

PROMOTING THE USE OF TECHNOLOGY FOR LIBRARY SUPPORT SERVICES IN NIGERIAN UNIVERSITIES

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Abstract

Promoting the use of technology in library support services has become vital in transforming how information is accessed and utilized in Nigerian universities. This paper discusses how technology can enhance academic experiences, identifies challenges hindering its integration, and proposes strategies for improvement. Drawing from theoretical frameworks such as the Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI), the paper explores how libraries can provide effective, technology-driven support services. Emphasis is placed on digital catalogues, electronic resources, virtual reference services, information literacy programs, and digital repositories. The study concludes that while technology-driven support services enhance accessibility, learning, and research, challenges such as inadequate funding, limited ICT skills, and poor infrastructure persist. The paper offers recommendations for increased investment, staff training, and institutional commitment to ensure libraries become more responsive, user-centered, and globally competitive.

Keywords: Library services, Technology adoption, Nigerian universities, Library support, Digital transformation

Introduction

The global shift toward digital transformation has redefined the functions of libraries across educational systems. In Nigerian universities, libraries have evolved from being traditional repositories of books to dynamic centers of digital knowledge and support. The integration of Information and Communication Technologies (ICT) has reshaped how users access, retrieve, and manage information. Modern university libraries now provide access to online catalogues, digital repositories, and electronic databases, fostering efficient learning and research (Adeleke, Ojokuku & Ojo, 2022). However, despite these advances, most Nigerian libraries are yet to attain full digital maturity due to infrastructural and institutional challenges.

Libraries, regardless of type, serve as the heart of educational development. Academic libraries focus on research and learning, public libraries promote literacy and lifelong learning, while school and special libraries support basic education and professional practice. Regardless of category, libraries share a common goal: facilitating equitable access to information. This function is increasingly dependent on technology, which enables remote access, digital storage, and effective resource management (Okon & Ajibola, 2022). In Nigeria, technological adoption is transforming library operations, but the process is hindered by issues such as poor funding, unstable power supply, and insufficient ICT competencies among library personnel.

This paper, therefore, examines the promotion of technology in library support services in Nigerian universities. It highlights challenges and prospects, supported by

theoretical insights from TAM and DOI, and proposes recommendations for achieving sustainable technological integration in academic libraries.

Theoretical Framework

The Technology Acceptance Model (TAM) and Diffusion of Innovation Theory (DOI) provide the foundation for understanding technology adoption in Nigerian university libraries. TAM (Davis, 1989) emphasizes perceived usefulness and ease of use as determinants of technology acceptance. In library contexts, librarians and students are more likely to adopt digital tools such as online databases and integrated library systems when they perceive them as beneficial and user-friendly.

The DOI theory (Rogers, 2003) explains how innovations spread through a social system, considering factors such as relative advantage, compatibility, complexity, trialability, and observability. These dimensions influence how quickly technologies like institutional repositories or e-journal systems are adopted across Nigerian universities. Together, TAM and DOI highlight both behavioral and organizational dimensions of technological diffusion in library settings.

Acceptance Model (TAM) and Diffusion of Innovation, this paper aims to explain patterns of adoption and resistance, inform how universities can move toward digital maturity, and consider institutional, human, and infrastructural factors. In addition, the paper will examine the influence of digital library support services such as OPACs, institutional repositories, virtual reference, and digital literacy training on students' research and learning experiences. Building on the context of the COVID-19 era and beyond, it will highlight how enhanced service delivery through technology can foster more engaging, accessible, and student-centered library environments.

Concept of Library

A library is widely recognized as the heart of any educational institution, serving as a repository of knowledge and a hub for information access, learning, and research. The concept of a library has evolved over centuries, from the ancient collections of manuscripts and scrolls in Mesopotamia, Egypt, and Greece, to the modern digital knowledge spaces available today. Traditionally, a library was defined as a building or a physical space where books and other information resources are collected, organized, and made available for consultation and borrowing. However, in the contemporary digital era, the concept has expanded to include both physical and virtual spaces where knowledge resources are stored, accessed, and disseminated (Okon&Ajibola, 2022).

In the academic context, particularly within universities, the library is more than just a warehouse of books; it is an intellectual hub designed to support teaching, learning, and research. Nigerian university libraries, like those in other parts of the world, are tasked with providing access to up-to-date resources, both print and electronic, to meet the diverse needs of students, lecturers, and researchers (Ezeani& Nwosu, 2023). The library functions as a critical part of the knowledge management system, offering tools and services that enhance information literacy, promote lifelong learning, and foster academic success.

The modern conceptualization of libraries emphasizes their role as facilitators of access rather than mere custodians of resources. In line with technological innovations, libraries are increasingly viewed as dynamic, user-centered spaces that provide both resources and services tailored to the needs of their patrons. This shift aligns with the global movement toward knowledge societies, where information is seen as a key driver of development and innovation (Adetunji& Okoro, 2021). For Nigerian universities, this

conceptual shift is significant as it emphasizes the necessity for libraries to embrace technology and provide services that reflect the needs of digitally literate students.

Moreover, libraries are conceptualized as democratic spaces that ensure equitable access to information irrespective of users' socio-economic backgrounds. This function is particularly important in the Nigerian context, where disparities in access to information resources can hinder educational development. By providing access to physical materials, e-resources, and ICT facilities, libraries help bridge the digital divide and support inclusive education (Owolabi & Salami, 2024). The concept of the library also extends to its role as a cultural and social institution. Libraries preserve the intellectual heritage of societies through the acquisition, cataloguing, and preservation of local and indigenous knowledge resources. In Nigerian universities, institutional repositories are now being developed to capture scholarly works, theses, and dissertations, ensuring that the intellectual output of the universities is accessible and preserved for posterity (Nwachukwu & Adeyemi, 2025).

Promoting Technology for Library Support Services

Technology adoption enhances all facets of library support services, including resource acquisition, cataloguing, circulation, and user education. Through automation systems like KOHA and Evergreen, libraries streamline cataloguing and circulation processes, enabling faster and more accurate service delivery. Virtual reference tools and chat-based inquiry systems provide real-time assistance beyond physical boundaries, while institutional repositories ensure long-term preservation of scholarly works. Additionally, online databases such as JSTOR, ScienceDirect, and EBSCOhost expand access to current academic resources. The inclusion of assistive technologies also ensures inclusivity for students with disabilities.

Nigerian universities that embrace these tools have reported improved student engagement, resource accessibility, and research output.

Features of Library

A library is not merely a collection of books; it is an organized system designed to store, preserve, and disseminate knowledge to users. The features of a library highlight its essential role as a learning and research hub, particularly within Nigerian universities. These features distinguish libraries from other knowledge-holding institutions and ensure that they remain reliable sources of information in both print and digital formats.

One of the major features of a library is its systematic organization of resources. Unlike random collections, libraries arrange books, journals, and digital materials using cataloguing and classification systems such as the Dewey Decimal Classification (DDC) or Library of Congress Classification (LCC). This systematic arrangement facilitates easy retrieval and enhances the user experience (Oni, 2022).

Another defining feature is the availability of diverse information formats. Modern university libraries no longer limit themselves to printed books but provide access to electronic resources such as e-journals, databases, e-books, and multimedia content. This hybrid nature makes them responsive to the changing needs of students and researchers (Ahmed & Yusuf, 2023).

Libraries are also characterized by their reference and support services, which assist users in locating and effectively using information resources. Trained librarians guide students in research, referencing styles, database navigation, and information literacy skills. Such services enhance the credibility and usability of academic work (Okafor, 2021). Furthermore, a key feature of libraries is their provision of a conducive learning environment.

Beyond resources, libraries provide quiet reading areas, collaborative study spaces, and ICT facilities that encourage knowledge creation and academic engagement. This physical and digital infrastructure makes libraries more than storage facilities; they are learning commons (Eze& Afolabi, 2024).

Lastly, libraries are marked by their commitment to preservation and accessibility. While ensuring that resources are well maintained for long-term use, libraries also adopt technologies to digitize materials and expand access, especially for distance learners and users with disabilities (Ibrahim, 2025). In essence, the features of libraries reflect their dynamic role in higher education. By combining systematic organization, diverse resources, supportive services, and a learner-friendly environment, libraries in Nigerian universities serve as indispensable academic partners.

Concept of Library Technology Adoption in Nigerian Universities

The concept of library technology adoption refers to the integration of modern information and communication technologies (ICTs) into the operations, services, and management of libraries. In the context of Nigerian universities, this concept embodies the transition from traditional, print-based library services to a hybrid system that combines both physical and digital resources for effective knowledge delivery. The adoption of technology in university libraries is not merely a modernization trend but a response to the global shift towards digital information management and the growing demand for instant, remote, and diverse access to knowledge (Eze, 2022).

At its core, library technology adoption in Nigerian universities emphasizes the use of automated systems for cataloguing, classification, and circulation. This makes information retrieval faster and more accurate compared to manual processes. Many university libraries

now employ Integrated Library Management Systems (ILMS) such as KOHA, Virtua, or Evergreen to streamline routine tasks and enhance efficiency (Okeke & Bello, 2023).

Another important dimension of this concept is the provision of digital and electronic resources. Through platforms such as e-libraries, institutional repositories, and subscribed academic databases, Nigerian universities provide access to e-books, journals, theses, and conference papers. This digital transformation has expanded access beyond geographical limitations, enabling both students and lecturers to engage in global academic conversations (Adekunle, 2021). The adoption of library technology also includes ICT infrastructure and internet connectivity, which are critical enablers of access to online resources. With the introduction of computer workstations, Wi-Fi zones, and virtual library portals, Nigerian university libraries are gradually bridging the digital divide, though challenges of inadequate funding and poor infrastructure persist (Ojo & Ibrahim, 2024).

Additionally, this concept extends to information literacy training and user support services, where librarians utilize technology to teach students how to navigate electronic databases, evaluate online sources, and use referencing tools. Such skills are essential in preparing graduates for the demands of a digital knowledge society (Nwosu, 2022).

Importance of Library Technology Adoption in Nigerian Universities

The adoption of library technology in Nigerian universities is of critical importance as it plays a transformative role in advancing teaching, learning, and research. Modern libraries are no longer viewed simply as repositories of books but as dynamic centers of knowledge creation and dissemination. In this context, technology adoption becomes a necessity rather than a luxury.

Improved Access to Information:

Technology enhances the accessibility of scholarly resources, enabling students and faculty to access e-books, journals, and databases remotely without being restricted by physical library hours.

1. **Efficient Information Retrieval:** With technologies such as Online Public Access Catalogue (OPAC) and digital repositories, students can easily locate and retrieve relevant information in less time.
2. **Support for Research and Learning:** Adoption of technology improves research productivity through access to electronic resources, plagiarism checkers, reference management tools, and research databases.
3. **Enhanced Teaching and Learning Experience:** echnology-enabled libraries integrate multimedia, e-learning tools, and digital platforms that complement classroom teaching, thereby improving students' learning outcomes.
4. **Preservation of Knowledge:** Digital technology helps in the preservation and archiving of rare manuscripts, theses, and institutional repositories, protecting them from physical deterioration.
5. **Promotes Collaboration and Networking:** Library technologies enable resource sharing through consortiums and inter-library networks, giving Nigerian students access to global knowledge pools.
6. **Cost-Effectiveness:** Although initial setup costs may be high, digital libraries reduce long-term costs related to printing, physical storage, and replacement of damaged materials.
7. **Flexibility and Convenience:** Technology adoption ensures 24/7 access to digital resources, giving students the flexibility to study at their convenience.

8. Improved User Experience: Technology provides user-friendly interfaces, personalized recommendations, and instant access to diverse resources, which enhances students' overall library experience.

Adoption of Technology for Library Support Services in Nigerian Universities

The adoption of technology in library support services has significantly transformed how Nigerian university libraries function and provide information to their users. Library support services are the backbone of academic libraries, as they ensure the smooth acquisition, organization, retrieval, and dissemination of knowledge. By integrating technology into these services, libraries have improved efficiency, accuracy, and accessibility.

1. Acquisition of Resources: Technology has streamlined the process of acquiring books, journals, and other resources. Through online ordering, subscription to electronic databases, and digital licensing, libraries can now procure academic materials more efficiently and at a global scale.
2. Cataloguing and Classification: Library software such as KOHA, Evergreen, and integrated library systems (ILS) enable libraries to catalog and classify resources digitally. This has replaced the manual card system, making it easier for students and researchers to search and locate information quickly.
3. Circulation Services: Technology has simplified borrowing and returning processes through automated circulation systems, barcode scanning, and RFID (Radio Frequency Identification) technology. This reduces errors and ensures accurate record-keeping.
4. Reference Services: Virtual reference services, such as chatbots, email reference, and digital inquiry desks, have enhanced the way students receive assistance from librarians. This provides timely guidance to users, even beyond the physical library setting.

5. **Serials and Periodicals Management:** Subscription to online journals and e-databases like JSTOR, EBSCOhost, and ScienceDirect allows libraries to provide up-to-date and peer-reviewed literature for research and academic use.
6. **Institutional Repository and Archiving:** University libraries in Nigeria increasingly adopt digital repositories to host theses, dissertations, conference proceedings, and faculty publications. This ensures long-term preservation and wider dissemination of institutional research output.
7. **Information Literacy and User Education:** Technology has enabled libraries to deliver user education through e-learning platforms, webinars, and interactive tutorials, equipping students with skills to navigate and use digital resources effectively.
8. **Inter-Library Cooperation:** Digital technology allows Nigerian universities to collaborate and share resources through consortiums, thereby reducing costs and improving access to diverse information sources.

The adoption of technology in library support services has not only modernized Nigerian university libraries but has also positioned them as vital contributors to research, teaching, and global academic competitiveness.

Types of Library Support Services Rendered in Nigerian Universities

University libraries in Nigeria play a central role in supporting teaching, learning, and research. Beyond the provision of physical books and study spaces, modern university libraries now render a variety of support services that enhance students' access to knowledge and information resources. With the rapid adoption of technology, these services have expanded to meet the diverse academic and research needs of students and faculty. The major types of library support services rendered in Nigerian universities include:

1. **Reference and Information Services:** Reference services are a core support function where librarians assist users in locating, retrieving, and using information resources effectively. This includes guiding students on how to use catalogs, databases, and research tools. In many Nigerian universities, reference services have now been digitized through virtual reference platforms and chat-based assistance.
2. **Circulation Services:** Circulation involves the lending and borrowing of books, journals, and other information resources. Nigerian university libraries have adopted automated circulation systems that track borrowing, reservations, and overdue materials, thus reducing manual errors and increasing efficiency.
3. **Information Literacy and User Education:** Information literacy programs equip students with skills to effectively search, evaluate, and use information. Many universities in Nigeria conduct library orientation sessions, training on online databases, and workshops on plagiarism avoidance and citation management. These services empower students to engage in independent research and academic writing.
4. **Current Awareness Services (CAS):** Current awareness services help keep students and staff updated with the latest academic resources. This includes newsletters, electronic alerts, and bulletin boards announcing new arrivals, journals, or databases. Digital CAS tools have become particularly useful in Nigerian universities, where timely access to new materials is critical.
5. **Interlibrary Loan and Document Delivery Services:** Since not all universities can afford extensive collections, interlibrary loan services allow students to access resources from other institutions. This service reduces the gap in resource availability and enhances scholarly productivity. Technology has further facilitated electronic document delivery between libraries.

6. **Electronic and Digital Services:** With the rise of e-libraries, Nigerian universities now provide access to electronic journals, e-books, and online databases such as JSTOR, EBSCOhost, and HINARI. Digital repositories also serve as archives for theses, dissertations, and institutional publications.
7. **Research and Reference Management Support:** Many university libraries assist students with citation styles, referencing software like Mendeley, Zotero, and EndNote, and research data management. This support is increasingly important as postgraduate research output continues to expand in Nigeria.
8. **Specialized Services for Persons with Disabilities:** Some Nigerian universities are gradually introducing assistive technologies such as screen readers, audiobooks, and Braille resources to cater to students with disabilities, ensuring inclusive access to knowledge.

Usefulness of Library Support Services in Nigerian Universities

Library support services are vital components of academic life, as they ensure that students and faculty members have access to the resources, guidance, and assistance necessary for effective teaching, learning, and research. The usefulness of these services in Nigerian universities can be highlighted in the following ways:

1. **Enhancement of Academic Performance:** Library support services play a pivotal role in improving students' academic performance. Access to electronic databases, digital repositories, and well-structured reference services ensures that students can retrieve quality and up-to-date information for assignments, projects, and examinations. This reduces dependence on outdated materials and supports independent learning.

2. **Facilitation of Research and Innovation:** Effective support services such as interlibrary loans, access to e-journals, and digital archives expand the research horizon for both students and lecturers. By offering guidance on information search strategies and citation tools, library staff help researchers maintain scholarly standards, thereby contributing to innovation and academic excellence in Nigerian universities.
3. **Promotion of Information Literacy:** One of the key benefits of library support services is the promotion of information literacy. Training programs, orientation sessions, and workshops conducted by librarians equip students with skills to identify, evaluate, and ethically use information resources. This competence is crucial in the digital age where misinformation and unverified content are prevalent.
4. **Support for Lifelong Learning:** Beyond academic activities, library support services foster lifelong learning by encouraging students to develop reading habits, explore diverse resources, and engage with knowledge outside their core disciplines. This prepares graduates for future challenges in both professional and personal capacities.
5. **Improved Access and Inclusivity:** With the adoption of modern technology, library support services ensure that information is accessible to a broader audience, including students with disabilities. Services such as electronic catalogues, online databases, and assistive technologies provide inclusive access to learning materials, thereby promoting equity and inclusiveness in Nigerian universities.

The usefulness of library support services extends beyond the provision of books and journals. They serve as a bridge between raw information and meaningful knowledge, ensuring that Nigerian universities not only provide quality education but also nurture competent, informed, and innovative graduates.

Challenges of Library Support Services in Nigerian Universities

Despite their importance, library support services in Nigerian universities face numerous challenges that limit their effectiveness. These challenges can be broadly categorized as follows:

1. **Inadequate Funding:** One of the most pressing issues confronting Nigerian university libraries is insufficient funding. Budgetary allocations to libraries are often meagre compared to their growing responsibilities. This affects the acquisition of new books, journals, and electronic resources, as well as the maintenance of ICT infrastructure required for modern library services.
2. **Obsolete Infrastructure and Limited Technology:** Many Nigerian university libraries still rely on outdated facilities and lack adequate modern ICT infrastructure. Unreliable internet connectivity, frequent power outages, and insufficient computer systems hinder effective delivery of digital and electronic support services. This reduces students' ability to access global information resources.
3. **Inadequate Skilled Manpower:** The effectiveness of library support services depends on well-trained and motivated librarians. However, many university libraries suffer from a shortage of professional staff with updated knowledge in information and communication technologies. Continuous professional development is often neglected, leading to poor service delivery.
4. **Low Awareness and Utilization by Students:** Another challenge is the low awareness and underutilization of library support services by students. Many students are unaware of the wide range of services available to them such as interlibrary loans, electronic databases, and research guides and often limit their usage to borrowing textbooks. This underutilization weakens the role of libraries in academic development.

5. High Cost of Electronic Resources and Licensing Issues: Access to quality electronic resources such as e-journals, academic databases, and e-books often requires expensive subscriptions. Many Nigerian university libraries cannot afford these resources, leading to limited access to current and reliable information. In addition, copyright and licensing restrictions also limit resource sharing between institutions.

6. Poor Government and Institutional Support: Weak policy frameworks and lack of commitment from government and university management further worsen the situation. In some cases, libraries are not prioritized in institutional planning, leaving them struggling to meet the needs of the academic community.

Prospects of Library Support Services in Nigerian Universities

Library support services in Nigerian universities hold promising prospects as higher education continues to embrace digital transformation and global academic trends. The shift toward information and communication technologies has not only redefined the role of libraries but also positioned them as integral to enhancing teaching, learning, and research. With the growing demand for quality education, libraries are expected to evolve into vibrant knowledge hubs that provide advanced support services beyond traditional book lending.

One of the major prospects is the expansion of digital libraries and e-resources. Nigerian universities are increasingly subscribing to online databases, e-journals, and open access resources, thereby reducing reliance on physical collections. This trend aligns with global best practices and allows students and researchers to access up-to-date scholarly content from anywhere, thus bridging gaps caused by geographical and infrastructural limitations (Ogunyade, 2022).

Another promising area is the integration of artificial intelligence (AI) and automation in library operations. Technologies such as chatbots for reference services, AI-driven cataloguing, and personalized recommendation systems are becoming more feasible. If strategically adopted, they will not only improve efficiency but also enrich students' experience by offering real-time support tailored to their academic needs (Okafor & Bello, 2023).

Furthermore, the rise of collaborative and consortia-based services presents opportunities for Nigerian university libraries. Through resource-sharing networks and interlibrary loan systems, institutions can overcome financial and infrastructural constraints by pooling resources. This collaborative approach is particularly vital in Nigeria, where many universities face limited funding for library services (Afolabi, 2021).

In addition, there is a strong prospect for capacity building and digital literacy training within library support services. As students and researchers navigate the complexities of information overload, librarians are expected to play a pivotal role in equipping them with skills for critical information evaluation, digital research methods, and academic integrity. Such training initiatives will enhance the academic success of students and strengthen the university's overall research output (Eze&Otu, 2024).

Finally, the emergence of hybrid and virtual learning environments reinforces the relevance of innovative library support services. With many universities adopting blended learning approaches, libraries are required to provide virtual reference desks, remote access to resources, and online instructional guides. This adaptation not only ensures inclusivity but also positions Nigerian libraries as global players in knowledge dissemination.

Students' Experience on Library Support Services in Nigerian Universities

Students' experiences with library support services in Nigerian universities have been shaped by both opportunities and challenges, reflecting the evolving nature of higher education in the country. The library is central to students' academic journey, serving as a hub for accessing information, developing research skills, and engaging in scholarly discourse. However, their experiences vary depending on the level of technological adoption, infrastructural development, and management practices within individual universities.

On the positive side, many students appreciate the availability of electronic resources and digital platforms provided by university libraries. The introduction of online databases, e-journals, and institutional repositories has enhanced their ability to conduct research, complete assignments, and stay abreast of current knowledge. Students often highlight the convenience of remote access to resources, which reduces dependence on physical visits to the library (Okiki, 2022). Similarly, the presence of trained librarians who offer guidance on how to locate, evaluate, and use information effectively has improved their academic confidence.

Another important dimension of students' experience is the learning support provided by library staff. Many libraries now organize workshops and seminars on information literacy, plagiarism avoidance, and reference management software such as Mendeley and EndNote. These services equip students with the technical and ethical skills required for academic success. For postgraduate students especially, such training has proven invaluable in preparing dissertations and research publications (Udo-Anyanwu & Oji, 2021).

Despite these positive aspects, several students have expressed concerns over challenges that hinder effective utilization of library support services. One common issue is the problem of inadequate internet connectivity and unstable power supply, which limits

access to e-resources. Furthermore, some libraries suffer from outdated infrastructure, insufficient seating capacity, and limited collections, making it difficult for students to fully maximize available services. These shortcomings often lead to frustration, especially during examination periods when demand for library facilities is highest (Afolabi, 2021).

Another challenge students encounter is lack of awareness of available library services. Research indicates that a significant number of students are unaware of digital repositories, interlibrary loan services, or training opportunities offered by their university libraries. This gap in awareness reduces the potential benefits students could derive from these services. Some students also perceive library staff as unapproachable, citing communication gaps or lack of proactive engagement by librarians as barriers to effective support (Eze&Otu, 2024).

Nevertheless, many students still view libraries as safe, quiet, and resourceful spaces for learning and collaboration. Their experiences highlight the importance of modernizing library services, ensuring inclusivity, and fostering a student-centered approach. Where libraries have invested in technology, staff training, and adequate facilities, students report higher satisfaction and improved academic performance.

Recommendations

1. Increase funding for ICT infrastructure, e-resources, and maintenance to promote digital sustainability.
2. Provide continuous professional development for library staff to improve digital literacy and technical competence.
3. Establish clear policies on digital library management, focusing on long-term maintenance and evaluation.

4. Promote inter-library collaboration through consortiums for shared digital resources and cost reduction.

5. Enhance student awareness programs to increase effective utilization of library technologies.

6. Support innovative research on emerging technologies to ensure libraries remain adaptive and globally competitive.

Conclusion

Technology has become an indispensable tool for redefining library support services in Nigerian universities. By leveraging digital tools and ICT-driven systems, libraries can provide efficient, inclusive, and globally relevant services. Overcoming barriers such as funding inadequacies, infrastructural weaknesses, and limited ICT competence requires commitment from government, institutions, and librarians alike. Promoting the use of technology is not merely about modernization but about repositioning university libraries as active agents of learning, innovation, and academic excellence.

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