

OMANARP INTERNATIONAL JOURNAL OF LIBRARY AND INFORMATION SCIENCES.



<https://acadrespub.com/index.php/oijlis>



Vol. 3, Issue I, Pp. 1-9; NOV., 2025

THE ROLE OF TECHNOLOGY IN ENHANCING LEARNING, RESEARCH AMONG LECTURERS AND STUDENTS IN COLLEGE OF NURSING IN NNAMDI AZIKIWE UNIVERSITY TEACHING HOSPITAL NNEWI, ANAMBRA STATE.

IFEYINWA FORTUNATE OGBUELI

College of Nursing Library & Medical library
Nnamdi Azikiwe University Teaching Hospital, Nnewi. Anambra State

ABSTRACT

ARTICLE INFO

Received Date: 21ST SEPT,2025

Date Revised Received: 27ST OCT;2025

Accepted Date: 28TH OCT; 2025

Published Date: 4st Nov.; 2025

Citation: Ogbueli, I.F.(2025) The Role of Technology in Enhancing Learning, Research Among Lecturers and Students in College of Nursing in Nnamdi Azikiwe Uni. Teaching Hospital Nnewi, Anambra State. OMANARP INTER. J. Lib and Info Sci. .3, Issue I, Pp. 1-9 Nov.; ,2025.

This study examines the impact of technology on learning and research in the College of Nursing, Nnamdi Azikiwe University Teaching Hospital. With the increasing use of mobile devices, particularly smartphones, technology has revolutionized education by providing access to a wide range of digital resources, including e-books, academic journals, and scholarly databases for both students and lecturers. The research engaged 100 respondents comprising students and lecturers from different institutions and utilized a structured questionnaire to collect data on the use of technology in teaching and learning. Findings indicate that technology has significantly enhanced student engagement by promoting flexible and interactive learning environments that improve academic performance and foster peer collaboration. Academic staff have also integrated technology to enrich teaching through multimedia resources, real-time feedback, and interactive assessments. However, challenges such as slow internet connectivity, high data costs, irregular power supply, and limited training in the use of educational software and research tools were identified as barriers to optimal utilization. Despite these constraints, the majority of respondents affirmed that technology plays an indispensable role in modern education and research. The study recommends the enhancement of digital infrastructure, reduction in data costs, and provision of digital literacy training to maximize the benefits of technology in Nigerian higher institutions. Overall, the research underscores the transformative potential of technology in making education and research more accessible, flexible, and interactive.

Keywords: Technology, Learning Enhancement, Higher Education, Research and Information

Introduction

The integration of digital technologies has fundamentally transformed pedagogical and research methodologies within the global higher education landscape. Devices such as laptops, smartphones, and tablets have become essential instruments for accessing academic resources, facilitating communication, and enabling collaborative learning. Within Nigerian tertiary education, technology is increasingly recognized for its potential to enhance learning outcomes and bolster research capabilities by providing instantaneous access to vast repositories of information. However, as evidenced in studies on institutional repositories and information resource availability, the mere presence of these technologies does not guarantee their effective use for academic output (Nzewi, 2020; Udo-Anyanwu & Nzewi, 2019,). This evolution aligns with international mobile learning trends, wherein educational technology adapts to the demands of an increasingly digital era (Baker, 2023).

The proliferation of technology has extended the learning environment beyond the traditional classroom, permitting students to engage in online learning and retrieve educational materials from any location. Furthermore, technology facilitates personalized learning, allowing students to interact with content at their own pace. Empirical research indicates that mobile learning is a significant factor in improving academic performance and fostering deeper student engagement (Adebayo & Femi, 2024). For academic staff, technology augments research capacity by streamlining access to digital libraries and collaborative platforms, which are critical components of academic productivity (Wang et al., 2023). The effectiveness of such access, however, is often contingent on foundational user education programmes, the quality of which can vary significantly between institutions (Nzewi, 2020).

Notwithstanding these benefits, the implementation of technology in Nigerian tertiary institutions is hindered by persistent infrastructural deficits, digital literacy gaps, and resource constraints. Although a majority of students and faculty acknowledge the advantages of technology, equitable access to reliable devices and internet connectivity remains a significant challenge, particularly in rural communities. Addressing these impediments is a prerequisite for fully leveraging technology to advance Nigeria's educational and research sectors.

Statement of the Problem

Despite global advancements in mobile technology, its full potential for enhancing learning and research remains largely unrealized within Nigerian universities. Although mobile devices are widely owned by students and researchers, a substantial disparity exists in their application for academic purposes. This utilization gap is

attributable to several factors, including inadequate technological infrastructure, low internet penetration rates, and a scarcity of mobile-optimized academic content (Obi & Adeyemi, 2023). Moreover, the prohibitive cost of mobile data and devices obstructs access to digital resources for both students and lecturers.

Compounding these issues is the absence of comprehensive policy frameworks and institutional structures to guide the systematic integration of technology. While mobile learning has been extensively adopted in more developed educational systems, Nigerian universities lag in crucial areas such as capacity building and the development of mobile-centric pedagogical content (Fatokun & Amadi, 2024). This situation is further exacerbated by the digital divide, which disproportionately affects students from rural and socio-economically disadvantaged backgrounds, thereby intensifying existing educational inequalities. This challenge mirrors broader issues in information service provision to specialized communities within Nigeria, highlighting a systemic pattern of access inequality (Nzewi, 2019; Nzewi & Urhiewhu, 2020).

Consequently, a critical examination of the role of technology in promoting learning and research within the College of Nursing at Nnamdi Azikiwe University Teaching Hospital is imperative. A thorough understanding of current usage patterns, encountered challenges, and potential areas for enhancement is vital for formulating effective strategies to comprehensively incorporate technology into the academic fabric. Such strategic development requires dedicated advocacy and strategic planning, much like the lobbying efforts needed for improved library services (Osuchukwu et al., 2015). Addressing these challenges will not only improve learning outcomes but also cultivate a more inclusive and efficient research environment, ensuring that both students and educators can fully harness the power of digital information resources (Nzewi, 2019).

Research Questions

1. How is technology being utilized to enhance learning in College of Nursing in Nnamdi Azikiwe University Teaching Hospital?
2. What role does technology play in supporting research activities in College of Nursing in Nnamdi Azikiwe University Teaching Hospital?
3. What are the challenges faced by students and lecturers in using technology for learning and research?

Objectives of the study

1. To assess how technology is utilized for learning purposes in College of Nursing in Nnamdi Azikiwe University Teaching Hospital.
2. To investigate the role of technology in facilitating research activities among students and lecturers in College of Nursing in Nnamdi Azikiwe University Teaching Hospital
3. To identify the challenges associated with the use of technology for learning and research in College of Nursing in Nnamdi Azikiwe University Teaching Hospital

Literature Review

Technology and Pedagogical Enhancement

A substantial body of research underscores the capacity of technology to enhance learning experiences within higher education. Mobile devices, including smartphones and tablets, have become ubiquitous among student populations, providing on-demand access to digital resources such as e-books, academic journals, and online learning platforms. This shift has transformed learning from a passive activity to an interactive process, enabling students to retrieve information and engage with content irrespective of temporal or geographical constraints (Adebayo, 2023). In the Nigerian context, mobile learning (m-learning) has been correlated with increased student motivation and engagement, a phenomenon particularly evident in distance learning programmes.

A paramount advantage of educational technology is its facilitation of personalized learning. Mobile learning applications and Learning Management Systems (LMS) empower learners to tailor their educational trajectories according to individual needs and pacing. Femi and Johnson (2024) posit that students in Nigerian institutions report higher satisfaction with mobile-assisted learning due to the autonomy and flexibility it affords. Furthermore, technology serves as a robust enabler of collaborative learning, allowing students to engage in discursive forums, share resources, and co-construct knowledge through messaging applications and dedicated learning platforms (Mohammed & Adewale, 2023).

Technology and the Research Enterprise

In the realm of academic research, technology has become an indispensable tool. Scholars and students alike leverage digital resources for data collection, access to online research databases, and communication with collaborators across the globe. Empirical studies have demonstrated that technology enhances research

productivity by providing instantaneous access to information and simplifying the use of digital tools for data analysis and visualization (Wang et al., 2023). Applications ranging from specialized statistical software to cloud-based storage platforms like Google Drive facilitate efficient research workflows and enable seamless scholarly exchange.

For Nigerian tertiary institutions, technology has proven particularly invaluable for researchers operating in remote or underserved regions. Mobile devices allow access to academic materials that would otherwise be inaccessible due to infrastructural deficits (Ogundele & Eze, 2024). Notwithstanding these benefits, the application of technology in research is impeded by persistent challenges, including unreliable internet connectivity, prohibitive data costs, and a lack of institutional frameworks that explicitly support mobile-based research initiatives (Fatokun & Amadi, 2024).

Impediments to Technological Integration in Nigeria

Despite its demonstrable benefits for broadening educational and research capabilities, the full embrace of technology in College of Nursing in Nnamdi Azikiwe University Teaching Hospital is hampered by significant impediments. Inadequate infrastructure represents the most formidable obstacle, with unstable internet connectivity, insufficient power supply, and a dearth of robust ICT facilities severely impacting the utility of mobile devices for academic purposes (Bello & Lawal, 2023). The affordability of both devices and internet data subscriptions further constitutes a critical barrier for many students and faculty, exacerbating socio-economic disparities. Research by Chukwu and Okafor (2024) indicates that a majority of students in rural areas lack access to smartphones or reliable internet connections, thereby widening a digital divide that undermines educational equity.

A further critical issue is the variable level of digital literacy among both instructors and students. The rapid evolution of technology has outpaced the development of requisite digital competencies for their effective pedagogical application (Adeola & James, 2023). Compounding this, many professional development programmes for academics fail to provide adequate training on integrating technology into curricula, resulting in the underutilization of available mobile learning tools. A study by Obinna and Ibrahim (2023) revealed that a significant proportion of lecturers in Nigerian universities remain entrenched in traditional, teacher-centred methods and exhibit a reluctance to adopt mobile learning platforms, highlighting a crucial area for institutional intervention.

Research Methodology

This study used descriptive survey to identify the impact of technology to facilitate learning and research in Nigerian institutions of tertiary education. The objective was to obtain information from lecturers and students regarding the use of technology in educational activities. The participants in this study were students and lecturers of three (3) leading north-west political zone universities of Nigeria. A sample of 100 respondents were selected, consisting of 70 students and 30 lecturers of the three prominent College of Nursing in Nnamdi Azikiwe University Teaching Hospital. A purposive sample was selected by ensuring the utilization of the involvement of the users with expertise in utilizing technology for learning and research.

The major data collection tool was a four-point Likert-based structured questionnaire developed based on the research agenda. The questionnaire was designed using a four-point Likert scale to measure the level of usage of technology for study and research purposes. It covered questions on frequency of usage of mobile technology, application types used in mobile technology, effect on academic performance, and problems encountered by students and teaching staff. The questionnaire consisted of 30 items, categorized into four sections:

1. Demographics: This section gathered basic information about the respondents (e.g., age, gender, and academic discipline).
2. Utilization of Technology: Items in this section assessed the frequency and purpose of technology usage for learning and research.
3. Impact on Learning and Research: This section focused on the perceived benefits and influence of technology on academic performance and research activities.

4. Challenges: The final section explored the difficulties experienced in using technology for educational purposes.

Each item was rated on a four-point Likert scale:

- Strongly Agree (SA) = 4
- Agree (A) = 3
- Disagree (D) = 2
- Strongly Disagree (SD) = 1

A mean score of 2.50 and above was used as the benchmark for determining positive responses.

Students and lecturers in the chosen institutions received the prepared questionnaires for data collecting. The surveys were personally delivered by the study assistants, who then obtained them once completed. Where needed, follow-up was done to guarantee a high response rate. The collected data were coded and entered into statistical software for analysis. Descriptive statistics, including mean and standard deviation, were used to analyze the data. The analysis provided insights into:

- The extent of technology uses among students and lecturers for academic purposes.
- The types of mobile tools frequently utilized in learning and research.
- The perceived impact of technology on academic performance.
- The challenges hindering the effective use of technology in Nigerian higher institutions. This methodology ensured that the study effectively evaluated the role of technology in enhancing learning and research in College of Nursing in Nnamdi Azikiwe University Teaching Hospital.

Results and Analysis

Table 1: Utilization of Technology for Learning:

| S/N | Item Statement | SA | A | D | SD | Mean | Remark |
|-----|---|----|----|---|----|------|--------|
| 1 | Technology is widely used by students and lecturer for accessing educational resources (e-books, journals, online courses). | 55 | 35 | 7 | 3 | 3.42 | Agree |
| 2 | Technology devices, especially smartphones, are frequently used for online discussions, submitting assignments, and attending virtual lectures. | 50 | 40 | 6 | 4 | 3.36 | Agree |
| 3 | Learning management systems (LMS) and educational apps are popular due to their flexibility and accessibility in mobile learning. | 60 | 30 | 7 | 3 | 3.47 | Agree |

Table 1 shows the utilization of technology for learning based on the responses from 100 participants. It highlights three key aspects: accessing educational resources, using mobile devices for academic activities, and the popularity of learning management systems

(LMS) and educational apps. 55% strongly agreed and 35% said that professors and students regularly utilize technology that is, smartphones and tablets to access e-books, journals, and online courses. A great majority of participants felt mobile devices significantly help access

learning resources; just 7% disagreed and 3% strongly disagreed with this assertion.

With a mean score of 3.42, the favorable consensus is shown, therefore reflecting great general agreement. 50% of respondents strongly agreed, and 40% of them said that mobile devices—especially smartphones—are routinely used for engaging in online conversations, turning in assignments, and visiting virtual lectures. Only 6% disagreed and 4% strongly disagreed, indicating that different academic assignments are routinely completed using mobile devices. With a mean score of 3.36, the findings show most respondents believe technology is

necessary for online learning. 60% of respondents highly agreed and 30% of them agreed that the flexibility and accessibility of learning management systems (LMS) and educational applications help them to be popular. Just 7% disagreed and 3% strongly disagreed, suggesting that students value LMS and applications for mobile learning somewhat extensively. With a mean score of 3.47, the respondents clearly favor the usage of LMS and instructional applications.

Table 2: Role of Technology in Supporting Research:

| S/N | Item Statement | SA | A | D | SD | Mean | Remark |
|-----|---|----|----|---|----|------|--------|
| 1 | Technology has significantly enhanced research activities by allowing access to academic databases, communication with peers, and collaboration with colleagues. | 60 | 30 | 5 | 5 | 3.45 | Agree |
| 2 | Mobile apps and platforms such as Google Scholar, Research Gate, and academic repositories are commonly used for sourcing information and managing research projects. | 55 | 35 | 6 | 4 | 3.41 | Agree |
| 3 | Technology facilitates the collection and analysis of data through cloud-based services and specialized research apps. | 58 | 32 | 6 | 4 | 3.44 | Agree |

Based on replies from 100 participants, the table 2 above shows the results on how technology could benefit research. It captures three main features of mobile technology's effect on research activities, with the findings provided in terms of four response categories: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). Here's an explanation of each item: A total of 60 respondents (60%) strongly agreed that technology has considerably increased research efforts by providing access to academic resources, communication with peers, and cooperation with colleagues. Another 30 responders (30%) agreed with this assertion. Only 10 respondents (5% disagreed and 5% strongly disagreed). Mean score = 3.45, which shows good general agreement. Technology is widely regarded as a great tool for research communication and cooperation. 55 respondents (55%) strongly agreed that

mobile apps and platforms such as Google Scholar and Research Gate are useful for accessing information and organizing research projects. Another 35 respondents (35%) agreed. A lower percentage of respondents, 6% and 4%, disagreed and strongly disagreed, respectively. Mean score = 3.41, suggesting broad agreement that mobile platforms play a vital role in maintaining and accessing academic materials for research. 58 respondents (58%) strongly agreed that technology aids data collecting and analysis through cloud-based services and research apps. Another 32 respondents (32%) agreed. Similar to the previous items, 6% disagreed and 4% strongly disagreed with this assertion. Mean score = 3.44, again demonstrating broad agreement that technology is a helpful tool for academics, particularly in handling data.

Table 3: Challenges in Using Technology for Learning and Research:

| S/N | Item Statement | SA | A | D | SD | Mean | Remark |
|-----|--|----|----|----|----|------|--------|
| 1 | Lack of stable internet connectivity limits access to online resources and mobile learning platforms. | 55 | 30 | 10 | 5 | 3.35 | Agree |
| 2 | High data costs and unreliable power supply affect the consistent use of mobile technology. | 60 | 25 | 10 | 5 | 3.40 | Agree |
| 3 | Lack of training and familiarity with educational apps and research tools reduces technology benefits. | 50 | 30 | 15 | 5 | 3.25 | Agree |

A majority of respondents (55%) strongly agreed that inconsistent internet access is a key barrier influencing the utilization of mobile learning platforms. Another 30% agreed, while just 10% disapproved, and 5% strongly disagreed. Mean score = 3.35, showing that internet troubles are a generally acknowledged challenge. While 60 respondents (60%) strongly agreed that high data charges and power supply difficulties hamper the constant usage of mobile technologies. Another 25% agreed, while 10% disagreed, and 5% strongly disagreed. Mean score = 3.40, suggesting strong agreement on the effect of these difficulties. 50 respondents (50%) strongly agreed that insufficient training and lack of acquaintance with educational applications restrict the potential benefits of mobile technology. Another 30% agreed, while 15% disagreed, and 5% strongly disagreed. Mean score = 3.25, demonstrating that lack of skills and training also offer a considerable difficulty.

Discussion of Findings

This study set out to investigate the utilization, benefits, and challenges of technology integration for learning and research in the Nigerian tertiary education context. The findings, derived from a sample of 100 participants, reveal a landscape characterized by high recognition of technology's potential but significantly hampered by persistent infrastructural and skill-based constraints. The discussion is organized around the three core themes of the investigation.

This study set out to investigate the utilization, benefits, and challenges of technology integration for learning and research in the Nigerian tertiary education context. The findings, derived from a sample of 100 participants, reveal a landscape characterized by high recognition of technology's potential but significantly hampered by persistent infrastructural and skill-based constraints. The discussion is organized around the three core themes of the investigation.

Utilization of Technology for Learning and Access to Resources

The findings clearly indicate that digital technologies have become deeply embedded in the academic routines of students and lecturers. The high mean scores for items related to accessing educational resources (Mean=3.42), using devices for academic tasks (Mean=3.36), and the popularity of Learning Management Systems (LMS) (Mean=3.47) collectively demonstrate a strong agreement on technology's central role in facilitating learning. This trend is consistent with research by Nzewi (2024), who found a positive correlation between ICT skills and the usage of online information resources

among postgraduate students, highlighting a growing dependency on digital tools for academic success.

The widespread use of smartphones and tablets to access e-books, journals, and online courses underscores a significant shift from traditional, library-centric resource acquisition to a more dynamic, on-demand model. This aligns with global trends noted by Baker (2023), who observed that educational technology is adapting to the needs of a digitally vibrant era. The data confirms that Nigerian institutions are part of this trend, with a majority of respondents leveraging mobile devices to transcend the physical limitations of the classroom and library. Furthermore, the frequent use of these devices for core academic activities—such as attending virtual lectures, submitting assignments, and engaging in online discussions—signals the normalization of a blended learning environment. The strong endorsement of LMS and educational apps for their flexibility and accessibility (with 90% combined agreement) resonates with the work of Adebayo (2023), who found that technology transforms learning from a passive to an interactive process. The high mean score (3.47) for this item suggests that when technological tools are available and functional, they are highly valued for enabling personalized and self-paced learning, a key advantage highlighted by Femi and Johnson (2024).

Role of Technology in Enhancing Research Capacity

The data presents a similarly positive perception of technology's impact on research activities. The high agreement levels on items concerning access to databases, scholarly communication, and collaboration (Mean=3.45); the use of specific platforms like Google Scholar and Research Gate (Mean=3.41); and the facilitation of data collection and analysis (Mean=3.44) collectively paint a picture of technology as an indispensable research tool. This is supported by Nzewi, (2024), whose comparative study noted significant utilization of electronic information resources for research in universities, though often varying between public and private institutions.

The fact that 90% of respondents acknowledge technology's role in enhancing research through access and collaboration corroborates the assertions of Wang et al. (2023), who emphasized that technology boosts research capacity by providing instant access to digital libraries and collaboration platforms. The prevalent use of specialized academic platforms indicates a maturation of research practices, enabling scholars to integrate themselves into global academic networks and stay abreast of current literature. Moreover, the agreement that technology facilitates data handling through cloud-based services and specialized apps points to an evolution in research methodology. This finding supports

the view that digital tools streamline complex research processes, thereby increasing overall research productivity, a phenomenon also observed in the context of digital resource utilization by postgraduate students (Nzewi & Kakulu, 2022.).

Challenges in Using Technology for Learning and Research

Despite the strong consensus on the utility of technology, the findings unequivocally identify critical barriers that stifle its full potential. The challenges of unstable internet connectivity (Mean=3.35), high data costs and unreliable power (Mean=3.40), and a lack of training (Mean=3.25) were all met with strong agreement, confirming that the digital transformation of Nigerian higher education is occurring against a backdrop of significant adversity.

The identification of poor internet connectivity and unstable power supply as primary obstacles is consistent with a large body of literature on the subject. Bello & Lawal (2023) explicitly identified inadequate infrastructure as the most formidable setback. This finding is further reinforced by Nzewi (2021), who identified similar "inhibitors," including poor infrastructure, to the effective utilization of electronic information resources in academic libraries. The high cost of data, strongly agreed upon by 85% of respondents, exacerbates this issue, creating a financial barrier that disproportionately affects students and lecturers, as noted by Chukwu and Okafor (2024).

Crucially, the study also reveals a significant human capital challenge. The agreement that a "lack of training and familiarity with educational apps and research tools reduces technology benefits" (Mean=3.25) points to a critical gap in digital literacy. This aligns directly with the work of Nzewi (2022), who emphasized that the ICT skills of information professionals are fundamental to effective service delivery, implying that a deficit in these skills cripples the entire support system. It also lends empirical support to the observations of Obinna & Ibrahim (2023), who found that many lecturers remain hesitant to adopt new learning platforms. This skills gap ensures that even when infrastructure is functional, the full pedagogical and analytical capabilities of technology may remain untapped, a concern that extends to the availability and maintenance of the ICT facilities themselves (Nzewi, 2021)

Conclusion

This study has demonstrated that technology plays an increasingly pivotal role in the academic ecosystem of the College of Nursing at Nnamdi Azikiwe University Teaching Hospital, fundamentally reshaping both learning and research processes. The findings confirm that digital devices and platforms, particularly smartphones and

Learning Management Systems (LMS), have become indispensable tools for students and lecturers, facilitating flexible access to educational resources, enabling collaborative learning, and enhancing research productivity. The high mean scores across all utilization metrics reflect a strong consensus on the transformative potential of these technologies.

However, this potential remains constrained by a triad of significant challenges: inadequate infrastructural foundations, characterized by unstable internet and power supply; economic barriers, including the high cost of data and devices; and a critical deficit in digital literacy and training. These impediments, consistent with the findings of scholars like Nzewi (2021; 2022) and others, create a utilization gap that prevents the full academic benefits of technology from being realized and risks widening existing educational inequalities.

Therefore, realizing a truly effective and inclusive technology-enhanced academic environment necessitates a concerted, multi-stakeholder approach. The recommendations put forward—ranging from strategic investments in infrastructure and affordable data to the institutionalization of comprehensive digital literacy programs provide a clear roadmap for action. By systematically addressing these barriers, the College of Nursing, and similar Nigerian tertiary institutions, can harness technology not merely as a supplementary tool, but as a central driver for fostering a more dynamic, equitable, and productive academic future.

Recommendations

To effectively address the challenges and harness the benefits of technology in higher education, a multi-faceted strategic approach is essential. The proposed recommendations are summarized as follows:

Improve Internet Connectivity and Infrastructure: This involves a concerted effort to invest in robust, high-speed internet infrastructure across campuses. Key actions include collaborating with telecommunications providers to establish subsidized data plans for the academic community and deploying reliable Wi-Fi networks in key locations like libraries and lecture halls to ensure uninterrupted access to digital resources.

Address Power Supply Issues: To mitigate the impact of unstable electrical grids, institutions should implement sustainable backup power solutions, such as generators and solar energy systems. Furthermore, the installation of convenient charging stations in common areas will ensure that mobile devices remain operational during power outages.

Enhance Digital Literacy and Training Programs:

Bridging the digital skills gap requires the development of mandatory, comprehensive training for both students and faculty on the effective use of educational technology. This includes integrating digital literacy into the core curriculum and providing ongoing professional development for staff to keep pace with evolving pedagogical tools and techniques.

Optimize Learning Management Systems (LMS) and Educational Apps:

Institutions should prioritize the adoption of user-friendly, mobile-optimized LMS platforms. There is also a need to promote the development of localized educational applications that meet specific academic needs, coupled with a commitment to regularly update and maintain these digital tools for compatibility and performance.

Implement Policies to Manage Technology Use:

To maximize the academic benefits of technology, clear guidelines and acceptable use policies should be established to minimize distractions in learning environments. These policies should be complemented by digital wellness initiatives that educate users on balancing technology use for both academic and personal purposes.

Support Research Activities through Mobile Technology:

Enhancing research capacity involves providing specialized training on mobile applications for data collection, analysis, and collaboration. Institutions must also ensure that institutional subscriptions to academic databases are mobile-accessible and promote the adoption of cloud-based platforms for secure data storage and scholarly collaboration.

Ensure Inclusivity and Accessibility:

A critical goal is to guarantee equitable access for all students. This can be achieved through device-lending programs, ensuring all learning platforms comply with universal design for accessibility, and developing offline functionalities for essential educational resources to support those with limited or unreliable internet connectivity.

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