

Quantitative Analysis of the Relationship between Library Services and Undergraduate Academic Performance in Liberia: Evidence from African Methodist Episcopal University

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ABSTRACT

This study examined the impact of library services on the academic achievement of undergraduate students at African Methodist Episcopal University (AMEU) in Monrovia, Liberia. Using a structured questionnaire (N = 82), the study investigated student awareness of library services, usage patterns, perceived academic effects, and access barriers. Results indicated near-universal recognition of the AMEU library (98.8%), with the quiet study environment identified as the most frequently used service (M = 3.84 on a five-point frequency scale), followed by group study areas (M = 3.27), internet/Wi-Fi access (M = 2.80), and textbook lending (M = 2.32). A substantial majority of respondents (91.5%) agreed that library use had contributed to improvements in their academic performance. The most commonly reported barriers were an inadequate number of computers (45.1%), insufficient seating capacity (37.8%), limited and outdated print collections (31.7%), and unreliable internet connectivity (28.0%). The study recommends strategic investment in ICT infrastructure, seating capacity, and print collections to fully realize the library's potential as a catalyst for student academic success at AMEU.

Keywords: library services, academic performance, undergraduate students, AMEU, Liberia, higher education

INTRODUCTION

Academic libraries serve as the intellectual foundation of higher education institutions, providing essential resources and services that support teaching, learning, and research (De Groote & Scoulas, 2022). The quality and accessibility of library services are widely recognized as key factors in student academic progress, particularly in low-resource contexts where alternative information sources may be limited (Ali et al., 2024). As universities globally face increasing pressure to demonstrate institutional effectiveness and measurable student learning outcomes, the role of academic libraries in supporting these goals has come under renewed scrutiny (Scoulas & De Groote, 2022).

Liberia's higher education system has faced persistent challenges resulting from decades of civil conflict (1989–2003), which devastated educational infrastructure and displaced both staff and students (Challenges of Higher Education in Liberia, 2023). The National Commission on Higher Education (NCHE) currently accredits 81 higher education institutions across 12 counties. A 2025 NCHE assessment identified widespread institutional deficiencies—including the absence of essential facilities such as libraries, laboratories, and qualified faculty—leading to the suspension or closure of 53 institutions (FrontPageAfrica, 2025).

Founded in 1995 and chartered by the Liberian Legislature in 1996, African Methodist Episcopal University (AMEU) is a private, church-affiliated institution located at 34 Camp Johnson Road in Monrovia. AMEU has grown into the second-largest university in Liberia, with an enrollment of approximately 6,256 students as of 2022 (AMEU, 2024), and offers programs across five colleges: Bryant College of Theological Seminary, Manning College of Business and Public Administration, York College of Liberal Arts and Sciences, College of Science and Allied Health, and College of Education.

AMEU's library provides comprehensive academic support through both print and electronic materials, including e-library access via EBSCOhost and Research4Life databases, as well as training in online learning

platforms. Despite these provisions, the extent to which these services influence student academic performance has not been empirically examined. This study addresses that gap by: (a) assessing student awareness and use of library services; (b) identifying the most frequently used services; (c) examining the correlation between library service use and students' academic performance; and (d) identifying barriers to accessing and using library services at AMEU.

LITERATURE REVIEW

Conceptual Framework

This study draws on the Input–Process–Output (IPO) model of educational productivity, which holds that educational outcomes are shaped by the resources provided (inputs) and the processes through which those resources are applied (Raza et al., 2023). Within this framework, library services constitute a key institutional input, while student engagement with library resources represents the process through which these inputs are converted into academic outcomes—including GPA, retention, and degree completion.

Academic Library Services and Student Performance

A substantial body of research has demonstrated a positive relationship between academic library use and student academic achievement. De Groote and Scoulas (2022) explored students' perceptions of library impact at the University of Illinois at Chicago and found qualitative evidence that students attributed improved grades and assignment performance to their library use, while also noting that academic success is multidimensional and cannot be reduced to GPA alone. Beile et al. (2020) conducted a large-scale study at the University of Central Florida ($n = 25,336$) and documented a positive association between library service use and higher end-of-semester GPAs. Using a mixed-methods approach, Scoulas and De Groote (2022) found that nearly all undergraduate participants perceived a positive relationship between library space use and their GPA, regardless of visit frequency.

Within the West African context, Ajibona et al. (2021) found that library acquisition services significantly enhanced academic performance among nursing undergraduates in South-West Nigeria. A 2025 study published in the *African Journal of Library, Archives and Information Science* identified library information resource use as a predictor of academic success among undergraduate library and information science students in Nigeria.

Library Services in African Academic Institutions: Challenges

African academic libraries continue to face chronic underfunding, inadequate ICT infrastructure, limited access to electronic resources, and a widening gap between digital and print service expectations (Ajlais, 2025). Tetteh and Aryee (2024) demonstrated that the absence of required textbooks creates a cycle of user frustration that ultimately undermines academic performance. The 2025 NCHE review explicitly identified the lack of libraries as a major deficiency in most Liberian higher education institutions (FrontPageAfrica, 2025).

Digital Library Services and Emerging Trends

The global shift toward digital library services has created both opportunities and challenges for academic libraries in developing countries. According to EBSCO Information Services (2026), engagement with digital library resources is significantly associated with improved retention and higher GPAs. For institutions such as AMEU, which provide e-library access through EBSCOhost and Research4Life, ensuring effective use of these platforms in the context of ICT infrastructure limitations and unreliable internet connectivity remains a significant challenge (Faizan & Munshi, 2025).

METHODOLOGY

Research Design

This study employed a descriptive survey research design, which enables the systematic collection of data from a defined population to describe prevailing conditions, attitudes, and practices without manipulation of variables (Adam, 2020).

Population and Sample

The target population comprised undergraduate students enrolled at AMEU during the 2025–2026 academic session. A total of 82 completed questionnaires were returned from across all five colleges. Manning College of Business and Public Administration and the College of Science and Allied Health each contributed 27 respondents (32.9%), followed by York College of Liberal Arts and Sciences ($n = 17$; 20.7%), Bryant College of Theological Seminary ($n = 8$; 9.8%), and the College of Education ($n = 3$; 3.7%).

Instrumentation

The primary data collection instrument was the Library Services and Academic Performance Questionnaire (LSAPQ), a structured questionnaire comprising four sections: (a) demographic information; (b) awareness of library services; (c) frequency of use of specific library services, rated on a five-point scale (1 = Never to 5 = Very Often); (d) perceived impact of library services on academic performance; and (e) challenges in accessing and using library services.

Data Collection and Analysis

Questionnaires were administered to students both in person and electronically across all five colleges. Informed consent was obtained from all participants prior to data collection. Data were analyzed using descriptive statistics, including frequency counts, percentages, and means. Services were ranked by mean usage score, and combined agreement percentages were calculated by summing "Agree" and "Strongly Agree" responses for perceived impact items.

RESULTS

Demographic Profile of Respondents

Of the 82 respondents, 59 (72.0%) were female and 23 (28.0%) were male. The largest age group was 21–25 years ($n = 32$; 39.0%), followed by 18–20 years ($n = 30$; 36.6%), 26–30 years ($n = 11$; 13.4%), and 31 years and above ($n = 9$; 11.0%). By year of study, Sophomores were the largest group ($n = 7$), followed by Juniors ($n = 4$), Seniors ($n = 3$), and Freshmen ($n = 3$).

Awareness of Library Services

Awareness of library services at AMEU was nearly universal. Specifically, 98.8% of respondents agreed or strongly agreed that AMEU has a library offering academic resources. Awareness of Research4Life and other research databases was reported by 85.4% of respondents, and 92.7% were aware of the library's operating hours and days of service. These findings indicate a strong foundation of institutional awareness and suggest that AMEU's communication regarding library services has been largely effective.

Most Frequently Used Library Services

The frequency of use of four library services was assessed using a five-point scale (1 = Never to 5 = Very Often). As shown in Table 1, the quiet study area for individual study was the most frequently used service ($M = 3.84$), followed by group study spaces ($M = 3.27$), internet/Wi-Fi services ($M = 2.80$), and borrowing of textbooks and reference materials ($M = 2.32$). Notably, textbook borrowing—previously considered a primary mode of library use in similar contexts—ranked last among the four services, with 33 of 82 respondents (40.2%) reporting that they never borrow materials.

Table 1 Most Frequently Used Library Services at AMEU ($N = 82$)

S/N	Library Service	Mean	Rank
1	Using the quiet study environment for individual study	3.84	1st
2	Using group study spaces for collaborative learning	3.27	2nd
3	Using internet/Wi-Fi services in the library	2.80	3rd
4	Borrowing textbooks and reference materials	2.32	4th

Note. Mean scores are based on a five-point frequency scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often.

Perceived Impact of Library Services on Academic Performance

Table 2 presents the percentage of respondents who agreed or strongly agreed with each impact statement. A substantial majority (91.5%) agreed that library use had improved their cumulative GPA (CGPA), and the same proportion affirmed that the quiet study environment helped them concentrate and study more effectively. Collaborative benefits were also reported: 78.0% agreed that group study spaces supported collaborative learning and academic discussion, and 75.6% indicated that assistance from library staff improved their ability to locate relevant academic resources.

Table 2 Perceived Impact of Library Services on Academic Performance (N = 82)

Impact Statement	% Agree / Strongly Agree	Mean	SD
Using the library has helped improve my grades (CGPA)	91.5%	4.10	0.95
The quiet study environment has helped me concentrate and study more effectively	91.5%	4.05	0.94
Group study spaces have enhanced my collaborative learning and academic discussions	78.0%	3.79	0.80
Seeking help from library staff has improved my ability to find relevant academic resources	75.6%	3.62	0.88

Note. Percentages represent the combined frequency of ‘Agree’ and ‘Strongly Agree’ responses. Mean and SD are based on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Pearson Correlation: Library Usage and Perceived Academic Impact

To investigate the relationship between library service use and perceived academic impact, Pearson product-moment correlations were calculated between the four usage frequency variables and the four impact statements from Table 2 (N = 82). Results are summarized in Table 3.

Table 3 Pearson Correlations Between Library Service Use and Perceived Academic Impact (N = 82)

Usage Variable	Improved CGPA	Quiet Space Aids Focus	Staff Help Improved Research	Group Space Enhanced Collaboration
Textbook Borrowing	r = .087 (ns)	r = .124 (ns)	r = .300**	r = .282*
Quiet Space Use	r = .364***	r = .156 (ns)	r = .238*	r = .311**
Group Space Use	r = .474***	r = .304**	r = .463***	r = .367***
Internet / Wi-Fi	r = .297**	r = .209 (ns)	r = .288**	r = .266*
Composite Utilization	r = .415***	r = .277*	r = .449***	r = .422***

Note. Composite Utilization = mean of all four usage variables. * $p < .05$, ** $p < .01$, *** $p < .001$, ns = not significant.

Group space use was the most consistent and robust predictor across all four impact outcomes, with statistically significant positive correlations ranging from $r = .304$ ($p = .005$) for quiet space focus to $r = .474$ ($p < .001$) for CGPA improvement. Quiet space use was significantly correlated with CGPA improvement ($r = .364$, $p = .001$) and collaborative outcomes ($r = .311$, $p = .004$), but showed no significant independent effect on focus improvement after accounting for covariation with other usage modes. Internet/Wi-Fi use was significantly correlated with CGPA improvement ($r = .297$, $p = .007$), staff research assistance ($r = .288$, $p = .009$), and collaborative learning ($r = .266$, $p = .016$). Textbook borrowing showed the weakest overall pattern, reaching significance only for staff research assistance ($r = .300$, $p = .006$) and collaborative learning ($r = .282$, $p = .010$). The composite utilization score was significantly and positively correlated with all four impact outcomes ($r = .277$ to $.449$, all $p \leq .012$), confirming that broader library engagement is associated with perceived improvements across multiple academic dimensions.

Multiple Regression Analysis

Four multiple regression models were estimated using the four usage frequency variables as simultaneous predictors to determine which usage behaviors most strongly predicted each impact outcome (Table 4). Each of the four impact statements from Table 2 served as a dependent variable in a separate ordinary least squares (OLS) regression model.

Table 4 Multiple Regression: Library Usage Frequency Predicting Perceived Academic Impact (N = 82)

Predictor	β	SE	t	p	Sig.
Outcome 1: Improved CGPA — $R^2 = .289$, Adj $R^2 = .252$, F (4, 77) = 7.829, $p < .001$					
Constant	2.275	0.378	6.023	< .001	***
Textbook Borrowing	-0.123	0.079	-1.542	.127	ns
Quiet Space Use	0.183	0.101	1.808	.074	ns
Group Space Use	0.310	0.089	3.478	.001	***
Internet / Wi-Fi	0.100	0.069	1.443	.153	ns
Outcome 2: Quiet Space Aids Focus — $R^2 = .104$, Adj $R^2 = .057$, F (4, 77) = 2.233, $p = .073$					
Constant	3.184	0.404	7.873	< .001	***
Textbook Borrowing	-0.011	0.085	-0.133	.894	ns
Quiet Space Use	0.013	0.108	0.121	.904	ns
Group Space Use	0.197	0.095	2.065	.042	*
Internet / Wi-Fi	0.070	0.074	0.947	.347	ns
Outcome 3: Staff Help Improved Research — $R^2 = .243$, Adj $R^2 = .204$, F(4, 77) = 6.190, $p < .001$					
Constant	2.358	0.349	6.760	< .001	***
Textbook Borrowing	0.083	0.073	1.129	.262	ns
Quiet Space Use	0.011	0.093	0.122	.904	ns
Group Space Use	0.267	0.082	3.238	.002	**
Internet / Wi-Fi	0.056	0.064	0.875	.384	ns
Outcome 4: Group Space Enhanced Collaboration — $R^2 = .189$, Adj $R^2 = .147$, F(4, 77) = 4.498, $p = .003$					
Constant	2.578	0.326	7.915	< .001	***

Textbook Borrowing	0.074	0.068	1.084	.282	ns	
Quiet Space Use	0.116	0.087	1.328	.188	ns	
Group Space Use	0.143	0.077	1.865	.066	ns	
Internet / Wi-Fi	0.046	0.060	0.776	.440	ns	

Note. β = unstandardized regression coefficient. Outcome-level model fit statistics are shown in the shaded header rows. * $p < .05$, ** $p < .01$, *** $p < .001$, ns = not significant.

Three of the four regression models achieved statistical significance at the model level. Group space use was the sole significant independent predictor in three of the four models: Outcome 1 (Improved CGPA: $\beta = 0.310$, $p = .001$), Outcome 2 (Quiet Space Aids Focus: $\beta = 0.197$, $p = .042$), and Outcome 3 (Staff Research Help: $\beta = 0.267$, $p = .002$). The model for Outcome 2 (Quiet Space Aids Focus) did not reach significance at the model level ($F(4, 77) = 2.233$, $p = .073$), though group space use approached significance within it. The model for Outcome 4 (Group Space Enhanced Collaboration) was significant overall ($F(4, 77) = 4.498$, $p = .003$); however, no individual predictor met the $\alpha = .05$ threshold when entered simultaneously, indicating shared variance among predictors. The four usage variables collectively accounted for approximately 28.9% of the variance in perceived grade improvement ($R^2 = .289$), the highest model fit across the four outcomes.

Purposes and Patterns of Library Use

The most frequently cited reasons for visiting the library were reading and studying for examinations (13.4% of all mentions), using the quiet study environment (12.2%), and conducting research for assignments or projects (9.8%). Borrowing textbooks and accessing internet/Wi-Fi services were cited equally (6.1% each), while seeking assistance from library staff was among the least cited purposes (3.7%). These patterns confirm that the library's physical study spaces are its most extensively used assets, rather than its print collections or research assistance functions.

Challenges in Accessing and Utilizing Library Services

Respondents identified a range of challenges that impede effective library use at AMEU. As shown in Table 5, the most frequently cited barrier was an insufficient number of computers for accessing electronic resources (45.1%), followed by insufficient seating capacity during peak periods (37.8%), limited and outdated print collections (31.7%), and unreliable internet/Wi-Fi connectivity (28.0%). Additional barriers included restricted operating hours (20.7%), inadequate power supply due to electricity outages (13.4%), noise or distractions within the library (12.2%), and insufficient trained library staff to assist with research inquiries (11.0%). One respondent noted that staff occasionally displayed discourteous behavior, highlighting the interpersonal dimension of service quality.

Table 5 Challenges in Accessing and Utilizing Library Services at AMEU (N = 82)

Challenge	N	%
Inadequate number of computers for accessing electronic resources	37	45.1%
Insufficient seating capacity, especially during peak/examination periods	31	37.8%
Limited and outdated print book collections (textbooks and reference materials)	26	31.7%
Irregular or unreliable internet/Wi-Fi connectivity in the library	23	28.0%
Limited library operating hours	17	20.7%
Insufficient power supply / frequent electricity outages	11	13.4%

Noise or distractions within the library environment	10	12.2%
Lack of trained library staff to assist with research inquiries	9	11.0%

Note. Respondents could select multiple challenges; percentages are based on total N = 82.

DISCUSSION

The empirical evidence from this study indicates that students perceive AMEU's library services as an important contributor to their academic success. A substantial majority of respondents (91.5%) agreed that library use had improved their CGPA (Table 2), consistent with the broader international literature linking library engagement to academic achievement (Beile et al., 2020; De Groot & Scoulas, 2022). These descriptive findings are further supported by the Pearson correlation and multiple regression analyses (Tables 3 and 4), which identify the specific usage behaviors most strongly associated with perceived academic outcomes. Composite library utilization was significantly correlated with all four impact outcomes ($r = .277$ to $.449$, $p \leq .012$), and three of the four regression models were significant at the model level, together accounting for up to 28.9% of the variance in perceived CGPA improvement. These results nonetheless underscore the need for more rigorous follow-up research—ideally linking objective usage records to administrative GPA data rather than relying solely on self-reported perceptions.

Contrary to expectations drawn from prior literature on developing-country library contexts (Ajibona et al., 2021; Tetteh & Aryee, 2024), textbook borrowing was not the most frequently used library service at AMEU. Instead, students most valued the quiet study environment ($M = 3.84$), with group study spaces ranking second ($M = 3.27$). The regression analyses further revealed that group space use was the only statistically significant independent predictor of CGPA improvement ($\beta = 0.310$, $p = .001$), improved focus ($\beta = 0.197$, $p = .042$), and research assistance outcomes ($\beta = 0.267$, $p = .002$) after controlling for the other three usage modes—a particularly notable finding. Consistent with Yang and Kim (2022), who found that functional library spaces are associated with improved study performance and student well-being, these results reframe the library's primary academic value at AMEU as a collaborative physical learning environment rather than a traditional print repository.

The combination of "limited and outdated print collections" as the third most frequently cited challenge (31.7%) and the low mean for textbook borrowing ($M = 2.32$) suggests a nuanced dynamic: students may be forgoing borrowing not from lack of interest in print resources, but because relevant and current materials are simply not available. The finding that 40.2% of respondents reported never borrowing materials is consistent with this interpretation. Tetteh and Aryee (2024) similarly found that the absence of required textbooks leads to user disengagement—a pattern that may already be evident at AMEU.

The most commonly reported barrier—inadequate computers (45.1%)—is particularly significant given that AMEU has made deliberate investments in digital library services through EBSCOhost and Research4Life. Without sufficient terminal access, students cannot effectively use these platforms. The finding that only 1.2% of respondents reported visiting the library specifically to access Research4Life suggests that digital resources remain substantially underutilized despite their availability. This pattern has been documented elsewhere in ICT-constrained academic library settings (Faizan & Munshi, 2025).

While the finding that 75.6% of respondents agreed that library staff assistance improved their ability to locate academic resources is encouraging, it should be considered alongside the 11.0% who cited a lack of trained staff as a barrier and the one respondent who noted discourteous staff behavior. Puti and Zainal (2024) observe that academic librarians in developing countries often lack structured performance evaluation mechanisms, underscoring the importance of systematic professional development programs for AMEU library staff.

CONCLUSION

This study provides empirical evidence that AMEU's library services are widely recognized and are perceived by undergraduate students as contributing meaningfully to their academic performance. Specifically, 91.5% of

respondents agreed that the library has helped improve their grades. The finding that the quiet study environment was the most frequently used service—rather than print collections—reframes the library's primary value at AMEU as a physical learning space. Nonetheless, significant barriers remain, including inadequate computers, limited seating, outdated print collections, and unreliable internet connectivity. Addressing these infrastructural deficiencies is essential if AMEU's library is to fulfill its potential as a cornerstone of student academic success.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are offered:

1. Expand ICT infrastructure and increase the number of available computers.
2. Increase the physical seating capacity of the library.
3. Invest in updating and expanding print collections.
4. Promote digital resource literacy and raise awareness of available databases.
5. Prioritize professional development and service quality training for library staff.
6. Conduct follow-up research using objective CGPA data to corroborate self-reported findings.

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