

The Potential of Virtual Libraries in Nigeria's Educational System, Challenges to Be Met, and the Way Forward

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ABSTRACT

Guided by the Unified Theory of Acceptance and Use of Technology, this correlational survey examined the perceived potential of virtual libraries, the challenges that constrain them, and the strategies judged most effective in four tertiary institutions in Enugu State. Of 450 questionnaires distributed to academic staff and final-year students, 402 were usable (89.3%). Perceived potential was high ($M = 3.88$), infrastructure challenges were high ($M = 3.77$), human–institutional challenges were moderate-to-high ($M = 3.50$), endorsed strategies were high ($M = 3.95$), and actual utilization was only moderate ($M = 2.98$). Multiple regression showed that perceived potential positively predicted utilization ($\beta = .32$), while infrastructure challenges ($\beta = -.18$) and human–institutional challenges ($\beta = -.19$) predicted it negatively. Academic staff reported higher utilization than final-year students, $t(400) = 4.08$, $p < .001$, $d = 0.50$. Utilization also differed by institution, $F(2, 399) = 10.41$, $p < .001$, $\eta^2 = .05$. Virtual libraries are valued; they are not yet used at the level that value implies. Power, bandwidth, subscriptions, and compulsory information-literacy coursework are the indicated remedies.

Keywords: *virtual library, electronic resources, UTAUT, tertiary education, Enugu State, Nigeria*

INTRODUCTION

Performance expectancy in this setting is not in doubt. Staff and students already believe that e-resources would improve assignments, lectures, and research writing. Effort expectancy is more mixed: database interfaces and remote-authentication steps still look costly to users who have not been taught them. Social influence is present in departmental expectations that citations should include current journal literature. Facilitating conditions, the fourth UTAUT predictor, are the suspected failure point: power cuts mid-session, congested campus Wi-Fi, lapsed subscriptions, and too few librarians who can teach a search strategy (Ani et al., 2005; Ekenna & Ukpebor, 2012).

Prior Nigerian studies have typically reported one of these pieces at a time: attitude, or challenges, or use. The present design puts potential, two challenge clusters, endorsed remedies, and utilization on the same questionnaire so that the unique contribution of each can be estimated. Three questions structured the analysis. What potential do users attribute to virtual libraries? Which challenges and remedies do they rate most highly? Which of potential and the two challenge clusters uniquely predict utilization, and do staff and institutions differ?

Nigerian tertiary institutions have invested in e-library platforms, consortium subscriptions, and institutional repositories for more than two decades (Ani & Ahiauzu, 2008). The promise is familiar: 24-hour access, reduced pressure on print stock, and a route into the global research literature. The recurring finding is equally familiar: platforms exist, awareness is uneven, and use lags behind attitude (Egberongbe, 2011; Abubakar & Adetimirin, 2015).

UTAUT treats performance expectancy, effort expectancy, social influence, and facilitating conditions as the proximal drivers of intention and use (Venkatesh et al., 2003). In the Enugu tertiary setting the facilitating-conditions side, power, bandwidth, functional devices, trained staff, and paid subscriptions, is the suspected bottleneck. This study measured perceived potential, two challenge clusters, endorsed remedies, and current utilization in one design so that the gap between valuation and use could be estimated rather than only described.

Utilization differences by role and by institution are theoretically informative rather than merely descriptive. Staff who write for promotion already have a performance-expectancy reason to log in; final-year students who have never been taught a database search do not. Institutions that have paid for bandwidth and subscriptions should outscore those that have only launched a portal. If the data follow that order, UTAUT's facilitating-conditions claim is supported in this market and not only in the original North American validation samples.

What those studies rarely do is put perceived potential, two separately scored challenge clusters, a remedy inventory, and utilization into one regression. Without that, a library committee cannot tell whether the next naira should go to inverters, to a consortium subscription, or to an information-literacy course. The present design is written for that allocation question in four Enugu institutions that already possess some form of virtual library rather than for a hypothetical system that does not yet exist.

Use studies inside the country have documented the same split for more than a decade. Egberongbe (2011) at the University of Lagos, Adeniran (2013) at Redeemer's University, Abubakar and Adetimirin (2015) among postgraduates, and Alabi (2021) in private South-West universities all report awareness and modest use constrained by infrastructure and search skill. Ekenna and Ukpebor (2012) placed the African pattern in a wider availability frame: platforms are announced faster than they are kept current.

Davis's (1989) technology-acceptance model and its successor UTAUT (Venkatesh et al., 2003) remain the dominant accounts of why educational technologies are valued yet under-used. Performance expectancy, effort expectancy, social influence, and facilitating conditions jointly predict intention and use. In Nigerian university libraries the first of those four is routinely high: staff and students say e-resources would improve work. The fourth is routinely low: power, bandwidth, devices, and paid content fail in combination (Ani & Ahiaozu, 2008; Ani et al., 2005).

Literature Review

Method

The four institutions comprised one federal university, one state university, and two colleges of education, a mix that captures the subscription and bandwidth range of the Enugu tertiary system. Final-year students were sampled because they are the cohort expected to write literature-heavy projects. Academic staff were sampled across ranks. Returns by institution ranged from 86% to 92%.

Perceived-potential items asked whether virtual libraries expand access, improve assignment quality, and reduce dependence on scarce print copies. Infrastructure items covered electricity, bandwidth, device availability, data cost, and maintenance. Human-institutional items covered funding, awareness, user training, and skilled personnel. Strategy items offered solar power, consortium subscriptions, a compulsory information-literacy course, remote authentication, and a formal integration policy. Utilization items asked about frequency of logins, downloads, and use in teaching or project writing. A 40-respondent pilot produced alphas from .84 to .89.

A correlational survey covered two universities and two colleges of education in Enugu State. Stratified allocation produced 450 distributed questionnaires and 402 valid returns (academic staff = 84; final-year students = 318). Five multi-item scales were used: perceived

potential, infrastructure challenges, human–institutional challenges, way-forward strategies, and virtual-library utilization. Main-study alphas ranged from .85 to .90. Descriptives, Pearson correlations, OLS regression, an independent-samples t test, and one-way ANOVA were computed. The decision criterion on the five-point scales was 3.00.

RESULTS

On the potential scale, every item sat in the High band. On infrastructure, erratic electricity and slow campus connectivity led the cluster; device maintenance was the mildest item but still Moderate-to-High. On human–institutional challenges, inadequate subscription funding and low awareness led. On strategies, dedicated alternative power ($M = 4.15$) and increased funding ($M = 4.04$) outranked policy language ($M = 3.81$), which is consistent with a sample that has already heard the policy case.

The correlation matrix shows a near-zero link between perceived potential and infrastructure challenges ($r = -.04$). People can value a system they also experience as broken. Utilization, by contrast, moves with all three theoretically prior variables. The regression therefore is not a restatement of a single attitude factor. Residual plots did not indicate misspecification; VIF values were below 1.3.

Post-hoc institution comparisons showed the federal university ahead of the two colleges of education, with the state university in between. That order tracks known differences in bandwidth investment and subscription portfolios. It is a facilitating-conditions result wearing an institutional label.

Respondents rated the potential of virtual libraries well above the criterion ($M = 3.88$) and endorsed a package of remedies at $M = 3.95$, led by dedicated alternative power ($M = 4.15$) and increased subscription funding ($M = 4.04$). Infrastructure challenges were high (grand $M = 3.77$), especially erratic electricity and slow campus bandwidth. Utilization did not match that valuation ($M = 2.98$). Table 1 reports construct means and intercorrelations.

Table 1
Construct Means and Intercorrelations (N = 402)

Variable	M	SD	1	2	3	4	5
1. Perceived potential	3.88	0.77	(.90)				
2. Infrastructure	3.77	0.77	-.04	(.86)			

challenges							
3. Human–institutional challenges	3.50	0.84	–.18**	.26**	(.87)		
4. Way-forward strategies	3.95	0.77	.33**	.01	–.04	(.88)	
5. Utilization	2.98	0.79	.36**	–.24**	–.29**	.22**	(.85)

In the regression of utilization on the three theoretically prior predictors, perceived potential was the strongest positive coefficient ($\beta = .32$, $p < .001$, $sr^2 = .100$). Infrastructure challenges ($\beta = -.18$) and human–institutional challenges ($\beta = -.19$) each made a unique negative contribution. Academic staff used virtual libraries more than final-year students, $t(400) = 4.08$, $p < .001$, $d = 0.50$. Institution also mattered, $F(2, 399) = 10.41$, $p < .001$, $\eta^2 = .05$.

Table 2

OLS Regression Predicting Virtual-Library Utilization ($N = 402$)

Predictor	B	SE	β	t	p
Perceived potential	0.33	0.05	.32	7.14	<.001
Infrastructure challenges	–0.19	0.05	–.18	–3.98	<.001
Human–institutional challenges	–0.18	0.04	–.19	–4.00	<.001

Table 3

Item	M	SD	Band
Erratic electricity interrupts e-library sessions	4.02	0.91	High
Campus bandwidth is too slow for database work	3.91	0.96	High
Funding for e-resource subscriptions is inadequate	3.76	1.04	High
Provide dedicated alternative power (solar/inverter)	4.15	0.90	Effective
Increase budgetary funding for e-resources	4.04	1.00	Effective
Introduce a compulsory information-literacy course	4.00	0.99	Effective

Institutional rank-order of utilization tracks known differences in bandwidth and subscription portfolios. The federal university outscores the colleges of education by a margin that matches the ANOVA effect ($\eta^2 = .05$). Closing that gap is a budget decision, not a motivational one. A consortium subscription plus shared inverter specifications would move the two weaker campuses toward the federal mean faster than four separate digital-literacy posters.

The near-zero correlation between perceived potential and infrastructure challenges ($r = -.04$) is easy to misread as a measurement problem. It is not. Users can hold two consistent beliefs at once: the platform would help, and the platform currently fails. Utilization is where those beliefs are forced to reconcile. That is why potential predicts use positively while the two challenge clusters predict it negatively, and why an awareness campaign aimed at raising potential still further would be the wrong spend.

DISCUSSION

A way-forward package follows the coefficients rather than a generic ICT wishlist. First, alternative power and last-mile campus wireless are the infrastructure items that both rate highly as problems and, when missing, suppress use. Second, a consortial subscription arrangement among the four institutions would attack the funding item without requiring each library to negotiate alone. Third, a compulsory, credit-bearing information-literacy course for undergraduates would raise student utilization toward the staff level already observed. Fourth, remote authentication would convert off-campus evening hours into usable library hours, which matters in a city where students cannot remain on campus after dusk as a matter of course.

Self-reported utilization is the principal limitation; server logs would be the cleaner dependent variable. The cross-sectional design also cannot say whether a new inverter farm would raise use next semester or merely raise satisfaction. A pre-post installation study at one of the colleges would answer that directly. Until then, the present coefficients already say that leaving facilitating conditions unrepaired will keep utilization near the scale midpoint no matter how warmly users describe the potential of the platform.

The Enugu pattern is valuation without commensurate use. Staff and students believe virtual libraries would improve teaching and learning; they also report that electricity,

bandwidth, subscription gaps, and weak search skills prevent that belief from becoming habit. UTAUT's facilitating-conditions construct therefore carries more of the story here than performance expectancy alone (Venkatesh et al., 2003).

Two practical implications follow. First, solar or inverter power and consortial subscriptions are not optional amenities; they are the conditions under which the existing platforms become usable. Second, a compulsory information-literacy course would attack the human-institutional cluster that independently suppresses use. Staff already use the systems more than students, which suggests that skill and role, not merely attitude, sort utilization.

CONCLUSION

Virtual libraries in Enugu's tertiary system are an under-used asset, not an unrecognised one. Closing the gap requires power, paid content, and taught search skill together. Further work should log actual platform sessions rather than rely only on self-reported utilization.

Institutional research offices should replace annual self-report surveys with quarterly login and download counts. Server logs would let the next study treat utilization as a behavior and would show, campus by campus, whether the inverter and the information-literacy course moved the number that matters.

Systems librarians should enable mobile-friendly off-campus authentication so that evening hours become library hours. Many students cannot remain on campus after dusk; a portal that only works on the staff VLAN will keep utilization near the present midpoint.

Senate and academic boards should approve a compulsory, credit-bearing information-literacy course in the first or second year. Student utilization ($M = 2.90$) sits well below staff utilization ($M = 3.29$). The gap is skill and requirement, not a lack of stated potential.

The four libraries should form a subscription consortium for the core education, social-science, and science databases. Joint bargaining reduces the funding item that led the human-institutional cluster and stops each library from negotiating the same package alone.

Each of the four institutions should install dedicated alternative power for the e-library wing. Dedicated solar or inverter supply was the highest-rated remedy ($M = 4.15$) and attacks the infrastructure cluster that independently suppresses utilization.

Recommendations

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