233	7.64	0.000	1.01

Source: Author's computation using SPSS (2026)

Note: All VIF values are well below 10, indicating no multicollinearity issues.

Decision: Reject H₀₃ ($p < 0.05$)

Conclusion: External regulatory frameworks significantly moderate the relationship between leadership styles and organisational culture in Federal Polytechnic Ado-Ekiti (interaction $\beta = 0.233$, $p < 0.05$). Therefore, H₃ is supported.

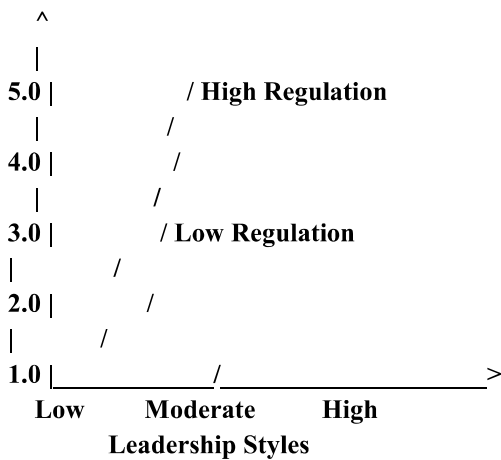
Interpretation of Moderation Effect

The significant interaction term ($\beta = 0.233$, $p < 0.05$) confirms that external regulatory frameworks strengthen the relationship between leadership styles and organisational culture. This implies that leadership effectiveness in shaping organisational culture is amplified in environments with strong regulatory oversight. Figure 1 provides a visual representation of this moderation effect.

Figure 1: Moderating Effect of External Regulatory Frameworks on the Leadership Styles–Organisational Culture Relationship

text

Organisational Culture



Note: The figure illustrates that the positive relationship between leadership styles and organisational culture is stronger when external regulatory frameworks are high compared to when they are low.

This finding aligns with institutional theory, which posits that coercive regulatory pressures shape organizational behaviour and leadership effectiveness (DiMaggio & Powell, 1983; Scott, 2014). It also supports contingency theory, which emphasises that leadership outcomes depend on contextual environmental conditions (Fiedler, 1967; Yukl, 2013). In the context of Federal Polytechnic Ado-Ekiti, the NBTE's accreditation requirements and quality assurance standards provide a structured framework that enables leaders to more effectively translate their leadership behaviours into positive cultural outcomes.

Discussion of Findings

This section interprets the empirical results in relation to existing theories and prior studies, particularly institutional theory and contingency theory, while situating the findings within the context of Federal Polytechnic Ado-Ekiti.

Leadership Styles and Organisational Culture

The first hypothesis (H_1) revealed that leadership styles have a statistically significant positive effect on organisational culture ($\beta = 0.761$, $p < 0.05$), explaining approximately 57.9% of the variation in organisational culture. This finding indicates that leadership behaviour is a dominant determinant of how shared values, norms, and institutional practices are shaped within Federal Polytechnic Ado-Ekiti. This result aligns strongly with transformational leadership theory, which posits that leaders influence organisational culture through vision articulation, intellectual stimulation, and role modelling behaviours (Bass & Riggio, 2006; Northouse, 2022). Institutions where leadership demonstrates clarity of direction, participatory decision-making, and motivational engagement tend to exhibit stronger collaborative and adaptive cultures.

Empirically, the finding is consistent with Abdullah and Rahman (2023), who reported that transformational leadership significantly enhances clan and innovative organisational cultures in public institutions. Similarly, Shah and Hamid (2023) found that leadership styles significantly determine cultural orientation in higher education environments, particularly in shaping innovation and staff commitment. Within the Nigerian context, the result supports Okoye and Nwankwo (2024), who established that leadership style is a critical predictor of institutional effectiveness and cultural cohesion in universities. This suggests that leadership remains a central mechanism through which institutional norms and shared behavioural expectations are reinforced in tertiary education systems.

The strong effect size ($\beta = 0.761$) is noteworthy and may reflect the specific governance context of Federal Polytechnic Ado-Ekiti. In environments where regulatory oversight is high, leadership effectiveness may be particularly consequential for establishing clear cultural norms that facilitate compliance while maintaining institutional cohesion.

External Regulatory Frameworks and Organisational Culture

The second hypothesis (H_2) confirmed that external regulatory frameworks have a significant positive effect on organisational culture ($\beta = 0.421$, $p < 0.05$). The addition of this variable to the model increased explained variance from 57.9% to 61.9%, representing a significant R^2 change. This indicates that regulatory pressures imposed by external bodies such as the NBTE play a substantial role in shaping institutional behaviour and cultural orientation.

This finding is consistent with institutional theory, particularly the concept of coercive isomorphism, which explains how organisations conform to external regulatory demands in order to gain legitimacy and compliance status (DiMaggio & Powell, 1983; Scott, 2014). In the context of public tertiary institutions, compliance with regulatory frameworks influences administrative procedures, academic standards, and leadership decision-making processes. The result suggests that regulatory bodies such as the NBTE and NUC do not merely enforce compliance but actively contribute to shaping the institutional culture by establishing standards that define acceptable practices and behaviours.

The result aligns with OECD (2024), which emphasises that higher education institutions globally are increasingly governed by performance-based regulatory systems that shape internal governance structures. Similarly, Salmi (2024) argues that regulatory environments in developing economies significantly influence institutional autonomy and cultural alignment. In the Nigerian higher education system, the NBTE enforces strict accreditation standards, thereby shaping institutional priorities and leadership behaviour. This regulatory pressure often results in standardised institutional practices across polytechnics, contributing to the development of a compliance-oriented culture that emphasises quality assurance and accountability.

Moderating Effect of External Regulatory Frameworks

The third hypothesis (H_3) confirmed that external regulatory frameworks significantly moderate the relationship between leadership styles and organisational culture (interaction $\beta = 0.233$, $p < 0.05$). The inclusion of the interaction term increased the explained variance to 66.0%, representing a significant R^2 change of 0.041. This implies that the strength of leadership influence on organisational culture depends on the level of regulatory pressure within the institutional environment.

This finding has important theoretical and practical implications. The significant interaction effect indicates that leadership styles are more effective in shaping organisational culture when external regulatory frameworks are strong and clearly enforced. This suggests that regulatory environments do not merely constrain leadership but can also reinforce leadership effectiveness by providing structured guidelines and accountability mechanisms. In the context of Federal Polytechnic Ado-Ekiti, the NBTE's accreditation requirements create a governance framework within which leaders can more effectively translate their leadership behaviours into cultural outcomes. This finding supports contingency theory, which argues that leadership effectiveness is context-dependent and influenced by environmental factors (Fiedler, 1967; Yukl, 2013). In highly regulated environments, leadership behaviours are more likely to be aligned with institutional goals due to structured compliance requirements. The interaction effect suggests that regulatory frameworks provide a "scaffolding" effect, enabling leaders to articulate clear expectations, enforce standards, and monitor performance in ways that strengthen cultural alignment.

Empirical support is provided by Wang and Liu (2025), who found that institutional environmental factors significantly moderate leadership-outcome relationships in higher education settings. Similarly, Johnson and Edwards (2024) reported that regulatory pressure significantly shapes leadership autonomy and organisational behaviour in universities. The present finding extends this literature by demonstrating that in

Nigerian public tertiary institutions, regulatory frameworks do not weaken leadership influence but instead amplify its effect on organisational culture when properly aligned.

The practical implication is significant: institutional leaders should view regulatory compliance not as an external imposition but as an opportunity to strengthen organisational culture. When regulatory frameworks are clear, consistent, and transparent, they provide a foundation upon which leaders can build strong institutional cultures characterised by accountability, quality, and shared values.

Conclusion

This study examined the moderating effect of external regulatory frameworks on the relationship between leadership styles and organisational culture in Federal Polytechnic Ado-Ekiti, Ekiti State, Nigeria. The study was anchored on institutional theory and contingency theory, which jointly explain how external environmental forces and internal managerial practices interact to shape organisational outcomes.

Empirical findings revealed that leadership styles have a significant and positive effect on organisational culture in Federal Polytechnic Ado-Ekiti. Specifically, leadership styles accounted for 57.9% of the variation in organisational culture, indicating that the manner in which institutional leaders communicate vision, enforce policies, and engage staff plays a central role in shaping shared values, behavioural norms, and institutional cohesion.

The study further established that external regulatory frameworks exert a significant direct influence on organisational culture, explaining an additional 4.0% of variance beyond leadership styles alone. Regulatory agencies such as the NBTE shape institutional processes by enforcing compliance standards, thereby influencing leadership behaviour and institutional decision-making structures.

Most importantly, the study confirmed that external regulatory frameworks significantly moderate the relationship between leadership styles and organisational culture (interaction $\beta = 0.233$, $p < 0.05$), explaining an additional 4.1% of variance. This implies that the effectiveness of leadership in shaping organisational culture is strengthened in environments characterised by strong regulatory oversight. In such contexts, leadership actions are more effectively translated into organisational cultural outcomes due to structured compliance requirements and clearly defined institutional expectations.

The full model, incorporating leadership styles, external regulatory frameworks, and their interaction, explained 66.0% of the variance in organisational culture, indicating a strong explanatory model for understanding cultural dynamics in public tertiary institutions.

Recommendations

Based on the empirical findings, the following recommendations are advanced:

Strengthening Leadership Capacity Development

Federal Polytechnic Ado-Ekiti should prioritise continuous leadership development programmes aimed at enhancing transformational leadership competencies. Training should focus on strategic visioning, participatory decision-making, communication effectiveness, and change management to strengthen positive cultural outcomes within institutions. Given the strong effect of leadership on culture ($\beta = 0.761$), investments in leadership development are likely to yield substantial returns in terms of institutional culture and performance.

Alignment of Leadership Practices with Regulatory Standards

Institutional leaders should ensure that leadership strategies are fully aligned with external regulatory requirements set by the NBTE and other regulatory bodies. This alignment will enhance compliance efficiency

while simultaneously strengthening organisational culture and institutional credibility. Leaders should view regulatory compliance as a strategic opportunity rather than an administrative burden.

Enhancement of Regulatory Clarity and Consistency

Regulatory bodies such as the NBTE should maintain clear, consistent, and transparent standards. Predictable regulatory frameworks enable institutional leaders to make informed decisions that reinforce positive organisational culture. The moderation effect identified in this study suggests that clear regulatory frameworks amplify the positive influence of leadership on culture, making regulatory clarity a critical success factor.

Balancing Compliance and Institutional Autonomy

While regulatory compliance is essential, excessive rigidity may limit innovation. Therefore, regulatory agencies should adopt a balanced approach that allows institutions sufficient autonomy to innovate while still maintaining minimum academic and administrative standards. The interaction effect suggests that moderate regulation strengthens leadership influence, but excessive regulation may be counterproductive.

Institutionalisation of Participatory Governance Structures

Federal Polytechnic Ado-Ekiti should strengthen participatory governance mechanisms that involve academic and non-academic staff in decision-making processes. Such inclusive governance structures enhance organisational commitment and improve cultural cohesion. The strong cultural orientation reflected in the findings suggests that participatory approaches can further strengthen institutional culture.

Regular Monitoring and Cultural Assessment

Institutions should implement periodic organisational culture audits to assess alignment between leadership practices and institutional values. Findings from such assessments should be used to guide leadership improvement strategies and policy adjustments. Regular assessment enables institutions to track cultural evolution and make evidence-based improvements.

Strengthening Regulatory–Institutional Partnerships

Regulatory bodies and institutions should develop collaborative partnerships that go beyond compliance monitoring. Such partnerships could include joint capacity-building initiatives, best practice sharing, and collaborative quality assurance programmes that strengthen both regulatory effectiveness and institutional culture.

Contributions to Knowledge

This study contributes to existing literature in several significant ways:

Theoretical Contributions

The study extends institutional theory by demonstrating how coercive regulatory mechanisms interact with leadership behaviour to shape organisational outcomes in developing country higher education systems. It shows that regulatory frameworks are not merely constraining forces but can be enabling mechanisms that amplify leadership effectiveness. The study also extends contingency theory by identifying regulatory intensity as a critical contingency factor in the leadership-culture relationship within higher education contexts.

Empirical Contributions

This study provides empirical evidence from the Nigerian higher education context, which has been underrepresented in the literature on leadership and organisational culture. By focusing on Federal Polytechnic Ado-Ekiti, the study provides context-specific insights that are relevant to understanding governance dynamics in African higher education systems.

Methodological Contributions

The study demonstrates the application of hierarchical multiple regression with interaction terms as an appropriate method for examining moderation effects in organisational research. The use of mean-centring to reduce

multicollinearity and the reporting of R^2 change and F change provide a rigorous approach to testing moderation hypotheses.

Practical Contributions

The findings provide actionable insights for institutional leaders and policymakers on how to leverage regulatory frameworks to strengthen leadership effectiveness and organisational culture. The study offers practical recommendations for leadership development, regulatory design, and institutional governance that are relevant for public tertiary institutions in Nigeria and other developing countries.

Suggestions for Future Research

Based on the findings and limitations of this study, the following areas are suggested for future research:

Longitudinal Studies

Future research should employ longitudinal designs to examine how the leadership-culture relationship evolves over time in response to changes in regulatory environments. This would provide insights into causal dynamics and the sustainability of cultural change.

Comparative Studies

Comparative studies across multiple institutions and countries would enhance understanding of how different regulatory contexts shape leadership effectiveness and cultural outcomes. Such studies could examine whether the moderating effect identified in this study generalises across different institutional types and national contexts.

Qualitative Research

Qualitative studies employing interviews and case study approaches would provide deeper insights into the mechanisms through which regulatory frameworks shape leadership behaviour and cultural processes. Understanding the lived experiences of leaders and staff would complement the quantitative findings of this study.

Examination of Specific Regulatory Mechanisms

Future research should examine specific regulatory mechanisms (e.g., accreditation requirements, quality assurance frameworks, performance metrics) to understand which aspects of regulation are most effective in strengthening leadership influence on culture.

Mediation Studies

Studies examining mediating mechanisms through which leadership styles influence organisational culture (e.g., communication, trust, employee engagement) would provide a more comprehensive understanding of the pathways through which leadership effects operate.

References

- Abdullah, N. A., & Rahman, A. (2023). Leadership styles and organisational culture in Malaysian public sector institutions: A PLS-SEM analysis. *Asian Journal of Public Administration*, 45(3), 278-295.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Sage Publications.
- Altbach, P. G., Reisberg, L., & Rumbley, L. E. (2023). *Trends in global higher education: Tracking an academic revolution*. Brill.
- Antonakis, J., & House, R. J. (2023). The full-range leadership theory: The way forward. *The Leadership Quarterly*, 34(2), 101-118.
- Bass, B. M., & Avolio, B. J. (1994). *Improving organizational effectiveness through transformational leadership*. Sage Publications.
- Bass, B. M., & Riggio, R. E. (2006). *Transformational leadership* (2nd ed.). Lawrence Erlbaum Associates.
- Bryman, A. (2016). *Social research methods* (6th ed.). Oxford University Press.

- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.
- Denison, D. R. (1990). *Corporate culture and organizational effectiveness*. John Wiley & Sons.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organisational fields. *American Sociological Review*, 48(2), 147-160.
- Donaldson, L. (2001). *The contingency theory of organizations*. Sage Publications.
- Fiedler, F. E. (1967). *A theory of leadership effectiveness*. McGraw-Hill.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2021). *Multivariate data analysis* (8th ed.). Cengage Learning.
- Hazelkorn, E. (2024). *Rankings and the reshaping of higher education: The impact of global rankings*. Palgrave Macmillan.
- Johnson, P., & Edwards, R. (2024). The influence of external regulatory pressure on university governance in the United Kingdom. *Higher Education Policy*, 37(1), 45-67.
- Kezar, A., & Holcombe, E. M. (2023). Shared leadership in higher education: Pathways to institutional change. *Journal of Higher Education*, 94(2), 189-212.
- Marginson, S. (2024). Global trends in higher education governance and accountability. *Higher Education*, 87(3), 567-589.
- National Board for Technical Education (NBTE). (2024). *Accreditation standards and quality assurance guidelines for Nigerian polytechnics*. NBTE Press.
- National Universities Commission (NUC). (2023). *Benchmark minimum academic standards for Nigerian universities*. NUC Press.
- Northouse, P. G. (2022). *Leadership: Theory and practice* (8th ed.). Sage Publications.
- OECD. (2024). *Education at a glance 2024: OECD indicators*. OECD Publishing.
- Okoye, I. C., & Nwankwo, C. A. (2024). Leadership styles and institutional effectiveness in Nigerian public universities. *Nigerian Journal of Educational Administration*, 41(2), 145-167.
- Salmi, J. (2024). The role of regulatory frameworks in shaping higher education systems in developing countries. *International Journal of Educational Development*, 98, 102-118.
- Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson Education.
- Schein, E. H. (2010). *Organizational culture and leadership* (4th ed.). Jossey-Bass.
- Scott, W. R. (2014). *Institutions and organisations: Ideas, interests, and identities* (4th ed.). Sage Publications.
- Sekaran, U., & Bougie, R. (2020). *Research methods for business: A skill-building approach* (7th ed.). John Wiley & Sons.
- Shah, S. A., & Hamid, M. (2023). Transformational and transactional leadership effects on organisational culture in public universities in Pakistan. *International Journal of Educational Management*, 37(4), 789-807.
- Shin, J. C., & Kehm, B. M. (2023). Higher education governance and leadership: Global perspectives. *Studies in Higher Education*, 48(5), 678-695.
- Tierney, W. G. (2023). Organisational culture and institutional effectiveness in higher education. *Higher Education Quarterly*, 77(2), 234-256.
- Wang, Y., & Liu, X. (2025). The moderating role of institutional environment in leadership-outcome relationships in Chinese higher education. *Asia Pacific Education Review*, 26(1), 89-106.
- Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). Harper & Row.
- Yukl, G. (2013). *Leadership in organizations* (8th ed.). Pearson Education.
- Yukl, G. (2023). Leadership effectiveness in contemporary organisations: A comprehensive review. *Annual Review of Organisational Psychology and Organisational Behaviour*, 10, 217-241.