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Breaking Barriers, Building Futures: The Transformative Role of Higher Education for Women's Leadership in the Gambian Education System

[1]Ceesay, Sulayman; [2]Akuffo, Douglas Okai; [3]Chol, Bek Dhuorjang

[1]Huazhong University of Science and Technology, College of Public Administration

[2]Huazhong University of Science and Technology, College of Public Administration

[3]Lecturer, University of Juba, South Sudan, PhD Candidate, Huazhong University of Science and Technology, College of Public Administration

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ABSTRACT

This study examines and critiques the effect that tertiary education has on the performance levels of women in leadership in the education sector in The Gambia. A cross-sectional mixed-methodology approach is employed to investigate the correlations between levels of education and leadership. The study examines the issues faced and the contribution it makes to effectiveness. It had a strongly positive relationship with statistical significance, with the field of study and specialization being the strongest predictor. Academic credentials and institutional backing are a compelling demonstration of strong, positive correlative qualities. Higher education leads to improvements in women's self-esteem and judgment, according to qualitative data. It recognizes that variable qualities related to education explain 85.6% of the differences in effectiveness. Despite these accomplishments, issues such as gender discrimination, cultural traditions, and politics have hindered women's complete utilization of their academic attainments. It can be concluded that while tertiary education offers numerous benefits for leadership, this potential can be more fully realized when combined with institutional support and other societal factors. transformations.

Keywords: Women's Leadership, Tertiary Education, Gambia, Gender Equity, and Human Capital Theory.

INTRODUCTION

Globally, there is increasing interest in women's leadership concerning implications for public service effectiveness and gender equity. Women's involvement in leadership enhances organizational growth and decisions (Eagly & Koenig, 2021; Gillard & Despite). Despite the rising participation of women in education across the world, their involvement in governance leadership remains low (Abalkhail, 2017; Domingo et al., 2022; Henningsen et al., Blackburn, 2023). This is partly because it leads to discussions on the effectiveness of women's education among the global academic community. Education is generally regarded as the catalyst for women's empowerment and leadership development. Higher education equips women with better knowledge and skills in leadership. Sometimes, "the potential for this level of education to enhance one's performance in leadership is hindered by specific obstacles in the learning environment, as well as gender issues" (Domingo et al., 2022; Eagly & Koenig, 2021). Thus, it is imperative to note that one must focus on both women's achievements in academia and corresponding leadership skills.

At the continental level, the trends observed in Africa follow the same pattern. Despite Agenda 2063's encouragement of gender balance and women's empowerment, progress has been uneven (Hazel & Kleyman, 2020). More women in Africa are pursuing post-secondary education, demonstrating their resilience in the face of challenges. Nonetheless, their struggle to rise to leadership positions is impeded by sociocultural attitudes and a lack of networking opportunities (Doe, 2024; Evans & Maley, 2021; Hideg & Shen, 2019). Gender imbalances

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in STEM education have been emblematic of inequality at the post-secondary educational institution level (Gupta, 2020; Garr-Schultz et al., 2023). Thus, post-secondary educational institutions symbolize a paradox surrounding women's empowerment at the continental level of Africa.

At the regional level, West Africa is one such place. Nigeria, Ghana, and Senegal have registered growth regarding female postsecondary enrollment. These countries still show a lack of representation of women in influential or decision-making roles within the education sector (Pegram Jr., 2025). Social or cultural traditions that emphasize domestic duties over their careers limit women's goals to ascend to leadership positions (Eaton et al., 2020). Stereotypes that raise questions about women's potential to be leaders sustain barriers (Dersch et al., 2022). Despite this struggle, women with leadership positions have the capacity to be transformative agents. These women are advocates for inclusive policies and motivate young women (Williams et al., 2025). This is because this scenario makes it even more imperative to investigate how tertiary education affects the leadership efficacy of women in this region. The tertiary education level is especially significant because it affords women the opportunity to obtain skills that are essential for effectively providing (Ahmed et al., 2020; Edwards et al., 2020). It is also during this time that they have networking opportunities and experiences that increase their levels of confidence (Domingo et al., 2022). Education offers women the opportunity to overcome stereotypes as it validates their skills (Abalkhail, 2017). However, it is worth highlighting that academic brilliance does not guarantee success in leadership roles. This is because there could be intervening variables (Evans & Maley, 2021).

In the education sector, leadership plays a critical role in ensuring quality, equity, and innovative approaches (Ministry of Basic and Secondary Education & Higher Education, 2016). Women leaders bring with them their experiences to ensure collaboration, inclusivity, and a focus on students (Andrew, 2020; Arora, 2022). Women leaders have a multiplier effect because they have the capacity to be role models or mentors for young girls (Williams et al., 2025). However, their low representation, unconscious biases, and non-support have been hindering their progress in the education sector (Domingo et al., 2022; Doe, 2024). The debate about women's performance in leadership in the education sector would be a valuable source for information on both the abilities and limitations of tertiary education for women's empowerment. That is why the connection between tertiary education and the effectiveness of women leaders is important.

Higher education enhances one's skills and analytical abilities, which are complex in nature. These are essential attributes for effective leadership (Bennouri et al., 2022). Higher education will enhance women's symbolic capital to resist stereotypes and legitimize their position in a leadership context (Guldiken et al., 2019). Furthermore, global connections or opportunities accessed through higher education can enhance leadership skills (Blackburn 2023). However, inequalities such as gender biases, issues with promotion, or sociological traditions persist and mitigate such benefits (Doe, 2024; Fatty & Twum). These problems are even more prominent in Gambia. Despite greater accessibility to education, women’s underrepresentation in senior roles in education is a reality (Doe, 2024; Fatty & Twum, 2023). Social barriers, lack of institutional support, and limited mentoring opportunities impede their advancement (The Gambia News Agency, 2025; Jallow, 2025). However, women in Gambia have been leading the way in terms of education and directing their communities and have made significant impacts in terms of growth and development in this nation (Alumni Team, 2020). Contemporary strategies such as their National Gender Strategy for Tertiary Education and First Higher Education Gender Policy clearly demonstrate the actions taken by this country to address such issues (The Gambia News Agency, 2025; Jallow, 2025).

In framing a deeper appreciation for the role that tertiary education might play regarding influencing the performance of women's leadership in the Gambia, consideration might be given to each of the above-mentioned global, continental, and regional perspectives. While it is well-accepted that tertiary education has the power to completely empower women and enhance their leadership performance, appreciating its effectiveness is significant. This investigation specifically aims to (1) examine the relationship between tertiary education and women's leadership performance in The Gambia's education sector, (2) evaluate how tertiary education impacts the effectiveness of women's leadership roles, and (3) identify the challenges women leaders face in leveraging tertiary education to improve their performance.

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Hypotheses of the Study

H1: Female leaders in the Gambia's education sector perform better when they have more tertiary education.

H2: Academic qualification, area of study or specialization, and availability of support services and guidance positively influence the efficient leadership performance of women leaders in the education sector in the Gambia.

Literature Review on Tertiary Education, Performance of Women Leadership, And the Education Sector

Generally, tertiary education is post-secondary education that involves learning with the intention of creating knowledge and skills for employment related to leadership (Ministry of Basic and Secondary Education, and Higher Education, Research, Science, and Technology, 2016). It is vital to develop women leaders in the educational sector because it involves skills related to leading. One can develop these skills by being well-versed in academics and undergoing leadership training. These dimensions contribute to the development of essential skills (Doe, 2024; Ahmed, Urmi & Tasmin, 2020).

Improved leadership effectiveness significantly correlates with academic preparedness. This is because Bowman et al. (2022) argue that pursuing higher degrees enhances critical thinking and decision-making prowess. These skills are pivotal to women leaders. Additionally, Alharbi (2023) agrees that women's academic preparedness in higher education contributes to their credibility. This is because academic preparedness is part of women's legitimacy as leaders. It is well and again established that education is a powerful means to women's empowerment (Eagly & Koenig, 2021; Gillard & Okonjo-Iweala, 2022). However, these advantages are not common in the least developed environments (Abalkhail, 2017; Blackburn, 2023). The area of specialization is another critical element that has significant effects on experiences with leadership. According to Ahmed et al. (2020), women in areas like STEM gain more professionalism, which enhances their position. On the contrary, it is argued by Doe (2024) that for women in The Gambia, their capacity for leadership is diminished by their inability to specialize in critical areas. This constrains their role in decision-making.

Institutional support and mentorship form highly critical mediating factors. According to Edwards et al. (2020), mentorship is crucial because it involves guidance, networking opportunities, and boosting one's esteem. Lack of mentorship keeps women in subservient positions (Domingo et al., 2022). In the Gambia, there is a chronic lack of mentorship programs, according to Fatty and Twum (2023).

Participation in leadership training is another important factor that influences effectiveness. Abalkhail (2017) and Gillard & Okonjo-Iweala (2022) support that training improves negotiation skills and management abilities. But according to Jallow (2025), for The Gambia's situation, women's participation is still very restricted despite the availability of a gender strategy. It seems there is a contradiction because training is encouraged as a means to achieve empowerment. This dissertation will investigate why there is a gap between benefits gained and performance achievements.

Performance of women in leadership is measured through their effectiveness in reaching objectives, influencing or shaping policies, creating inclusivity, or mentoring (Gillard & Okonjo-Iweala, 2022; Arora, 2022). Some of the indicators include influence in decision-making, effectiveness in the organization, senior-level gender representation, or overcoming challenges (Bennouri, De Amicis & Falconieri, 2022; Edwards et al., 2020). Participation in strategy is related to education (Abalkhail, 2017), while Arora (2022) indicates innovation in teams. Gender-diverse leadership improves legitimacy because it is both a determinant and an indicator (Evans & Maley, 2021).

Despite such efforts, sociocultural impediments and institutionalized biases continue to pose a challenge. Eagly & Koenig (2021) and Doe (2024) suggest that in The Gambia, patriarchy and stereotypes challenge women's position of power. Even if women have been actively involved as teachers and community leaders (Alumni Team, 2020) for a considerable amount of time, their role is still underrepresented at high levels (Doe, 2024; Fatty & Twum, 2023) in the country. This indicates that academic success is not a guarantee to remove barriers.

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Regionally, there is a growing public demand for the government to address gender disparities (Fatty & Twum, 2023). According to Doe (2024), there is still a challenge even with the growth in education because there is limited guidance, promotion, and structure to influence leadership. This is supported by evidence (Garr-Schultz et al., 2023; Blackburn, 2023) that highlights that it is not just in The Gambia that such inequality is perpetuated.

In conclusion, literature clearly establishes the importance of tertiary education for women's leadership and the role of competency skills. A critical knowledge gap still prevails regarding the transfer of skills attained to improved performance. Sub-Saharan Africa particularly highlights this issue. The paucity of literature regarding West Africa that uses mixed methods to quantitatively validate the issue is evident. There is a well-established qualitative investigation of women's experiences in overcoming sociocultural barriers.

To close the gap, the proposed study analyzes the link between post-secondary education and the performance of women in leadership. It will determine the role of education in improving performance and examine the challenges associated with women utilizing their education to improve their performance. This will enable the researcher to generate empirical knowledge to contribute to the gender debate.

THEORETICAL FRAMEWORK

The study is grounded on the Human Capital Theory (HCT) developed by Gary S. Becker in his work titled "Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education," first published in 1964 and then revised in 1993. This theory was developed to account for differences in productivity and economic growth because of variations in educational attainments and skills accumulation. This theory completely transformed the concept of education, as it assumes that "individuals and societies acquire benefits from the accumulation of knowledge and skills that raise productivity" (Becker, 1964, 1993).

HCT is based on three tenets. First, people consider themselves rational actors who calculate the costs and benefits of capitalizing on education. This implies that investing in education enhances human productivity and results in their improved performance (Becker, 1993). The third tenet is that persons and the organization have a drive for efficiency. It bridges individual growth to collective or societal advancement. The 'cause and effect' logic of HCT directly qualifies it for assessing the relationship between post-primary education and women's leadership performance.

Some of the critical HCT concepts tested in this research include education as investment; investment in skills and their associated resources (Arora 2022); the benefits of education that transcend purely economic benefits to include effectiveness and innovation (Ahmed et al. 2020; Abalkhail 2017); and the enhancement of competency informed by specialization and training (Edwards et al. 2020). Since the Gambia is the setting for the current research, the above-mentioned concepts have been represented as independent variables in the form of tertiary education attainment, area of study, capacity-building engagement, or mentorship availability.

Additionally, women's effectiveness in leadership is the dependent variable. According to Becker's postulations, we hypothesize that women leaders who possess advanced education, high levels of specialization, and support will demonstrate superior performance (Becker, 1993). The first research objective to examine the relationship between post-primary education and performance is directly informed by HCT's overarching tenet that education improves productivity (Doe, 2024). The second objective, to test the role of education in superior performance, is informed by HCT's emphasis on specialization and capacity building (Abalkhail, 2017; Arora, 2022). The third objective, to look at contextual impediments, is to extend the reach of HCT to consider that it is not just education itself that matters, but the context in which it operates (Eagly & Koenig, 2021; Fatty & Twum, 2023).

Literature on gender and leadership widely applies HCT, demonstrating its explanatory power (Blackburn, 2023; Bowman et al., 2022). Its assumptions can be verified on a quantitative methodological framework, such as regression analyses, to ascertain the impact of education on performance. But HCT is still a theory with profound limitations. For instance, it is argued that it exaggerates the role of individual agency and undervalues the effect of institutional and structural limitations to transform education achievements into leadership achievements (Eaton et al., 2020; Domingo et al., 2022). In patriarchal societies such as Gambia, highly educated women may still be precluded from attaining senior positions due to male-centric stereotypes and systemic inadequacies

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(Doe, 2024; Abalkhail, 2017). The linear model does not acknowledge how power and culture mediate individual achievements in returning to education (Evans & Maley, 2021). Hence, HCT demands another explanatory framework to consider these "intervening variables."

To address this concern, the paper incorporates Acker's (1990) theory of gendered organizations. Acker postulates that gender is systematically ingrained in the structure and functioning of organizations, with a focus on perpetuating male norms and failing women. This theory is critical to understanding the reason why women with similar or superior educational attainments continue to produce poorer leadership outcomes in comparison to men (Eagly & Koenig, 2021; Evans & Maley, 2021).

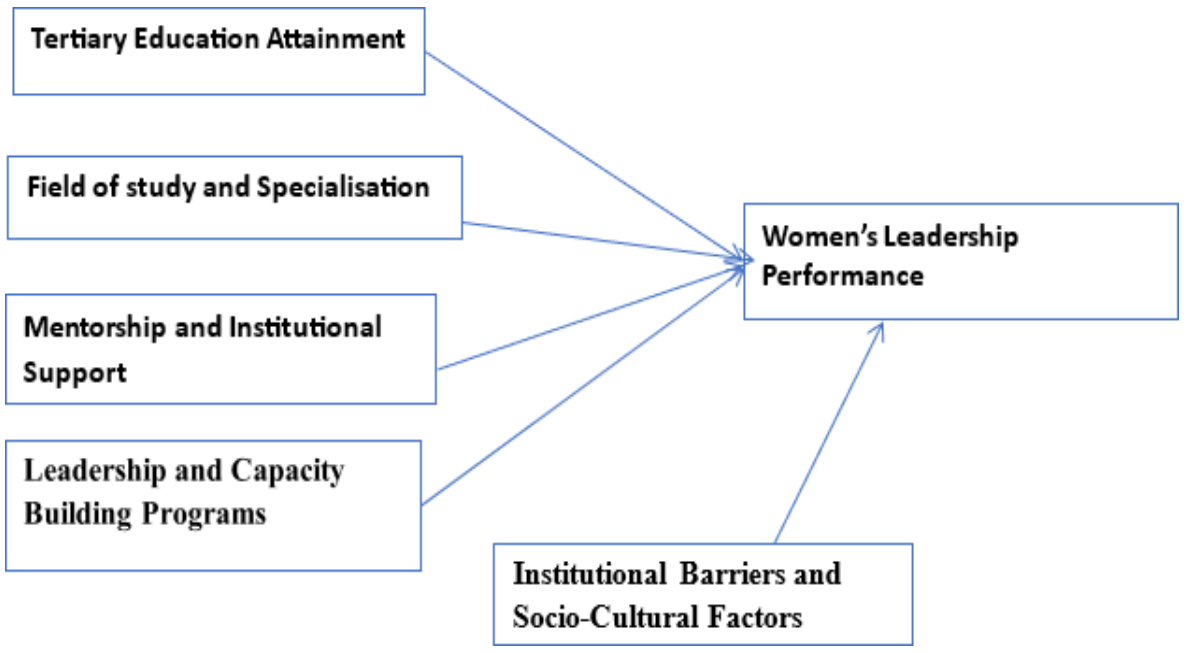
An integration of HCT and Acker's theory can supply a well-rounded understanding of agency and structure. While HCT describes how women's education investments bring them skills and qualifications for their position as leaders, Acker's theory describes the processes that impede the return on their investments. For instance, if women in The Gambia have potential disadvantages in obtaining mentoring and promotion to leadership positions, it is not necessarily because they lack human capital investments (Doe, 2024; Fatty & Twum, 2023).

This comprehensive framework responds to the 'training paradox,' in that although HCT predicts that training and education have a performance-enhancing outcome, in accordance with Acker's theory, these outcomes for women's performance will vary subject to whether gender-inclusive implementation is institutionalized. Thus, the relevance of tertiary education is dependent on a particular setting.

The combined framework specifies tertiary education, specialization, mentoring, and training for staff as the independent variables (HCT); women's performance in leadership positions as the dependent variable; and impediments to institutional transformation and sociocultural variables (Acker) operating as the intermediate variables. With the combination of Human Capital Theory and Acker's Theory on Gendered Organizations, one can build a complex model.

The model allows for an understanding of both the economic imperative for individual investment in education, such as women's education, while simultaneously recognizing other institutional and cultural dimensions. This theoretical model lends itself well to the proposed mixed-methods methodology.

Figure 1: Conceptual Framework on the Effect of Tertiary Education on Performance of Women Leadership in The Gambia's Education Sector



Source**:** Adapted from Becker's Human Capital Theory (Becker, 1964, 1993) and developed by the researcher for this study (2025).

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METHOD AND MATERIALS

The study population (N = 1,845) consisted of staff from institutions under the Ministry of Basic and Secondary Education (MoBSE) and the Ministry of Higher Education, Research, Science, and Technology (MoHERST). MoBSE institutions included Lower Basic Schools (LBS), Upper Basic Schools (UBS), and Senior Secondary Schools (SSS), while MOHERST covered public Universities, Colleges, and Technical and Vocational Education Training (TVET) institutions (Table 1). The focus on public institutions was due to their direct alignment with government education policy, enabling comparative insights on gender and leadership dynamics.

Table 1: Population of the Study

Institution Type	Institution Name	Population (Staff)
Lower Basic Schools (LBS)	Albion LBS	64
	Campama LBS	45
	Bakau New Town LBS	56
	GOVI LBS	48
	Hamza Barrack LBS	25
	Fajara Barrack LBS	35
	Muhammadan LBS	24
	Methodist Special LBS	28
	St. John's LBS	26
	St. Mary's LBS	29
	Rev. J.C. Faye LBS	38
	Wesley LBS	25
Upper Basic Schools (UBS)	Bakadagi UBS	24
	Badary BCS	22
	Fatoto UBS	23
	Kantora UBS	32
	Julangel UBS	23
	Tjereng UBS & SSS	30
	Mansa Colley Bojang, UBS	28
	Brikama UBS	60
	Gambia Methodist Academy UBS	33
	St. Therese's UBS	26

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Senior Secondary Schools (SSS)	Gambia SSS	42
	Muslim SSS	32
	Armitage SSS	28
	St. Peter's SSS	38
	Nusrat SSS	48
Universities/Colleges/TVET (MofHERST)	University of The Gambia	480
	University of Education, The Gambia	260
	USET	108
	Civil Service University	65
Total		**1,845**

Source: Personal Communication with officials of the various schools (May 6–June 29, 2025).

A cross-sectional mixed-methods design was employed. It entails the simultaneous collection of quantitative and qualitative data. The quantitative component enables statistical analysis of the relationships between tertiary education and women's leadership performance, and the qualitative component provides more profound insights. The integration of both research methodologies facilitated complementarity and triangulation, hence, enhancing validity. The longitudinal design may monitor the progression of leadership performance over time. The cross-sectional method was chosen for its practicality and efficiency in fulfilling the research objectives. Considering the study's objective to identify preliminary correlations and provide comprehensive, current insights into women's leadership in the Gambia, a cross-sectional design was considered most suitable. It facilitated the efficient gathering of data from a vast, geographically scattered sample within a limited timeframe. This offers an essential basic overview that can guide future longitudinal studies (Fan et al., 2025; Eroğlu et al., 2025). This methodology effectively captures dominant views, experiences, and relationships at a particular moment in time. This method corresponds with the study's objective of producing prompt evidence for policy development.

The formula by Krejcie and Morgan (1970) was used to calculate that a sample size of 317 participants is necessary for 95% confidence with a 5% margin of error for a population of 1,845.

A sampling technique was employed for conducting the quantitative survey. The strata comprised institution types (LBS, UBS, SSS, university, college, and training institute), and then random sampling was conducted. Finally, purposive sampling was used to collect data for the qualitative phase, selecting 18 interviewees, specifically women in senior positions and administrators, to provide their institutional perspectives.

The independent variable was tertiary education, which is defined by qualifications, disciplines, specialization, and participation in training. The dependent variable is performance in leadership, which is expressed through decision-making effectiveness, institutional performance, feedback, and management skills.

The quantitative data were analyzed with SPSS version 22 and SMART PLS. Descriptive statistics, correlation analyses, and multiple regression analysis were performed. The thematic analyses of the qualitative data employed manual coding to discern themes, including deficiencies in mentorship and institutional resistance. Descriptive statistics were calculated to encapsulate the demographic and main factors. Pearson correlation and multiple regression analyses were used to evaluate the study's hypotheses.

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The preliminary correlation study indicated substantial relationships (exceeding 0.88) across the independent variables, notably between Academic Qualifications and Field of Study and Specialization (r = .908) and between Field of Study and Specialization and Leadership Performance (r = .971). Although these robust associations are conceptually comprehensible, as elevated academic achievement frequently impacts one's area of expertise, and both are posited to enhance performance, such significant intercorrelations may suggest multicollinearity. Multicollinearity can exacerbate the standard errors of regression coefficients, complicating the evaluation of each predictor's distinct contribution.

To thoroughly diagnose and resolve this potential issue, we performed a comprehensive collinearity examination. We computed the Variance Inflation Factor (VIF) and Tolerance statistics for each predictor in the regression model. Multicollinearity increases the variance of a regression coefficient, as measured by the Variance Inflation Factor (VIF). The standard thresholds of VIF < 10 and Tolerance > 0.10 indicate that multicollinearity is not significantly affecting the model.

Thematic analysis of the qualitative interview data adhered to the iterative methodology established by Braun and Clarke (2006). Following the transcription of the interviews, the researchers conducted multiple readings to enhance familiarity. Preliminary codes were produced and subsequently organized into prospective themes. The analysis was a cyclical process in which ideas were perpetually evaluated, honed, and delineated. Thematic saturation was established after roughly 15 interviews, as later interviews produced no additional significant themes or insights pertinent to the research aims. The last three interviews validated and reinforced the highlighted themes. This instills confidence that a thorough comprehension of the phenomenon has been attained. Participants' quotations enhanced the ideas.

The instruments used for this study comprised two types: one for quantitative research involving a structured questionnaire with closed and Likert-scale items (1=strongly Disagree to 5=strongly Agree) about tertiary education, performance on leadership, and institutional support. We asked open-ended questions on leadership experiences, mentorship, educational background, and sociocultural challenges, which allowed for probing and elaboration. We asked open-ended questions about experiences with leadership, mentoring, educational background, and sociocultural challenges, allowing for probing and elaboration.

Development and Validation of Instruments

The structured questionnaire was developed through a multi-stage process to ensure content validity and reliability. The items were initially formulated by a comprehensive review of the literature concerning women's leadership, higher education, and Human Capital Theory. A trio of experts in public administration, educational leadership, and gender studies subsequently evaluated these matters. The experts assessed the items for clarity, relevance, and comprehensiveness. This led to the improvement of language and the inclusion of several context-specific measures for leadership effectiveness.

The revised instrument was subsequently pilot tested with a group of 30 female educational leaders. They were omitted from the principal study. The pilot results were assessed for internal consistency using Cronbach's Alpha. The alpha coefficients for all categories (Academic Qualifications, Field of Study, Institutional Support, Leadership Training, and Leadership Performance) exceeded the acceptable threshold of 0.80. This approach exhibited considerable dependability. Feedback from pilot participants on ambiguity and completion time was included in the final version of the questionnaire, which enhanced its clarity and usability.

The Institutional Review Board (IRB) of the University of The Gambia sought and granted ethical clearance. Participants got informed consent documents, which contained information about participation and the right to withdraw. Anonymity and confidentiality were strictly observed. The cross-sectional design made it difficult to determine causes, but regression, stratified sampling, and triangulation reduced bias. Subject variables such as organizational culture were taken into consideration for a balanced interpretation.

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RESULTS

Quantitative Perspective

The respondents' demographics have been considered for background and institutional representation. Of the 317 questionnaires distributed, 232 were received, yielding a 73% response rate. These are women in leadership positions in LBS, UBS, SSS, and Universities/Colleges/TVET (MoHERST). Age distribution was 20.7% (25–34 years), 39.2% (35–44 years), 29.3% (45–54 years), and 10.8% (55+ years), indicating a majority were mid-career professionals. Concerning academic qualifications, 37.5% possessed a bachelor's, 48.3% a master's, and 14.2% a doctorate, which means that a vast majority of female leaders have postgraduate qualifications. The institutional percentage breakdown includes 38.8% in LBS, 25.9% in UBS, 17.2% in SSS, and 18.1% in experienced and well-distributed, thus offering a robust analytical base. Descriptive statistics were used to summarize variables in this study. The mean score for academic qualifications (M = 3.85, SD = 0.62), area of specialization and field of study (M = 4.10, SD = 0.55), support and mentorship (M = 3.92, SD = 0.59), involvement in leadership programs (M = 3.74, SD = 0.70), and leadership performance (M = 4.05, SD = 0.60) ranked above 3.0 on the 5-point Likert scale. This indicates that overall levels of education, opportunity for mentorship, and performance in leadership positions have been regarded as high.

An Explanatory Factor Analysis (EFA) was conducted to examine the factor structure of the measurement items. From a Principal Component Analysis with Varimax rotation, four components with eigenvalues above 1.0 were retained, which accounted for 82.4% of the variation. The Kaiser-Meyer-Olkin (KMO) index was .894, and Bartlett's Test of Sphericity was significant ($\chi^2 = 1{,}256.37$, $p < .001$), suggesting the adequacy of data for factor analysis. All factor loads were exceeded. 60. The Confirmatory Factor Analysis (CFA) with the AMOS software confirmed the measurement model. All fit the criteria: $\chi^2/df = 2.31$, Comparative Fit Index (CFI) = .958, Tucker Lewis Index (TLI) = .946, Root Mean Square Error Approximation (RMSEA) = .063, and Standardized Root Mean Square Residual (SRMR) = .048, showing acceptable model fit. All composite reliabilities fell between .86 and .92. The average variance extracted (AVE) for all constructs surpassed .50.

Multicollinearity or Collinearity Statistics (VIF) analysis

To diagnose collinearity and multicollinearity issues, we performed a full variance inflation factor (VIF) test. As presented in Table 2, all VIF for measurement items (outer model) and structural paths (inner model) are below the conservative threshold of 5 (Hair et al., 2019). The highest VIF for the structural path is 3.215 (PILP → LP). This confirms that the constructs are statistically related, as indicated in the correlation matrix (Table 2); therefore, multicollinearity does not reach a bias parameter that might undermine the model.

Table 2: *Descriptive Statistics, Mean, Standard Deviation, and Correlations*

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. AQ	0.115	0.87054	1									
2. FSS	-0.097	0.88923	.552**	1								
3. ISM	-0.175	0.91157	.596**	.645**	1							
4. PILP	0.094	0.93476	.728**	.648**	.734**	1						
5. LP	-	0.9176	0.017	.384*	.346*	.281*	1					

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	0.777	5		*	*	*						
6. Gender	1.49	0.501	0.051	0.018	-0.009	0.05	0.032	1				
7. Age	3.02	1.327	0.025	-0.009	-0.056	-0.01	0.071	0.069	1			
8. Position	4.06	1.989	0.063	0.12	0.11	0.083	0.004	-0.067	-0.068	1		
9. Experience	2.97	1.411	-0.053	-.155*	-0.057	-0.025	-0.03	-0.019	-0.023	-0.047	1	
10. Education	2.91	1.393	-0.041	-0.01	-0.023	-0.056	-0.046	-0.038	0.024	-0.006	-0.017	1
** Correlation is significant at the 0.01 level (2-tailed).												
* Correlation is significant at the 0.05 level (2-tailed).												

Source: Author's Computation (2025)

This table presents Mean (M), Standard Deviation (SD), and a correlation matrix for all the study variables. The means are near zero, and the standard deviations are close to one for the main constructs (AQ, FSS, ISM, PILP, and LP), suggesting the data were standardized for analysis. The matrix shows positive correlations among the constructs (e.g., r = .728 between AQ and PILP), confirming their interrelatedness. In contrast, LP shows correlations with other constructs and demographic variables, showing weak and non-significant relationships.

Convergent Validity and Reliability

For transparency of the measurement instrument, Table 3 demonstrates strong evidence for convergence validity with all factor loadings exceeding 0.70 and AVE values above the .50 threshold. Furthermore, reliability is excellent, with Cronbach's alpha and composite reliability > 0.70 benchmark.

Table 3: *Construct reliability and validity*

Construct	**Items**	**Loadings**	**Cronbach's alpha**	**Composite reliability (rho_a)**	**Composite reliability (rho_c)**	**AVE**
AQ	AQ1	0.872	0.862	0.866	0.916	0.784
	AQ2	0.898				
	AQ3	0.886				
FSS	FSS1	0.867	0.841	0.841	0.904	0.759
	FSS2	0.885				

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	FSS3	0.861				
ISM	ISM1	0.876	0.859	0.860	0.914	0.780
	ISM 2	0.893				
	ISM3	0.880				
LP	LP 1	0.917	0.953	0.956	0.964	0.841
	LP 2	0.932				
	LP 3	0.916				
	LP 4	0.914				
	LP 5	0.906				
PILP	PILP1	0.906	0.886	0.886	0.929	0.814
	PILP2	0.900				
	PILP3	0.902				

Source: Author's Computation (2025)

All factor loadings exceed 0.86, demonstrating strong indicator reliability. Alpha and composite reliability values are greater than the 0.70 threshold, confirming excellent internal consistency. All Average Variance Extracted (AVE) values range from 0.759 to 0.841, greater than the 0.05 benchmark, providing strong evidence for convergent validity.

Table 4: *Collinearity Statistics (VIF)*

Outer Model	VIF	Outer Model	VIF		
AQ1	2.133	AQ -> ISM	1.436		
AQ2	2.277	AQ -> LP	2.200		
AQ3	2.194	AQ -> PILP	1.436		
FSS1	1.992	FSS -> ISM	1.436		
FSS2	2.184	FSS -> LP	1.961		
FSS3	1.870	FSS -> PILP	1.436		
ISM1	2.120	ISM -> LP	2.455		
ISM2	2.259	PILP -> LP	3.215		
ISM3	2.128				
LP1	4.203				

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LP2	4.861				
LP3	4.120				
LP4	4.206				
LP5	3.914				
PILP1	2.622				
PILP2	2.502				
PILP3	2.479				

Source: Author's Computation (2025)

All Variance Inflation Factors (VIF) are below the common threshold of 5. The highest value is 4.861 for a measurement item (LP2) and 3.215 for the structural path (PILP → LP). This indicates that multicollinearity is not a severe problem affecting the regression coefficients, affirming the robustness of the path estimates.

Discriminant validity

We assessed discriminant validity (HTMT), the Fornell-Larcker Criterion, and Cross-loadings (Table 4-7). The square roots of the AVEs in Table 6 are greater than the constructs' correlation with others, and all HTMT values are below the 0.85 requirement. These results provide robust evidence of reliability measurement and validate the quality of the questionnaire items developed for this study.

Table 5: *HTMT*

	AQ	**FSS**	**ISM**	**LP**	**PILP**
AQ					
FSS	0.647				
ISM	0.692	0.760			
LP	0.030	0.429	0.382		
PILP	0.831	0.751	0.841	0.305	

Source: Author's Computation (2025)

All Heterotrait-Monotrait (HTMT) ratios of correlation values are below the conservative threshold of 0.85. This confirms that the constructs in the model are empirically distinct from one another, demonstrating strong discriminant validity.

Table 6: *Fornell-Larcker Criterion*

	AQ	**FSS**	**ISM**	**LP**	**PILP**
AQ	**0.885**				
FSS	0.551	**0.871**			

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ISM	0.597	0.646	**0.883**		
LP	0.017	0.385	0.348	**0.917**	
PILP	0.729	0.649	0.735	0.281	**0.902**

Source: Author's Computation (2025)

As shown in Table 6 above, the assessment of discriminant validity is also employed by comparing the square roots of the AVE to the inner-construct correlation (off-diagonal). For every construct, the square root of the AVE values is greater than their correlations with other constructs. This also satisfies the Fornell-Larcker Criterion, providing additional evidence of strong discriminant validity.

Table 7: *Cross-Loadings*

	AQ	**FSS**	**ISM**	**LP**	**PILP**
AQ1	**0.872**	0.467	0.511	0.005	0.585
AQ2	**0.898**	0.485	0.572	0.013	0.674
AQ3	**0.886**	0.511	0.499	0.026	0.671
FSS1	0.483	**0.867**	0.545	0.341	0.562
FSS2	0.487	**0.885**	0.569	0.317	0.560
FSS3	0.471	**0.861**	0.574	0.348	0.573
ISM1	0.506	0.559	**0.876**	0.309	0.608
ISM2	0.529	0.593	**0.893**	0.328	0.676
ISM3	0.547	0.560	**0.880**	0.284	0.662
LP1	0.005	0.363	0.282	**0.917**	0.262
LP2	0.025	0.384	0.368	**0.932**	0.284
LP3	0.037	0.339	0.338	**0.916**	0.265
LP4	0.005	0.323	0.319	**0.914**	0.227
LP5	0.001	0.351	0.280	**0.906**	0.246
PILP1	0.620	0.606	0.640	0.268	**0.906**
PILP2	0.666	0.565	0.650	0.239	**0.900**
PILP3	0.686	0.585	0.698	0.253	**0.902**

Source: Author's Computation (2025)

The Cross-loadings indicator shows how each construct's items load on its assigned versus other constructs. As seen in Table 7, every indicator loads highest on its theoretically assigned construct (loadings in Bold). This

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pattern confirms that the indicators share more variance with their intended constructs than with others, further validating the assigned items to constructs under discriminant validity.

Model Fit and Predictive Relevance

Apart from the factor loadings, we have also included model fit indices and assessed the model's predictive power. The model shows a satisfactory fit, with a Standardized Root Mean Square Residual (SRMR) of 0.040 for the saturated model (Table 8), which is below the 0.08 threshold. Similarly, and interestingly, we assessed the model's predictive relevance using the PLS-predict procedure (Q^2 Predict). As shown in Table 9, the Q^2 predicted values for endogenous constructs are significantly greater than zero (e.g., PILP = 0.614), providing strong evidence that the model possesses predictive power and is not overfitted to sample data (Shmueli et al., 2019).

Table 8: *Model Fit*

	Saturated model	**Estimated model**
SRMR	0.040	0.056
d_ULS	0.249	0.474
d_G	0.247	0.282
Chi-square	345.142	363.882
NFI	0.892	0.886

Source: Author's Computation (2025)

This table reports model fit indices for the saturated and estimated models. The key indicator, the Standardized Root Mean Square Residual (SRMR), is 0.040 for the saturated model, which is below the required 0.080 value. This indicates a satisfactory fit between the proposed theoretical model and the observed data.

Table 9: *Predictive relevance*

Construct	**R^2**	**ΔR^2**	**Q^2 predict**	**RMSE**	**MAE**		**F^2**
ISM	0.501	0.497	0.493	0.720	0.581	AQ -> ISM	0.167
LP	0.275	0.263	0.188	0.910	0.735	AQ -> LP	0.151
PILP	0.619	0.616	0.614	0.629	0.497	AQ -> PILP	0.520
						FSS -> ISM	0.289
						FSS -> LP	0.083
						FSS -> PILP	0.230
						ISM -> LP	0.034
						PILP -> LP	0.024

Source: Author's Computation (2025)

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Table 9 summarizes the model's explanatory power (R^2), predictive relevance (Q^2) and the relative effect size of the paths (f^2). The R^2 values indicate the model explains a vital proportion of variance in institutional support and mentorship (ISM) (50.1%), participation in leadership program (PILP) (61.9%), and Leadership program (LP) (27.5%). The Q^2 predictive values are all greater than zero, demonstrating the model's predictive relevance. The f^2 effect size shows that academic qualification (AQ) influence on PILP is strong (AQ→ PILP = 0.520), and field of study and specialization (FSS) on ISM (0.289), etc.

Table 10 shows the univariate normality of the construct using Kurtosis and Skewness statistics. The absolute values for kurtosis (<3) and skewness (<2) for all constructs are within acceptable limits for assuming normality. This suggests that the data does not violate or deviate from a normal distribution, making it suitable for analysis.

Table 10: *Normality Test*

	Kurtosis	**Skewness**	**Number of observations used**
AQ	0.343	0.135	232.000
FSS	2.078	0.639	232.000
ISM	0.572	0.507	232.000
LP	-0.130	0.001	232.000
PILP	0.742	0.079	232.000

Source: Author's Computation (2025)

The measurements in those tables above allow us to assert that the constructs were measured with high precision and reliability. The methodology is strengthened and provides a solid foundation for interpreting the significant and non-significant results. This affirms that, although the predictors are significantly associated with a theoretically relevant finding in the realm of human capital formation, multicollinearity does not undermine the integrity of the overall regression model.

Test of Hypotheses

H1: Improved leadership performance in The Gambia's education sector is associated with higher tertiary education levels for women leaders.

Table 11: *Correlations*

	Academic Qualifications	Field of Study and Specialization	Institutional Support and Mentorship	Participation in Leadership and Capacity-Building Programs	Performance of Women's Leadership
Academic Pearson Correlation	1	.908**	.918**	.930**	.894**
Sig. (2-tailed)		.000	.000	.000	.000
N	232	232	232	232	232
Field of Study Pearson	.908**	1	.924**	.890**	.971**

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Correlation					
Sig. (2-tailed)	.000		.000	.000	.000
N	232	232	232	232	232
Institutional Support Pearson Correlation	.918**	.924**	1	.893**	.926**
Sig. (2-tailed)	.000	.000		.000	.000
N	232	232	232	232	232
Participation in Leadership Pearson Correlation	.930**	.890**	.893**	1	.884**
Sig. (2-tailed)	.000	.000	.000		.000
N	232	232	232	232	232
Performance of Women's Leadership Pearson Correlation	.894**	.971**	.926**	.884**	1
Sig. (2-tailed)	.000	.000	.000	.000	
N	232	232	232	232	232

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

Source: Author's Computation (2025)

All variables show significant correlations with each other (Table 11), with all correlations above .88 ($p < .01$). Values above .90, especially for variables such as field of specialization and leadership performance ($r = .971$), suggest multicollinearity. We note these tendencies here and recommend a Variance Inflation Factor (VIF) test for future studies.

H2: Level of academic qualification, field of study and specialization, access to institutional Support and mentorship, and involvement in leadership and capacity-building programs significantly contribute to effective leadership performance of women leaders in the Gambia's education sector.

Table 12: *Model Summary*

Model	R	R Square	Adjusted R-**Square**	Std. Error of the Estimate
1	.925a	.856	.854	.363

a. Predictors (Constant), Participation in Leadership and Capacity Building Programs, Institutional Support and Mentorship, Academic Qualifications, Field of Study and Specialization

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Source: Author's Computation (2025)

The model summary clearly shows that the variables explain 85.6% of the variance in women's leadership performance, indicating an excellent fit.

Table 13: *ANOVA[a]*

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	178.505	4	44.626	338.365	.000b
Residual	29.939	227	.132		
Total	208.444	231			

a. Dependent Variable: Performance of Women's Leadership

b. Predictors: (Constant), Participation in Leadership and Capacity-Building Programs, Institutional Support and Mentorship, Academic Qualifications, Field of Study and Specialization

Source: Author's Computation (2025)

Consequently, we concentrate our analysis on the aggregate explanatory capacity of the educational factors, as posited by Human Capital Theory. However, we observed their profound interconnectedness in practice. The regression coefficients, considering collinearity diagnostics, reveal that Academic Qualifications, Field of Study and Specialization, and Institutional Support and Mentorship are statistically significant predictors ($p < .001$). The variable Participation in Leadership and Capacity Building Programs was not significant ($p = .802$). The negative constant ($B = -0.249$) was likewise non-significant.

The ANOVA test ($F(4,227) = 338.365$, $p < .001$) supports that overall regression model significance is established with combined variables playing a significant role in leadership performance.

Table 14: coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Errors	Beta		
1	(Constant)	-.249	.190		-1.309	.192
	Academic Qualifications	.219	.058	.239	3.774	.000
	Field of Study and Specialization	.395	.093	.418	4.266	.000
	Institutional Support and Mentorship	.395	.076	.285	5.204	.000
	Participation in Leadership and Capacity-Building Programs	.025	.099	.025	.251	.802

a. Dependent Variable: Performance of Women's Leadership

Source: Author's Computation (2025)

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The regression coefficients indicate that academic qualifications, area of specialization, and institutional support/mentorship are significant predictors ($p < .001$). Furthermore, involvement in leadership programs was non-significant ($p = .802$), suggesting that without structural and education-related support, training participation does not have any measurable effect. The negative constant ($B = -0.249$) is non-significant. The outcome highlights relevance to academic qualifications, the type of education studied, and the role played by support structures versus participation in programs.

Results: Qualitative Perspective

Table 15: *Background Information of Interviewees*

Interviewee	Place of Work	Position	Code	Date of Interview
1	Albion LBS	Head Teacher	INT01	13th July 2025
2	Campama LBS	Deputy Head Teacher	INT02	14th July 2025
3	Bakau New Town LBS	Senior Mistress	INT03	15th July 2025
4	GOVI LBS	Head Teacher	INT04	18th July 2025
5	Methodist Special LBS	Senior Teacher	INT05	19th July 2025
6	St. John's LBS	Deputy Head Teacher	INT06	20th July 2025
7	Brikama UBS	Principal	INT07	21st July 2025
8	Mansa Colley Bojang, UBS	Vice Principal	INT08	22nd July 2025
9	Julangel UBS	Head of Department	INT09	25th July 2025
10	Gambia SSS	Principal	INT10	26th July 2025
11	Muslim SSS	Vice Principal	INT11	27th July 2025
12	St. Peter's SSS	Head of Department	INT12	28th July 2025
13	Nusrat SSS	Vice-Principal	INT13	29th July 2025
14	University of The Gambia	Admission Officer	INT14	2nd August 2025
15	University of Education, The Gambia	Senior Lecturer/Program Director	INT15	3rd August 2025
16	USET	Department Head	INT16	4th August 2025
17	Civil Service University	Deputy Registrar	INT17	5th August 2025
18	MoBSE HQ (Banjul)	Director of Schools	INT18	

Source: Author's Computation (2025)

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Analysis of Interview Transcripts

According to the findings gathered for Objective One, women leaders understand how transformative it is to have academic qualifications when exercising their leadership styles. For instance, one of the head teachers (INT01, 2025) confirmed, "My bachelor's in education qualification has empowered me to take informed decisions, especially in matters concerning employees' performance and conflict resolutions. Similarly, another principal (INT07, 2025) confirmed that her master's qualification had enhanced her analytical skills for systematic leadership. Finally, one of the Directors of Schools (INT18, 2025) reaffirmed her master's qualification by asserting that it has extended her strategic thinking and enhanced her position when reconsidering national policies." It is clear that high levels of academic achievement have a significant effect on boosting confidence levels, inclusivity, and strategic thinking for women.

The study's participants have also pointed out that higher education influences overall performance for female leaders. According to a Deputy Head Teacher (INT02, 2025), "It provides women leaders credibility with staff and with parents, making it easy to enact policies and command respect." Principal (INT10, 2025) reported that "tertiary education is a game-changer that can enable women to compete for jobs that have been exclusively reserved for males. A head teacher (INT04, 2025) stated that "women leaders with tertiary education can perform well in special needs education because these women incorporate modern strategies that they have recently acquired from their training experiences." All agree that tertiary education improves women's confidence and their leadership potential much more than their capacity for change in the Gambia's education reform. Therefore, we must acknowledge the close relationship between Objective One, the performance of tertiary education, and women's leadership.

The interviewees cited tertiary education as the source of skills and attributes for leadership. These skills include communication skills and conflict resolution skills. According to a head teacher (INT01, 2025), "From my tertiary education, I have acquired skills in communication and conflict resolution. These skills have helped me to manage any conflict between my staff." A senior mistress (INT03, 2025) cited "time management" and "leadership ethics," while another principal (INT07, 2025) cited "strategic planning and delegation skills." Finally, a vice-principal (INT11, 2025) cited strategic planning and emotional intelligence to create harmony. These statements demonstrate that tertiary education can equip individuals with skills necessary to become qualified leaders. Research revealed that the field of studies/specialization significantly influences leadership practices. A head teacher (INT04, 2025) highlighted that her area of specialization in special education inspired her to focus on inclusive practices and modify them to suit students with disabilities. A principal (INT07, 2025) mentioned her experience in Social Studies as inspiring her community-focused leadership style. A Head of Department (INT12, 2025) indicated her area of specialization in Science Education as developing her analytical mind to support data-informed decisions. A Director of Schools (INT18, 2025) mentioned that her area of specialization in Education Policy allowed her to think beyond the organization. As such, the role of specialization is to equip women leaders with specialized knowledge to ensure that their leadership practices meet the demands of their organization and the larger community. Thus, Objective Two validates the enhancement of specialized knowledge through tertiary education to empower women leaders with innovative leadership skills.

From objective three, it is apparent that women leaders face a number of institutional and sociocultural factors. A Head Teacher (INT01, 2025) stated that "there is resistance from some male colleagues who feel threatened because women have taken up leadership roles." "Our culture's beliefs about women's roles constrain the seriousness with which I take my decisions," stated a Deputy Head Teacher (INT02, 2025). A principal (INT07, 2025) stated that "parents within our community question a woman's leadership role for such a large institution." A principal (INT10, 2025) stated that "political influence within our leadership challenges our professional knowledge gained through our training and education." The points mentioned suggest that specific gender biases have hindered women leaders in their roles, despite their knowledge.

Participants have also identified a lack of support from institutional and professional structures. One Head Teacher (INT01, 2025) complained that there is "a lack of structured mentorship programs for women leaders." One Deputy Head Teacher (INT06, 2025) commented that "Leadership workshops are not regular; therefore, I lack proper training to resolve arising matters." One Principal (INT10, 2025) complained that "Institutional

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funds for capacity development are not adequate." One senior lecturer (INT15, 2025) identified the need to "enhance mentorship programs within the institution to support women leaders in ascending to the topmost leadership positions." Evidently, without proper mentorship programs and continuous support and training, women will not be able to take full advantage of their tertiary education.

As such, Objective Three indicates that although critical skills are developed in women leaders through postsecondary education, there are sociocultural impediments and deficiencies that hamper their efforts to take advantage of such skills. This can mitigate the effectiveness of women's education as a determinant of their performance in their roles.

From the assessment done on the three objectives, it is evident that tertiary education makes a significant contribution to the performance of women in leadership capacities with regard to enhancing their decision-making abilities and confidence levels. This is because it ensures that women gain both generic and specific skills necessary for performance. However, there are limitations to using tertiary education in leadership.

Triangulation of Research Findings: A Quantitative and Qualitative Approach

The outcome for quantitative correlation revealed forceful and positive correlations between higher education indicators and the performance of female leaders ($p < 0.01$). Worth mentioning here is that "field of study/specialization" emerged as the foremost predictor ($r = 0.971$) to highlight the significant role of academic background.

These qualitative findings complement such evidence by clearly pinpointing benefits about higher education on matters concerning leadership confidence and strategic thinking. Their role regarding the application of evidence and systematic leadership practices (INT01, INT07, INT18) by women holding Bachelor's and Master's degrees was evident. They believe education is a "game changer" (INT10) with regard to authority and inclusivity.

Triangulating the findings on both questions, tertiary education achievement plays a significant role in increasing effectiveness in leadership through skills as well as overall strategic thinking. From a quantitative standpoint, the results of the multiple regression test indicated that women's academic background, discipline, and institutional support played a crucial role in their effectiveness as leaders ($p < 0.001$). From the results, it can be concluded that 85.6% of the variance in performance could be explained ($R^2 = 0.856$) because of the explanatory power of education-related variables. It can also be concluded that engagement with leadership training activities is not statistically significant ($p = 0.802$) because training does not necessarily have a direct effect on improved performance.

Furthermore, qualitative results indicated that tertiary education provides women with critical skills such as communication, conflict resolution, and strategic planning. Additionally, specialization played a crucial role: leaders with experience in special education applied inclusive strategies (INT04), while those with a background in policy demonstrated overall systemic leadership qualities (INT18). Consequently, the triangulation of the findings reveals that academic and specialized skills predominantly reflect the influence of tertiary education on leadership. The insignificant statistical impact of training workshops aligns with qualitative data indicating that these workshops are often substandard or erratic.

The multiple regression analysis revealed that training and mentorship gaps can negatively influence the results, even though education and support played a crucial role in the outcome of leadership performance.

Likewise, qualitative evidence highlighted sociocultural and institutional impediments. Challenges reported included resistance to their ascendancy from male colleagues (INT01), lack of acknowledgment because of sociocultural constructions (INT02 & INT07), and politically driven impediments (INT10). Others cited the absence of mentorship programs and traineeship support (INT01 & INT10 & INT06 & INT15) among women. Therefore, based on the triangulation of both perspectives, there is a paradoxical reality where, although skills and knowledge are gained by women through post-secondary education, the underlying institutional environment and gender prejudices hinder their capacity to fully utilize these advantages. This indicates that merely pursuing education is not enough; reforms and changes at the institutional and cultural levels are also imperatively required.

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DISCUSSION OF FINDINGS

This paper is concerned with exploring the effects that tertiary education has on women's leadership performance in the education sector in Gambia. Three objectives inform this paper. These objectives aim to investigate if there is a relationship between tertiary education and women's performance, to identify the role played by tertiary education in enhancing women's leadership performance, and to investigate challenges faced by women in applying their knowledge to lead. These objectives form the subjects of discussion for the paper.

From Objective One, there existed a statistically significant relationship between women's tertiary education achievements and their performance as leaders. Variables such as the area of specialization had the strongest predictive power for the performance of women leaders. Other variables, such as academic qualification and support, had a strong association. The results indicated that women leaders gained improved skills in evidence-based decision-making and strategic vision through their tertiary education.

The findings support Human Capital Theory because it assumes that investments in education raise individual productivity and performance. The findings agree with Gillard & Okonjo-Iweala (2022) because they stated that high-level education is essential for women leaders, as it gives them analytical skills to question conventions related to gender. Furthermore, the findings agree with Arora (2022) & Bennouri et al. (2022) because they discussed that women with high levels of education can do more for improved performance in leadership.

Furthermore, it is applicable to the policy guideline for the Gambia (MoBSE & MoHERST, 2016) because it recognizes education as the catalyst for realizing gender equity in leadership. However, Andrew (2020) presents a differing view by indicating that in the Gambian education sector, it is specifically tertiary education that directly contributes to women's success in leadership. Thus, this finding supports the importance of obtaining tertiary education in enhancing women's leadership opportunities.

From Objective Two, it is clear that post-secondary education encourages successful leadership because it equips women with essential skills such as communication skills, conflict resolution skills, time management skills, and strategic planning skills. The quantitative findings showed that qualifications, specialization, and institutional support were significant predictors, explaining 85.6% of the variance in performance. However, involvement in leadership development programs did not have statistical significance, implying that training without continuity likely yields insignificant results. These results are indicative of Social Role Theory, which assumes that women's effectiveness in leadership positions is impacted by skills and abilities developed by education and socialization.

The negligible effect identified for leadership training programs is one of the most intriguing outcomes of this research, referred to as 'The Training Paradox.' Despite the widespread belief that training improves performance, a thorough examination of the specific components and context sheds light on the issue. The questionnaire items assessing this variable concentrated on participation in programs (e.g., "I have attended leadership workshops") rather than on the quality, usefulness, or implementation of the training. Qualitative research corroborates this, indicating that numerous existing programs were characterized as "irregular," "generic," "theoretical," and deficient in follow-up support. This indicates that the quality of the training, rather than the notion of training itself, is the concern. Therefore, the null result suggests a detachment between infrequent, inadequately structured training and everyday leadership challenges. In the absence of means for practical implementation, they will not produce quantifiable enhancements in performance. This underscores a vital difference between mere participation in training and the attainment of relevant, high-quality leadership skills.

Likewise, these recommendations reflect the emphasis by other authors such as Edwards et al. (2020) and Gillard and Okonjo-Iweala (2022) on mentorship and skill-building for improving women's leadership effect. The non-significant impact found for leadership training programs is one of the most intriguing findings arising from this research and is termed here 'The Training Paradox.' It is generally presumed that training will have a positive effect on performance, but many programs on offer for women leaders in this country could be irregular in nature, structured in a way that is poorly considered, or even tokenistic. Evidence has arisen that supports such a supposition.

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This is consistent with research by Domingo et al. (2022), which found that women are inadequately equipped through appropriate training programs for establishing long-lasting leadership skills. Likewise, Doe (2024) noted that education workshops conducted for Gambian women in education are normally short and don't involve skill transfer. Thus, while tertiary education makes a significant contribution to leadership effectiveness, the minimal effect of training highlights both strategic design and continual and relevant capacity-building activities.

Objective Three revealed that while higher education positively impacts women leaders, it also presents inherent issues for them. Gender biases, cultural stereotyping, political interference, and a lack of institutional support contribute to these issues. The quantitative result indicated that a lack of mentorship and training is a constraint, and this was demonstrated by the cultural resistance expressed by male superiors and a lack of funding.

These findings resonate strongly with Eagly and Koenig's (2021) contention that stereotypes and social roles feed a vicious cycle that corrodes women's authority in leadership. They are in line with Abalkhail (2017) and Evans and Maley (2021), who have cited cultural and organizational issues that women leaders have experienced elsewhere.

Acker's (1990) Gendered Organizations theory, which asserts that organizational structures and norms are inherently gendered, also explains these findings. They usually privilege masculine traits while devaluing women's competencies. In terms of Gambian society, these unofficial norms and biases can potentially counter the human capital that women have accumulated through education by supporting patriarchal decision-making structures.

Additionally, the issues identified align with the experiences of women in higher education as discussed by Domingo et al. (2022), while Henningsen et al. (2022) found that women frequently encounter challenges related to inherent bias, limited mentoring opportunities, and self-selection. Similarly, Doe (2024) discovered that cultural practices, despite their qualifications, challenge the authority of Gambian women working in education environments.

We can confirm that tertiary education plays a pivotal role in enhancing the performance of women leaders in The Gambia. However, inherent institution-wide challenges and cultural stereotypes impede this critical role. Thus, institution-wide programs that promote gender sensitivity and cultural transformation should anchor education policies.

Policy Implications

The findings clearly establish numerous policy recommendations for enhancing women's leadership. Firstly, academic qualifications and specialization play a significant role in advancing leadership performance. Thus, education policies should play an affirmative role in increasing women's participation in higher education by providing scholarships for postgraduate studies in educational leadership, management, and policy. Such collaborations between MoBSE and MoHERST will help build links between higher education and leadership positions.

Additionally, with institutionally based support and mentorship playing a significant role in enhancing leadership effectiveness, it is recommended that gender-sensitive human resource practices incorporate practices such as mentorship networks for leadership, fellowships for women in leadership positions, and leadership incubators. The 'training paradox' is used to illustrate the importance of a rethink in organizational leadership training approaches, shifting from traditional one-off training sessions to long-term PLCs for peer-centered learning, reflection, and performance coaching.

Finally, in highlighting more specific issues related to socio-cultural and institutional impediments, it is necessary to strengthen gender equity policies, embed dimensions of gender transformation in leadership courses, and promote collaboration between society and unionized teachers. These approaches can collectively help women turn their educational achievements into successful leadership. Thus, both SDG 5 and SDG 4 can be achieved in The Gambia.

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CONCLUSION

It is clear in this study that tertiary education is a powerful transformative force with the ability to empower women leaders. The findings indicate that qualifications, specialization, and support significantly and positively impact the effectiveness of women leaders in their roles. This lends credence to the claim that tertiary education enhances one's skills and knowledge, as well as one's strategic skills.

However, it is worth mentioning that this report has pointed out numerous challenges that have been evident. These include inadequate training programs, irregular training opportunities, and sociocultural-related setbacks. These hinder women's ability to use their education as qualifications for effective leadership. Therefore, while education is known to be the bedrock for freedom and emancipation, it is necessary to change structures and society.

From a theoretical perspective, this demonstrates the relevance of human capital theory, as it is clear that investing in women's education has led to advantages in leadership roles. From a practical standpoint, it is crucial to acknowledge the importance of implementing gender-sensitive policies.

Future research should focus on carrying out longitudinal or comparative analyses to determine how women's leadership trends will develop over time and whether appropriate structures will be established for women. Such data will be imperative for crafting strategies that will promote women's leadership in Gambia and Africa in general.

DECLARATIONS

Conflict of Interest

All authors on this work declare that there is no conflict of interest. This work was done independently without any personal, financial, or institutional influences that might have impacted the results.

Data Availability

The lead author can make data supporting the study's results available upon request. Information gathered through interviews is not permitted for public distribution owing to agreements made with participants.

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