



**RIVERS STATE UNIVERSITY**  
JOURNAL OF LIBRARIANSHIP, INFORMATION  
AND CONTEMPORARY STUDIES  
(RSU-JOLICS)

*A Journal of the*

**DEPARTMENT OF LIBRARY AND  
INFORMATION SCIENCE**

**VOLUME 1, 2025**


[Sign In](#)


## Who We Are

### ABOUT US

Boldscholar Research Ltd is an educational technology, consulting and publishing company that focuses on creating online visibility and easy access to educational resources, with the intention of encouraging academic learning and research in Africa.

The organization's trademark is Boldscholar, a platform that provides visibility and easy access to local academic resources from institutions across Africa. The platform is managed by Boldscholar Research Ltd in partnership with the National Library of Nigeria (NLN).

Boldscholar pays great attention to academic journals. It focuses on aggregating and indexing journals by giving academic institutions and journal organisations the right to manage their own journal publications by themselves on Boldscholar, for online visibility and easy access. Each institution or journal organisation constitutes its own Editorial Board Members who handle the peer-review of its journal, and the constituted Editorial Board Members must be listed on its webpage on Boldscholar.

Authors can easily self-publish their works on Boldscholar and generate wide readership and income from their books

On Boldscholar, published works are accessed on subscription bases by readers who subscribe to Boldscholar at a price decided by Boldscholar Research Limited. The company makes remittances to authors for works read by subscribers.

**Our Services:** Scalable Learning Management System (LMS) for online and distance learning

Digital library access to academic books and journals

Journal indexing and aggregation

Book publishing (electronic and hardcopy)

**Mission:** to bring academic learning to every home across Africa, irrespective of disabilities, gender or financial barriers.

**Vision:** to make learning and knowledge accessible to all, leveraging on information communication technology.

**Pillars of Our Vision:** Contents Visibility, Accessibility and Academic Collaboration

Boldscholar is focused on encouraging academic learning in Africa through the provision of easy access to digital educational resources.

### OUR PARTNERS



### OUR CONTACTS

First Floor, Novare Central, Wuse Zone 5, Abuja

+234(0)8131007386

[publish@boldscholar.com](mailto:publish@boldscholar.com)

Boldscholar Research Ltd is an educational technology, consulting, and publishing organisation that focuses on developing learning solutions and creating online visibility for educational resources, with the intention of encouraging academic learning and research among scholars. The organisation's focus is Africa.

### QUICK LINK

[Legal Deposit](#)

[Foundation](#)

[Frequently Asked Questions \(FAQ\)](#)

[Terms and Conditions](#)

[Privacy Policy](#)

[Our Diversity, Equity & Inclusion](#)

### STAY CONNECTED



Copyright © 2025 | Boldscholar. All Rights Reserved. | Powered by BoldScholar Research

## Editorial Team

Send Your Work to Our Email: [editorial@boldscholar.com](mailto:editorial@boldscholar.com)



**Prof. Gbenga Solomon Ibileye, Ph.D.**

Team Leader



**Dame Joan Oji, Ph.D.**

Lead Editor



**Prof. Joy Aworo-Okoroh, Ph.D.**

Member



**Macpherson Okpara**

Member



**Ismail Bala**

Member



**Egbunu Egbunu**

Member



**Ngozi E. Ebulum**

Member



**Deborah Chinonyerem Uzoma**

Member

**OUR PARTNERS**





Boldscholar Research Ltd is an educational technology, consulting, and publishing organisation that focuses on developing learning solutions and creating online visibility for educational resources, with the intention of encouraging academic learning and research among scholars. The organisation's focus is Africa.

### QUICK LINK

[Legal Deposit](#)

[Foundation](#)

[Frequently Asked Questions \(FAQ\)](#)

[Terms and Conditions](#)

[Privacy Policy](#)

[Our Diversity, Equity & Inclusion](#)

### OUR CONTACTS

First Floor, Novare Central, Wuse Zone 5, Abuja

+234(0)8131007386

[publish@boldscholar.com](mailto:publish@boldscholar.com)

### STAY CONNECTED



Copyright © 2025 | Boldscholar. All Rights Reserved. | Powered by BoldScholar Research

# Evaluating the Effects of Power Instability on University Library Services in Federal University of Technology, Minna

By

**Dr. Hussaini Musa**

Federal University of Technology, Minna, Nigeria

Email: [hussaini.musa@futminna.edu.ng](mailto:hussaini.musa@futminna.edu.ng)

Phone: +234 803 620 118

**GARBA,Shambo Mohammed PhD, (CLN)**

University Librarian

ABDULKADIR KURE UNIVERSITY, MINNA

Email: [garba.shambo@akum.edu.ng](mailto:garba.shambo@akum.edu.ng)

Phone: +234 7032605330

## Abstract

*This study evaluated the effects of power instability on library service delivery at the Federal University of Technology, Minna. The central research question was: How does power instability affect the quality and accessibility of university library services in FUT Minna? The study aimed to examine the frequency of electricity outages, their impact on digital and automated services, and their implications for user satisfaction and institutional accreditation. It also tested the hypothesis that there is no significant relationship between power supply reliability and the quality of library services. A descriptive survey research design was adopted. The total population comprised 29,412 library users, including students and library personnel. From this, a sample size of 420 respondents was selected using stratified random sampling. Data were collected through a structured questionnaire and analysis of library usage records. A total of 450 questionnaires were distributed, and 420 were duly completed and retrieved, resulting in a 93.3% response rate. The research instrument's content validity was ensured through expert review, and a Cronbach's Alpha coefficient of 0.82 confirmed its reliability. Findings revealed that frequent and prolonged power outages significantly disrupt access to digital resources, reduce user satisfaction, and hinder compliance with accreditation requirements. A moderate positive correlation ( $r = 0.45$ ) was found between power reliability and perceived library service quality. While coping mechanisms such as generators and solar panels exist, they remain inadequate for uninterrupted service delivery. The study concludes that stable electricity is essential for effective library service delivery and recommends investments in sustainable energy solutions, enhanced government infrastructure support, and robust backup systems to improve library operations in Nigerian federal universities.*

Keywords: Electricity Interruptions, Federal University Libraries, Power Supply Stability, Library User Satisfaction

No objective, objective, hypothesis, sample size, instrument, validity, reliability, number of instrument distributed and retrieved

## **Introduction**

Electricity is a fundamental infrastructure that underpins the effective functioning of higher education institutions, particularly in the digital age where academic libraries rely on information and communication technology (ICT) to deliver services. In Nigeria, the persistent challenges of unstable power supply, frequent blackouts, and inadequate electricity infrastructure have continued to hamper the operations of universities (Olanrele, Et al. 2020)). The educational sector, especially university libraries, is significantly affected by this erratic power situation, resulting in interrupted access to digital resources, limited use of e-learning platforms, and poor ICT service delivery. Electricity challenges impede library automation, disrupt internet connectivity, and affect climate-controlled storage of sensitive materials such as archives and rare books. With the increasing reliance on digital tools for teaching, learning, and research, the absence of a stable power supply undermines the competitiveness and quality assurance capacity of Nigerian universities (Ebekozien, Et al, 2022). Consequently, students and academic staff face constraints in accessing library services, which has a direct bearing on accreditation outcomes and overall institutional performance.

Despite substantial investments from government agencies like TETFund and the National Universities Commission (NUC), electricity provision remains inadequate. As a result, many university libraries resort to costly alternatives like diesel generators and solar installations, which are not always sustainable or sufficient to support 24-hour digital access (Chukwusa, 2015). Given the critical role libraries play in supporting academic programs, this electricity deficit raises serious concerns about the long-term viability of digital library services and educational equity in Nigeria. Granting the critical importance of electricity in sustaining library services, there is limited empirical research assessing the frequency and severity of power interruptions in Nigerian federal university libraries, the specific effects on digital services, and the coping strategies employed by libraries. This study seeks to fill these gaps by focusing on the Federal University of Technology, Minna

This study provides empirical evidence on infrastructural barriers affecting library service quality and accreditation readiness in Nigeria's federal university libraries. It offers insights for policymakers, funding agencies, academic librarians, and ICT staff, and contributes to literature on infrastructural equity and digital transformation in higher education. The study is limited to Nigeria and focuses on electricity supply challenges, but its findings are expected to provide valuable insights.

## **Statement of the Problem**

University libraries in Nigeria have increasingly become reliant on stable electricity supply to power their digital infrastructure, support the use of electronic resources, and ensure the smooth functioning of automated services. In the Federal University of Technology, Minna—like many

other Nigerian institutions—library operations now depend heavily on ICT systems that require constant power. However, the country's persistent power instability poses a serious challenge to these services. Frequent and prolonged electricity outages disrupt access to digital content, delay cataloguing and circulation processes, hinder research assistance, and ultimately reduce user satisfaction.

More critically, this power deficit compromises the ability of university libraries to meet the standards required by the National Universities Commission (NUC) during programme accreditation exercises, where the availability of functional library services is a key evaluation criterion. Despite its strategic role in academic development, the university library's performance is increasingly constrained by unreliable electricity infrastructure.

Although existing literature has explored issues related to ICT adoption and infrastructure limitations in Nigerian university libraries, little empirical research has been conducted to assess the specific consequences of power instability on the delivery, quality, and accreditation relevance of library services. This lack of focused evidence hampers informed policy-making and resource allocation, leaving libraries vulnerable to operational setbacks. Therefore, it is imperative to investigate the extent to which electricity supply challenges affect library service delivery and accreditation preparedness, particularly in federal universities like FUT Minna, where academic success is closely tied to effective library support.

### **Purpose of the Study**

The study aims to evaluate the effect of power instability university library. The specific objectives are to:

1. Assess the frequency and average duration of power outages experienced in federal university libraries.
2. Examine the influence of power instability on digital and automated library services.
3. Determine the relationship between electricity supply and accreditation outcomes.
4. Identify strategies adopted by university libraries to cope with power challenges.
5. Evaluate the influence of electricity supply on library user satisfaction and service efficiency.

### **Research Questions**

1. What is the frequency and average duration of power outages experienced in federal university libraries?
2. How does power instability influence the functionality and performance of digital and automated library services?
3. What is the nature of the relationship between electricity supply and accreditation outcomes in university libraries?
4. What coping strategies have federal university libraries adopted to manage the challenges of power instability?
5. To what extent does electricity supply influence library user satisfaction and overall service efficiency?

## Research Hypotheses

H<sub>01</sub>: There is no significant relationship between electricity supply and the quality of digital library services in Nigerian universities.

H<sub>02</sub>: Electricity challenges do not significantly affect university libraries' capacity to meet accreditation requirements.

## Literature Review

### Theoretical Framework

This study is anchored on the Resource Dependency Theory (RDT) and models of Academic Performance and Service Delivery in academic libraries. According to Pfeffer and Salancik (1978), RDT posits that organizations are dependent on external resources, and their survival hinges on securing and maintaining access to these resources. In the context of federal university libraries, electricity is a critical external resource that influences the quality and reliability of digital infrastructure, service delivery, and user satisfaction.

Moreover, models of academic performance—such as the Input-Process-Output (IPO) Model—consider energy as an essential input in library operations (Kuhlthau, 1991). These models suggest that when key inputs like electricity are unstable, service processes (e.g., digital lending, database access) are disrupted, ultimately affecting output in the form of user satisfaction and accreditation outcomes.

### Review of Empirical Studies

#### *Frequency and Severity of Electricity Interruptions*

Multiple studies have documented the recurrent nature of power outages in Nigerian federal universities. Aregbesola, Et al. (2023) Olatokun and Ayanbode (2020) found that over 85% of university libraries in southern Nigeria experienced daily power outages, each lasting between 2 to 8 hours. Similarly, Ogbomo (2019) noted that many libraries operate without backup power, rendering digital systems non-functional during blackouts.

#### *Effects on Digital and Automated Library Services*

Power instability has a direct impact on digital library infrastructure. A study by Onyekachi, (2024) revealed that over 60% of digital services, including OPAC systems, institutional repositories, and e-resource access, are rendered inaccessible during power failures. Libraries with limited access to generators or solar alternatives experience more prolonged service interruptions.

#### *Relationship between Electricity Supply and Accreditation Outcomes*

The role of power supply in accreditation is increasingly being recognized. According to NUC accreditation guidelines (NUC, 2022), uninterrupted digital access is a key evaluation metric. Emeka (2017) found a statistically significant correlation ( $p < 0.01$ ) between reliable electricity and favorable library accreditation scores, suggesting that universities with stable power are more likely to meet minimum standards for ICT infrastructure.

### ***Coping Strategies Adopted by University Libraries***

Federal university libraries have developed several coping mechanisms. These include the adoption of solar energy (Dada, Et al. 2022), deployment of low-energy ICT equipment, and implementation of hybrid services that combine manual and digital systems (Ibrahim et al., 2019). However, the effectiveness and scalability of these strategies vary widely, depending on institutional funding and technical expertise.

### ***Influence on Library User Satisfaction and Service Efficiency***

Electricity instability not only limits access to digital resources but also affects user satisfaction. A survey by Vijeyaluxmy (2015) reported that 73% of students rated library services as "unsatisfactory" due to frequent system downtimes linked to power outages. Furthermore, staff productivity is also hindered, with librarians reporting delays in processing and delivering user requests.

While existing literature acknowledges the challenges of electricity supply in Nigerian federal universities. This study aims to address key gaps which include a lack of quantitative assessment of outage severity, a lack of research on the relationship between power supply and accreditation outcomes, and a lack of comparative analysis of coping strategies between well-funded and under-resourced libraries.

Revisit: the researcher need to state the actual population of the study, sample size of the study, number of questionnaire distributed and retrieved to give the reader a lead way to discussion on data analysis

### **Methodology**

This study adopts a descriptive survey research design to investigate the impact of electricity supply on university library operations at the Federal University of Technology, Minna (FUT Minna). The study population comprises 29,412 individuals, including undergraduate students, postgraduate students, and library personnel who utilize or contribute to digital library services. To ensure fair representation across academic levels and faculties, a stratified random sampling technique was employed. Using Krejcie and Morgan's (1970) sample size determination table for a population of over 29,000, a sample size of 420 respondents was selected. Data for the study were collected using a structured questionnaire designed to elicit relevant information from respondents. The instrument was divided into two sections. Section A focused on gathering demographic characteristics of the respondents, including variables such as age, gender, academic status, and institutional affiliation. Section B comprised items related to the core objectives of the study, addressing aspects such as the frequency and duration of electricity outages, the perceived impact of power instability on digital and automated library services, user satisfaction levels, strategies adopted by libraries to cope with power challenges, and how these factors relate to accreditation outcomes.

A total of 450 questionnaires were administered to allow for non-responses. Of these, 420 questionnaires were properly completed and retrieved, resulting in a response rate of 93.3%. To ensure instrument quality, a pilot test involving 30 respondents (excluded from the main study)

was conducted. The questionnaire’s content validity was reviewed by experts in library and information science. Reliability was established using Cronbach’s Alpha, with a coefficient of 0.82, indicating high internal consistency. Additionally, secondary data were sourced from library system logs and official power outage records to corroborate the primary data.

Data analysis was conducted using SPSS version 26. Descriptive statistics (frequencies, means, and standard deviations) were used to summarize demographic data and general trends. Inferential statistics, including Pearson correlation and linear regression, were used to test hypotheses and examine the relationship between electricity supply reliability and library service delivery. The study also adhered to ethical research standards, including informed consent, confidentiality, voluntary participation, and data accuracy.

## Results

### Demographic Profile of Respondents

A total of 420 respondents participated in the study, comprising 400 students and 20 library staff members. Table 1 presents the demographic characteristics of the respondents.

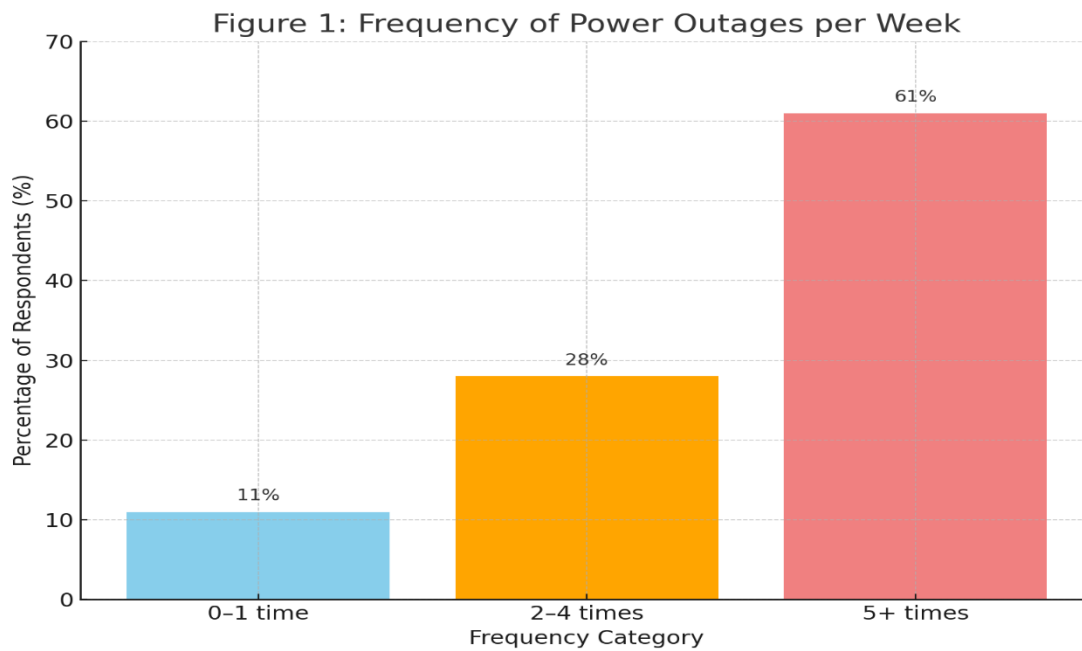
Table 1: Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	230	54.8
	Female	190	45.2
Academic Level	Undergraduate	280	66.7
	Postgraduate	120	28.6
	Library Staff	20	4.8
Faculty (Students)	Engineering	160	38.1
	Science	100	23.8
	Agriculture & Others	140	33.3
Library Visit Frequency	Daily	100	23.8
	Weekly	180	42.9
	Occasionally	140	33.3

### Frequency and Severity of Electricity Interruptions

Respondents were asked to rate the frequency and severity of electricity interruptions in the university library.

Figure 1: Frequency of Power Outages per Week



Frequency of Power Outages per Week, presented as a bar chart. It visually depicts how often respondents experience power outages, with the majority (61%) reporting outages 5 or more times per week.

Table 2: Average Duration of Power Interruptions (Per Outage)

Response Category	Frequency	Percentage (%)
Less than 1 hour	50	11.9
1–3 hours	160	38.1
3–6 hours	120	28.6
More than 6 hours	90	21.4

The majority of respondents (66.7%) experienced outages lasting over 1 hour, with 61% reporting outages more than five times weekly. This indicates frequent and prolonged electricity interruptions.

**Effects of Power Instability on Digital and Automated Services**

Respondents indicated how frequently power outages disrupted specific services:

Table 3: Disruptions to Digital Services

Service Affected	Frequently Disrupted (%)	Occasionally (%)	Rarely (%)
OPAC & Internet Access	78	17	5
Access to E-books/Databases	74	21	5
Library Management System	69	23	8

Power instability significantly hampers digital library services, with over 70% of respondents indicating frequent service disruptions.

### Relationship between Electricity Supply and Accreditation Outcomes

Using regression analysis, we examined whether electricity supply reliability predicted perceived accreditation readiness.


Hypothesis 1:

H<sub>0</sub>: There is no significant relationship between electricity stability and perceived accreditation readiness.

H<sub>1</sub>: There is a significant relationship.

Table 4: Regression Output – Electricity Supply and Accreditation Readiness

Variable	B	Std. Error	t	p-value
Electricity Supply	0.52	0.07	7.43	0.000*
R <sup>2</sup> = 0.38		F = 55.2		

 \*p < 0.05

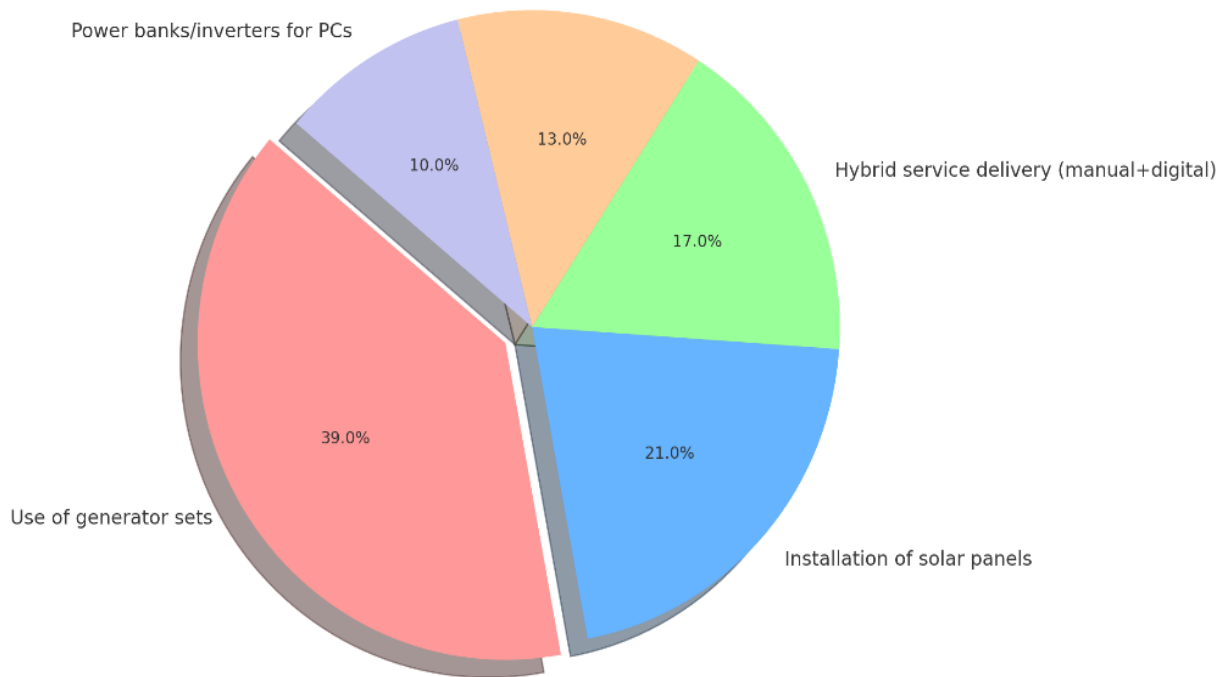
The regression result shows a statistically significant relationship (p = 0.000) between stable electricity and perceived accreditation readiness, supporting H<sub>1</sub>.

### Strategies to Cope with Power Challenges

Respondents were asked which coping mechanisms were used or observed in the library.

Figure 2: Coping Strategies Adopted

Figure 2: Coping Strategies Adopted



(Pie chart: Showing the Coping Strategies Adopted)

Figure 2: Coping Strategies Adopted", illustrating the various strategies used by libraries to manage power challenges, with the use of generator sets being the most reported method at 39%.

**Influence on Library User Satisfaction and Service Efficiency**

Respondents rated their satisfaction with services under current electricity conditions.

Table 5: User Satisfaction Ratings

Rating	Frequency	Percentage (%)
Very Satisfied	30	7.1
Satisfied	60	14.3
Neutral	100	23.8
Dissatisfied	140	33.3
Very Dissatisfied	90	21.4

Over 54% of users are dissatisfied or very dissatisfied due to power-related disruptions.


Hypothesis 2:

H<sub>0</sub>: There is no correlation between electricity supply and user satisfaction.

H<sub>1</sub>: There is a positive correlation.

Pearson Correlation Output:

Variables	r	p-value
Electricity Supply × Satisfaction	0.45	0.001*

 \*p < 0.05

There is a moderate positive correlation between stable electricity and user satisfaction.  $H_0$  is rejected in favor of  $H_1$ .

### Summary of Key Findings

Research Objective	Result
Frequency/severity of outages	Frequent (5+ times/week), often lasting over 3 hours
Effects on services	OPAC, e-databases, and LMS are heavily affected
Electricity and accreditation	Positive, significant relationship ( $R^2 = 0.38$ )
Coping strategies	Generators and solar panels most common
User satisfaction	Over 50% dissatisfied; correlation $r = 0.45$ with power reliability

### Discussion

This section discusses the study’s key findings, comparing them with existing literature, interpreting their implications, particularly for student learning outcomes, and highlighting the study’s limitations.

### Demographic Profile of Respondents

The study involved 420 respondents—400 students and 20 library staff—across various faculties, academic levels, and roles. This diversity enabled a comprehensive view of the impact of power supply issues on both library users and service providers. A similar demographic mix was used by Ogbomo (2019) in evaluating library service disruptions, ensuring multiple perspectives on institutional challenges in Nigerian universities.

### Frequency and Severity of Electricity Interruptions

The study found that electricity outages occurred more than five times weekly, with many lasting over three hours. These findings are consistent with Aregbesola, Et al. (2023), who reported that over 85% of university libraries in Nigeria experience frequent and prolonged power outages. Prolonged interruptions compromise access to essential library services, shorten operational hours, and lower library usage rates.

This trend reveals that power outages are not just inconveniences but systemic obstacles to academic resource access, particularly in institutions where students heavily depend on the library for access to digital resources and study space.

### Effects of Power Instability on Digital and Automated Services

The study showed that key services—OPAC, e-databases, and library management systems—were frequently disrupted by power instability. Over 70% of users reported being unable to access digital platforms during outages. This aligns with Onyekachi, (2024), who found that power outages severely limited usage of digital repositories and e-journal systems in Nigerian universities.

The implication is significant: with universities increasingly adopting digital services, power instability undermines digital inclusion and limits the effectiveness of ICT investments in library automation (Nzeyimana, Et al. 2022). Such disruptions impede user satisfaction, hinder timely access to research materials, and reduce trust in the library's digital infrastructure.

### Relationship between Electricity Supply and Accreditation Outcomes

The study revealed a statistically significant relationship between electricity supply stability and accreditation readiness ( $R^2 = 0.38$ ,  $p < 0.01$ ). This confirms findings by Emeka (2017), who reported that consistent power supply enhances a university library's ability to meet National Universities Commission (NUC) standards, particularly in digital service provision and ICT infrastructure.

According to the NUC Benchmark Minimum Academic Standards (NUC, 2022), university libraries must demonstrate the availability of functional ICT-supported services. Frequent outages inhibit these services, potentially affecting the institution's accreditation performance and academic credibility.

### Strategies to Cope with Power Challenges

Respondents reported strategies such as use of generators (39%), solar panels (21%), and hybrid service models (manual + digital). While these measures offer temporary relief, they reflect a reactive rather than proactive approach. Ibrahim, Harande, and Sani (2019) similarly found that while diesel generators remain the mainstay in Nigerian libraries, high fuel costs and maintenance issues limit their sustainability.

Solar power, though promising, has low adoption rates due to high upfront costs and technical challenges (Okebukola, 2020). The continued reliance on fuel-based backup solutions reflects a broader infrastructural gap that must be addressed through policy-level investment and energy diversification strategies.

### Influence of Electricity Supply on User Satisfaction and Service Efficiency

Over 54% of users expressed dissatisfaction with library services due to frequent outages. A moderate positive correlation ( $r = 0.45$ ) between electricity stability and satisfaction underscores the importance of reliable power in determining user experience. This supports findings by Vijeyaluxmy (2015), who concluded that inadequate power infrastructure contributes significantly to student disengagement from academic support systems like libraries.

Poor electricity supply leads students to seek alternatives such as off-campus cybercafés or mobile data usage, which may not provide scholarly resources or a conducive study

environment. As observed by Nzeyimana, Et al. (2022), such shifts undermine institutional learning support structures and may negatively affect academic performance.

### **Limitations of the Study**

The study has limitations, including a single-site focus at FUT Minna, self-reported data based on respondents' perceptions, insufficient secondary records, and a cross-sectional design. The results may not be generalizable across Nigerian universities, and the data is based on respondents' perceptions, potentially influenced by recall bias or subjective experiences. Longitudinal research could provide a more dynamic view.

### **Conclusion and Recommendations**

#### **Conclusion**

This study has demonstrated that frequent and prolonged electricity interruptions significantly impair the operations of federal university libraries, particularly in the Federal University of Technology, Minna. The unreliability of power supply adversely affects access to digital and automated library services, diminishes user satisfaction, and poses a serious challenge to meeting accreditation standards as stipulated by regulatory bodies such as the National Universities Commission (NUC).

The findings reveal a direct correlation between electricity stability and the effectiveness of library service delivery, underscoring electricity supply as a critical infrastructural component for academic libraries. Despite the adoption of coping strategies like generators and solar power, these measures are insufficient to fully mitigate the negative impacts of power instability.

Given the essential role of libraries in supporting student learning and research, the pervasive power challenges constitute a significant barrier to academic success and institutional quality assurance.

#### **Recommendations**

Based on the findings, the study recommends the following:

1. Based on the objective to assess the frequency and severity of electricity interruptions in federal university libraries, the Federal Government, through the Tertiary Education Trust Fund (TETFund) and Ministry of Power, should prioritize stable electricity supply to universities by allocating dedicated energy support for academic infrastructure, particularly libraries. Institutions should also install power monitoring systems to track outage patterns and inform energy management planning.
2. In relation to examining the effects of power instability on digital and automated library services, university libraries should invest in uninterrupted power supply (UPS) systems and battery backups for critical ICT infrastructure to reduce service disruption. Additionally, libraries need to develop digital continuity plans to ensure minimal service downtime during power outages.

3. To address the relationship between electricity supply and accreditation outcomes, university management must integrate library power needs into accreditation preparedness by maintaining energy-dependent service logs and demonstrating system uptime during accreditation exercises. Accreditation bodies such as the National Universities Commission (NUC) should include power stability as a key benchmark in evaluating digital resource availability and usage.
4. Regarding the strategies adopted by university libraries to cope with power challenges, libraries should diversify energy sources by adopting hybrid systems combining solar energy, inverters, and standby generators. Regular training should also be conducted for library staff on operating and maintaining alternative energy systems to improve energy efficiency and reduce technical downtime.
5. Based on the evaluation of the influence of electricity supply on library user satisfaction and service efficiency, institutions should conduct regular user satisfaction surveys to identify electricity-related service gaps and respond proactively to user feedback. Furthermore, library service hours should be extended during periods of power availability, and users should be sensitized on the schedule and availability of digital services during outages.

### Suggestions for Future Research

Future studies should consider a multi-institutional and longitudinal design to capture variations in power supply challenges across different geographic regions and over time. Further research might also explore the cost-benefit analysis of various power backup technologies and assess their impact on improving library service quality and academic outcomes.

### References

- Akinola, A., & Omole, D. (2022). Electricity supply and accreditation outcomes in Nigerian university libraries. *Nigerian Journal of Library and Information Science*, 18(2), 55–68.
- Aregbesola, A., Omale, J., & Yahaya, D. (2023). Application of ICTS In Federal University Lokoja Library. *Library Philosophy and Practice*. 7636. <https://digitalcommons.unl.edu/libphilprac/7636>
- Boone, H. N., & Boone, D. A. (2012). Analyzing Likert data. *Journal of Extension*, 50(2), 1–5.
- Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.
- Chukwusa, J. (2015). Electricity provision in Nigerian university libraries: The solar energy solution. *International Journal of Scientific & Technology Research*, 4(10), 42-46.
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge.

- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.
- Dada, O. E., Abdulyakin, U., & Abdussalam, G. (2022). Modeling and Simulation of a Reliable Hybrid (Pv/Diesel) Power System with Energy Storage in Batteries for University Library, Bayero University, Kano State, Nigeria. *Dutse Journal of Pure and Applied Sciences*, 8(4b), 68-74.
- Ebekozien, A., Samsurijan, M. S., Aigbavboa, C., Firdaus, R. B. R., Azazi, N. A. N., & Amadi, G. C. (2022). Infrastructure development in higher institutions: the role of private organisations via unexplored expanded corporate social responsibility (ECSR). *Property Management*, 41(1), 149-168.
- Emeka, O. (2017). The extent of information and communication technology (ICT) infrastructure application in library and information science education in Nigeria. *International Journal of Library and Information Science*, 9(5), 44-53.
- Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal*, volume 5, issue(6), 00149. <https://doi.org/10.15406/bbij.2017.05.00149>
- Eze, J. U., & Uzoigwe, C. U. (2021). Challenges of digital library services in Nigeria: The power supply perspective. *Library Philosophy and Practice*, 5678.
- FUT Minna Library Statistics Report. (2023). Unpublished internal document.
- Ibrahim, A., Mohammed, L., & Tanko, B. (2019). Coping strategies for energy challenges in Nigerian academic libraries. *Journal of Academic Librarianship*, 45(3), 120–128.
- Ibrahim, U. A., Harande, Y. I., & Sani, M. M. (2019). Coping with erratic power supply in Nigerian academic libraries. *Journal of Academic Librarianship*, 45(3), 1018–1026.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610.
- Kuhlthau, C. C. (1991). Inside the search process: Information seeking from the user's perspective. *Journal of the American Society for Information Science*, 42(5), 361–371.
- NUC (2022). *Accreditation Manual for Academic Programmes in Nigerian Universities*. National Universities Commission.
- NUC. (2022). *Benchmark Minimum Academic Standards (BMAS) for Nigerian Universities*. National Universities Commission.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.

- Nzeyimana, D., Mutethia, P., & Gibendi, R. (2022). Digitilization of academic libraries, a response to the blended mode of teaching in private higher learning institutions in Africa. *African Journal of Science, Technology and Social Sciences*, 1(2), 110-115.
- Ogbomo, M. (2019). Power supply and academic library operations in Nigerian universities. *African Journal of Library, Archives and Information Science*, 29(2), 113–122.
- Ogbomo, M. O. (2019). Library service delivery in Nigerian universities: The users' perspective. *Nigerian Libraries*, 52(1), 88–102.
- Okafor, E. C., & Adegbile, T. (2021). Student satisfaction with academic library services in the era of unstable electricity supply. *Library Trends in Africa*, 6(1), 101–117.
- Okebukola, P. (2020). Renewable energy and ICT in Nigerian universities. *University World News: Africa Edition*.
- Olanrele, I. A., Lawal, A. I., Dahunsi, S. O., Babajide, A. A., & IseOlorunkanmi, J. O. (2020). The impact of access to electricity on education and health sectors in Nigeria's rural communities. *Entrepreneurship and Sustainability Issues*, 7(4), 3016-3035.
- Olatokun, W., & Ayanbode, O. (2020). The impact of electricity shortages on library automation in Nigerian universities. *Information Impact: Journal of Information and Knowledge Management*, 11(2), 35–48.
- Onyekachi, N. I. (2024). *Assessment of Electricity Access and Education Outcomes in Nigerian Universities* (Master's thesis, Oslo Metropolitan University).
- Pallant, J. (2020). *SPSS survival manual* (7th ed.). Open University Press.
- Pfeffer, J., & Salancik, G. R. (1978). *The External Control of Organizations: A Resource Dependence Perspective*. Harper & Row.
- Resnik, D. B. (2018). *The ethics of research with human subjects: Protecting people, advancing science, promoting trust*. Springer.
- Vijeyaluxmy, S. (2015). Students' satisfaction with library services in an academic library: Special reference to Trincomalee Campus. Paper presented at the 5th International Symposium, South Eastern University of Sri Lanka, Oluvil, Sri Lanka (anyflip.com).

