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Building an Academic Library from Scratch in the Modern Age: Challenges, Strategies, and Innovations at Federal Polytechnic Kaltungo Library

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Keywords

Academic library development, Library automation, Library innovation, Staff development, User education

Abstract

The establishment of an academic library requires more than the provision of a physical facility and information resources. It involves sustained institutional support, adequate staffing, staff development, appropriate equipment, reliable infrastructure, user engagement, and progressive adoption of technology. This paper examines the development of Federal Polytechnic Kaltungo Library from its establishment in 2021 to date, focusing on the challenges, strategies, and innovations associated with building and sustaining library services in a newly established tertiary institution. The library has developed a dedicated physical facility and acquired print and electronic resources to support teaching, learning and research. However, the relatively limited size of the library building presents a constraint to future expansion.

In contrast, limited staffing, staff training needs, equipment limitations, institutional support and unreliable electricity continue to affect service development and automation. The study adopts a qualitative institutional case-study approach based principally on the authors' firsthand professional observations and experiences as library staff, supported by institutional records and relevant scholarly literature. Particular attention is given to the continued reliance on manual operations and the effects of unreliable electricity on the deployment of technology-supported services. The paper also examines staff-led strategies, including resource organization, user sensitization, library orientation, collaboration with academic departments, and the promotion of library use for academic assignments and reference work. The study argues that building a modern academic library is a continuous process requiring coordinated investment in human resources, staff development, electricity, equipment, technology, space and institutional support.

1. Introduction

Academic libraries are integral to the teaching, learning and research functions of tertiary institutions. Their role has expanded beyond the traditional provision, organization, preservation and circulation of print materials to include electronic resources, digital information services, research support, information literacy and technology-supported library operations. Digital transformation has consequently become an important aspect of contemporary academic library development. However, technology adoption does not occur independently of human and institutional capacity. Evidence from African academic libraries indicates that continuing professional development is an important component of digital transformation, while inadequate training policies and funding can constrain the process (Nakaziba & Ngulube, 2023). The challenge is particularly relevant to newly established tertiary institutions. Building an academic library requires the simultaneous development of collections, facilities, staffing, equipment, services and institutional systems. A library may have a physical building and information resources while still lacking the infrastructure and

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human capacity required for a fully modern service environment. Library development should therefore be understood as a continuing institutional process rather than a one-time construction or acquisition exercise.

Federal Polytechnic Kaltungo Library provides a practical context for examining this process. Polytechnic was established in 2021, and the library has since undergone progressive development in its physical facilities, information resources, staffing and services. A dedicated library building was constructed at the permanent site in 2023. The facility provides a physical environment for library operations and access to resources, but its relatively small size presents a concern for future growth. As the institution develops, increasing student enrolment, academic programmes, information resources and service requirements may place additional pressure on available library space. The library has also developed print and electronic information resources to support the academic community.

Nevertheless, the existence of electronic resources does not automatically guarantee effective electronic access. Their utilization depends on appropriate equipment, electricity, connectivity, technical capacity and user awareness. Recent research on ICT deployment in a Nigerian academic library found that although ICT resources were available, their deployment was constrained by erratic power supply, inadequate funding and insufficient ICT skills among staff (Mesagan & Hossana, 2025). Similar challenges are relevant to the development of Federal Polytechnic Kaltungo Library.

Staffing represents another important dimension of library development. The library has staff who support its operations, but the available workforce remains limited in relation to the range of services required. Staff are required to undertake multiple functions, including resource development and organization, circulation, reference assistance, user education, administrative duties and other emerging services. The situation creates a need for both additional staffing and continuous capacity development. The changing nature of academic library services makes staff training particularly important. Library automation, electronic resource management and digital information services require personnel with relevant technical and professional competencies. Nakaziba and Ngulube (2023) found that continuing professional development strategies such as mentorship, collaboration and short courses can support digital transformation in African academic libraries. Their findings also indicate that inadequate institutional provision for staff training remains a challenge.

Electricity supply is another major constraint. The library possesses electronic materials and requires ICT facilities to expand technology-supported services, but unreliable electricity affects the continuity of technology-dependent operations. As a result, the library continues to depend substantially on manual procedures. Recent Nigerian research on academic library automation similarly identified infrastructural challenges, inadequate ICT proficiency, outdated equipment, inadequate funding, unreliable internet access and insufficient staff training as factors limiting the effective adoption of automation (Salah et al., 2025).

Institutional support is equally important. During the formative period of the Polytechnic, limited administrative attention to library development contributed to developmental responsibilities that subsequently required greater attention from the present administration and library staff. These responsibilities include staffing, staff training, equipment, and electricity and service development. This situation should not be presented simply as institutional failure; rather, it demonstrates how the developmental priorities of a newly established institution can affect the pace at which its library develops.

Despite these constraints, library staff have adopted several practical approaches to sustain and promote services. Staff have undertaken sensitization activities in lecture rooms across the Polytechnic and have oriented users on the use of library resources and services. The library has also encouraged collaboration with academic departments, including requests for departments to make lecture notes, final year projects and past examination question papers available to the library. Students are encouraged to consult library resources when undertaking assignments and academic work. User education is particularly important in a developing academic library because resources have limited value when users are unaware of their availability or do not know how to locate and use them. Recent Nigerian studies have found relationships between user education, library factors and library use, reinforcing the importance of structured user education and awareness programmes (Olaniyi & Awujoola, 2024).

The experience of Federal Polytechnic Kaltungo Library therefore raises an important question: How can a newly established academic library develop into a functional modern information service when physical infrastructure and electronic resources are available, but staffing, staff development, equipment, electricity and institutional support remain constrained? This paper examines the development of Federal Polytechnic Kaltungo Library from 2021 to date, focusing on the challenges encountered, strategies adopted and innovations introduced in the process of developing and sustaining library services. The study draws substantially on the authors' firsthand professional observations as library staff, complemented by institutional documentation and relevant scholarly literature.

The study seeks to:

1) Examine the development of Federal Polytechnic Kaltungo Library from its establishment in 2021 to date.
2) Identify the major challenges affecting the development and effective operation of the library, particularly staffing, staff training, equipment, electricity supply and institutional support.
3) Examine the strategies and innovative practices adopted by library staff to sustain resource development, service delivery and user engagement despite existing constraints.
4) Examine the prospects and requirements for transitioning the library from predominantly manual operations to automated and technology-supported library services.

2. Literature Review

Academic library development has increasingly become associated with the integration of physical and digital information services. Contemporary libraries are expected to provide access to print and electronic resources while supporting information discovery, research, information literacy and technology-mediated learning. Digital transformation has therefore changed not only the resources available in libraries but also the skills, infrastructure and organizational arrangements required to deliver services. For newly established institutions, this creates a developmental challenge. The library must establish basic services while anticipating future growth and technological requirements. Physical infrastructure, collection development and staffing cannot be planned entirely as separate activities. The size of the building, availability of equipment, capacity of staff and nature of collections influence one another.

The experience of Federal Polytechnic Kaltungo illustrates this interdependence. The library has a dedicated building and electronic resources. Still, the building's limited size creates a potential future space constraint, while inadequate electricity and equipment affect the effective use of technology-dependent resources. Thus, the development of a modern library should be considered as a process involving complementary physical, human and technological investments.

Human resources remain fundamental to academic library development. Even where automation is introduced, library staff are required to manage systems, organize resources, support users, maintain information services and adapt technology to institutional needs. Digital transformation therefore changes the competencies required of library staff rather than eliminating the importance of personnel. Nakaziba and Ngulube (2023) found that continuing professional development is important in supporting digital transformation in African academic libraries. Their systematic review identified mentorship, collaboration and short courses among the approaches used to develop staff competencies. They also identified inadequate funding and weak institutional arrangements for staff development as continuing concerns.

For Federal Polytechnic Kaltungo Library, the issue involves both the number of available staff and their continuing development. Limited staffing can require individuals to perform multiple duties, increasing workload and reducing opportunities for specialization. It may also make participation in training difficult because staff absences can affect routine services. Automation can improve the efficiency of library operations and provide users with more convenient access to information. However, automation requires supporting infrastructure, including reliable electricity, computers, networking, software, connectivity, technical expertise and maintenance. Recent research in Nigeria illustrates this relationship. Mesagan and Hossana (2025) found that ICT resources were available in the library studied, but that deployment was affected by erratic electricity, inadequate funding and insufficient ICT skills. Salah et al. (2025) identified similar infrastructural challenges, outdated equipment, inadequate funding, limited ICT proficiency, unreliable internet access and insufficient staff training as barriers to effective automation. These findings are relevant to Federal Polytechnic Kaltungo Library because the availability of electronic materials itself does not resolve the infrastructure problem. The library may possess electronic resources while remaining

substantially dependent on manual operations. This creates an availability–access gap, in which resources exist but the technological environment does not consistently support their effective use.

User education is an important mechanism for connecting library resources with teaching and learning. Students need to know what resources are available, where they can be found and how they should be used. Orientation and sensitization can therefore contribute to awareness and utilization. Olaniyi and Awujoola (2024) examined library factors and user education as determinants of library use among undergraduates in two Nigerian universities. They emphasized the importance of both library conditions and user education in promoting library use. User education can take several forms, including orientation, classroom sensitization, demonstrations, workshops and assignment-related library instruction. Collaboration with academic departments can strengthen this approach. Encouraging Heads of Departments and lecturers to make lecture notes and past examination papers available through the library can increase the relevance of the library to students' immediate academic needs. Similarly, encouraging students to consult library resources for assignments can position the library as part of the academic process rather than merely a physical location for books. Existing literature provides substantial discussion of individual aspects of academic library development, including automation, staff development, ICT adoption, and user education.

However, less attention is given to the integrated experience of a newly established academic library that is simultaneously developing its physical facilities, collections, staffing and services while confronting electricity, equipment and institutional support constraints. This study addresses the gap through a longitudinal institutional account of Federal Polytechnic Kaltungo Library from 2021 to date.

3. Methodology

The study adopted a qualitative institutional case-study design. The design was considered appropriate because the study seeks to understand the development, challenges, strategies and innovations of Federal Polytechnic Kaltungo Library within its actual institutional context.

The study was conducted at Federal Polytechnic Kaltungo Library, Gombe State, Nigeria. The library commenced development alongside the establishment of the Polytechnic in 2021 and has since progressed in physical facilities, information resources, staffing and service provision. A dedicated library building was constructed at the permanent site in 2023.

Data were derived primarily from the authors' firsthand professional observations and experiences as library staff involved in the development and operation of the library from 2021 to date. These observations were complemented and were available, by institutional and library documentation, including administrative records, resource development records, staffing information and documentation relating to library activities and services.

The information was organized and interpreted thematically in relation to the research objectives. The major themes were library development, operational challenges, staff-led strategies and innovations, user engagement, and prospects for automation. Attention was given to changes in the library's physical facilities, information resources, staffing, services and operational procedures.

All authors are members of the library staff. Their direct involvement provides detailed knowledge of the library's development and day-to-day operations but also creates the possibility of researcher bias. To address this issue, the study distinguishes between firsthand observation, documented information and interpretation. Institutional claims are supported by available records where possible, while the authors avoid presenting personal perceptions as objective measurements. The study is therefore best understood as a professionally informed institutional account rather than an independent external evaluation.

4. Findings and Discussion

The development of Federal Polytechnic Kaltungo Library has been gradual. Since 2021, attention has been directed towards establishing library resources, organizing collections, and developing services, providing user support and strengthening the staffing base. The construction of the dedicated library building in 2023 represented an important infrastructural stage. The building provides a permanent environment for library services but is relatively small in relation to possible future institutional growth. This creates a planning issue because library space must accommodate users, collections, technology, staff work areas and service points.

If the Polytechnic's student population and academic programmes continue to expand, the current facility may require modification, extension or supplementation.

The development of information resources has also progressed. The library has acquired print and electronic materials intended to support teaching, learning and research. However, the presence of electronic materials must be distinguished from effective electronic access. Where electricity and equipment are inadequate, the potential benefits of electronic resources cannot be fully realized.

The available library staff have been central to maintaining services, but staffing remains limited relative to the range of responsibilities required. Staff may be required to support several functions simultaneously, creating workload pressures and limiting specialization. The need for continuous training compounds the challenge. This finding is consistent with the wider African literature, which emphasizes continuing professional development as an important component of digital transformation (Nakaziba & Ngulube, 2023). The implication for Federal Polytechnic Kaltungo is that staffing and staff training should be considered together. Increasing the number of staff without developing their competencies would be insufficient, while training a small workforce without addressing workload may also limit the practical application of acquired skills.

The continued dependence on manual operations is one of the most important findings of the study. Although electronic materials are available, unreliable electricity limits the consistent operation of ICT-dependent services. Library automation involves interconnected functions such as cataloguing, circulation, retrieval, user records and electronic access. Each depends on a reliable technological environment. Recent Nigerian evidence demonstrates that electricity remains relevant to ICT deployment in academic libraries. Mesagan and Hossana (2025) identified erratic power supply as one of the challenges affecting ICT deployment, while Salah et al. (2025) reported infrastructural and training limitations affecting automation. The Kaltungo experience therefore illustrates a practical paradox: the library can possess electronic resources and recognize the need for automation while remaining largely manual because the supporting infrastructure is not sufficiently reliable.

Institutional support is closely related to library development, and during the formative period of the Polytechnic, limited administrative attention to library development meant that subsequent administration and library staff had to address several outstanding and continuing requirements. The experience suggests that library development should be integrated into institutional strategic planning and budgeting from the beginning.

Despite the constraints, library staff have adopted several strategies to maintain services and improve the visibility of the library. A major intervention has been student sensitization and library orientation. Staff have visited lecture rooms across the Polytechnic to inform students about the library and its services and to orient users on the use of available resources. The library has also pursued academic-department collaboration. Heads of Departments have been encouraged to submit relevant lecture notes and past examination question papers to the library. Such materials can provide students with additional course-related resources and increase the library's relevance to their immediate academic needs. Students are also encouraged to consult library resources when completing assignments and other academic tasks. This approach seeks to establish a stronger relationship between classroom learning and library-based information use. Rather than positioning the library as an optional facility, it encourages users to regard the library as part of the academic process. These interventions represent low-cost institutional and service innovations. They do not depend entirely on sophisticated technology and can therefore operate even within an environment where electricity and equipment remain constrained. However, they should complement rather than substitute for the development of authoritative scholarly collections and technology-supported services.

Library staff have continued to organize and arrange resources and provide routine services despite operational limitations. Maintaining sound manual procedures is important because organized collections, accurate records and consistent workflows provide a foundation for eventual automation. However, manual continuity should not be confused with modernization. The prospects for modernization depend on whether the library's human, physical and technological requirements can be developed together. Automation should therefore be approached progressively, with priorities including reliable electricity, adequate ICT equipment, network connectivity, staff training and selection of an appropriate library management system. Existing bibliographic and user records should be organized in a manner that facilitates future migration.

The relatively small size of the present building should also be incorporated into long-term planning. Future library development should consider whether additional space, extension or alternative service arrangements will be required as the institution expands.

The experience demonstrates that innovation is not necessarily synonymous with technological innovation. In a resource-constrained environment, service redesign, academic collaboration, user education and creative use of available resources can represent meaningful innovation. At the same time, some practices, especially continued manual operation because of infrastructural constraints, should be understood as adaptive measures rather than permanent alternatives to modernization.

5. Conclusion

Building Federal Polytechnic Kaltungo Library from 2021 to date has been a gradual process involving the development of infrastructure, information resources, staffing and user-oriented services. The construction of a dedicated library building in 2023 provided an important physical foundation, while the development of print and electronic resources created a basis for supporting teaching, learning and research. However, the study demonstrates that physical infrastructure and resource acquisition alone do not constitute a modern academic library. Limited staffing, staff training requirements, inadequate equipment, unreliable electricity, institutional-support challenges and limited physical space continue to influence the library's development. The continued reliance on manual operations is particularly significant because it indicates that the availability of electronic resources has not yet been matched by the infrastructure necessary for sustained technology-supported services.

At the same time, library staff have developed practical responses to these challenges. Sensitization in lecture rooms, user orientation, resource organization, and collaboration with academic departments, the collection of lecture notes and past examination papers, and encouraging students to consult library resources for academic work demonstrate that innovation can occur through organizational and service practices as well as technology.

The central lesson is that building an academic library from scratch is not completed when a building is constructed, or resources are acquired. It is an ongoing process requiring sustained institutional commitment, adequate staffing, continuous staff development, reliable electricity, appropriate equipment, sufficient space, user engagement and phased technological transformation.

6. Recommendations

The following recommendations are given:

1) Library staffing should be strengthened: The Polytechnic should progressively increase library staffing in accordance with institutional growth and the expanding range of services required.

2) Staff development should receive sustained attention: Regular training, workshops and professional development should be provided, particularly in library automation, electronic resources, digital information services and emerging technologies.

3) Reliable electricity should be prioritized: Management should provide dependable power for library operations and consider appropriate alternative power solutions to support ICT facilities and electronic resources.

4) Equipment and automation should be developed progressively: The library should receive appropriate computers, networking facilities, software and other ICT infrastructure required for a phased transition from manual to automated services.

5) Future space requirements should be incorporated into institutional planning: Given the limited size of the present library building, management should consider future expansion, extension or additional library facilities as the Polytechnic grows.

6) Library–departmental collaboration should be strengthened: Academic departments should be encouraged to submit appropriate lecture notes, final year projects and past examination question papers to the library and to direct students to relevant library resources for assignments, research and other academic activities.

7) User sensitization and orientation should be sustained: Library orientation should be conducted regularly and supplemented with continuous user education so that students are aware of available resources and services.

8) A phased library development and automation plan should be developed: The plan should integrate staffing, staff development, collection development, space, electricity, equipment, automation, electronic resources and user services into measurable institutional priorities.

7. Limitations of the Study

The study has several limitations. First, the authors are members of the library staff and were directly involved in the development and delivery of services. This insider position provides detailed contextual knowledge but may also introduce interpretive bias. Second, the study is institution-specific and should not be generalized automatically to all newly established academic libraries. Third, the study relies substantially on firsthand professional observations and available institutional documentation rather than a large quantitative survey of library users or management. Future research could complement this institutional account with user surveys, interviews with academic staff and management, service-use statistics, and comparative studies involving other newly established tertiary-institution libraries.

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