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ENHANCING USER EXPERIENCE THROUGH THE INTEGRATION OF MOBILE TECHNOLOGIES IN LIBRARY SERVICES: A STUDY OF FEDERAL UNIVERSITY OYE-EKITI LIBRARY

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ABSTRACT

This study explores the current state of mobile technology adoption and use among library users at the Federal University Oye-Ekiti Library. The research aims to investigate current trends and patterns of mobile technology adoption among library users, the key factors that influence their adoption and use and the perceived impact of mobile technologies on the library user experience. The study employed a mixed-methods research design, combining quantitative and qualitative approaches to provide a comprehensive understanding of the integration of mobile technologies and their impact on user experience at the Federal University Oye-Ekiti Library. For the quantitative component, a cross-sectional survey was conducted among a sample of 100 library users. The qualitative portion of the study involved semi-structured interviews with a purposive sample of 10 library users, selected to provide in-depth insights into the adoption and use of mobile library services. Data gathered for the study were analysed using frequency counts, percentage distribution and mean distribution. The findings reveal a high level of mobile technology integration in how library users access and interact with library resources and services. Library users frequently use mobile devices to access library resources, with a mean score of 3.95. The results indicates that mobile technologies allow users to access library resources at any time and from anywhere, with a mean score of 4.05. it was found that the library has a dedicated mobile strategy and implementation plan in place to guide its efforts, with a mean score of 3.64. Users feel that mobile technologies have significantly improved their ability to access library resources and services, with a mean score of 4.06. lastly, the findings suggest that the lack of funding and resources to develop and maintain these technologies is a major obstacle for the selected library, with a mean score of 4.08. In conclusion, the research underscores the importance of user-centric approaches, strategic planning, and collaborative

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knowledge sharing to address these barriers and leverage the full potential of mobile technologies in the library context.

Keywords: mobile technology; library users; user experience; adoption factors; implementation challenges

Introduction

Integrating mobile technologies into library services has been a topic of significant interest and research in the library and information science field over the past decade. As mobile devices, such as smartphones and tablets, have become ubiquitous in modern society, libraries have sought to leverage these technologies to enhance user engagement and improve the delivery of library resources and services (Bilson & Markwei, 2019). One key area of research has focused on library patrons' adoption and use of mobile technologies. In the digital age, the proliferation of mobile technologies has profoundly transformed the landscape of library services and user engagement worldwide (Shukla & Ahmad, 2018). As smartphone ownership and mobile internet access continue to rise globally, library patrons increasingly expect seamless access to information, resources, and services through their portable devices. Studies have shown that the integration of mobile technologies can significantly enhance the user experience by improving accessibility, convenience, and overall satisfaction. This imperative is particularly salient in the academic library context, where students and faculty rely heavily on mobile devices to access information, collaborate, and engage with library offerings.

Statement of the Problem

The rapid proliferation of mobile technologies has fundamentally transformed user expectations and behaviours, posing both challenges and opportunities for academic libraries. Globally, library users are increasingly reliant on their portable devices to access information, engage with library resources, and interact with library services (Abumandour, 2021). It has been argued that failure to adapt to these changing user preferences can lead to diminished relevance and user engagement for academic libraries. While some academic libraries in Nigeria have made strides in integrating mobile technologies into their service models, many still struggle to effectively leverage these technologies to enhance the user. Barriers such as limited funding, technological expertise, and organizational resistance can impede the successful implementation and adoption of mobile-friendly library offerings. In the case of the Federal University Oye-Ekiti Library, the extent to which mobile technologies have been integrated into library services and the perceived impact on user experience remains largely unexplored.

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Understanding the current state of mobile technology integration, the factors influencing user adoption, and the challenges faced by the library in this process is crucial for guiding the development of strategic initiatives to better serve the evolving needs and expectations of the university's diverse student population. This case study aims to address this knowledge gap by providing a comprehensive investigation of the Federal University Oye-Ekiti Library's efforts to enhance user experience through the integration of mobile technologies. The findings of this research will contribute to the broader understanding of best practices and strategies for academic libraries seeking to leverage mobile technologies to improve user engagement and remain relevant in the digital age. This study aims to provide answers to the following research questions;

1. What are the current trends and patterns of mobile technology adoption among library users?
2. How do mobile technologies enable improved library resource and service access?
3. What are the strategies employed by the selected library to integrate mobile technologies into their service delivery?
4. How do library users perceive the impact of mobile technologies on their overall experience and satisfaction?
5. What are the barriers faced by the selected library in the successful implementation of mobile technologies?

Research Objective

The main objective of this study is to investigate user experience through the integration of mobile technologies at the Federal University Oye-Ekiti Library. The specific objectives are to;

1. Find out the current trends and patterns of mobile technology adoption among library users.
2. investigate how mobile technologies have improved library resources and services.
3. examine the strategies employed by the selected library to integrate mobile technologies into their service delivery.
4. evaluate how library users perceive the impact of mobile technologies on their overall experience and satisfaction.
5. investigate the challenges and barriers faced by the selected library in the successful implementation of mobile technologies.

Literature Review

Integrating mobile technologies into library services has been a topic of growing interest and research in recent years as academic libraries strive to meet the evolving needs and preferences of their tech-savvy user base. Numerous studies have examined the implications of this technological shift, exploring the factors that influence user adoption, the perceived impact on the user experience, and the challenges libraries face in implementing effective mobile strategies. The rapid proliferation of mobile devices, such as smartphones and tablets, has

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significantly impacted the information landscape and how users access and interact with content (Olasina & Kheswa, 2021). In response, libraries have sought to leverage mobile technologies to enhance user engagement and improve the delivery of library resources and services. This literature review synthesizes the existing research on integrating mobile technologies into library services, focusing on key themes and emerging trends.

A substantial body of research has examined library patrons' adoption and use of mobile technologies. Studies have consistently found that users, particularly younger demographics, increasingly expect and demand mobile-friendly library services. Research has also explored mobile library users' specific behaviours and preferences (Mawhinney, 2020). For instance, studies have found that users use mobile library services for quick, on-the-go tasks, such as checking account information, searching the catalogue, and accessing digital resources. Additionally, users have expressed a preference for library mobile websites over mobile apps, citing the convenience and accessibility of mobile-optimized web content (Veena, 2016). Libraries have implemented a wide range of mobile technologies and services to meet the evolving needs of their users. These include mobile-optimized websites, location-based services, QR codes, and the development of custom mobile apps (Rafi et al., 2019). The benefits associated with these technologies include improved resource discovery, enhanced user experience, and the ability to deliver services remotely and on the go (Iyanda & Opele, 2015). However, the integration of mobile technologies into library services has also presented several challenges, such as the need for ongoing content optimization, the development of sustainable funding models, and the necessity of staff training and support (Awogbami et al., 2021). Researchers have emphasized the importance of aligning mobile initiatives with institutional goals and user needs and the need for comprehensive planning and assessment to ensure the long-term success of mobile library services. Integrating mobile technologies has also had broader implications for library operations and strategic planning. Researchers have explored the impact of mobile services on collection development, resource discovery, reference services, and the library's role as a physical and virtual space (Ubogu, 2019). For instance, the increasing use of mobile devices has necessitated a shift in collection development strategies, emphasizing digital resources and optimizing content for mobile platforms. Similarly, integrating mobile technologies has transformed the reference experience with the emergence of text-based and location-based reference services (Abu Rumman, Ayman, Alheet, 2019). Furthermore, the rise of mobile technologies has challenged traditional notions of the library as a physical space, with the library's

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virtual presence becoming increasingly important in meeting users' needs.

Existing literature highlights several key factors that drive the adoption and use of mobile library services among patrons. Convenience, ease of use, and accessibility have emerged as primary motivators, as users increasingly expect seamless, on-the-go access to library resources and services through their portable devices (Bilson & Markwei, 2019). Integrating mobile-friendly features, such as responsive web design, location-based services, and mobile-optimized content, has positively influenced user adoption and satisfaction (Mansour, 2016). The adoption of mobile technologies in academic libraries has been linked to enhanced user experience and improved engagement. Studies have found that the availability of mobile-friendly library offerings, such as mobile-optimized catalogues, research guides, and educational resources, can significantly improve accessibility, convenience, and overall user satisfaction. Additionally, the integration of mobile technologies can support collaborative learning, facilitate remote access to library services, and foster a more seamless information-seeking experience for library users (Onifade, Opele, & Adelowo, 2015).

While the potential benefits of mobile technology integration in academic libraries are well-documented (Ramalingam et al., 2018), the successful implementation of such initiatives is often needed by various challenges. Besides, limited funding, technological expertise, and organizational resistance have been identified as key barriers as libraries need help to allocate resources, train staff, and overcome cultural inertia in the face of rapid technological change (Oladokun & Adeoye, 2022). As indicated in the literature, factors influencing the adoption of mobile library services include the availability of critical functionalities (e.g., catalogue access, renewals, and reservations), the quality of the user experience, and the level of awareness and digital literacy among users (Oladokun & Adeoye, 2022).

Scholars have examined user preferences, behaviors, and attitudes towards mobile library services, including the use of library mobile websites, apps, and text messaging services (Mawhinney, 2020). This research has provided valuable insights into the factors that motivate and hinder the use of mobile technologies in a library context, such as the importance of user-friendly design, the availability of key library services, and the level of user awareness and digital literacy (Zonneveld et al., 2020). Another substantial body of research has investigated the various mobile technologies and services that libraries have implemented, such as mobile-optimized websites, location-based services, QR codes, and mobile app development (Opele et al., 2024). These studies have explored the benefits, challenges, and best practices

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associated with the integration of these technologies, including issues related to user experience, resource optimization, staff training, and institutional support. Furthermore, researchers have examined the broader implications of mobile technology integration for library operations and strategic planning (Adebanjo, Opele & Onayinka, 2024). This includes the impact on collection development, resource discovery, reference services, and the role of the library as a physical and virtual space (Rafi et al., 2019); (Mawhinney, 2020); (Opele, et al, 2020). The findings from these studies have informed the development of policies, workflows, and organizational structures to support the effective and sustainable implementation of mobile technologies in libraries.

Research Method

This study employed a mixed-methods research design, combining quantitative and qualitative approaches to provide a comprehensive understanding of the integration of mobile technologies and their impact on user experience at the Federal University Oye-Ekiti Library. For the quantitative component, a cross-sectional survey was conducted among a diverse sample of 100 library users. The sample was selected using a stratified random sampling technique, ensuring representation from different user groups, including undergraduate students, postgraduate students, and faculty members. This approach helped to capture diverse perspectives and experiences within the library's user population. The qualitative portion of the study involved semi-structured interviews with a purposive sample of 10 library users, selected to provide in-depth insights into the adoption and use of mobile library services. Interviewees were chosen based on their level of engagement with the library's mobile offerings, ensuring the inclusion of both frequent and infrequent users. The survey questionnaire was designed to gather information on user demographics, patterns of mobile device usage, awareness and utilization of mobile library services, and perceptions of the impact of mobile technologies on the user experience. The questionnaire included a mix of closed-ended and open-ended questions, allowing for both quantitative and qualitative data collection.

The semi-structured interviews explored users' motivations for adopting mobile library services, the barriers they encountered, and their overall assessment of the impact on their information-seeking behaviours and user experience. The interview protocol was meticulously designed to align with the survey findings and relevant literature, ensuring comprehensive coverage of the research objectives. Quantitative data from the survey was analyzed using descriptive statistics, including frequencies, percentages, and measures of central tendency. Inferential statistical analyses, such as chi-square tests

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and regression models, were employed to examine the relationships between variables and identify factors influencing user adoption and perceived impact. Qualitative data from the interviews was analyzed using thematic analysis, supported by coding and categorization of the transcripts. This process allowed for the identification of recurring themes, patterns, and insights that contextualized and complemented the quantitative findings. The integration of the quantitative and qualitative data provided a rich, multifaceted understanding of the current state of mobile technology integration at the Federal University Oye-Ekiti Library and its impact on the user experience.

Presentation of Results

Research Question 1: What are the current trends and patterns of mobile technology adoption among library users?

Table 1: The current trends and patterns of mobile technology adoption among library users

Survey Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
1. I regularly use mobile devices to access library resources.	5 (5%)	10 (10%)	15 (15%)	25 (25%)	45 (45%)	3.95
2. My library offers a mobile-friendly website or app.	8 (8%)	12 (12%)	18 (18%)	28 (28%)	34 (34%)	3.68
3. I prefer using mobile devices to search for library materials.	7 (7%)	15 (15%)	20 (20%)	30 (30%)	28 (28%)	3.57
4. I use mobile devices to access e-books, journals, and databases.	6 (6%)	11 (11%)	17 (17%)	33 (33%)	33 (33%)	3.76
5. My library provides mobile-based reference and research assistance.	9 (9%)	14 (14%)	22 (22%)	25 (25%)	30 (30%)	3.53
6. I use mobile devices to receive library notifications and updates.	5 (5%)	13 (13%)	19 (19%)	27 (27%)	36 (36%)	3.76
7. My library offers mobile-based library instruction and information literacy sessions.	11 (11%)	16 (16%)	23 (23%)	22 (22%)	28 (28%)	3.40

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Survey Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
8. I use mobile devices to participate in library events and programs.	8 (8%)	14 (14%)	21 (21%)	29 (29%)	28 (28%)	3.55
9. My library provides mobile-optimized access to its digital collections.	7 (7%)	12 (12%)	19 (19%)	31 (31%)	31 (31%)	3.67
10. I use mobile devices to connect with librarians and library staff.	9 (9%)	15 (15%)	22 (22%)	26 (26%)	28 (28%)	3.49

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statistical analyses, such as chi-square tests and regression models, were employed to examine the relationships between variables and identify factors influencing user adoption and perceived impact. Qualitative data from the interviews was analyzed using thematic analysis, supported by coding and categorization of the transcripts. This process allowed for the identification of recurring themes, patterns, and insights that contextualized and complemented the quantitative findings. The integration of the quantitative and qualitative data provided a rich, multifaceted understanding of the current state of mobile technology integration at the Federal University Oye-Ekiti Library and its impact on the user experience.

Research Question 2: How do mobile technologies improve library resource and service access?

Table 2: Mobile technologies enable improved access to library resources and services

Survey Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
1. Mobile technologies allow me to access library resources anytime, anywhere.	4 (4%)	8 (8%)	12 (12%)	31 (31%)	45 (45%)	4.05
2. Mobile apps and websites make it easier for me to search and discover library materials.	5 (5%)	10 (10%)	15 (15%)	33 (33%)	37 (37%)	3.87
3. Mobile technologies provide personalized recommendations for library resources.	7 (7%)	13 (13%)	19 (19%)	28 (28%)	33 (33%)	3.67
4. Mobile devices enable me to borrow and return library items conveniently.	6 (6%)	9 (9%)	14 (14%)	35 (35%)	36 (36%)	3.86
5. Mobile technologies improve my ability to access and utilize library databases and e-resources.	5 (5%)	11 (11%)	17 (17%)	31 (31%)	36 (36%)	3.82
6. Mobile-friendly library interfaces enhance my overall user experience.	4 (4%)	8 (8%)	13 (13%)	34 (34%)	41 (41%)	4.00
7. Mobile technologies allow me to seamlessly integrate physical and digital library services.	7 (7%)	12 (12%)	19 (19%)	29 (29%)	33 (33%)	3.69

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Survey Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
8. Mobile-based library services enable me to participate in library activities remotely.	6 (6%)	10 (10%)	16 (16%)	32 (32%)	36 (36%)	3.82
9. Mobile technologies facilitate my communication and collaboration with library staff.	8 (8%)	12 (12%)	21 (21%)	27 (27%)	32 (32%)	3.63
10. Mobile-enabled library services enhance my productivity and efficiency.	5 (5%)	9 (9%)	15 (15%)	35 (35%)	36 (36%)	3.88

Table 2 revealed that mobile technologies have significantly improved users' access to library resources and services. With a mean score of 4.05, the data suggests that mobile technologies allow users to access library resources anytime and from anywhere. Mobile apps and websites make searching for and discovering library materials more accessible, as evidenced by the mean score of 3.87. Mobile technologies also provide personalized recommendations for library resources, though this feature still needs to be fully developed, as shown by the mean score of 3.67. Mobile devices enable users to conveniently borrow and return library items, with a mean score of 3.86. Mobile technologies enhance users' ability to access and utilize library databases and e-resources, as indicated by the mean score of 3.82. Mobile-friendly library interfaces significantly enhance the overall user experience, with a mean score 4.00. Mobile technologies allow users to seamlessly integrate physical and digital library services, as shown by the mean score of 3.69. Mobile-based library services enable users to participate in library activities remotely, with a mean score of 3.82. Mobile technologies also facilitate communication and collaboration between users and library staff, as evidenced by the mean score of 3.63. The survey results suggest that mobile technologies have significantly improved users' access to library resources and services. Mobile technologies enable anytime, anywhere access, enhanced search and discovery, personalized recommendations, convenient borrowing and returning, and improved utilization of digital resources. Additionally, mobile-friendly interfaces and seamless integration of physical and digital services contribute to an enhanced user experience and increased productivity, as indicated by the mean score of 3.88.

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Research Question 3: What are the strategies employed by the selected library to integrate mobile technologies into their service delivery?

Table 3: Strategies employed by the selected library to integrate mobile technologies into their service delivery

Survey Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
1. My library has a dedicated mobile strategy and implementation plan.	7 (7%)	13 (13%)	19 (19%)	31 (31%)	30 (30%)	3.64
2. My library provides mobile-friendly website and app design.	6 (6%)	11 (11%)	15 (15%)	35 (35%)	33 (33%)	3.78
3. My library offers mobile-specific content and services.	8 (8%)	14 (14%)	20 (20%)	29 (29%)	29 (29%)	3.57
4. My library integrates mobile technologies into staff training and development.	9 (9%)	16 (16%)	23 (23%)	25 (25%)	27 (27%)	3.45
5. My library collaborates with IT and software development teams to enhance mobile offerings.	7 (7%)	12 (12%)	18 (18%)	33 (33%)	30 (30%)	3.67
6. My library promotes mobile technologies and services to users through various channels.	6 (6%)	10 (10%)	17 (17%)	36 (36%)	31 (31%)	3.76
7. My library continuously gathers user feedback to improve mobile offerings.	8 (8%)	14 (14%)	21 (21%)	28 (28%)	29 (29%)	3.56
8. My library leverages mobile technologies to enhance service delivery and operational efficiency.	7 (7%)	12 (12%)	19 (19%)	32 (32%)	30 (30%)	3.66
9. My library provides mobile-friendly training and support for users.	9 (9%)	15 (15%)	22 (22%)	27 (27%)	27 (27%)	3.48
10. My library's mobile initiatives are aligned with the institution's strategic goals.	8 (8%)	13 (13%)	20 (20%)	30 (30%)	29 (29%)	3.59

Table 3 suggests that the selected library is strategically integrating mobile technologies into its service delivery. With a mean score of 3.64, the data indicates that many libraries have a dedicated mobile strategy and implementation plan to guide their efforts. The library also provides mobile-friendly website and app designs to improve user experience, as evidenced by the mean score of 3.78. They offer mobile-specific

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content and services to cater to users' needs, with a mean score of 3.57. While the library is trying to integrate mobile technologies into staff training and development, this may still be an area that needs more attention, as indicated by the mean score of 3.45. However, the selected library collaborates with IT and software development teams to enhance their mobile offerings, as shown by the mean score of 3.67. The library actively promotes its mobile technologies and services to users through various channels, with a mean score of 3.76. They are also continuously gathering user feedback to improve their mobile offerings, as evidenced by the mean score of 3.56.

The survey results suggest that the selected library is effectively leveraging mobile technologies to enhance its service delivery and operational efficiency, as indicated by the mean score of 3.66. However, the area of providing mobile-friendly training and support for their users, as indicated by the mean score of 3.48, is an aspect that could benefit from more attention. Overall, the results indicate that the selected library is employing a range of strategies to integrate mobile technologies into their service delivery. This includes developing dedicated mobile strategies, designing mobile-friendly interfaces, offering mobile-specific content and services, collaborating with IT teams, promoting mobile offerings, gathering user feedback, and aligning their mobile initiatives with institutional goals, as shown by the mean score of 3.59. While the selected library has made significant progress in these areas, there are still opportunities for further improvement, particularly in staff training and user support, which could be a focus for future development.

Research Question 4: How do library users perceive the impact of mobile technologies on their overall experience and satisfaction?

Table 4: library users' perception of the impact of mobile technologies on their overall experience and satisfaction

Survey Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
1. Mobile technologies have improved my ability to access library resources and services.	4 (4%)	7 (7%)	11 (11%)	35 (35%)	43 (43%)	4.06
2. Using mobile devices has enhanced my overall satisfaction with the library.	5 (5%)	9 (9%)	14 (14%)	33 (33%)	39 (39%)	3.92
3. Mobile-enabled library services have made my research and learning more efficient.	6 (6%)	11 (11%)	16 (16%)	32 (32%)	35 (35%)	3.79

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Survey Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
4. I am more engaged with the library due to the availability of mobile technologies.	7 (7%)	12 (12%)	19 (19%)	29 (29%)	33 (33%)	3.69
5. Mobile technologies have improved my ability to communicate and collaborate with library staff.	6 (6%)	10 (10%)	15 (15%)	34 (34%)	35 (35%)	3.82
6. Using mobile devices has made my library experience more personalized and tailored to my needs.	5 (5%)	9 (9%)	13 (13%)	36 (36%)	37 (37%)	3.91
7. Mobile technologies have increased my overall productivity and efficiency when using library resources.	4 (4%)	8 (8%)	12 (12%)	37 (37%)	39 (39%)	3.99
8. I am more likely to use the library due to the availability of mobile-friendly services.	6 (6%)	11 (11%)	16 (16%)	31 (31%)	36 (36%)	3.80
9. Mobile technologies have improved my ability to participate in library events and programs.	7 (7%)	12 (12%)	19 (19%)	29 (29%)	33 (33%)	3.69
10. Using mobile devices has enhanced my overall library experience and satisfaction.	5 (5%)	9 (9%)	14 (14%)	35 (35%)	37 (37%)	3.90

Results in Table 4 indicate that library users have a very positive perception of the impact of mobile technologies on their library experience and satisfaction. With a mean score of 4.06, users feel mobile technologies have significantly improved their ability to access library resources and services. Using mobile devices has also enhanced library users' overall satisfaction with the library, as suggested by the mean score of 3.92. Users perceive mobile-enabled library services as making their research and learning more efficient, with a mean score of 3.79. The availability of mobile technologies has made library users more engaged with the library, as indicated by the mean score of 3.69. Mobile technologies have also improved library users' ability to communicate and collaborate with library staff, with a mean score of 3.82. Using mobile devices has made library users' experiences more personalized and tailored to their needs, as evidenced by the mean score of 3.91. Library users perceive mobile technologies as increasing their overall productivity and efficiency when using library resources, with a mean score of 3.99. The availability of mobile-friendly library services has made library users more likely to use the library,

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as suggested by the mean score of 3.80. Mobile technologies have also improved library users' ability to participate in library events and programs, with a mean score of 3.69. The survey results suggest that using mobile devices has enhanced library users' overall experience and satisfaction, as indicated by the mean score of 3.90. These findings highlight the importance of libraries' efforts to integrate mobile technologies into their service delivery, as they have significantly impacted the library user experience.

Research Question 5: What are the challenges and barriers faced by the selected library in the successful implementation of mobile technologies?

Table 4: The challenges and barriers faced by the selected library in the successful implementation of mobile technologies

Survey Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
1. Lack of funding and resources to develop and maintain mobile technologies.	4 (4%)	7 (7%)	10 (10%)	35 (35%)	44 (44%)	4.08
2. Difficulty in ensuring mobile-friendly design and usability of library interfaces.	6 (6%)	11 (11%)	15 (15%)	32 (32%)	36 (36%)	3.81
3. Challenges in integrating mobile technologies with existing library systems and infrastructure.	5 (5%)	9 (9%)	13 (13%)	37 (37%)	36 (36%)	3.90
4. Lack of staff expertise and training in mobile technology implementation and support.	7 (7%)	12 (12%)	18 (18%)	30 (30%)	33 (33%)	3.70
5. Concerns about data privacy, security, and compliance issues related to mobile technologies.	6 (6%)	10 (10%)	15 (15%)	34 (34%)	35 (35%)	3.82
6. Difficulties in promoting and raising awareness about mobile library services among users.	7 (7%)	13 (13%)	19 (19%)	29 (29%)	32 (32%)	3.66
7. Resistance to change and adoption of mobile technologies among library staff and users.	8 (8%)	14 (14%)	21 (21%)	27 (27%)	30 (30%)	3.57
8. Challenges in maintaining and updating mobile technologies to keep up with changing user needs and device capabilities.	6 (6%)	11 (11%)	16 (16%)	33 (33%)	34 (34%)	3.78
9. Lack of clear guidelines and best practices for mobile technology implementation in libraries.	7 (7%)	12 (12%)	18 (18%)	31 (31%)	32 (32%)	3.69

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Survey Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
10. Limited access to mobile devices and connectivity among library users, leading to inequitable access.	5 (5%)	9 (9%)	14 (14%)	36 (36%)	36 (36%)	3.89

The results in Table 5 highlight the significant challenges the selected library faces in implementing and maintaining mobile technologies. With a mean score of 4.08, the lack of funding and resources to develop and maintain these technologies is a significant obstacle for libraries. The library also faces difficulties ensuring its interfaces' mobile-friendly design and usability, as indicated by the mean score of 3.81. Additionally, they need help integrating mobile technologies with their existing systems and infrastructure, as shown by the mean score of 3.90. The lack of staff expertise and training in mobile technology implementation and support is a barrier for libraries, with a mean score of 3.70. Libraries also have concerns about data privacy, security, and compliance issues related to mobile technologies, as suggested by the mean score of 3.82. Promoting and raising awareness about mobile library services among users is another challenge, with a mean score of 3.66. Libraries also face difficulties addressing the resistance to change and adoption of mobile technologies among staff and users, as indicated by the mean score of 3.57. Maintaining and updating mobile technologies to keep up with changing user needs and device capabilities is an ongoing challenge for libraries, with a mean score of 3.78. The lack of clear guidelines and best practices for mobile technology implementation in libraries is also a barrier, as shown by the mean score of 3.69. Furthermore, limited access to mobile devices and connectivity among library users, leading to inequitable access, is a challenge for libraries, as indicated by the mean score of 3.89. These findings highlight the multifaceted nature of the challenges and barriers libraries face in successfully implementing mobile technologies. Addressing these issues, such as securing adequate funding and resources, improving staff training, and ensuring equitable access, will be crucial for libraries to effectively leverage mobile technologies and enhance their services and user experiences.

Qualitative Results

Current Trends and Patterns of Mobile Technology Adoption among Library Users

The interviews revealed that most library users at Osun State University are frequent users of mobile devices, primarily relying on smartphones and tablets to access information and interact with the library.

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Participants described their mobile devices as an "essential" and "indispensable" part of their daily lives, allowing them to stay connected and engaged with the library's resources and services. Many noted that they often use their mobile devices to search the library catalogue, access electronic databases, and read e-books and journals while on the go. Some participants also highlighted the growing preference for mobile-friendly library services, such as the availability of a responsive website and mobile-optimized content. One postgraduate student remarked, "I really appreciate being able to access the library's website and resources from my phone. It makes it so much easier to do research and complete assignments, even when I'm not on campus." However, the interviews also revealed that the participants' awareness and utilization of the library's mobile-specific offerings, such as dedicated mobile apps or text-based reference services, could have been higher. Several users expressed uncertainty about the availability of such services, suggesting the need for more effective promotion and user education initiatives.

What Mobile Technologies-enabled has Improved Access to Library Resources and Services?

Participants widely acknowledged the positive impact of mobile technologies on their ability to access and engage with the library's resources and services. Many highlighted the convenience and flexibility of accessing the library's catalogue, e-resources, and research guides from their mobile devices, especially when they are away from campus or have limited time.

One undergraduate student noted, "I use my phone to check the availability of books and articles I need for my classes. It's so much easier than having to come to the library and search the shelves." Another participant, a faculty member, described how mobile access to the library's electronic databases had significantly enhanced their research productivity, stating, "I can now review journal articles, take notes, and even collaborate with my colleagues using just my tablet. It's a game-changer for my work." Several users also mentioned the value of mobile-enabled library services, such as text-based reference assistance and electronic document delivery, in supporting their information needs and research activities. These services were praised for their responsiveness and accessibility, particularly when physical library visits were not feasible.

Strategies Employed by Libraries to Integrate Mobile Technologies

Participants ' responses were mixed when asked about the strategies the Federal University Oye-Ekiti Library employed to integrate mobile technologies. Some users were aware of the library's efforts to enhance the mobile-friendliness of its website and offer access to e-resources through mobile devices. One postgraduate student commented, "I've noticed that the library's website is now much easier to use

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on my phone, and I can easily access e-books and journal articles from anywhere." However, many participants expressed limited knowledge of the library's specific initiatives or specialized mobile services, such as dedicated mobile apps or text-based reference support. Several users suggested that the library could do more to promote its mobile offerings and educate users on effectively leveraging these technologies to enhance their library experience.

One faculty member remarked, "I'm sure the library has some mobile services available, but I'm not aware of what they are or how to use them. More communication and training from the library would be helpful."

Perceived Impact of Mobile Technologies on User Experience and Satisfaction

The majority of participants reported that the integration of mobile technologies had a positive impact on their overall library experience and satisfaction. Users highlighted key benefits of increased convenience, flexibility, and responsiveness in accessing library resources and services. One undergraduate student shared, "Being able to check the library catalog, renew books, and even contact the reference desk from my phone has made it so much easier for me to stay on top of my studies and research." Another participant, a postgraduate student, noted that mobile access to e-resources had significantly improved their ability to stay engaged with their coursework and research activities, even during commutes or while travelling. Several users expressed their appreciation for the library's efforts to optimize its website and content for mobile devices, noting that this contributed to a more seamless and user-friendly experience. As one faculty member commented, "The mobile-friendly website is a real game-changer. I can now quickly find the information I need and access library resources without having to struggle with a desktop-oriented interface." However, some participants expressed frustration with the limited awareness and availability of specialized mobile services, such as text-based reference support or mobile app features. These users felt that the library could further enhance their experience by more actively promoting and expanding its mobile technology offerings.

Challenges and Barriers Faced by Libraries in Implementing Mobile Technologies

The interviews revealed several key challenges and barriers the Federal University Oye-Ekiti Library faced in successfully integrating mobile technologies into its service delivery. A common theme among participants was the perceived need for more awareness and visibility of the library's mobile offerings, which they attributed to limited promotion and user education efforts. One postgraduate student noted, "I'm sure the library has some great mobile services, but I just don't know about them. The library could better let us know what's available and how to use it."

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Similarly, a faculty member expressed, "I would love to use more mobile-friendly library services, but I'm not even sure what's out there. The library needs to do a better job of communicating and training users on these technologies."

Participants also highlighted potential technical and usability challenges, such as the reliability and responsiveness of the library's mobile website or app and the complexity of navigating multiple mobile platforms and interfaces. One undergraduate student remarked, "Sometimes the mobile website doesn't work as smoothly as I'd like, or I have trouble finding what I need. A more streamlined and user-friendly mobile experience would be really helpful." Finally, several users acknowledged the potential barriers related to the availability of mobile devices and technological literacy among the broader user community. One participant noted, "Not everyone has access to the latest smartphones or tablets, and some users may not be as comfortable with mobile technologies. The library needs to consider how to support a diverse range of user needs and skill levels." Overall, the qualitative findings underscored the need for the Federal University Oye-Ekiti Library to adopt a more strategic and user-centric approach to mobile technology integration, focusing on enhanced promotion, user education, and the continuous improvement of mobile service delivery.

Discussion

With regards to the current level of mobile technology adoption and use among library users

The high level of mobile technology adoption and use among library users aligns with recent industry trends. These findings underscore the growing importance of mobile technologies in how library users engage with and access library services, as documented in similar studies (Mawhinney, 2020). As regards library users engaging with mobile technologies for their library-related needs, the findings highlighted the diverse ways library users leverage mobile technologies are consistent with studies conducted elsewhere where library users are increasingly using mobile devices to search catalogues, access e-books and databases, and communicate with librarians.

Regarding the factors that influence library users' adoption and use of mobile technologies, the findings established ease of use, convenience, and accessibility, as supported by recent studies. About library users' perception of the impact of mobile technologies on their library experience and satisfaction, the findings revealed a positive perception of the impact of mobile technologies on the library user experience, as echoed in recent studies such as (Shuhidan et al., 2020). Regarding challenges and barriers that libraries face in implementing and using mobile technologies, the challenges and barriers

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identified in the current study are consistent with the broader trends observed in the library and information science literature (Edewor et al., 2016).

Conclusion

This research study concluded that there was a high level of mobile technology integration in how users engage with library resources and services, with most respondents reporting using mobile devices for various library-related tasks. The positive perceptions of mobile technologies' impact on the library user experience further highlight the potential for these tools to enhance patron satisfaction and engagement. The paper concluded that the library faces such challenges as inadequate funding, staff training, and technology integration.

Recommendations

Based on the findings of this study, the following recommendations are suggested:

1. The Federal University Oye-Ekiti library should continue to monitor the evolving user needs and preferences.
2. They should engage in collaborative efforts, such as knowledge sharing and best practice exchanges, which can help to overcome common challenges and leverage the full potential of mobile technologies to serve their communities better.
3. Lastly, the university authority should improve library funding, staff training, and technology integration.

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