

The Influence of Democratic Leadership Style on Student Academic Performance: Perspectives from University Lecturers

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ABSTRACT

This study examines the influence of democratic leadership style on student academic performance in Cambodian public higher education institutions. Grounded in organizational and educational leadership theory, the research responds to the need for empirical evidence regarding participative leadership within Southeast Asian academic contexts. A quantitative cross-sectional approach was utilized, involving a survey of 305 lecturers chosen through stratified random sampling. The study used a structured questionnaire with a five-point Likert scale to measure key constructs. Reliability was confirmed with Cronbach's alpha scores of 0.871 for democratic leadership and 0.973 for student performance, while validity was established through exploratory factor analysis. A simple linear regression analysis revealed that democratic leadership style has a statistically significant and positive effect on student academic performance ($B = 0.361$, $p < 0.001$). Although the model explains 6.1% of the variance ($R^2 = 0.061$), the result highlights the potential of participative governance to improve student engagement and outcomes. The findings support the notion that democratic, open communication, and faculty empowerment can enhance institutional culture and teaching effectiveness, ultimately benefiting student learning. These insights align with global evidence and underscore the importance of shifting from hierarchical to collaborative leadership models in Cambodian higher education. The study contributes to the limited body of literature on leadership in developing countries and offers practical implications for policy and professional development. It advocates for expanding democratic leadership practices in university governance to foster student-centered academic environments. Future research should explore longitudinal effects, incorporate student perspectives, and examine cross-institutional differences to enhance the generalizability and depth of findings.

Keywords: Democratic Leadership Style, Student Performance, Public Higher Education Institutions, Exploratory Factor Analysis, Simple Linear Regression

INTRODUCTION

In the context of universities as organizational systems, leadership style plays a critical role in enabling administrators, supervisors, and educators to initiate or sustain improvements in educational quality. Principals, as key institutional leaders, are responsible for creating a positive university climate, managing staff, fostering collaboration, promoting effective communication, and ensuring the successful implementation of the curriculum. These goals cannot be achieved in isolation; rather, they require the active participation and support of lecturers and staff. To maximize institutional performance, university leaders must demonstrate effective leadership and adopt styles that align with the specific needs and culture of their institutions. Public higher education in Cambodia plays a foundational role in national development by expanding access to learning, promoting social equity, and building a skilled workforce. Institutions such as the Royal University of Phnom Penh, the Institute of Technology of Cambodia, and others have contributed significantly to human capital development and the country's knowledge economy [1]. Government-led reforms, including the Higher Education Improvement Project (HEIP), continue to support policy innovation, infrastructure enhancement, and academic capacity building.

However, persistent challenges remain. Cambodian public higher education institutions (HEIs) face limitations such as inadequate funding, aging infrastructure, and misalignment between academic programs and labor market needs. These structural issues directly impact the quality of education and, more specifically, student performance the knowledge, skills, and competencies students are expected to achieve during their academic journey. student performance forms the basis for curriculum development, quality assurance, and institutional accountability. In Cambodian HEIs, these outcomes typically include technical knowledge as well as transferable skills such as critical thinking, communication, and problem-solving [1]. The achievement of these outcomes depends not only on curriculum and assessment design but also on institutional leadership and organizational culture. In particular, democratic leadership, which emphasizes participatory decision-making, transparency, and shared responsibility, has been shown to foster greater faculty involvement, student engagement, and institutional effectiveness. Yet, in Cambodia, research examining the influence of democratic leadership styles on student achievement remains limited.

Furthermore, while leadership can have a direct effect on educational outcomes. Recent studies underscore the importance of institutional ecosystems and operational efficiency in driving success in educational settings, suggesting that well-designed leadership and faculty support mechanisms are crucial for optimizing student performance [2], [3]. This gap highlights the need for empirical studies that explore how democratic leadership, supported by ongoing faculty development, can lead to improved student outcomes in public HEIs. This study seeks to fill that gap by examining the influence of democratic leadership on student performance. By focusing on Cambodian public universities, the research contributes to the limited body of knowledge on educational leadership in developing country contexts and offers practical insights for institutional leaders and policymakers striving to align leadership practices with student success.

LITERATURE REVIEW

Leadership in educational institutions plays a pivotal role in shaping school climate, teacher effectiveness, and student academic outcomes. Within the school as an organization, leadership style is a critical process through which administrators, supervisors, and educators influence behaviors, implement reforms, and sustain performance improvements [4]. Principals, as administrative leaders, are tasked not only with setting the institutional tone but also with coordinating effective teamwork, maintaining staff morale, managing curricular implementation, and ensuring high academic standards. However, these functions cannot be effectively executed in isolation. Achieving educational objectives necessitates collaborative engagement with teachers and other school stakeholders. In this regard, the choice of leadership style becomes fundamental to institutional success. This implies that leadership style is not a one-size-fits-all approach but varies depending on the organizational situation and context. As [5] notes, leadership style is often a reflection of the leader's personality, beliefs, and task orientation. Thus, the way school principals exercise leadership can significantly affect the academic achievement of students.

[6] highlight that democratic leadership, characterized by participative decision-making and stakeholder involvement, fosters transparency, trust, and innovation. By promoting collaboration among lecturers, students, and administrators, this leadership style supports inclusive learning environments and enhances student motivation and academic outcomes. Given its potential benefits, further research in the Cambodian higher education context is essential to understand how democratic leadership can contribute to improved institutional effectiveness and student performance.

Leadership in higher education has been widely studied in international contexts, with findings consistently pointing to the significant influence of management styles on student academic performance, faculty morale, and the overall educational environment. However, in the Cambodian context, such research remains limited. While some studies have begun to explore governance and leadership challenges within Southeast Asian education systems, the specific dynamics within Cambodian public universities particularly the nuanced effects of different leadership styles on student performance [7].

In Cambodia's public higher education system, leadership is often shaped by hierarchical structures and centralized control. This legacy of top-down management influences how educational policies are implemented and how institutional priorities are defined. Yet, amid global shifts toward participatory and

inclusive governance, questions have emerged about the efficacy of traditional leadership models in fostering academic innovation and learner-centered pedagogy. While autocratic styles may deliver structure and accountability, they may simultaneously limit creativity, collaboration, and motivation among both faculty and students. In contrast, democratic or participative leadership characterized by shared decision-making and open communication has been associated with greater student engagement, faculty satisfaction, and institutional responsiveness in many international studies.

In the context of academic achievement which includes students' examination results, coursework, and overall academic performance leadership style is increasingly acknowledged as a key determinant. As highlighted by [8], when school principals engage teachers in decision-making processes, align administrative practices with students' needs, and foster open communication, they help cultivate an institutional culture that supports and sustains academic excellence.

Despite the acknowledged importance of leadership in education, empirical research on the impact of democratic leadership styles on student academic achievement particularly within public higher education institutions in Southeast Asia, and Cambodia in particular remains limited. [9] found that leadership style significantly influences student performance, suggesting that further context-specific research is essential to understand how different leadership approaches, such as democratic leadership, affect outcomes in diverse educational settings. In Cambodia, where educational leadership is often embedded in hierarchical governance structures, the participative decision-making associated with democratic leadership may be underutilized, yet critically needed for reforms aimed at improving student outcomes.

Hypotheses and Research Framework

H1: Democratic leadership style has a positive and statistically significant effect on student academic performance among university lecturers.

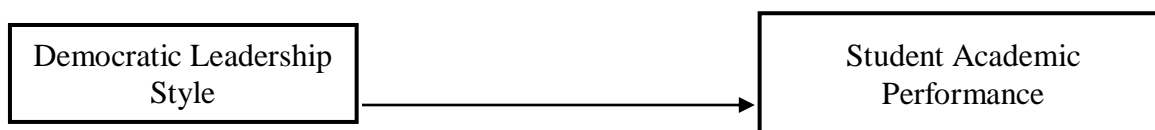


Figure 1: Research Framework

RESEARCH METHODOLOGY

Research Design

This study adopted a quantitative, cross-sectional survey design to explore the relationship between democratic leadership style and student academic performance among university lecturers. A quantitative approach was chosen for its effectiveness in empirically testing hypotheses and measuring associations between variables through statistical analysis [10]. The cross-sectional design allowed data to be collected at one point in time, offering a timely overview of lecturers' perceptions and corresponding student performance outcomes [11]. This approach is especially effective for uncovering relationships and trends within a specific population at a given point in time.

Population and Sampling

The target population included both full-time and part-time lecturers from selected public universities in Cambodia. A stratified random sampling technique was employed to ensure equitable representation across faculties, departments, and institutional sizes [12]. A total of 460 paper-based structured questionnaires were distributed, of which 326 were returned, yielding a response rate of 70.9%. After removing 21 incomplete responses, 305 valid questionnaires remained, resulting in a final usable response rate of 66.3%. This sample size meets the recommended criteria for conducting regression and factor analyses, which advocate for a minimum of 5 to 10 respondents per measured item (Hair et al., 2019).

Instrumentation

A structured survey instrument was utilized to measure the key constructs in this study, employing a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The survey instrument was divided into three primary sections. The first section collected demographic information, including gender, age, academic rank, and years of teaching experience. The second section measured the Democratic Leadership Style, with items adapted from validated instruments to reflect relevant behaviors within the technological and institutional context of Cambodian higher education. The third section focused on Student Academic Performance, assessed through four core dimensions related to skill performance, retention, interest, and cognitive ability), derived from established theoretical frameworks and empirical studies. A pilot study tested the instrument's reliability, showing strong internal consistency with Cronbach's alpha above 0.70 for all constructs. The results indicated that Cronbach's alpha coefficients for most constructs ranged from 0.730 to 0.908, exceeding the recommended threshold of 0.70, which demonstrates acceptable reliability [14].

Validity and Reliability

To assess the construct validity of the measurement scales, Exploratory Factor Analysis (EFA) was performed using Principal Component Analysis (PCA) with Varimax rotation. This analysis was applied to both the Autocratic Leadership Style and Student Performance constructs. The Kaiser-Meyer-Olkin (KMO) statistic and Bartlett's Test of Sphericity indicated that the data were appropriate for factor analysis. Consistent with methodological standards, only items with factor loadings of 0.50 or above were considered for further analysis [13]. Additionally, internal consistency reliability was examined using Cronbach's alpha. The results showed that both constructs had alpha coefficients well above the recommended 0.70 threshold, confirming strong reliability [14].

Data Analysis

The data analysis was carried out using IBM SPSS Statistics version 26. The process commenced with the computation of descriptive statistics, such as frequencies, means, and standard deviations, to present an overview of the participants' demographic characteristics and to evaluate the distribution patterns of responses for each survey item. Following this, validated measurement constructs were used to compute composite scores by averaging the retained items under each dimension. To test the primary hypothesis regarding the effect of autocratic leadership style on students performance, a simple linear regression analysis was performed. Statistical significance was evaluated at the 0.05 level, and model fitness was assessed through R-squared and standardized coefficients. This analytical approach allowed for empirical testing of the hypothesized relationship while controlling for measurement integrity.

ANALYSIS AND FINDINGS

Respondents' Profile

Table 1 presents the demographic characteristics of the 305 full-time and part-time lecturers who participated in the study. The majority of respondents were male (90.8%) and married (84.6%), indicating a predominant representation of male academics within the sample. The largest age group was between 41 and 50 years (36.1%), followed by those aged 31–40 years (29.5%) and 51–60 years (22.3%), suggesting a mature and experienced academic cohort. In terms of academic qualifications, the vast majority held Master's degrees (89.8%), while 10.2% possessed doctoral degrees, reflecting a highly educated sample appropriate for assessing leadership and educational outcomes. Regarding teaching experience, respondents ranged from those with five years or less (15.7%) to those with 16–20 years of experience (29.2%), further enhancing the credibility of the study by drawing on insights from experienced professionals.

Table 1: The demographic characteristics of the respondents

| Factors | Classification | Repetition | Proportion |
|-------------------------------|----------------|------------|------------|
| Gender | Female | 28 | 9.2 |
| | Male | 277 | 90.8 |
| Marital Status | Single | 36 | 11.8 |
| | Married | 258 | 84.6 |
| | Other | 11 | 3.6 |
| Age | >30yrs | 33 | 10.8 |
| | 31-40yrs | 55 | 18.0 |
| | 41-50yrs | 110 | 36.1 |
| | 51-60yrs | 82 | 26.9 |
| | > 61yrs | 25 | 8.2 |
| Academic Qualification | MSc. | 274 | 89.8 |
| | PhD | 31 | 10.2 |
| Working Experience | >5yrs | 48 | 15.7 |
| | 6 – 10yrs | 55 | 18.0 |
| | 11 – 15yrs | 71 | 23.3 |
| | 16 – 20yrs | 89 | 29.2 |
| | > 20yrs | 42 | 13.8 |
| N | | 305 | |

Factor Analysis (EFA) for Democratic Leadership Style

Table 2: Component Matrix for Democratic Leadership Style (DLS)

| Item Code | Component 1 | Component 2 |
|-----------|-------------|-------------|
| DLS1 | 0.351 | 0.708 |
| DLS2 | 0.602 | 0.590 |
| DLS3 | 0.927 | -0.015 |
| DLS4 | 0.929 | -0.023 |
| DLS5 | 0.805 | -0.403 |
| DLS6 | 0.776 | -0.415 |
| DLS7 | 0.888 | 0.088 |

Table 3: KMO and Bartlett's Test of Sphericity

| Measurement | Value |
|-------------------------------|-----------|
| Kaiser-Meyer-Olkin (KMO) | 0.764 |
| Bartlett's Test of Sphericity | 2,650.597 |
| Df | 21 |
| Significance (p-value) | 0.000 |

Table 2, in the Component Matrix, most items (DLS3 to DLS7) load strongly onto Component 1, suggesting they represent a coherent underlying factor. Items DLS1 and DLS2 show cross-loadings on both components, with slightly higher loadings on Component 2 for DLS1, which might suggest a secondary dimension or overlap in measurement.

The KMO value of 0.764 suggests that the sampling adequacy for the Democratic Leadership Style construct is acceptable, meeting the minimum threshold of 0.60 (Kaiser, 1974). The Bartlett's Test of Sphericity is highly significant ($\chi^2 = 2,650.597$, $df = 21$, $p < 0.001$), indicating that the correlation matrix is not an identity matrix and is thus suitable for factor analysis as shown in Table 4.

This factor structure provides preliminary evidence that the DLS items form a reliable construct but may benefit from refinement such as rotation or confirmatory factor analysis (CFA)—to clarify dimensionality.

Factor Analysis (EFA) for Student Academic Performance

Table 4: Component Matrix for Student Academic Performance (SAP)

| Item Code | Component 1 | Component 2 |
|-----------|-------------|-------------|
| SAP1 | 0.484 | 0.737 |
| SAP2 | 0.903 | -0.145 |
| SAP3 | 0.917 | -0.122 |
| SAP4 | 0.932 | -0.137 |
| SAP5 | 0.934 | -0.131 |
| SAP6 | 0.928 | -0.145 |
| SAP7 | 0.917 | -0.118 |
| SAP8 | 0.624 | 0.619 |
| SAP9 | 0.608 | 0.701 |
| SAP10 | 0.832 | -0.008 |
| SAP11 | 0.904 | -0.106 |
| SAP12 | 0.916 | -0.134 |
| SAP13 | 0.655 | 0.466 |
| SAP14 | 0.905 | -0.115 |
| SAP15 | 0.915 | -0.139 |
| SAP16 | 0.905 | -0.137 |
| SAP17 | 0.916 | -0.172 |

Table 5: KMO and Bartlett's Test of Sphericity

| Measurement | Value |
|-------------------------------|------------|
| Kaiser-Meyer-Olkin (KMO) | 0.858 |
| Bartlett's Test of Sphericity | 12,131.402 |
| Df | 136 |
| Significance (p-value) | 0.000 |

Table 4, two components were extracted. The majority of the items (e.g., SAP2–SAP7, SAP10–SAP17) loaded strongly on Component 1 (with loadings mostly > 0.90), representing the core dimension of student academic performance likely, encompassing achievement, engagement, and learning outcomes. Items such as SAP1, SAP8, SAP9, and SAP13 demonstrated moderate cross-loadings on both components, suggesting potential sub-dimensions related to student performance.

Exploratory Factor Analysis (EFA) using Principal Component Analysis was conducted on 17 items measuring Student Academic Performance (SAP). The Kaiser-Meyer-Olkin (KMO) value of 0.858 indicates a high degree of sampling adequacy, and Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 12,131.402$, $df = 136$, $p < 0.001$), confirming the suitability of the data for factor analysis as shown in Table 5.

These findings indicate that while Student Academic Performance is largely unidimensional in nature, there may be latent substructures worth exploring in future confirmatory factor analysis (CFA). All retained items met the acceptable loading threshold of ≥ 0.50 , supporting the construct validity of the measurement scale.

Reliability Analysis (Cronbach's Alpha)

Table 6: Reliability Analysis Using Cronbach's Alpha

| Construct | No. of Items | Cronbach's Alpha |
|-----------------------------|--------------|------------------|
| Demographic | 6 | 0.713 |
| Democratic Leadership style | 7 | 0.871 |
| Students Performance | 17 | 0.973 |

Table 6, to evaluate the internal consistency of the measurement scales, Cronbach's alpha coefficients were calculated for each construct. As shown in Table 6, all constructs exceeded the recommended reliability threshold of 0.70 [14], indicating acceptable to excellent internal consistency. The Democratic Leadership Style construct recorded a Cronbach's alpha of 0.871, reflecting high reliability. The Student Performance scale demonstrated excellent reliability with an alpha of 0.973, while the Demographic construct showed acceptable reliability at 0.713. These results confirm that the items used in the study consistently measured their intended constructs.

Hypotheses Tested

H1: Democratic leadership style has a positive and statistically significant effect on student academic performance among university lecturers.

Table 7: Simple Linear Regression

| Variables | Unstandardized Coefficient (B) | Standard Error | t-value | Sig. |
|-----------------------------|--------------------------------|----------------|---------|-------|
| Constant | 2.210 | 0.358 | 6.177 | 0.000 |
| Democratic Leadership Style | 0.361 | 0.081 | 4.446 | 0.000 |
| | | | | |
| R = 0.247 | | | | |
| R Square = 0.061 | | | | |
| Adjust R Square = 0.058 | | | | |
| F = 19.769 | | | | |

A simple linear regression was performed to evaluate the influence of Democratic Leadership Style on Student Academic Performance among lecturers in Cambodian public higher education institutions. The model was statistically significant, $F(1, 303) = 19.769$, $p < 0.001$, demonstrating that democratic leadership style meaningfully predicts student performance outcomes. The coefficient of determination (R Square) was 0.061, suggesting that democratic leadership style accounts for approximately 6.1% of the variation in student academic performance. Although modest, this proportion indicates a meaningful contribution of leadership behavior to academic outcomes within the studied context.

The unstandardized coefficient ($B = 0.361$, $p < 0.001$) reveals a positive and significant relationship between democratic leadership style and student academic performance, thus supporting Hypothesis 1 (H1). Furthermore, the Variance Inflation Factor (VIF) was 1.000, confirming the absence of multicollinearity and ensuring the robustness of the regression estimates (Hair et al., 2019).

These findings are in line with prior studies such as [16], which emphasize the benefits of democratic leadership in educational settings. In the Cambodian higher education context, where collaborative practices may still be emerging, adopting democratic leadership could enhance motivation, engagement, and performance among students by fostering an inclusive and supportive learning environment.

CONCLUSION, LIMITATION OF STUDY, AND FUTURE RESEARCH

This study investigated the relationship between democratic leadership style and student academic performance among lecturers in Cambodian public higher education institutions. The findings confirm a positive and statistically significant effect ($B = 0.361$, $p < 0.001$), with democratic leadership accounting for 6.1% of the variance in student performance outcomes ($R^2 = 0.061$). These results indicate that democratic leadership, characterized by shared decision-making, open communication, and participatory governance, contributes meaningfully to fostering inclusive academic environments that promote engagement, motivation, and improved learning outcomes. Although the explained variance is modest, it underscores the practical relevance of adopting democratic leadership approaches in enhancing student success within the Cambodian higher education context.

Several limitations should be acknowledged. First, the cross-sectional design of the study restricts causal inference, capturing only a snapshot of the relationship between leadership and performance. Second, the study relies on self-reported data from lecturers, which may introduce response biases. Third, the sample is limited to public university lecturers, reducing the generalizability of findings to private or international institutions. Finally, leadership style was assessed from the educators' perspective alone, omitting valuable insights from students or administrators. Future investigations should consider longitudinal or experimental designs to better understand causality and the temporal dynamics of leadership impacts. Expanding the research scope to include private institutions and student perspectives would offer a more holistic understanding. Furthermore, mixed methods approaches integrating qualitative interviews could uncover deeper mechanisms through which democratic leadership shapes academic environments and student outcomes. Comparative studies exploring multiple leadership styles in different cultural or institutional contexts are also recommended.

REFERENCES

1. C. Chet, D. Ford, and L. Ahrens, "Reforming Cambodian Universities: Building Best Practice at the Royal University of Phnom Penh," in *Education in the Asia-Pacific Region*, Singapore: Springer Nature Singapore, 2022, pp. 241–257. doi: 10.1007/978-981-16-8213-1_13.
2. L. Xiaoling and D. A. Ali, "EXAMINING THE INFLUENCE OF THE ENTREPRENEURIAL ECOSYSTEM ON THE SUCCESS OF UNIVERSITY STARTUPS VIA THE DETERMINING FUNCTION," *Prestieesci Journal of Business and Management*, vol. 2, no. 1, pp. 363–374, 2025, [Online]. Available: <https://prestieesci.com/journal/index.php/PJBM/article/view/279>
3. Z. Qiang and D. A. Ali, "AN IDEAL SOLUTION FOR ALL OPERATIONAL MANAGEMENT ISSUES," *Prestieesci Journal of Business and Management*, vol. 2, no. 1, pp. 209–222, 2025, [Online]. Available: <https://prestieesci.com/journal/index.php/PJBM/article/view/248>

4. T. O. Adeyemi, "Principals' leadership styles and teachers' job performance in senior secondary schools in Ondo State, Nigeria," *Journal of Education Administration and Policy Studies*, vol. 2, no. 6, pp. 83–91, 2010, doi: 10.5897/IJAPSIO.019+.
5. A. Ibrahim and S. Al-Taneiji, "Principal leadership style, school performance, and principal effectiveness in Dubai schools," *International journal of research studies in education*, vol. 2, no. 1, pp. 41–54, 2013, [Online]. Available: <https://www.academia.edu/download/91505210/86-365-1-PB.pdf>
6. N. Cayan, I. Pabustan, M. O. Mallari, and N. T. Florencondia, "Relationship between Democratic Leadership Characteristics and Student Academic Performance at Holy Angel University," *Iconic Research and Engineering Journalst*, vol. 8, no. 11, 2025.
7. K. Heng and K. Sol, "Education: Key to making Cambodia great again," 2022, Accessed: Jan. 29, 2025. [Online]. Available: <https://kimkongheng.wordpress.com/2022/08/04/education-key-to-making-cambodia-great-again/>
8. S. Maqbool, H. Zafeer, S. Maqbool, P. Zeng, and Z. D.- Heliyon, "Stance of numerous leadership styles and their effect on teaching to sustain academic performance at the high school level," *Heliyon*, vol. 10, no. 16, 2024, Accessed: Jul. 25, 2025. [Online]. Available: [https://www.cell.com/heliyon/fulltext/S2405-8440\(24\)12469-3](https://www.cell.com/heliyon/fulltext/S2405-8440(24)12469-3)
9. T. D. Hailegebreal and A. Temesgen, "The effects of leadership style on students' performance," *Journal of Education and Practice*, vol. 11, no. 34, pp. 20–28, 2020, [Online]. Available: <https://www.academia.edu/download/89331434/56927.pdf>
10. J. Creswell and T. Guetterman, *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*, 6th ed. Pearson, 2018.
11. A. Bryman, *Social research methods*. Oxford university press, 2016.
12. I. Etikan and K. Bala, "Sampling and sampling methods," *Biom Biostat Int J*, vol. 5, no. 6, 2017.
13. J. Hair, W. Black, B. Babin, and R. Anderson, *Multivariate data analysis*. Pearson Education Limited, 2019.
14. J. C. Nunnally, "An Overview of Psychological Measurement," in *Clinical diagnosis of mental disorders: A handbook*, Springer US, 1978, pp. 97–146. doi: 10.1007/978-1-4684-2490-4_4.
15. H. F. Kaiser, "An index of factorial simplicity," *Psychometrika*, vol. 39, no. 1, pp. 31–36, 1974, doi: 10.1007/BF02291575.
16. A. M. Mohamud and A. W. Muir, "Relationship between Democratic Leadership Style and Students' Academic Performance in Garissa Township, Garissa County," *East African Journal of Interdisciplinary Studies*, vol. 7, no. 1, pp. 312–318, Sep. 2024, doi: 10.37284/EAJIS.7.1.2215.