

Beyond Leadership: How Organisational Culture Conditions the Success of E-Learning Implementation in Kenyan Universities

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Abstract

The success of e-learning implementation in higher education depends not only on leadership but also on the organisational culture within which leadership operates. While prior research has established that ambidextrous leadership influences technology adoption, limited empirical attention has been given to how organisational culture conditions—strengthens, weakens, or nullifies—these effects. This study investigated the moderating role of organisational culture in the relationship between ambidextrous leadership and e-learning implementation in Kenyan universities. Grounded in the competing values framework and theories of cultural moderation, the study adopted a mixed-methods cross-sectional design. A census of 130 respondents was conducted using structured questionnaires and semi-structured interviews across the University of Kabianga (public) and Kabarak University (private). Hierarchical multiple regression and thematic analysis were employed. The findings revealed that organisational culture significantly moderates the relationship between ambidextrous leadership and e-learning implementation ($\beta = 0.493$, $p = 0.002$), explaining an additional 1.4% of variance beyond leadership dimensions alone. Notably, leadership flexibility, innovation support, and capacity building became non-significant when culture was introduced as a moderator, indicating full cultural mediation. Technical support alone

remained significant ($\beta = 0.177$, $p = 0.035$), suggesting culture-independent effects. The study concludes that organisational culture is not merely a contextual backdrop but a critical conditioning mechanism that determines whether leadership practices translate into implementation outcomes. Universities seeking to enhance e-learning must prioritise cultural change alongside leadership development.

Keywords: Organisational culture, ambidextrous leadership, e-learning implementation, moderation, higher education

INTRODUCTION

The integration of digital technologies into higher education has fundamentally transformed teaching and learning, positioning e-learning as a central component of modern academic systems (Garrison & Vaughan, 2008). This transformation was accelerated by the COVID-19 pandemic, which compelled institutions worldwide to rapidly adopt digital platforms (UNESCO, 2020). In Kenya, 85% of universities implemented some form of digital learning during the pandemic (Commission for University Education, 2021). Yet, despite this progress, implementation outcomes remain persistently uneven. Challenges such as limited faculty engagement, infrastructural constraints, and resistance to technological change continue to hinder effective utilisation (KNBS, 2022; Tarus et al., 2021; Otieno et al., 2022).

A substantial body of research has established that leadership influences e-learning adoption (Alshahrani & Rasmussen Pennington, 2022; Mwangi & Aduda, 2023).

Ambidextrous leadership—the ability to balance exploration (innovation) and exploitation (efficiency)—has emerged as a particularly promising framework for digital transformation (O'Reilly & Tushman, 2022; Rosing et al., 2011). Studies have demonstrated that leadership flexibility, innovation support, technical support, and capacity building each contribute to e-

learning success (Kavishe & Mtebe, 2021; Boateng & Mbarika, 2021; Kamau & Wambua, 2023).

However, these studies have largely treated leadership as a universal intervention, assuming that what works in one institutional context will work in another. This assumption is problematic because organisations are not culturally neutral spaces. Organisational culture—the shared values, beliefs, and norms that characterise an institution (Schein, 2010)—may fundamentally alter whether leadership behaviours translate into implementation outcomes. A flexible leader may thrive in a culture that values adaptability but struggle in a rigid, hierarchical environment. Innovation support may flourish in a culture that tolerates failure but wither where risk is punished.

This study therefore asks not merely whether ambidextrous leadership matters for e-learning implementation, but under what cultural conditions it matters, and which dimensions of leadership are resilient to cultural variation. The specific objective of this study is to investigate the moderating role of organisational culture in the relationship between ambidextrous leadership and e-learning implementation in Kenyan universities. Our central research question is: To what extent does organisational culture condition the effectiveness of ambidextrous leadership for e-learning implementation? We further ask: Which leadership dimensions are culturally contingent, and which operate independently of cultural context?

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Ambidextrous Leadership and E-Learning: Established Direct Effects

Ambidextrous leadership refers to the ability to simultaneously manage exploration (innovation, experimentation, risk-taking) and exploitation (efficiency, execution, refinement of existing processes) (March, 1991; O'Reilly & Tushman, 2022). In higher education

contexts, this balance is essential for integrating new technologies while maintaining institutional stability (Nguyen et al., 2023).

Prior research has identified four dimensions through which ambidextrous leadership influences e-learning implementation. First, leadership flexibility—the ability to adapt strategies and behaviours to dynamic environments—enhances the adoption of innovation (Li et al., 2015). In Kenyan universities, Muthoni and Mbugua (2023) found that adaptive budgeting and rapid policy adjustments during COVID-19 significantly increased e-learning adoption rates. Second, innovation support—encouragement of creative projects, removal of bureaucratic barriers, and resource allocation—fosters experimentation and engagement (Boateng & Mbarika, 2021). Musyoka and Muthoni (2023) reported that Kenyan universities offering innovation grants achieved 40% higher faculty engagement. Third, technical support—reliable helpdesk services, infrastructure updates, and troubleshooting—enables effective use of the system (Alshammari et al., 2016; Kamau & Wambua, 2023). Fourth, capacity building—training, mentorship, workshops, and induction—enhances competence and confidence (Mwangi & Aduda, 2023; Zawacki-Richter et al., 2019). While these direct effects are well documented, they tell only part of the story. The critical unanswered question concerns the conditions under which these effects manifest.

The Case for Cultural Moderation: Why Context Matters

Organisational culture influences how individuals perceive, interpret, and respond to leadership behaviours (Bass & Avolio, 1994; Schein, 2010). A culture characterised by openness to experimentation, regular knowledge-sharing, and collaborative norms enhances leadership effectiveness (Nkrumah et al., 2022). Conversely, rigid cultures characterised by hierarchical decision-making, risk aversion, and departmental silos may suppress the impact of even the most capable leaders (Otieno & Atieno, 2023).

The theoretical case for cultural moderation rests on three mechanisms. First, norm reinforcement: cultures establish informal rules about which behaviours are rewarded and which are punished. A leader advocating for e-learning innovation will be more effective in a culture where experimentation is the norm than in one where deviation from tradition invites sanction. Second, social sensemaking: individuals interpret leadership actions through cultural lenses. The same flexible decision-making may be perceived as responsive in one culture and indecisive in another. Third, collective efficacy: cultures that foster shared beliefs in the group's ability to master challenges amplify leadership effects, while cultures characterised by learned helplessness dampen them.

In African higher education contexts, where traditional academic hierarchies often conflict with the imperatives of digital transformation, the role of culture in shaping leadership effectiveness has been theorised but rarely empirically tested (Adeyemo & Bello, 2023; Kibuchi, 2023). A systematic review of the literature reveals that no study has empirically tested whether organisational culture conditions the effects of ambidextrous leadership on e-learning implementation in African universities.

Which Leadership Dimensions Are Culturally Contingent?

Not all leadership dimensions are equally susceptible to cultural moderation. Drawing on the mechanisms above, we propose differential hypotheses.

Leadership flexibility involves adapting strategies, modifying timelines, and adjusting expectations. These behaviours require organisational permission. In cultures with high power distance and low tolerance for ambiguity, flexible leadership may be perceived as inconsistent or weak. Conversely, in cultures that value adaptability, flexibility is legitimised and effective. Therefore:

Hypothesis 1: there is a significant relationship between the moderating role of organisational culture and ambidextrous leadership in e-learning implementation in Kenyan universities

THEORETICAL FRAMEWORK

This study integrates four theoretical perspectives. The competing values framework (Cameron & Quinn, 2011) provides a typology of organisational cultures (clan, adhocracy, market, hierarchy) and their implications for change. Theories of cultural moderation (Baron & Kenny, 1986) specify how contextual factors alter the direction or strength of predictor-outcome relationships. The Technology Acceptance Model (Davis, 1989) explains individual adoption through perceived usefulness and ease of use, which are themselves culturally shaped. Finally, the Diffusion of Innovation Theory (Rogers, 2003) identifies compatibility with existing values as a key adoption attribute, directly implicating culture. Together, these theories provide a comprehensive framework for understanding how culture conditions leadership effectiveness.

METHODOLOGY

The study adopted a mixed-methods cross-sectional design, enabling both statistical testing of moderation hypotheses and contextual insights into cultural mechanisms (Creswell & Creswell, 2018; Bloomfield & Fisher, 2019).

The study targeted two universities in Kenya: The University of Kabianga (public) and Kabarak University (private). These institutions were purposively selected to represent contrasting governance models, providing analytical variation in organisational culture. The target population comprised 130 respondents: 78 from the University of Kabianga and 52 from Kabarak University, including university administrators (n = 6), faculty members (n = 54), IT support staff (n = 28), e-learning coordinators (n = 10), and student leaders (n = 32).

A census sampling design was adopted, where all 130 targeted respondents were included. Census sampling was justified on three grounds: the target population was relatively small and manageable (Taherdoost, 2016); it eliminated sampling bias; and it maximised statistical power for detecting interaction effects. According to Green's (1991) rule of thumb ($N \geq 50 + 8m$, where m = number of predictors, including interaction terms), the minimum required sample size was 82; the census of 130 exceeded this threshold.

For qualitative interviews, purposive sampling was used to select 42 key informants in decision-making roles directly involved in e-learning implementation. Sample size was determined by data saturation (Guest et al., 2006).

Structured questionnaires served as the primary quantitative instrument, comprising sections on demographics, ambidextrous leadership dimensions (leadership flexibility, innovation support, technical support, capacity building), organisational culture, and e-learning implementation. All multi-item constructs used a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Semi-structured interview guides explored cultural mechanisms, leadership perceptions, and implementation challenges.

Face validity was established through expert panel review ($n = 4$), leading to rephrasing of three items. Content validity was assessed using the Content Validity Index, yielding an average S-CVI of 0.92, exceeding the 0.90 threshold (Polit & Beck, 2006). Criterion validity was assessed by correlating questionnaire scores with the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003) in the pilot sample ($N = 10$), with correlations of $r = 0.73$ and $r = 0.68$. Reliability was assessed using Cronbach's alpha ($N = 10$), with the overall instrument yielding $\alpha = 0.907$ and construct-specific alphas ranging from 0.785 to 0.856, all exceeding 0.70 (Nunnally & Bernstein, 1994; Shrestha, 2021). For qualitative interviews, trustworthiness was ensured through member checking, intercoder

reliability (93% agreement after refinement), and an audit trail (Lincoln & Guba, 1985; O'Connor & Joffe, 2020).

Quantitative data were analysed using descriptive statistics, Pearson correlation, and hierarchical multiple regression. To test moderation, interaction terms were computed as the product of mean-centred predictor variables (Aiken & West, 1991). The regression models were specified as:

$$\text{Model 1 (Direct Effects): } Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + e$$

$$\text{Model 2 (Moderation): } Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5(X_1 \times X_5) + \beta_6(X_2 \times X_5) + \beta_7(X_3 \times X_5) + \beta_8(X_4 \times X_5) + e$$

Where Y = E-Learning Implementation, X_1 = Leadership Flexibility, X_2 = Innovation Support, X_3 = Technical Support, X_4 = Capacity Building, X_5 = Organisational Culture, and e = Error Term.

Qualitative data were analysed using thematic analysis following Braun and Clarke's (2006) six-step framework, with coding conducted manually and using NVivo software.

RESULTS

Response Rate and Demographics

Out of 130 distributed questionnaires, 79 were correctly filled and returned (60.8% response rate). The lower-than-expected response rate was attributable to some faculty members being inaccessible or unresponsive, and some targeted staff being on leave. For qualitative interviews, 42 out of 44 planned interviews were successfully conducted (95.5% response rate).

Of the 79 respondents, 55.7% ($n = 44$) were male and 44.3% ($n = 35$) female. The majority (57.0%) had been affiliated with their institutions for 0-5 years. For student leaders (34.2% of respondents), duration referred to length of enrolment and student governance

participation. Age distribution showed 38.0% aged 30-39 years, 22.8% aged 20-29 years, 21.5% aged 40-49 years, and 17.7% aged 50 years and above. Regarding education, 57.0% held a master's degree, 30.4% held an undergraduate degree, and 12.6% held a bachelor's degree.

Preliminary Analysis: Direct Effects of Ambidextrous Leadership

Consistent with prior research, correlation analysis revealed that all four ambidextrous leadership dimensions were positively and significantly correlated with e-learning implementation: leadership flexibility ($r = 0.791$, $p < 0.01$), innovation support ($r = 0.819$, $p < 0.01$), technical support ($r = 0.861$, $p < 0.01$), and capacity building ($r = 0.902$, $p < 0.01$). Model 1 (direct effects only) explained 89.1% of the variance in implementation success ($R^2 = 0.891$), with capacity building ($\beta = 0.357$, $p < 0.001$) and technical support ($\beta = 0.308$, $p < 0.001$) showing the largest effects. These findings replicate existing literature but are not the central contribution of this study.

Central Finding: Organisational Culture as a Significant Moderator

Model 2 introduced interaction terms between each leadership dimension and organisational culture. This model significantly improved fit, raising R^2 to 0.905 ($\Delta R^2 = 0.014$, F -change = 6.92, $p = 0.010$). Table 1 presents the full regression results.

Table 1: Hierarchical Regression Results with Moderation Effects

Model	Variable	β	t	p-value
Model 1 ($R^2 = 0.891$)				
	Leadership Flexibility	0.135	2.043	0.045
	Innovation Support	0.242	3.465	0.001
	Technical Support	0.308	4.061	<0.001

Model	Variable	β	t	p-value
	Capacity Building	0.357	4.077	<0.001
Model 2 (R² = 0.905)				
	Leadership Flexibility	0.088	1.383	0.171
	Innovation Support	0.082	0.987	0.327
	Technical Support	0.177	2.153	0.035
	Capacity Building	0.168	1.662	0.101
	LF × OC (Interaction)	0.493	3.220	0.002

Note. $N = 79$. Dependent variable: E-Learning Implementation. LF × OC = Leadership Flexibility × Organisational Culture interaction term (representing the combined moderation effect). Model 1 $F(4,74) = 151.90, p < 0.001$; Model 2 $F(5,73) = 138.98, p < 0.001$; $\Delta R^2 = 0.014, F\text{-change} = 6.92, p = 0.010$. Individual interaction terms for innovation support, technical support, and capacity building with culture were tested but were not individually significant beyond the combined effect. OC = Organisational Culture.

The most striking finding is that when organisational culture is introduced as a moderator, the direct effects of leadership flexibility ($p = 0.171$), innovation support ($p = 0.327$), and capacity building ($p = 0.101$) become non-significant. This indicates full cultural mediation: these leadership dimensions influence e-learning implementation only insofar as they are embedded in a supportive organisational culture. Without cultural alignment, their effects dissipate.

In contrast, technical support remained a significant predictor ($\beta = 0.177, p = 0.035$) even after accounting for cultural moderation, supporting Hypothesis 4 (culture-independent effects). The interaction term itself was highly significant ($\beta = 0.493, p = 0.002$), confirming that organisational culture fundamentally conditions the relationship between ambidextrous leadership and e-learning implementation.

To further probe this moderation effect, simple slopes analysis was conducted examining the relationship between leadership flexibility and e-learning implementation at high (+1 standard deviation) and low (-1 standard deviation) levels of organisational culture. At high levels of organisational culture, leadership flexibility demonstrated a strong positive relationship with implementation (simple slope $\beta = 0.68$, $p < 0.001$), indicating that flexible leadership is highly effective when embedded in a supportive cultural context. At low levels of organisational culture, the relationship between leadership flexibility and implementation was negligible and non-significant (simple slope $\beta = 0.04$, $p = 0.78$), meaning that flexible leadership produces no measurable improvement in e-learning outcomes when organisational culture is unsupportive. This pattern - a steep positive slope under high culture conditions and a flat slope under low culture conditions - confirms the moderating role of organisational culture.

Qualitative Evidence of Cultural Moderation Mechanisms

Thematic analysis of interview data ($n = 42$) revealed four mechanisms through which organisational culture conditions leadership effectiveness.

Theme 1: Norm Reinforcement as an Amplifier or Dampener

Respondents consistently described how cultural norms either amplified or suppressed leadership initiatives. One administrator explained: *"Our culture has always valued innovation. When the VC proposed e-learning, it wasn't seen as radical—it was seen as consistent with who we are. That made adoption much faster."* Conversely, a faculty member from a more hierarchical institution noted: *"Leadership can say 'be innovative' all they want, but everyone knows the real reward comes from following established procedures. The culture punishes deviation."* This illustrates how culture operates through norm reinforcement.

Theme 2: Psychological Safety for Experimentation

Innovation support was effective only where psychological safety existed. An e-learning coordinator observed: *"In departments where trying something new and failing is understood as part of learning, people experiment. Where failure is recorded in your personnel file, no one touches anything new."* This mechanism explains why innovation support became non-significant under cultural moderation.

Theme 3: Collective Efficacy and Peer Modelling

Capacity building's effectiveness depended on whether learning was culturally valued. A dean who modelled e-learning behaviours explained: *"When I started using the LMS for faculty meetings, it wasn't a policy change. But it signalled that this is what we do here. Others followed because it became normative, not because they were forced."* This demonstrates how culture enables capacity building through peer modelling and collective efficacy.

Theme 4: The Invariance of Technical Infrastructure

Despite cultural variation, technical support operated consistently. An ICT manager stated: *"It doesn't matter what your culture is—if the server is down, nobody can teach. If the helpdesk takes three days to respond, everyone is frustrated. Those are material realities, not cultural interpretations."* This corroborates the quantitative finding that technical support remains significant across cultures.

DISCUSSION**The Primacy of Culture: Why Leadership Alone Is Insufficient**

The most significant contribution of this study is the empirical demonstration that organisational culture conditions the effectiveness of ambidextrous leadership for e-learning implementation. The finding that leadership flexibility, innovation support, and capacity

building become non-significant when culture is introduced as a moderator challenges the implicit assumption in much leadership research that effective leadership is universally transferable.

This finding aligns with theoretical predictions from the competing values framework (Cameron & Quinn, 2011) and cultural moderation theory (Baron & Kenny, 1986). However, it extends these frameworks by quantifying the extent of cultural conditioning in an African higher education context—a setting substantially different from the corporate environments in which these theories were primarily developed. The practical implication is stark: investing in leadership development without corresponding attention to organisational culture is likely to yield disappointing returns. A flexible leader cannot thrive in a rigid culture. Innovation support cannot take root where risk is punished. Capacity building cannot succeed where learning is not valued.

Differential Cultural Contingency: Explaining Why Technical Support Resists

Moderation

Technical support was the sole leadership dimension that remained significant after accounting for cultural moderation. This finding is theoretically important because it identifies a boundary condition of cultural contingency. Technical support operates at the level of material infrastructure—system reliability, network availability, helpdesk responsiveness—rather than at the level of normative interpretation. A server crash disrupts learning regardless of whether an institution's culture is hierarchical or egalitarian. A slow helpdesk response frustrates users irrespective of cultural norms around patience or deference.

This finding aligns with and extends prior research from African higher education contexts. Kamau and Wambua (2023), in their study of five Kenyan universities, found that AI-powered chatbot assistants integrated with traditional helpdesk services significantly

improved response times and user satisfaction, with effects that were consistent across departments regardless of their prevailing cultural norms. Similarly, Mwangi et al. (2022) documented that "student tech ambassador" programmes in Rwandan institutions achieved high resolution rates for common issues, with effectiveness varying only by technical complexity rather than by institutional culture. These studies indirectly support the culture-independence of technical support by demonstrating that technical interventions produce predictable outcomes across varied settings.

Conversely, the finding that technical support resists cultural moderation stands in contrast to research emphasising the cultural embeddedness of technology support practices. Alshammari et al. (2016) argued that technical support effectiveness is shaped by users' cultural orientations toward authority and help-seeking behaviour, suggesting that in high power distance cultures, users may be reluctant to report problems to technical staff. Otieno and Atieno (2023) found that in some Kenyan universities, faculty members' willingness to engage with IT support was influenced by departmental norms around self-reliance versus collaboration. While our study did not directly measure help-seeking behaviour, the persistence of technical support's effect despite these potential cultural mediators suggests that the direct functional effects of reliable infrastructure may outweigh culturally shaped variations in help-seeking. In other words, even if users are reluctant to report problems, a well-designed proactive monitoring system that identifies and resolves issues before users notice them bypasses cultural barriers entirely.

This does not mean technical support is entirely culture-free. The willingness to report technical problems, the patience with which users await resolution, and the attribution of blame for failures may all be culturally shaped. However, the objective functionality of technical systems has direct, unmediated effects on implementation outcomes. For university leaders, this finding suggests that technical infrastructure investments are never wasted—they

produce returns even in culturally unfavourable environments, whereas investments in leadership flexibility or innovation support may not. This echoes the conclusion of Kavishe and Mtebe (2021) in Tanzania, who found that technical reliability was a necessary precondition for e-learning success, without which other leadership interventions had limited impact.

Mechanisms of Cultural Moderation: Norms, Safety, and Efficacy

The qualitative findings illuminate three specific mechanisms through which culture moderates leadership effects. First, norm reinforcement operates through informal reward and sanction systems. Cultures establish what "good" behaviour looks like. When leadership behaviours align with existing norms, they are amplified; when they conflict with them, they are suppressed. This aligns with Otieno and Atieno (2023), who found that universities with "collaborative-adaptive" cultures achieved 42% higher e-learning adoption rates, and with Bass and Avolio (1994) on leadership-culture congruence. Conversely, Tarus et al. (2021) showed that hierarchical structures and faculty resistance neutralise leadership efforts, while Nkrumah et al. (2022) demonstrated that deliberate cultural change initiatives are required when norms conflict with digital transformation goals.

Second, psychological safety determines whether support for innovation translates into experimentation. Innovation inherently involves risk of failure. Where psychological safety is low, even well-funded support for innovation will not foster experimentation. This mechanism is strongly supported by Edmondson's (1999) foundational work and by Boateng and Mbarika (2021), who found that innovation support in African universities had limited uptake where faculty feared penalty for failure. Adeyemo and Bello (2023) documented Nigerian universities that built psychological safety through culturally grounded change management practices, while Mukhwana et al. (2022) showed that short-term innovation projects in Kenya failed precisely because psychological safety was absent. In the absence of

psychological safety, innovation support becomes what Herzberg (1959) would classify as a hygiene factor—its absence causes dissatisfaction, but its presence does not motivate.

Third, collective efficacy—shared beliefs in the group's capability—mediates capacity building effects. Training programmes produce sustained behaviour change only when participants believe their collective effort will succeed, a belief that is culturally shaped. Zawacki-Richter et al. (2019) found that faculty engagement was predicted by collective beliefs about departmental capability, while Van der Merwe and Mahlangu (2021) demonstrated that communities of practice achieved better outcomes than individual training by building collective efficacy. Muthoni (2023) found that 68% of skills gained in standalone workshops were lost within six months when cultural reinforcement was lacking—a finding our study attributes to eroded collective efficacy in unsupportive cultures.

These mechanisms have practical implications. University leaders seeking to enhance e-learning implementation should conduct cultural diagnostics before designing leadership interventions. Where cultures are rigid and risk-averse, cultural change must precede or accompany leadership development. Where psychological safety is low, leaders should invest in creating safe spaces for experimentation before launching innovation initiatives.

Boundary Conditions and Limitations

The findings of this study must be interpreted within several boundary conditions. First, the study focused on two Kenyan universities (one public, one private). While this variation provides analytical depth, generalisation to other Kenyan or African institutions with different governance structures, resource levels, or cultural profiles requires replication. Second, the cross-sectional design precludes causal inference. While we interpret culture as moderating leadership effects, reverse causation is possible: successful e-learning implementation may itself transform organisational culture. Longitudinal research is needed to establish temporal ordering. Third, the questionnaire response rate (60.8%) was lower than

the census target; non-response bias may affect representativeness. Fourth, the absence of doctoral degree holders among faculty respondents limits generalisability to senior academic perspectives. Finally, the study measured organisational culture at the institutional level, but subcultures within departments or disciplines may vary significantly. Future research should examine cross-departmental cultural variation within the same institution.

CONCLUSION

This study demonstrated that organisational culture fundamentally conditions the relationship between ambidextrous leadership and e-learning implementation in Kenyan universities. Leadership flexibility, innovation support, and capacity building influence implementation outcomes only when embedded in supportive cultures. Without cultural alignment, their effects dissipate entirely—a finding that challenges the implicit assumption of universality in much leadership research. Technical support alone exhibits culture-independent effects, remaining significant across cultural contexts. The study concludes that universities seeking to enhance e-learning implementation must treat organisational culture not as a peripheral contextual factor but as a central conditioning mechanism that determines whether leadership investments translate into outcomes. Culture is not the backdrop against which leadership happens; it is the filter through which leadership must pass.

RECOMMENDATIONS

Based on the finding that culture fully mediates three of four leadership dimensions, the following recommendations are offered.

First, conduct cultural diagnostics before leadership interventions. Universities should assess their existing cultural profiles—power distance, tolerance for ambiguity, psychological

safety, and learning orientation—before designing leadership development programmes.

Interventions should be tailored to address cultural barriers rather than applied uniformly.

Second, invest in cultural change alongside leadership development. Where cultures are rigid, risk-averse, or hierarchical, universities should implement cultural change initiatives—such as symbolic leadership actions, ceremonial recognition of innovation, and structural changes that reduce power distance—concurrently with leadership training.

Leadership without cultural permission is ineffective.

Third, create psychological safety for experimentation. To enable innovation support to translate into outcomes, universities must establish safe spaces for trial and failure. This can include innovation sandboxes, no-penalty pilot programmes, and recognition of well-intentioned failures as learning opportunities.

Fourth, recognise the culture-independent value of technical infrastructure. Unlike leadership flexibility or innovation support, technical support produces returns regardless of cultural context. Universities should prioritise reliable, responsive technical infrastructure as a foundation for implementation, even where cultural change is ongoing.

Fifth, embed cultural considerations into strategic planning. E-learning strategies should include explicit cultural objectives—not only training targets and infrastructure investments, but also indicators of cultural change such as psychological safety scores, risk-taking frequency, and cross-departmental collaboration metrics.

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REFERENCES

- Adeyemo, K., & Bello, M. (2023). Indigenous narratives in digital transformation: Integrating African proverbs into e-learning adoption strategies. *Journal of African Educational Research*, 8(2), 112-130.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. SAGE Publications.
- Alshahrani, A., & Rasmussen Pennington, D. (2022). Transformational leadership and digital transformation in higher education: A case study from Saudi Arabia. *Journal of Educational Technology & Society*, 25(3), 45-59.
- Alshammari, S., Ali, M., & Rosli, M. (2016). The influences of technical support, self-efficacy, and instructional design on the usage and acceptance of LMS: A comprehensive review. *The Turkish Online Journal of Educational Technology*, 15(2), 116-125.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Bass, B. M., & Avolio, B. J. (1994). Transformational leadership and organizational culture. *International Journal of Public Administration*, 17(3-4), 541-554.
- Bloomfield, J., & Fisher, M. (2019). Quantitative research design. *Journal of the Australasian Rehabilitation Nurses Association*, 22(2), 27-30.
- Boateng, R., & Mbarika, V. (2021). Innovation support practices across Africa. *Computers & Education*, 174, 104301.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.

- Cameron, K. S., & Quinn, R. E. (2011). *Diagnosing and changing organizational culture: Based on the competing values framework* (3rd ed.). Jossey-Bass.
- Commission for University Education. (2021). *University statistics 2020/2021*. Nairobi: Commission for University Education.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Edmondson, A. (1999). Psychological safety and learning behaviour in work teams. *Administrative Science Quarterly*, 44(2), 350-383.
- Garrison, D. R., & Vaughan, N. D. (2008). *Blended learning in higher education: Framework, principles, and guidelines*. Jossey-Bass.
- Green, S. B. (1991). How many subjects does it take to do a regression analysis? *Multivariate Behavioral Research*, 26(3), 499-510.
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59-82.
- Kamau, J., & Wambua, B. (2023). AI-powered support systems in Kenyan universities: Hybrid approaches to technical assistance. *Journal of African Educational Technology*, 7(1), 45-63.
- Kavishe, F. P., & Mtebe, J. S. (2021). Leadership flexibility and LMS adoption in Tanzanian universities. *International Journal of Educational Technology in Higher Education*, 18(1), 1-19.
- Kenya National Bureau of Statistics. (2022). *Economic survey 2022*. Nairobi: Kenya National Bureau of Statistics.

- Kibuchi, E. (2023). Cultural capital as strategic resource: Leveraging indigenous knowledge systems for digital learning in Kenyan universities. *East African Journal of Education Studies*, 6(1), 78-95.
- Li, C., Lin, W., & Tien, J. (2015). Leadership flexibility and innovation adoption: A multi-context analysis. *Journal of Business Research*, 68(3), 735-742.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1), 71-87.
- Muthoni, F. (2023). Sustaining e-learning capacity building in Kenyan universities. *African Educational Research Journal*, 11(3), 245-262.
- Muthoni, F., & Mbugua, J. (2023). Adaptive budgeting and digital transformation in Kenyan public universities. *Journal of African Higher Education*, 15(2), 89-108.
- Musyoka, J., & Muthoni, F. (2023). Innovation grants and faculty engagement in e-learning. *East African Journal of Education Studies*, 6(2), 112-128.
- Mwangi, P., & Aduda, B. (2023). Digital transformation and leadership adaptability in Kenyan universities. *Journal of African Educational Technology*, 7(1), 45-63.
- Nguyen, T., Yoon, S., & Omodho, R. (2023). Balancing exploration and exploitation in higher education: Leadership strategies for digital transformation. *International Journal of Educational Management*, 37(4), 233-251.
- Nkrumah, K., Asare, P., & Mensah, R. (2022). Microlearning interventions for faculty e-learning capacity building in Ghana. *Ghana Journal of Education Technology*, 5(2), 45-63.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
- O'Connor, C., & Joffe, H. (2020). Intercoder reliability in qualitative research: Debates and practical guidelines. *International Journal of Qualitative Methods*, 19, 1-13.

- O'Reilly, C. A., & Tushman, M. L. (2022). *Lead and disrupt: How to solve the innovator's dilemma* (2nd ed.). Stanford Business Books.
- Otieno, F., & Atieno, L. (2023). Revisiting public-private cultural divides: Digital transformation in Kenyan universities. *International Journal of Educational Development, 94*, 102567.
- Otieno, F., Mwangi, J., & Akinyi, L. (2022). E-learning adoption in Kenyan universities: The role of perceived relative advantage. *Journal of African Digital Learning, 5*(2), 78-95.
- Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? *Research in Nursing & Health, 29*(5), 489-497.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
- Rosing, K., Frese, M., & Bausch, A. (2011). Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership. *The Leadership Quarterly, 22*(5), 956-974.
- Schein, E. H. (2010). *Organizational culture and leadership* (4th ed.). Jossey-Bass.
- Shrestha, N. (2021). Factor analysis and Cronbach's alpha: A methodological review. *Journal of Nepal Health Research Council, 19*(2), 213-218.
- Taherdoost, H. (2016). Sampling methods in research methodology: How to choose a sampling technique for research. *International Journal of Academic Research in Management, 5*(2), 18-27.
- Tarus, J. K., Gichoya, D., & Muumbo, A. (2021). Challenges of e-learning adoption in Kenyan universities: A DOI perspective. *East African Journal of Technology and Education, 4*(1), 12-28.
- UNESCO. (2020). *Education in a post-COVID world: Nine ideas for public action*. UNESCO Publishing.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478.

World Bank. (2022). *Remote learning during COVID-19: Lessons from the pandemic*. World Bank Group.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education. *International Journal of Educational Technology in Higher Education*, 16, 39.