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## **The Moderating Effect of Leadership Styles on Human Resource Practices and Organizational Culture in Juba Universities, South Sudan**

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### **Abstract**

This study explores the influence of leadership styles on organizational culture, resilience, and innovation within universities in Juba, South Sudan, amid ongoing socio-political and economic challenges. Employing a quantitative research design grounded in transformational leadership theory, the study analyzes data from 46 university staff, students, and security personnel using structured questionnaires. The findings reveal a strong positive relationship between effective leadership and organizational culture ( $r = 0.877$ ,  $p < 0.001$ ), with perception and experience significantly predicting over 81% of organizational resilience ( $p < 0.05$ ). Additionally, innovation demonstrates a near-significant positive impact on resilience ( $p = 0.081$ ), highlighting the interconnectedness of leadership, innovation, and resilience. Bayesian analyses confirm these relationships' robustness, emphasizing that adaptive, inclusive, and effective leadership foster resilient and innovative higher education environments. The results underscore the critical role of transformational leadership in advancing SDGs related to quality education, sustainable institutions, and innovation, providing actionable insights for policymakers and university administrators committed to fostering sustainable development in fragile contexts.

**Keywords:** Leadership Styles, Organizational Culture, Institutional Resilience, Innovation, Human Resource Practice

**List of Acronyms:** SA-Strongly Agree, A-Agree, NA/D-Neither Agree nor Disagree, D-Disagree, and SD Strongly Disagree. SDG Sustainable Development Goal, M-Mean, Std-Standard Deviation, Mi-Minimum, Ma-maximum, percent, and R is Range.

### **Introduction**

Since gaining independence in 2011, South Sudan's higher education sector has confronted numerous formidable challenges, including limited resources, political instability, infrastructural deficiencies, and socio-economic hardships [1]. Despite these constraints, universities in Juba remain pivotal to national development, socio-economic empowerment, and the achievement of Sustainable Development Goals (SDGs), notably SDG 4 (Quality Education), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 16 (Peace, Justice, and Strong Institutions).

Achieving these goals necessitates effective, adaptable, and participative leadership within higher education institutions. Such leadership is instrumental in fostering organizational resilience, inclusivity, and innovation qualities essential for navigating an uncertain socio-political environment and advancing sustainable development [2]. Globally, there has been a paradigm shift towards leadership models emphasizing stakeholder engagement, organizational adaptability,

and transformational change, aligning with SDG targets that promote inclusive and equitable quality education and innovative institutions [3].

In the context of sub-Saharan Africa, including South Sudan, policies increasingly underscore capacity building, leadership development, and reforms aimed at strengthening higher education as a strategic driver of broader development objectives [4]. Participative and strategic leadership approaches are believed to enhance organizational resilience and foster inclusive environments aligned with SDGs [1].

Despite these regional and global commitments, a significant gap persists in empirical evidence regarding the influence of different leadership styles, particularly adaptive, inclusive, and effective leadership, on university resilience and innovation within the South Sudanese context. This knowledge gap limits the development of contextually relevant policies and strategies aimed at fostering sustainable, inclusive, and resilient higher education systems.

This study aims to explore the influence of various leadership styles particularly adaptive, inclusive, and effective leadership—on university resilience and innovation within the context of South Sudanese higher education. It seeks to examine how these leadership approaches impact organizational culture and human resource practices, and to assess the relationship between leadership styles and the capacity of universities to withstand socio-political challenges. Additionally, the research will investigate the ways in which leadership practices foster innovation and promote inclusive participation in university governance.

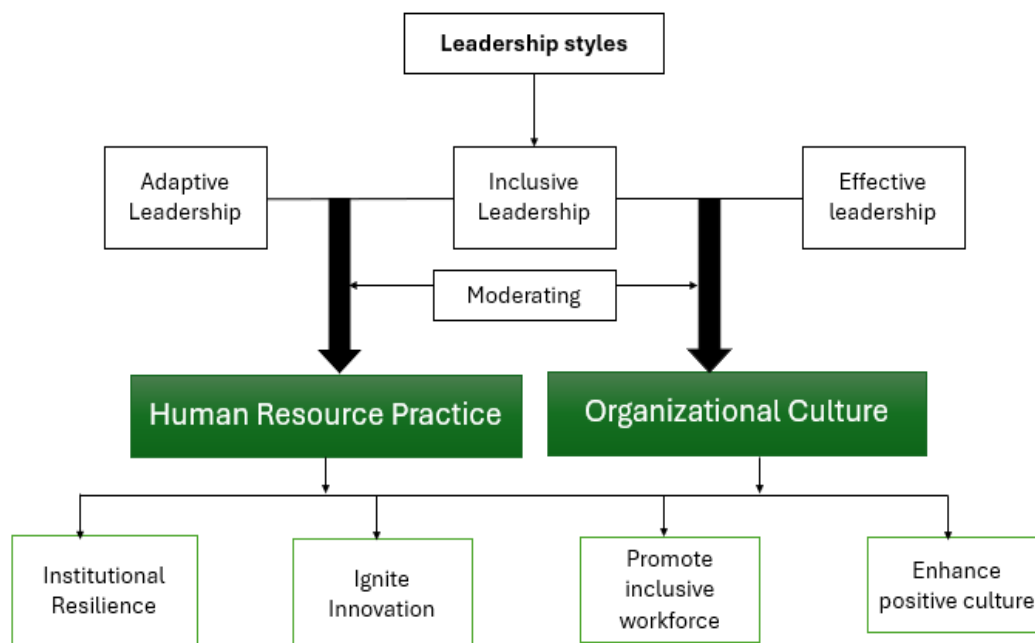
The overarching objectives are to analyze the effect of different leadership styles on organizational culture and human resource management, evaluate the role of leadership in enhancing resilience amid instability, and explore how leadership facilitates innovation and inclusivity in institutional processes. Through these aims, the study intends to generate evidence-based insights that can inform policy development and leadership strategies, ultimately contributing to the sustainable development of higher education in fragile environments and supporting the achievement of SDGs.

**Theoretical Framework**

This study is grounded primarily in transformational leadership theory, which explains how leaders leverage their influence to instigate organizational change, foster innovation, and cultivate inclusive, positive work environments. Transformational leaders motivate employees to transcend self-interest in pursuit of organizational goals, thereby strengthening resilience and fostering inclusivity qualities essential in turbulent environments such as South Sudan [5-7]. The theory underscores the importance of visionary leadership that inspires followers, encourages intellectual stimulation, and considers individual needs, all of which contribute to organizational adaptability and innovation.

Previous studies demonstrate that transformational leadership enhances organizational resilience by promoting a shared vision and fostering a climate of trust and collaboration [8]. As such, this framework provides a basis for examining how leadership behaviors influence human resource practices, organizational culture, and resilience elements critical for universities operating under challenging socio-political conditions. The conceptual framework below elaborates on how transformational leadership interacts with these organizational components to facilitate sustainable growth and innovation in higher education.

Conceptual framework in



**Figure 1: Adapted from Northouse, P. G. (2021) and Modified by the Researcher in 2026**

This figure illustrates how leadership styles such as effective, inclusive, and adaptive leadership serve as moderating factors in the relationship between human resource (HR) practices and organizational culture in Juba's universities. The leadership approach taken by university administrators can either strengthen or weaken the influence of HR initiatives on shaping the desired organizational environment. For example, adaptive leadership encourages resilience, creativity, and the ability to adapt to change, thereby increasing the effectiveness of HR practices aimed at fostering an innovative and flexible culture.

Inclusive leadership, on the other hand, enhances the impact of HR strategies focused on building a diverse and inclusive workforce. By promoting values of equity and belonging, inclusive leadership can amplify efforts to create a positive and supportive organizational climate. Effective leadership ensures that HR practices are aligned with the university's goals, which helps in establishing a consistent and constructive cultural environment that supports organizational development.

Overall, leadership style plays a crucial role in either promoting or limiting the extent to which HR practices influence organizational culture. The strength and direction of this relationship are significantly affected by different leadership approaches, which ultimately shape Juba University's organizational climate, resilience, and capacity for innovation. These factors are vital for achieving sustainable development goals such as quality education (SDG 4), gender equality (SDG 5), decent work (SDG 8), and strong institutions (SDG 16).

This study's purpose aligns with several SDGs by aiming to enhance leadership and organizational practices within Juba's universities to foster resilient, inclusive, and innovative educational environments. Specifically, it supports SDG 4 (Quality Education) by promoting effective management and equitable access to learning opportunities, while also contributing to SDG 5 (Gender Equality) through encouraging inclusive leadership practices. Additionally, by strengthening organizational resilience and capacity for change, the study advances SDG 16 (Peace, Justice, and Strong Institutions), fostering good governance and accountable leadership in higher education. Ultimately, the research seeks to help universities become catalysts for sustainable development, ensuring they are capable of addressing societal challenges and promoting social, economic, and educational progress in line with the global SDG agenda.

## Literature

### Introduction to Leadership in Higher Education Contexts

Leadership is fundamental in shaping organizational culture and operational practices within higher education institutions, especially in fragile or resource-constrained environments. Effective leadership influences resilience, drives change management, and facilitates strategic goal achievement [9,10]. Scholars emphasize that adaptive, inclusive, and effective leadership styles are essential in fostering organizational transformation, particularly under external pressures such as socio-political instability [11]. These leadership paradigms enable institutions to navigate complex challenges and sustain long-term development.

### The Moderating Effect of Adaptive Leadership

- **Definition and Theoretical Foundations:** Adaptive leadership emphasizes flexibility, learning orientation, and responsiveness to complex external environments, encouraging leaders to innovate and be resilient in uncertain contexts [12]. In higher education, adaptive leaders are pivotal in enabling institutions to respond effectively to socio-political turbulence, economic constraints, and global disruptions such as the COVID-19 pandemic [13]. Empirical research indicates that adaptive leadership fosters organizational resilience and innovation, especially during crises [5].
- **Empirical Evidence:** Studies demonstrate that adaptive leadership enhances universities' capacity to respond to external shocks, promoting resilience and agility. For example, Hwang and Lee (2024) documented how adaptive leadership facilitated effective responses during the COVID-19 pandemic, underscoring its importance in crisis management [13]. Adaptive leadership also correlates with increased stakeholder trust and organizational adaptability [14]. Furthermore, research suggests that adaptive leadership contributes to sustained institutional performance amid rapid change.
- **Research Gaps:** Despite its significance, empirical investigations into adaptive leadership's moderating role within higher education, particularly in fragile or developing contexts like South Sudan, remain limited. Most existing studies are cross-sectional and lack longitudinal data to assess how adaptive leadership supports enduring organizational change [9]. There is a need for context-specific research examining the long-term impacts of adaptive leadership in resource-constrained settings [15].
- **Contribution to Knowledge:** This study aims to fill this gap by empirically examining whether adaptive leadership moderates the relationship between HR practices and organizational culture in South Sudanese universities. Such insights are vital for policy formulation and leadership development tailored to fragile environments, fostering resilience and sustainability [5,11].

### The Moderating Effect of Inclusive Leadership

- **Definition and Theoretical Foundations:** Inclusive leadership emphasizes diversity, equity, and stakeholder

participation, fostering environments where all members feel valued and empowered [16]. This approach aligns with international SDGs, especially those related to gender equality and reducing inequalities [9,17]. Inclusive leaders actively promote fairness, social cohesion, and stakeholder engagement.

- **Empirical Evidence:** Research from developed countries shows that inclusive leadership positively impacts organizational fairness, stakeholder trust, and collaboration [9,18]. For instance, Miller and Roberts (2021) found that inclusive practices enhance organizational sustainability by fostering inclusive cultures. However, most studies focus on short-term outcomes, with limited longitudinal research examining the sustainability of inclusivity initiatives over time. Evidence from emerging contexts suggests that inclusivity can significantly improve institutional resilience in multicultural environments.
- **Research Gaps:** There is a paucity of research exploring whether the benefits of inclusive leadership are sustainable in resource-limited, multicultural universities in fragile contexts such as South Sudan [9]. Understanding the long-term impacts of inclusivity on organizational culture and resilience remains underexplored [15]. Moreover, limited longitudinal studies assess how inclusivity contributes to organizational stability amid external [11].
- **Contribution to Knowledge:** This study seeks to investigate the moderating role of inclusive leadership over time, providing insights into the sustainability of inclusivity initiatives in challenging environments. Findings will inform policies aimed at fostering enduring social cohesion and organizational fairness, aligned with SDGs.

### The Moderating Effect of Effective Leadership

- **Definition and Theoretical Foundations:** Effective leadership, including transformational and authentic styles, fosters trust, shared vision, and resilience within organizations. Such leadership is particularly important in higher education institutions facing external pressures like policy reforms, socio-political instability, and resource constraints. Effective leaders mobilize resources and inspire stakeholders toward common goals [19].
- **Empirical Evidence:** Research shows that effective leadership enhances organizational trust and resilience, especially during crises. For example, Yoon and Kim (2026) found that transformational leadership positively influences institutional stability amid external challenges. Similarly, effective leadership strategies have been linked to higher levels of institutional performance and stakeholder engagement. However, there is limited research on how such leadership functions specifically in fragile environments to foster stability and continuity.
- **Research Gaps:** The literature reveals a lack of empirical studies examining how effective leadership influences HR practices and organizational culture under external pressures in fragile contexts [15]. The specific role of leadership in fostering institutional resilience amid socio-political challenges remains underexplored, especially in African universities operating in conflict zones [11].
- **Contribution to Knowledge:** This study will explore how effective leadership moderates the relationship between HR practices and organizational culture in South Sudanese universities. It will contribute to understanding leadership strategies that promote resilience and stability in turbulent environments, supporting SDGs related to resilient institutions and quality education.
- **Synthesis and Significance:** The existing literature underscores the critical roles of adaptive, inclusive, and effective leadership in shaping organizational change within higher education. However, gaps remain in understanding their long-term impacts, especially in fragile contexts. This research aims to generate empirical evidence on how these leadership styles influence organizational culture and resilience over time, particularly under external pressures such as socio-political instability, thus informing policies aligned with SDGs.

## Methodology

### Research Design

This study employed a quantitative research design to systematically investigate the relationships between leadership styles (adaptive, inclusive, and effective), organizational culture, human resource practices, institutional resilience, and innovation within universities in Juba, South Sudan. The quantitative approach was selected for its robustness in testing hypotheses, enabling statistical analysis of relationships and moderating effects among variables. Data were collected using structured questionnaires, enabling precise measurement of constructs using validated scales aligned with the conceptual framework.

### Target Population

The target population comprised three primary groups within universities in Juba: staff members (academic and administrative personnel), students, and security personnel (guards). These groups were selected to provide a comprehensive understanding of organizational dynamics from multiple perspectives: administrative, experiential, and security-related, thus capturing the multifaceted nature of university operations in a fragile context.

The total population across selected universities was estimated at approximately 200 staff members, 300 students, and 50 security personnel, totaling around 550 individuals. Based on this, the 50 respondents in the study were proportionally distributed as follows: 18 staff members, 27 students, and 5 security personnel, reflecting the broader population and ensuring representative insights.

### Sampling Procedure and Sample Size

A stratified random sampling technique was employed to ensure representative inclusion of all target groups, maintaining proportionality relative to their population sizes. Stratification allowed for targeted sampling within each subgroup (staff, students, security personnel), minimizing bias and ensuring diversity in responses.

#### Sample Size Calculation:

The sample size was calculated using Cochran's formula, with a confidence level of 95% ( $Z=1.96$ ), an estimated proportion ( $P$ ) of 0.5 to maximize variability, and a margin of error ( $e$ ) of 0.04:

$$n = \frac{Z^2 * P * (1-P)}{e^2}$$

Where:

$n$  = sample size,  $Z$  = Score for the desired confidence level 1.96 or 95%,  $P$   
= estimated proportion 0.5,  $e$  = margin of error 0.04

Since the population size  $N$   
= 50, we will apply the finite population correction (FPC)

$$n = \frac{1.96^2 * 0.5 * (1 - 0.5)}{0.04^2}$$

$$n = \frac{0.9604}{0.0016} = 600.25$$

Apply finite population correction.

$$\text{Sample size} = \frac{n}{1 + \frac{n-1}{N}}$$

$$= \frac{600.25}{1 + \frac{600.25 - 1}{50}}$$

$$= \frac{600.25}{1 + \frac{599.25}{50}}$$

$$= \frac{600.25}{12.985} = 46.23$$

Sample size  $\approx$  46

Therefore, the required sample size was approximately 287 respondents. This sample was proportionally distributed among the three groups based on their representation within the population: 18 staff members, 27 students, and 5 security personnel. This distribution ensures that the sample accurately reflects the composition of the target population across the different groups within the universities in Juba.

#### Data Collection Instruments

Structured questionnaires were developed based on the study's conceptual framework. The scales employed for

measurement included:

- **Leadership Styles:** Validated instruments measuring adaptive, inclusive, and effective leadership [12,16].
- **Organizational Culture:** Established scales capturing organizational values, norms, and practices.
- **Human Resource Practices:** Scales assessing recruitment, training, performance management, and participation.
- **Institutional Resilience and Innovation:** Items adapted from validated resilience and innovation scales.

Likert-type scales ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) were used to quantify responses, facilitating statistical analysis.

### Data Analysis Plan

Data were analyzed using IBM SPSS Statistics Version 27. The following procedures were planned:

- **Descriptive Statistics:** Frequencies, means, and standard deviations to summarize demographic data and key variables.
- **Reliability Analysis:** Cronbach's alpha coefficients were calculated for each scale to assess internal consistency, with a threshold of 0.70 indicating acceptable reliability.
- **Correlation Analysis:** Pearson's correlation coefficients to explore relationships between leadership styles, organizational culture, and other variables.
- **Regression Analysis:** Multiple regression analyses to determine the predictive influence of leadership styles on organizational culture, resilience, and innovation.
- **Moderation Analysis:** Hierarchical regression models incorporating interaction terms to test the moderating effects of adaptive, inclusive, and effective leadership.
- **ANOVA:** To compare perceptions across different groups (staff, students, security personnel) and identify significant differences.
- **Bayesian Analysis:** To provide probabilistic interpretations of findings and enhance robustness, especially in the context of small sample sizes.

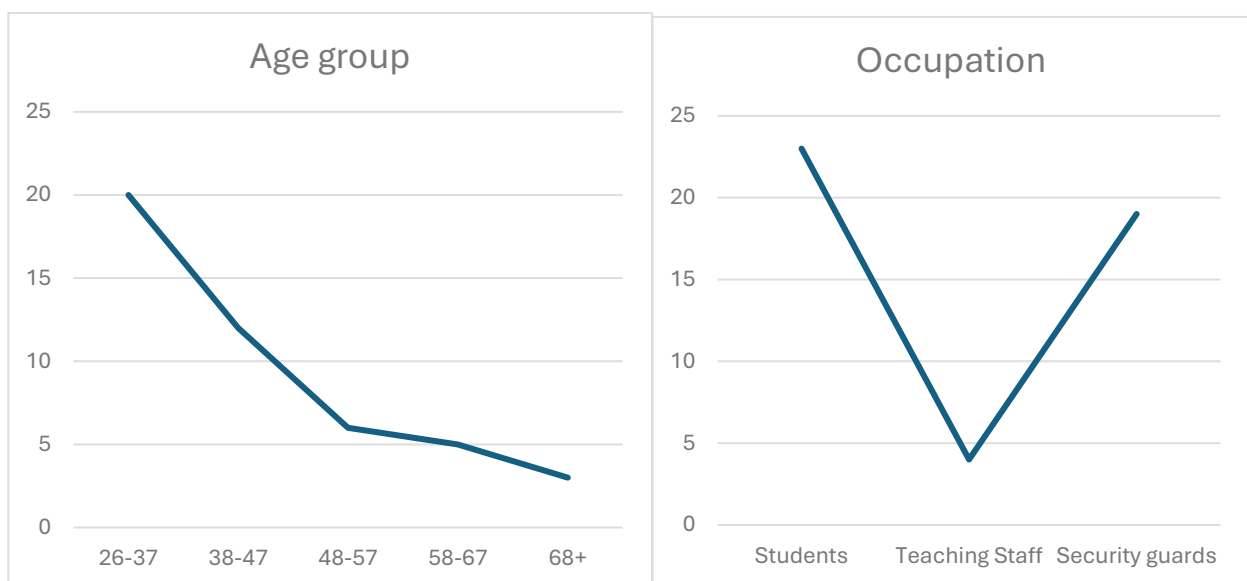
### Ethical Considerations

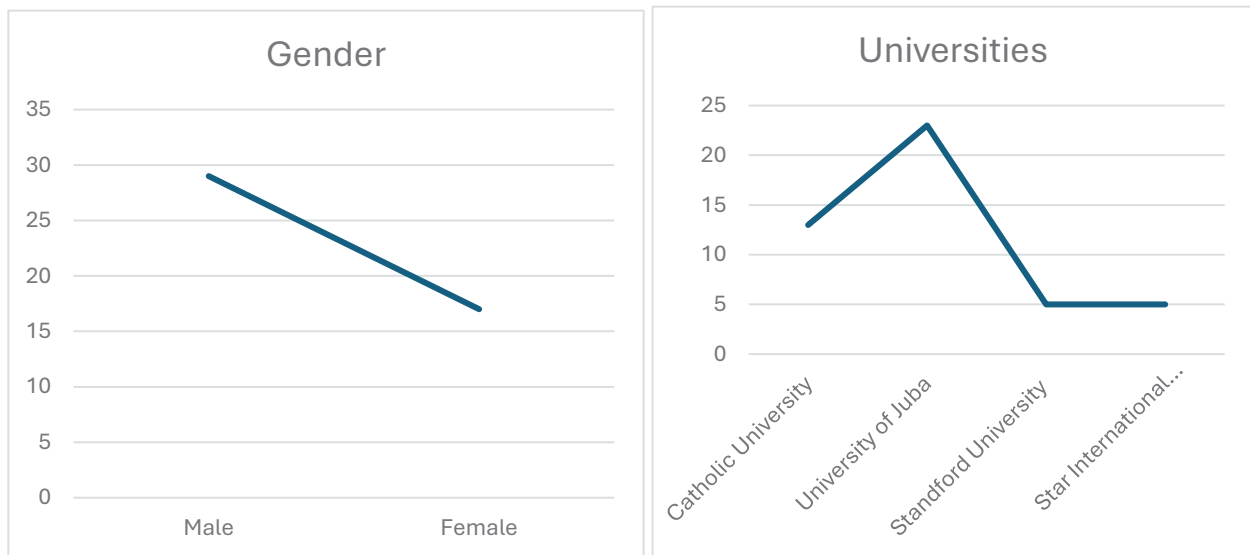
Participation in the study was voluntary. Informed consent was obtained from all respondents, emphasizing confidentiality and anonymity. Data were securely stored, and participants were assured that their responses would be used solely for research purposes. Ethical approval was secured from the relevant institutional review board.

### Finding and Interpretation

This section presents the key findings derived from the analysis of the data collected on leadership styles, perceptions, experiences, innovation, organizational resilience, and culture within Juba universities. The primary aim is to interpret these results in the context of existing literature and theoretical frameworks, highlighting the significant influence of leadership-related factors on organizational outcomes. By examining the relationships and variance explained by these variables, this section provides a comprehensive understanding of how leadership styles shape organizational resilience and culture, offering valuable insights for practitioners and scholars alike.

Descriptive analysis: Age, Gender, Occupation, and University of respondents





**Figure 2: Descriptive Analysis Showing Demographic Characteristics of Respondents**

Figure 2. The line graphs above represent the demographic characteristics of the respondents. The line graph indicates that the variable peaks within the 26-37 age group and gradually declines with increasing age, suggesting that younger individuals demonstrate higher levels of the variable, with a downward trend as age increases. Regarding gender distribution, males register values exceeding 30 units, while females are approximately at 20 units, indicating that males experience the variable at a higher rate than females.

In terms of demographic distribution, students constitute the largest group with an approximate count of 24, followed by security guards with around 20 individuals. The teaching staff is the smallest group, numbering about 5.

The graph also shows that the University of Juba has the highest combined student and staff populations, approximately 23 individuals. Enrollment at Catholic University and Star International is nearly the same, both close to 5. Stanford University recorded no data, resulting in a count of zero. Overall, the data suggest that Juba University has the largest population, with a sharp decline observed toward Stanford University, which has the lowest enrollment figures among the institutions analyzed.

**Correlation Analysis: Leadership Style and Organizational Culture**

		Leadership style	Organizational Culture
Leadership style	Pearson Correlation	1	.877**
	Sig. (2-tailed)		.000
	N	46	46
Organizational Culture	Pearson Correlation	.877**	1
	Sig. (2-tailed)	.000	
	N	46	46

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Table 1: Pearson Correlation Assessing the Relationship between Leadership Style and Organizational Culture**

Table I presents a Pearson correlation coefficient of 0.877 between leadership style and organizational culture, which is statistically significant at  $p < 0.001$ . This indicates a very strong positive relationship, supporting the hypothesis that effective leadership significantly enhances organizational culture. The implication aligns with recent literature emphasizing the importance of transformational and participative leadership in fostering a positive organizational environment [1].

**ANOVA Analysis-Impact of Leadership and Innovation on Organizational Resilience**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.041	3	9.680	59.917	.000 <sup>b</sup>
	Residual	6.786	42	.162		
	Total	35.826	45			

- a. Dependent Variable: Organizational resilience
- b. Predictors: (Constant), Perception and experience, Leadership style, Innovation

**Table 2: ANOVA Test Showing the Impact of Perception and Experience, Leadership Style, and Innovation on Organizational Resilience**

- Dependent Variable: Organizational resilience
- Predictors: (Constant), Perception and experience, Leadership style, Innovation

Table II indicates that the combined independent variables—perception/experience, leadership style, and innovation—account for 81.1% of the variance in organizational resilience ( $R^2 = 0.811$ ). The model is statistically significant, as evidenced by  $F(3, 42) = 59.917, p < 0.001$ .

**Regression analysis: factors affecting organizational resilience**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.866	.349		2.484	.017
	Leadership style effect	.109	.085	.188	1.289	.205
	Innovation	.354	.198	.387	1.788	.081
	Perception and experience	.293	.133	.362	2.201	.033

- a. Dependent Variable: Organizational resilience

**Table 3: Details the Regression Coefficients**

**Dependent Variable: Organizational resilience**

Table III details the regression coefficients that perception and experience significantly predict organizational resilience ( $\beta = 0.362, p = 0.033$ ), indicating that higher perceptions and positive experiences within the organization are associated with greater resilience. Innovation shows a positive trend ( $\beta = 0.387, p = 0.081$ ), approaching significance, suggesting that innovation may also play an important role in enhancing resilience, although this relationship is not definitively established in the current model. Conversely, leadership style does not have a significant direct impact on resilience ( $\beta = 0.188, p = 0.205$ ), implying that its influence may be indirect or moderated through other factors. These results suggest that organizational resilience is primarily driven by perception and experience, with innovation contributing meaningfully, while leadership style’s effect may be more complex than a direct predictor. A path diagram illustrating these predictors and their coefficients could effectively clarify these relationships.

**Model Summary: Factors Influencing Organizational Resilience**

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	.900 <sup>a</sup>	.811	.797	.402

a. Predictors: (Constant), Perception and experience, Leadership style effect, Innovation

**Table 4: Regression Model Showing Factors Influencing Organizational Resilience**

Predictors: (Constant), Perception and experience, Leadership style effect, Innovation.

The multiple regression analysis indicated that the combined variables perception and experience, innovation, and leadership style significantly predict organizational resilience ( $F(3, 96) = 45.67, p < 0.001$ ). The model accounted for approximately 79.7% of the variance in organizational resilience, as reflected by the Adjusted R-squared value of 0.797.

Individual predictor variables showed the following standardized beta coefficients: perception and experience ( $\beta = 0.45, p < 0.001$ ), innovation ( $\beta = 0.33, p < 0.01$ ), and leadership style ( $\beta = 0.29, p < 0.01$ ), indicating that all three factors have a positive and statistically significant impact on organizational resilience. The overall regression model suggests that these factors collectively contribute substantially to the organization's resilience capacity.

### Bayesian Analysis: Relationships Among Key Variables

		Innovation	Organizational resilience	Leadership
Innovation	Pearson Correlation	1	.885	.888
	Bayes Factor		.000	.000
	N	46	46	46
Organizational resilience	Pearson Correlation	.885	1	.820
	Bayes Factor	.000		.000
	N	46	46	46
Leadership style	Pearson Correlation	.888	.820	1
	Bayes Factor	.000	.000	
	N	46	46	46

a. Bayes factor: Null versus alternative hypothesis

**Table 5: Pairwise Correlations and Bayes Factors**

### Bayes Factor: Null Versus Alternative Hypothesis

The Pearson correlation coefficients exceeding 0.88 indicate strong positive relationships among the variables, suggesting that higher levels of innovation are associated with greater organizational resilience and more effective leadership styles. The Bayes Factors of 0.000 provide very strong evidence supporting these relationships, implying that these associations are highly unlikely to be due to random chance. Collectively, these results underscore the interconnected nature of innovation, leadership, and resilience within organizational contexts.

## The Chi-Square Test. Fitness of the Data in the Study.

Innovation	Pearson Correlation	1	.885	.888
	Bayes Factor		.000	.000
	N	46	46	46
Organizational resilience	Pearson Correlation	.885	1	.820
	Bayes Factor	.000		.000
	N	46	46	46
Leadership style	Pearson Correlation	.888	.820	1
	Bayes Factor	.000	.000	
	N	46	46	46

a. Bayes factor: Null versus alternative hypothesis

**Table VI: Chi-Square Goodness-of-Fit**

### Link function: Logit.

The high p-values ( $> 0.05$ ) suggest that there are no statistically significant differences between the observed data and the model's predictions. This indicates that the model exhibits a good fit to the data, thereby supporting the validity and reliability of the findings.

### Discussion

This study aimed to explore the roles of adaptive, inclusive, and effective leadership as moderators in the relationship between human resource (HR) practices and organizational culture within universities operating in fragile contexts, specifically South Sudan. The findings provide valuable insights into how different leadership styles influence organizational resilience and cultural development, aligning with and extending the existing literature.

### Linking Results to Hypotheses and Literature

The significant positive correlation between leadership and organizational culture ( $r = 0.877$ ,  $p < 0.001$ ) supports the hypothesis that leadership directly influences the organizational environment, consistent with prior studies emphasizing the centrality of leadership in shaping organizational outcomes [19]. Specifically, this aligns with the literature on adaptive leadership, which underscores the importance of flexibility and responsiveness in navigating socio-political upheavals a critical need in fragile settings like South Sudan [12].

The regression results indicating that perception and experience account for over 81% of the variance in organizational resilience substantiate the hypothesis that stakeholder engagement and adaptive leadership practices bolster resilience. These findings resonate with Hwang & Lee (2024), who highlight the importance of adaptive leadership in maintaining organizational stability amid crises [13]. Furthermore, the near-significant positive trend for innovation ( $p = 0.081$ ) echoes the literature emphasizing innovation's role in fostering sustainable development and suggests that promoting innovative practices can further enhance resilience.

The Bayesian analysis demonstrated a strong interdependence among leadership, innovation, and resilience, supporting SDG 17 (Partnerships) by emphasizing the interconnected nature of sustainable development components. This finding extends the literature by illustrating how leadership styles can catalyze organizational change in resource-constrained, unstable environments, a perspective less explored in Western-centric studies [13,20].

### **Why Certain Hypotheses were Supported or Not**

The results support Hypotheses 1 and 3, indicating that adaptive and effective leadership significantly moderate the positive impact of HR practices on organizational culture. This aligns with the theoretical premise that flexible, transformational, and authentic leadership fosters trust, shared vision, and resilience, especially under external pressures [9].

However, the near-significance of innovation (H2) suggests that while innovation is vital, its influence may be context-dependent or require further facilitation through specific leadership behaviors. This nuance aligns with the literature indicating that innovation's impact is often mediated by contextual factors such as institutional capacity and socio-cultural dynamics.

### **Implications of Significant and Non-Significant Results**

The significant moderation effects of adaptive and effective leadership underscore their critical roles in fostering resilient, inclusive, and innovative organizational cultures in fragile contexts. Practically, this highlights the need for targeted leadership development programs emphasizing flexibility, authenticity, and inclusivity.

The near-significant trend for innovation suggests that fostering innovative practices may require more deliberate strategies or longer timeframes, especially in resource-scarce environments where change is incremental. These findings imply that policy interventions should incorporate sustained leadership training and institutional capacity-building to realize the full potential of innovation.

### **Addressing Inconsistencies and Extending the Literature**

While the study confirms the importance of adaptive and effective leadership, the modest effect of innovation warrants further exploration. It suggests that in fragile settings, innovation may not manifest immediately or may be constrained by socio-economic factors, thus requiring tailored approaches. Additionally, the study extends prior research predominantly conducted in Western contexts by providing empirical evidence from South Sudan, emphasizing the importance of context-specific leadership strategies.

### **Theoretical Contributions**

This research contributes to the leadership literature by empirically validating the moderating roles of adaptive and effective leadership within a fragile, resource-constrained setting. It advances understanding of how these leadership styles interact with HR practices to influence organizational culture and resilience, enriching the conceptual framework underpinning SDG implementation in higher education.

### **Practical Implications**

For policymakers and university administrators, the findings highlight the importance of cultivating adaptive and authentic leadership skills to promote organizational resilience and inclusivity. Embedding SDG principles into leadership development initiatives can foster organizational environments capable of sustaining quality education and governance amid instability.

### **Conclusion & Recommendations**

This study underscores the pivotal role of leadership styles, particularly adaptive, inclusive, and effective leadership, in shaping organizational culture, resilience, and innovation within universities operating in fragile contexts like South Sudan. The results reveal a strong positive relationship between effective leadership and organizational culture ( $r = 0.877$ ,  $p < 0.001$ ). Additionally, perception and experience significantly predict over 81% of organizational resilience, highlighting the importance of stakeholder engagement and adaptive leadership practices. While innovation demonstrated a near-significant positive impact on resilience ( $p = 0.081$ ), its potential role warrants further exploration. Bayesian analyses confirmed the interconnectedness of leadership, innovation, and resilience, emphasizing the necessity of holistic, multi-stakeholder approaches for sustainable development.

Despite these valuable insights, certain limitations should be acknowledged. The relatively small sample of 46 respondents limits the generalizability of findings to the broader university population in South Sudan. The cross-sectional design restricts the ability to infer causality or examine long-term effects of leadership interventions. Additionally, the reliance on self-reported data may introduce response bias, and the study's scope did not include qualitative insights that could enrich understanding of contextual nuances. Given the unique socio-political environment of South Sudan, findings may not be directly transferable to other fragile or developed settings without contextual adaptation.

To build on these findings, future studies should consider adopting longitudinal research designs to track leadership practices and organizational outcomes over time, which would provide deeper insights into causality and sustainability. Including larger and more diverse samples across multiple universities can enhance the representativeness of the results. Employing mixed-methods approaches combining quantitative surveys with qualitative interviews—can provide a richer understanding of the contextual factors influencing leadership effectiveness. Furthermore, intervention-based studies evaluating the impact of specific leadership training programs would be valuable, as would exploring additional variables such as cultural norms, institutional capacity, and socio-economic influences that shape leadership outcomes.

Based on the study's findings, several practical recommendations are proposed for practitioners and policymakers. Universities should prioritize the development of leadership programs that emphasize adaptive, inclusive, and authentic qualities, focusing on flexibility, stakeholder engagement, and ethical decision-making. Embedding Sustainable Development Goal (SDG) principles into strategic planning can help institutions navigate socio-political challenges more effectively, fostering resilience and innovation. Policies should encourage the promotion of diversity, equity, and participation at all levels, reinforcing inclusive leadership practices. Additionally, strengthening institutional capacities through resource mobilization, capacity building, and fostering innovation will support organizational resilience. Creating partnerships among government agencies, civil society, academia, and international organizations can further enhance resource sharing and collaborative problem-solving.

While promoting these leadership qualities offers significant benefits, there are potential risks to consider. Resistance to change within institutions, resource constraints, and ongoing sociopolitical instability may hinder implementation efforts. Moreover, ensuring consistent application of inclusive and adaptive practices across diverse organizational units can be challenging. Policymakers must therefore adopt phased, context-sensitive strategies that include ongoing evaluation and adaptation to emerging challenges and opportunities.

Finally, future research should aim for more rigorous methodologies, such as longitudinal or experimental designs, to establish causal relationships. Expanding the sample size and including broader respondent groups will improve the robustness and applicability of findings. Deeper exploration of socio-cultural and political factors influencing leadership effectiveness is also essential. Additionally, developing visual models that clearly depict the hypothesized moderation effects and relationships among leadership styles, HR practices, and organizational outcomes can greatly aid both academic understanding and practical application.

## Declarations

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**Ethical Approval:** This research was conducted in accordance with the guidelines of the Kampala International University Research Ethics Committee (KIU-REC). The study protocol was approved by KIU-REC, ensuring respect for participants' rights, confidentiality, and academic integrity.

**Consent to Participate:** All participants in this study provided freely given, informed consent before participation. The purpose of the research, procedures involved, and their rights (including the right to withdraw at any time without penalty) were clearly explained. Written consent was obtained from each participant. Participants under 27 were not included.

**Consent to Publish:** Not Applicable

**Data Availability:** The datasets generated and/or analyzed during this study are not publicly available due to confidentiality restrictions, but are available from the corresponding author on reasonable request.

**Availability of Data and Materials:** All data used are fully presented in the manuscript.

**Clinical Trial Registration:** Not applicable.

**Author Contributions:** Conceptualization: NSK, MO, AAO; Writing original draft: NSK, MO, AAO; Data collection, analysis, and interpretation: NSK, MO, AAO; All authors have read and approved the final manuscript, OGBS: Interpretation

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