

# The Influence of Change and Innovation on Academic Library Use by Undergraduates

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**Abstract:** The study investigated the influence of change and innovation on academic library use by undergraduates at Bamidele Olumilua University of Education, Science and Technology (Bouesti). It adopted a descriptive survey design. One hundred twenty students were purposefully selected at the entrance of the university library. A well-structured questionnaire was used to collect data for this study, and the collected data were analyzed using frequency counts and percentages. The following was revealed: technological changes affect the frequency and mode of academic library usage in BOUESTI. It was also observed that innovative library services influence their usage. Some of the challenges revealed include inconsistent internet connectivity, an unfriendly interface, and a lack of knowledge about new services, among others. Strategies for navigating changes and academic library contributions to digital literacy and academic excellence were revealed. Recommendations were made based on the findings of the study.

**Keywords:** Research and Innovations; Academic Library; Digital Literacy; Innovative Library; Frequency Count; Descriptive Survey Design; Collaborative Spaces; Technological Developments.

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## 1. Introduction

In higher educational institutions, academic libraries have long been essential centers for learning, research, and innovation. From storing printed papers, they have developed into knowledge repositories that offer access to a wide range of digital information. Technological developments, institutional shifts, and changing user expectations have all had a major impact on the academic library landscape in recent decades [1]. This change has necessitated a reevaluation of library services and amenities to meet the needs of undergraduate students in the twenty-first century. The concept of change in academic libraries encompasses modifying materials, services, and physical spaces to leverage advancements in technology and education. Conversely, innovation involves implementing innovative methods of delivering services, such as incorporating state-of-the-art technologies like digital repositories, augmented reality, and artificial intelligence [2]. Due to these developments, academic libraries have evolved into collaborative spaces that foster creativity, learning, and critical thinking rather than merely serving as informational resources [3].

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Academic libraries in Nigeria face particular challenges in adapting to innovation and change. The adoption of innovative techniques is often hindered by a lack of resources, inadequate infrastructure, and a shortage of qualified personnel [4]. Some university libraries, such as Bamidele Olumilua University of Education, Science, and Technology (BOUESTI), have made a concerted effort to update their library services despite these obstacles. To facilitate collaborative learning, BOUESTI's library has begun utilizing digital tools, expanding access to electronic resources, and updating its spaces. However, little is known about the extent to which these changes affect undergraduates' use of libraries.

It is crucial to understand how undergraduates utilize libraries in this era of innovation and change for several reasons. First, it will shed light on how students utilize library services and resources in a world where technology reigns supreme. There is a need for both physical and virtual resources, as studies indicate that some students may continue to rely on traditional library resources while others embrace digital advancements [5]. Second, analyzing library usage trends can help inform decisions about staff training, service improvements, and resource allocation. Ultimately, this knowledge can inform the development of innovations that are user-centered and tailored to the specific needs of undergraduate students [6].

Numerous aspects, such as the accessibility of digital resources, the layout of physical spaces, and the efficiency of library employees in interacting with patrons, have been emphasized in research on library use [7]. For example, it has been demonstrated that incorporating maker spaces and collaborative areas into libraries enhances student engagement and fosters a sense of community. In a similar vein, libraries can now monitor user behavior and adjust services in response to the use of learning analytics tools [8]. These changes underscore the importance of aligning library innovations with the preferences and expectations of undergraduate users.

The undergraduate student body at BOUESTI comprises a diverse range of learners with varying needs and goals. Some students may appreciate the library as a place for group conversations or as a quiet study area, while others may prioritize having access to digital resources for academic research. Due to this diversity, library service delivery must adopt a comprehensive approach that strikes a balance between preserving traditional services and integrating modern technologies. Examining how library innovations and changes affect undergraduate use patterns and perceptions is crucial to striking this balance. Therefore, this study was guided by the following research questions:

- How do technological changes affect the frequency and mode of academic library use by undergraduates at BOUESTI?
- What is the influence of innovative library services on students' perceptions and attitudes toward library use?
- What challenges do undergraduates face in adapting to changes and innovations in academic library services?
- What strategies can be implemented to enhance undergraduate engagement with academic libraries amidst changes and innovations?
- How do academic libraries contribute to digital literacy and academic excellence through innovations?

### **1.1. Purpose of the Study**

The purpose of this study was to examine the influence of change and innovation on academic library usage by undergraduates at Bamidele Olumilua University of Education, Science and Technology (BOUESTI).

## **2. Literature Review**

Theories that support innovation and change offer important insights into how academic libraries are changing. According to the Diffusion of Innovations Theory [9], relative benefit, compatibility, complexity, trialability, and observability are key elements that influence the acceptance of innovations, which occur in distinct phases. The integration of new technologies and practices has been extensively studied in library environments using this approach [10]. Similarly, the Change Management Model [11] emphasizes the importance of building coalitions, creating urgency, and devising action plans to transform organizations, including libraries [12] successfully. Understanding the dynamics of library innovation and the elements that influence its adoption and impact requires an awareness of these theoretical perspectives.

The environment of academic libraries has undergone significant changes as a result of technological advancements. E-books, online journals, and digital repositories have all been made possible by the shift from print to digital, which has improved access to resources and convenience [1]. Furthermore, service delivery is being redefined by technologies like blockchain, machine learning, and artificial intelligence (AI). For instance, chatbots for immediate help, automated cataloging, and predictive analytics for collection development are examples of AI uses in academic libraries [8].

These developments give users individualized services while streamlining procedures. Massive open online courses (MOOCs) and open educational resources (OERs) have also increased the educational role of libraries. Libraries help to lessen educational

disparities and promote lifelong learning by selecting and making these materials accessible [13]. Notwithstanding these advantages, issues such as the digital divide, technological costs, and digital rights management persist, especially in developing nations like Nigeria [4].

Academic libraries are reevaluating their physical locations in response to the shift to digital resources. To promote creativity, innovation, and group learning, traditional reading rooms are being replaced by collaborative learning spaces, maker spaces, and multimedia studios [14]. For example, it has been demonstrated that maker spaces equipped with robotics kits, virtual reality equipment, and 3D printers enhance student engagement and practical skills [15]. To adapt to the evolving needs of its patrons, libraries are also expanding the range of services they offer. The integration of bibliometric analysis highlights the increasing importance of libraries in fostering academic and professional development, managing research data, and promoting digital literacy initiatives [16]. However, several variables, including user acceptance, institutional backing, and staff competencies, influence the performance of these projects.

Adopting and maintaining innovations presents special problems for academic libraries in Nigeria. One significant obstacle that affects both the upkeep of current infrastructure and the purchase of contemporary technologies is a lack of financing [4]. Additionally, the capacity of library employees to successfully deploy and oversee new systems is hampered by a lack of training opportunities [17]. The challenges of digital transformation are exacerbated by deficiencies in infrastructure, including unstable electricity and inadequate internet connectivity [13]. Due to a lack of knowledge or comprehension of the advantages of innovations, library employees and patrons alike are resistant to change, which exacerbates these difficulties [12]. It takes a comprehensive strategy that incorporates financial investment, capacity building, and change management techniques to overcome these obstacles.

One important consideration when assessing the effects of innovation and change in academic libraries is the conduct of undergraduate students. According to research [16], when using library resources, students prioritize relevance, ease of access, and convenience. Digital natives often prefer online resources over physical collections because they are accustomed to rapid access through smartphones and other devices. However, many students continue to value traditional library services, such as quiet study areas and in-person interactions with librarians [1]. Undergraduate usage trends at Bamidele Olumilua University of Education, Science, and Technology (BOUESTI) have been influenced by the implementation of digital technologies and the renovation of library spaces. A balanced approach is necessary because preliminary research indicates that although some students actively use new technology, others show a preference for traditional services [17]. Designing user-centered innovations that improve the library experience requires an understanding of these preferences.

The installation of an AI-powered library system at the University of Pretoria improved user satisfaction and cataloging effectiveness [8]. Similarly, the University of Lagos introduced a virtual reference service that significantly improved information retrieval and user interaction [4]. The University of Michigan Library's establishment of a digital scholarship lab in the United States is a prime example of how technology and group learning can coexist. The lab attracts a diverse range of user groups and fosters interdisciplinary collaboration by providing cutting-edge tools for data visualization, geographic analysis, and multimedia production [15]. These illustrations highlight the importance of stakeholder participation, strategic planning, and ongoing assessment in the effective adoption of library innovations.

A move toward more individualized and interactive services is reflected in emerging trends in academic libraries. Libraries can now proactively meet user demands by using learning analytics to monitor user activity and personalize services [13]. Furthermore, implementing blockchain technology for transparent and safe record-keeping could completely transform library operations [8]. The emphasis on sustainability in library operations is another noteworthy trend. The promotion of digital resources over print and energy-efficient structures is an example of a green library program that complements international efforts to combat climate change [14]. These changes demonstrate how libraries are becoming more than just information sources; they are also helping to achieve larger social objectives.

According to the literature, innovation and change are crucial to the continued relevance of academic libraries in the twenty-first century. Although there are many advantages to technological innovations and redesigned spaces, obstacles such as a lack of funds, inadequate infrastructure, and change aversion must be overcome for them to be successfully adopted. Designing successful library innovations that improve user experiences requires an understanding of student behavior and preferences. Academic libraries can establish themselves as vibrant centers for learning, research, and innovation by adopting new trends and taking inspiration from successful case studies.

### **3. Methodology**

The study was a descriptive survey design. One hundred twenty regular undergraduate library users were purposefully selected at the entrance of the university library. A well-structured questionnaire, 'Influence of Change and Innovation on Academic

Library Use (ICIALU),’ was used to collect data for this study, and the collected data were analyzed using frequency count and percentage.

#### 4. Results

**Research Question 1:** How do technological changes affect the frequency and mode of academic library use by undergraduates at BOUESTI?

**Table 1:** Technological changes that affect the frequency and mode of academic library use by undergraduates at Bouesti

No.	Statement	SA%	A%	D%	SD%	Total %
1.	More and more undergraduates are using their own devices to access library resources remotely.	33.3	53.3	11.7	1.7	100
2.	Undergraduates are now less reliant on printed textbooks thanks to the availability of e-resources	42.5	51.7	5.8	-	100
3.	The efficiency of book borrowing and return has increased with the inclusion of automated services.	23.3	47.5	21.7	7.5	100
4.	Due to a lack of instruction, some students view technological advancements as obstacles.	31.7	58.3	8.3	1.7	100
5.	Students are better able to adjust to new systems when there is regular communication regarding technical changes	45.9	48.3	5.8	-	100
6.	Technology developments in the library are frequently seen as signs of institutional transformation.	58	42	-	-	100
7.	Students may become overwhelmed by frequent library technology improvements and stop using them regularly.	-	0.8	50.9	48.3	100
8.	Academic departments differ significantly in their students' familiarity with contemporary library technologies.	3.4	10.8	38.3	50.8	100
9.	Nowadays, many students prefer to use the library's online resources over visiting in person.	23.3	47.5	21.7	7.5	100
10.	The library is now more attractive for research because of technological advancements	51.8	46.7	3.6	5.8	100

Results from Table 1 indicated that technological changes affect the frequency and mode of academic library use by undergraduates at BOUESTI. The percentages marked in bold indicate the usage level resulting from technological changes, ranging from 50% to 100% addition of (SA+A) across the statements responded to by the respondents. There are some statements where the recorded responses were in favor of (D+SD). They were equally in bold.

**Research Question 2:** What is the influence of innovative library services on students’ perceptions and attitudes toward library use?

**Table 2:** Influence of innovative library services on students’ perceptions and attitudes toward library use

No.	Statement	SA%	A%	D%	SD%	Total %
1.	More students are drawn to libraries that feature contemporary study areas integrated into their layouts.	70	25.8	4.2	-	100
2.	Students believe that libraries offering cutting-edge services better suit their academic needs.	85	15	-	-	100
3.	Many undergraduates value self-service options for borrowing and returning resources.	45.8	40	9.2	5	100
4.	The addition of maker areas and multimedia rooms will expand the library's use.	23.3	47.5	21.7	7.5	100
5.	The library is now a vibrant learning space, rather than its conventional silent study area, thanks to innovative services.	31.7	58.3	8.3	1.7	100
6.	Some students feel left out of breakthroughs that receive insufficient publicity.	31.7	58.3	8.3	1.7	100

7.	Libraries are now easier to use because of innovative services like digital borrowing platforms.	31.7	58.3	8.3	1.7	100
8.	Students are encouraged to explore the library's resources through the gamification of library services.	23.3	47.5	21.7	7.5	100
9.	Librarian-led interactive workshops on new services have a favorable impact on how people view libraries	48.3	45.9	5.8	-	100
10.	Students are more satisfied with library services when they receive tailored recommendations for e-resources.	58	42	-	-	100

Results from Table 2 indicated the influence of innovative library services on students' perceptions and attitudes toward library use. The percentages marked in bold confirmed the respondents' agreement with the influence of innovative library services on students' perceptions and attitudes toward library use, ranging from 50% to 100% addition of (SA+A) across the statements responded to by the respondents. Easy access to usage, interactive workshops

**Research Question 3:** What challenges do undergraduates face in adapting to changes and innovations in academic library services?

**Table 3:** Challenges faced in adapting to changes and innovation

No.	Statement	SA%	A%	D%	SD%	Total %
1.	Online library services are less usable when internet connectivity is inconsistent.	67.5	32.5	-	-	100
2.	Students are deterred from embracing digital platforms by poorly designed user interfaces	50	28.3	7.5	14.2	100
3.	Students who prefer traditional library services are often overwhelmed by the rapid pace of innovation.	55.8	30	9.2	5	100
4.	The effective use of library innovations is hindered by a lack of knowledge about new services.	19.2	36.7	20.8	23.3	100
5.	Students may find it challenging to comprehend lessons on new systems due to language problems.	-	-	44.2	55.8	100
6.	Some students are unable to purchase the necessary gadgets to access e-resources due to financial constraints.	6.7	22.5	45.8	25	100
7.	When students encounter problems with new technology, a lack of technical support often leaves them frustrated.	23.3	47.5	21.7	7.5	100
8.	Undergraduates' resistance to change causes them to underuse new services.	23.3	47.5	21.7	7.5	100
9.	Some students lack the necessary technical skills to use sophisticated library systems effectively.	3.6	5.8	46.7	51.8	100
10.	Students who receive inconsistent or inadequate instruction on cutting-edge instruments become perplexed.	23.3	47.5	21.7	7.5	100

Results from Table 3 indicated the challenges faced by undergraduates in adapting to changes and innovation at BOUESTI. The percentages marked in bold indicate the challenges faced by undergraduates in adapting to changes and innovation, ranging from 50% to 100%, which are attributed to the addition of (SA+A) across the statements responded to by the respondents. There are some statements where the recorded responses were in favor of (D+SD). They were equally in bold.

**Research Question 4:** What strategies can be implemented to enhance undergraduate engagement with academic libraries amidst changes and innovations?

**Table 4:** Strategies that can be deployed to enhance undergraduate engagement with academic libraries amidst changes and innovations

No.	Statement	SA%	A%	D%	SD%	Total %
1.	Students' confidence can be increased through regular workshops on digital literacy and library innovations.	45	55	-	-	100

2.	The digital divide can be closed by offering free or heavily discounted access to essential equipment.	41.7	48.3	5	5	100
3.	Inclusivity is ensured by providing multilingual support for educational resources.	71.7	25	3.3	-	100
4.	More awareness is ensured by stepping up promotional efforts for new library features.	64.2	25.8	5	5	100
5.	The student experience is enhanced by establishing a dedicated help center for troubleshooting digital technologies.	27.5	65	5.8	1.7	100
6.	Students are given enough time to adjust when changes are implemented gradually.	23.3	47.5	21.7	7.5	100
7.	Peer mentorship initiatives can help students exchange information about library services and resources.	55.8	30	9.2	5	100
8.	Library innovations can be incorporated into the course curriculum through faculty collaboration.	55.8	30	9.2	5	100
9.	Making library platforms' user interfaces intuitive promotes broad adoption.	19.2	36.7	20.8	23.3	100
10.	To better understand student needs and enhance services, libraries should utilize feedback methods.	75	25	-	-	100

Results from Table 4 indicated some of the strategies that can be deployed to enhance engagement amidst changes and innovations. The percentages marked in bold indicate strategies that could be deployed for engagement amidst technological changes and innovation, ranging from 50% to 100% addition of (SA+A) across the statements responded to by the respondents.

**Research Question 5:** How do academic libraries contribute to digital literacy and academic excellence through innovations?

**Table 5:** Contributions of academic libraries towards digital literacy and academic excellence through innovation

No.	Statement	SA%	A%	D%	SD%	Total %
1.	Students can have immersive learning experiences with virtual reality (VR) equipment in libraries.	84.2	15.8	-	-	100
2.	Students are exposed to the most recent scholarly advancements through subscription-based access to e-journals.	52.5	47.5	-	-	100
3.	By sharing resources, libraries collaborate with other organizations to provide students with a global perspective.	31.7	58.3	8.3	1.7	100
4.	Students can monitor and enhance their research habits with the aid of data analytics from library platforms.	27.5	39.2	23.3	10	100
5.	To help students become more proficient with technology, libraries provide training courses and workshops.	31.7	58.3	8.3	1.7	100
6.	Creative categorization techniques reduce time spent searching for materials.	23.3	47.5	21.7	7.5	100
7.	Librarians offer one-on-one assistance with the use of sophisticated academic resources.	23.3	47.5	21.7	7.5	100
8.	Academic writing assignments are made easier by online citation tools that are incorporated into library systems.	29.6	36.7	23.3	10.4	100
9.	Research output is improved by digital repositories, which make academic resources easily accessible.	52.5	35	7.5	5	100
10.	Collaborative spaces in libraries support group studies and peer learning.	3.4	10.8	38.3	50.8	100

Results from Table 5 indicated the contributions of academic libraries to digital literacy and academic excellence through innovation. The percentages marked in bold indicate the contributions, ranging from 50% to 100% addition of (SA+A), across

the statements responded to by the respondents. There are some statements where the recorded responses were in favor of (D+SD). They were equally clarified in bold.

#### 4.1. Discussion of Findings

This study found that the majority of respondents agreed that technological changes affect the frequency and mode of academic library usage at BOUESTI. More of them are now using their gadgets in the library, even though the usage of phones was previously prohibited. It was revealed that they are now less reliant on printed textbooks due to the availability of e-resources. Similarly, technological advancements make the library more appealing for use. It was also observed that innovative library services influence their usage. Students believe that libraries offering cutting-edge services better suit their academic needs. This agreed with the findings of [18] that library services positively influenced students' academic achievement. Also, innovation promotes easy access to borrowing, interactions, and satisfaction. This study revealed some of the challenges faced as a result of change and innovation, including inconsistent internet connectivity, unfriendly interfaces, knowledge gaps about new services, financial limitations, and a lack of technical support. This agrees with the findings of [19], who found that slow Internet connections during peak periods remain one of the challenges of Internet connectivity and accessibility in university libraries. Other challenges include resistance to change, not being tech-savvy enough, and inconsistent or inadequate instruction on cutting-edge instruments.

Findings revealed some of the strategies that can help in the engagement amidst changes and innovation are regular workshops on digital literacy and library innovations, multilingual support for inclusivity, a special help center for debugging digital technologies, Peer mentorship initiatives, inclusion of library innovations course curriculum into the curriculum and provision for a feedback mechanism. Findings revealed the contributions of academic libraries to digital literacy and academic excellence, including immersive learning experiences, students' exposure to scholarly databases, and the promotion of a global perspective through collaboration and technological proficiency. Others include reduced time spent on searching for relevant information-bearing resources, improved academic output, and promotion of group and peer learning.

#### 5. Conclusion

As a result of the findings of this study, it was concluded that change/innovation has a vital role to play in the patronage of academic libraries. It has been acknowledged that change, especially in the educational system, is generally inevitable, allowing for the necessary transformation to occur. It is equally clear that change and innovation have a positive effect on library use among undergraduates at BOUESTI. It was therefore recommended that the library react positively to change by introducing technological transformations that bridge the digital divide between library workers and their users. Additionally, it was recommended that efforts should be committed to addressing all the identified challenges as pointed out in the study, employing related strategies as revealed through the study.

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