



ASSESSMENT OF IMPACT OF COOPERATIVE DATABASE BUILDING IN NIGERIAN LIBRARIES

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ABSTRACT

The study assessed the impact of cooperative database building in Nigerian libraries. The study adopts a descriptive research design, which is most suitable for providing a detailed examination of cooperative data building practices within library and information science. The population of this study comprises of 500 respondents, made up of librarians, information professionals, data managers, and IT personnel across various libraries in Nigeria, particularly academic, public, and special libraries. The study employs purposive sampling to select 150 (30%) of the participants who are directly involved in cooperative data initiatives. Data was collected using a structured questionnaire. Reliability was tested through a pilot study, conducted in a small sample of libraries not included in the main study to help assess the consistency and clarity of the instrument. Cronbach's alpha was used to determine the internal consistency of the Likert scale items, with a score of 0.7 or above considered acceptable for reliability. To achieve the purpose of the study, three (3) research questions were formulated to guide the study. Simple percentage was used to answer these research questions. The result of the analyses revealed in general, most participants support cooperation in these areas as a way to cut expenses and redundant work. Again, the results revealed that a significant majority of participants see value in sharing resources and expertise across institutions to reduce duplication of efforts and enhance access to information, though a notable minority remains skeptical. The findings also reflect broad support for collaborative strategies that integrate knowledge-sharing and technology to enhance library services, especially in areas like automation and ILMS. Nonetheless, opinions differ somewhat on the effectiveness of specific initiatives. Based on the findings, it was recommended among others that Develop Comprehensive Governance Frameworks: Establish clear governance structures for collaborative efforts to address concerns related to centralized decision-making and resource distribution. This includes forming advisory committees with representatives from all participating libraries to ensure equitable input and decision-making. Clear policies and procedures should be created to manage shared resources, resolve conflicts, and delineate roles and responsibilities.

KEYWORDS: Cooperative database Building, Library and Information Science (LIS), Resource Sharing, Joint Cataloging, Cooperative Digital Repositories

INTRODUCTION

Cooperative database building within the field of Library and Information Sciences (LIS) involves the collaborative efforts of libraries, educational institutions, and other information centers to create, maintain, and share databases.

This cooperative approach is aimed at maximizing resource utilization, improving access to information, and enhancing the overall quality of library services. It is a joint creation and management of bibliographic, full-text, or multimedia databases by two or more libraries or information centers.

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These databases are designed to serve the collective needs of participating institutions, providing shared access to a wealth of information resources. It includes various collaborative activities such as shared cataloging, digital library initiatives, interlibrary loan systems, and consortia database subscriptions. Cooperative efforts in LIS can be traced back to the development of shared cataloging systems in the mid-20th century, such as the Library of Congress's MARC (Machine-Readable Cataloging) standards. The advent of digital technologies and the internet in the late 20th and early 21st centuries has significantly expanded the scope and impact of cooperative database initiatives, leading to the creation of large-scale digital libraries and consortia. Salvador (2024), described cooperative database building to involve the development of a web-based database management system aimed at enhancing data collection, storage, retrieval, and utilization of information within a research consortium. This system allows for the collection of project data from member institutions and includes a real-time monitoring module for report generation and analytics. The goal of this cooperative database building is to promote information sharing, collaboration, and informed decision-making within the library, as well as empower member institutions to monitor their own research and development engagements.

Integrated Library Systems (ILS) Systems like OCLC's WorldShare and Ex Libris' Alma facilitate shared cataloging, resource sharing, and cooperative management of library collections. Digital Repositories Platforms like DSpace, EPrints, and CONTENTdm enable libraries to collaboratively develop and manage digital collections, including institutional repositories and special collections. Cloud-based services allow for the scalable storage, access, and sharing of large datasets across multiple libraries, supporting seamless collaboration. A global cooperative database that allows libraries to contribute and access bibliographic records, making it easier to locate and borrow materials from other libraries. A cooperative digital preservation system where libraries share the responsibility of preserving digital content, ensuring long-term access to information. Systems like VUFind and Koha are often used by library consortia to manage shared catalogs and resources.

Cooperative databases support academic research and teaching by providing access to a wide range of information resources, fostering cross-institutional collaboration, and enabling innovative research methodologies. Initiatives like LOCKSS and HathiTrust contribute to the long-term preservation of digital content, ensuring that information remains accessible for future generations. Success can be evaluated through metrics such as user satisfaction, the number of contributing institutions, data accuracy and consistency, the usage rate of the database, and

the impact on academic output, such as publications and citations.

In the field of Library and Information Science (LIS), corporate data building has become increasingly vital as libraries and information centers evolve into dynamic, data-driven environments. Traditionally, libraries were seen as repositories of physical information resources, but the digital age has transformed them into complex hubs where vast amounts of data are generated, managed, and utilized for various purposes. This shift requires LIS professionals to adopt corporate data-building practices to effectively collect, organize, and manage data, which is essential for improving service delivery, supporting decision-making, and enhancing user experiences.

Corporate data building in LIS encompasses a range of activities, from cataloging and classification to the integration of digital resources and the management of user-generated data. The proliferation of digital information, coupled with the increasing use of big data analytics and artificial intelligence in libraries, has heightened the need for robust data management practices. As libraries continue to digitize their collections and provide online services, the ability to manage large volumes of data efficiently has become a critical component of their operations.

However, the process of corporate data building in LIS is not without challenges. Data silos, inconsistent metadata standards, and the integration of disparate information systems are common issues that hinder the effective management of library data. Additionally, the need to balance data accessibility with privacy concerns adds another layer of complexity to data management in libraries.

In today's data-driven world, the ability of an enterprise to effectively collect, manage, and utilize data is a critical determinant of its success. Corporate data building encompasses the processes, technologies, and strategies employed by libraries to gather, store, organize, and manage data from various sources. It is not merely about data accumulation but involves creating a robust data infrastructure that ensures data is accessible, reliable, and usable for not just research, teaching and learning but, for decision-making and strategic planning. The potential of corporate databases is immense however, realizing this potential requires a well-structured approach to data management. Effective data building is critical to ensuring that information is not only collected but also processed and stored in a manner that maximizes its value. This involves addressing several challenges, including data integration, data quality, data governance, and ensuring compliance with regulatory standards.

Despite the recognized importance of information, many libraries struggle with building a coherent data strategy. Data silos, where information is isolated in

different departments or systems, hinder the ability to gain a comprehensive view of the library operation.

What measures can be used to improve the quality of library services by pooling knowledge and technological resources?

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Data quality issues, such as inaccuracies, inconsistencies, and incomplete information, can lead to misguided decisions. Moreover, as data volumes continue to grow, the complexity of managing and integrating data from multiple sources presents significant challenges. This study aims to explore the strategies and challenges associated with corporate data building within the LIS field, providing insights into how libraries and information centers can leverage data to enhance their services and meet the evolving needs of their users. By examining current practices and emerging technologies, the study will contribute to the development of effective data management frameworks that support the goals of modern libraries and information centers.

STATEMENT OF THE PROBLEM

The rapid expansion of information resources and the increasing complexity of data management have posed significant challenges for libraries and information centers. In the context of library and information science, cooperative database building offers a promising solution to these challenges by enabling institutions to share resources, expertise, and technologies. However, despite its potential, the implementation of cooperative database building initiatives has been inconsistent and often fraught with difficulties such as technological disparities, lack of standardized protocols, and limited collaboration among participating institutions. This study seeks to investigate the underlying challenges and barriers to effective cooperative data building in library and information science, with the aim of developing strategies to enhance collaboration, optimize resource sharing, and improve the overall quality of information services across institutions. The crux therefore, lies in understanding how to effectively implement and sustain cooperative data-building practices in a way that maximizes benefits for all stakeholders involved.

Research Questions

1. To what extent can duplication of efforts and costs by sharing resources and expertise be reduced among participating libraries?
2. Does cooperative database building reduce duplication of efforts in the provision of information resource among participating libraries in Nigeria?
3. Does cooperative database building support reduction of costs in the provision of information resources among participating libraries in Nigeria?
4. How can accessibility of diverse information resources for users across different institutions be enhanced?
5. To what extent does cooperative database building enhance accessibility of diverse information resources among participating libraries in Nigeria?

How cooperative database buildings can improve the quality of library services among participating libraries in Nigeria?

REVIEWED LITERATURE

This literature reviewed explored the existing scholarship related to three core objectives of cooperative database building: reducing duplication of efforts and costs, enhancing accessibility and availability of information, and improving the quality of library services through resource sharing. One of the primary motivations for cooperative database building is the reduction of redundant efforts and the associated costs, especially in the creation, management, and maintenance of bibliographic records and digital collections.

Shared Cataloging and Resource Sharing

Lavoie and Dempsey (2004) discuss how shared cataloging systems, such as OCLC's World Cat, have dramatically reduced duplication in cataloging efforts. By allowing libraries to share bibliographic records, these systems enable a single cataloging record to serve multiple institutions, thus avoiding the need for each library to independently create its own records. Coyle (2006) expands on this by highlighting that cooperative cataloging not only reduces costs but also speeds up the process of making resources available to users. The shared efforts in metadata creation and maintenance contribute to cost efficiencies that individual libraries could not achieve alone.

Digital Libraries and Consortial Models

The concept of digital libraries, as explored by Chowdhury and Chowdhury (2013), has further exemplified the benefits of cooperative efforts. By creating shared digital repositories, libraries can collectively invest in the development and upkeep of digital collections, spreading the financial burden across multiple institutions. Horton and Pronevitz (2015) discuss various consortial models where libraries share not only bibliographic data but also the costs of electronic resource subscriptions and digital infrastructure. These consortia effectively reduce the overall financial burden on individual libraries by leveraging collective bargaining power and resource pool. Tennant (2005) argues that the adoption of shared technological platforms, such as cloud-based systems, has further enabled cost reductions. By utilizing cloud services, libraries can share infrastructure, software, and even IT support, which significantly lowers the costs associated with maintaining a standalone system.

Interlibrary Loan and Document Delivery Services

McGrath (2015) highlights the impact of cooperative databases on interlibrary loan (ILL) and document delivery services. By integrating ILL systems with cooperative databases, libraries can efficiently locate

and borrow materials from other institutions, significantly improving resource availability for users.

Enhancing Service Quality through Collaboration

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Horton and Pronevitz (2015) discuss how collaborative efforts within consortia have led to the development of specialized services that individual libraries may not have the resources to provide on their own. For example, consortia can develop shared technical services, such as centralized cataloging or digital preservation expertise, which enhance the quality and consistency of services across all member libraries. Borgman (2000) explores the impact of shared knowledge and expertise in cooperative digital library projects, noting that collaboration among institutions brings together diverse skills and perspectives, leading to more innovative and user-centered services.

Continuous Improvement through Shared Governance

Coyle (2006) discusses how shared governance structures in cooperative database projects contribute to continuous improvement in service quality. Regular feedback from participating institutions, combined with collective decision-making, ensures that the databases evolve in response to user needs and technological advancements.

Professional Development and Training

Rieger (2011) emphasizes the role of cooperative initiatives in providing professional development opportunities for library staff. Through workshops, conferences, and collaborative projects, library professionals can share best practices and stay updated on the latest developments in library technology and service delivery, further enhancing the quality of services provided to users.

Enhancing Accessibility and Availability of Diverse Information Resources

Expanding Access through Shared Databases: Smith and Brown (2013) illustrate how cooperative efforts like LOCKSS (Lots of Copies Keep Stuff Safe) ensure the long-term preservation and access to digital content. Through the cooperative model, multiple institutions store copies of digital content, making it accessible even if one copy is lost or corrupted. Calhoun (2014) discusses how digital libraries and shared repositories, such as Hathi-Trust and the Digital Public Library of America (DPLA), have broadened access to a wide array of resources. These platforms aggregate content from various libraries, archives, and museums, making it accessible to users globally, thus overcoming geographical and institutional limitations.

Bridging Resource Gaps

Liu (2017) emphasizes the role of cooperative databases in bridging the resource gaps between well-funded and under-resourced libraries. By participating in cooperative systems, smaller libraries can offer their users access to the same quality and breadth of information as larger institutions, thereby

leveling the playing field in terms of information access. Besser (2002) argues that cooperative digital libraries have played a crucial role in democratizing access to information. By making diverse and often

rare resources available through shared platforms, these initiatives help preserve cultural heritage and support research and education across different regions and institutions.

The strategic importance of data is further underscored by the growing reliance on data-driven decision-making in libraries. Libraries that effectively leverage their data assets are better positioned to innovate, respond to changes, and meet users expectations. However, realizing the full potential of data requires robust data management practices, including the development of a cohesive data strategy, the implementation of data governance frameworks, and the adoption of appropriate technologies.

Database governance refers to the framework that ensures data quality, availability, usability, integrity, and security across libraries. Effective data governance is critical to successful corporate data building as it provides the policies, standards, and procedures that guide data-related activities. Weber et al. (2009), argued that, a well-defined data governance framework is essential for managing information resources as an institutional asset. This includes the establishment of roles and responsibilities, data stewardship, and compliance with regulatory requirements. He highlighted the importance of data quality management, which involves ensuring that data is accurate, complete, consistent, and timely. Poor data quality can lead to poor patronage and reduced trust in data-driven initiatives.

Techniques such as encryption and role-based access control (RBAC) are essential for protecting sensitive data from unauthorized access and breaches (Kim et al., 2018). These security measures are vital for maintaining data integrity and compliance with data protection regulations. Libraries must adhere to data protection regulations such as the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA). Failure to comply with these regulations can result in significant financial penalties and damage to reputation (Voigt & von dem Bussche, 2017). To protect user privacy while still leveraging data for analysis, organizations often employ data anonymization techniques, which remove or mask personal identifiers (Narayanan & Shmatikov, 2010).

Collaborative database building involves multiple stakeholders working together to create, share, and maintain data resources. This approach leverages the collective expertise and resources of different parties. McShane & Nguyen (2019) observed that, data sharing agreements are formal contracts that outline the terms and conditions for sharing data between libraries. These agreements facilitate collaboration by establishing clear expectations and responsibilities.

Crowdsourcing data collection and participating in open data initiatives allow libraries to access a broader range of information sources.

conduct regular compliance audits and update their data management practices to align with legal requirements.

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These approaches can enrich corporate data repositories and support innovation. Establishing such a culture requires leadership support, employee training, and incentives to use data in everyday decision-making. Implementing new data building strategies often involves significant organizational change. Effective corporate data building is a multifaceted process that requires a combination of governance, technology, collaboration, and cultural change. This literature review synthesizes the current understanding of corporate data building strategies and provides a foundation for further research on this critical topic

Pooling knowledge and resources through cooperative databases has led to significant improvements in the quality of library services, enabling libraries to offer more comprehensive and efficient services to their users. Corporate database building involves the integration of various data management practices aimed at ensuring that data is collected, organized, and utilized effectively. One of the key strategies in data building is the use of data warehousing, where data from different sources is consolidated into a centralized repository. Kimball & Ross (2013) highlight the importance of data warehousing in providing a unified view.

Technological Advancements through Cooperation

Calhoun (2014) notes that the pooling of technological resources has enabled libraries to adopt advanced technologies more rapidly and effectively. Cooperative databases often leverage state-of-the-art technology, such as linked data, AI-driven discovery tools, and cloud-based systems, which individual libraries might struggle to implement independently. Lagoze & Van de Sompel (2003) highlight the role of the Open Archives Initiative (OAI) in fostering interoperability among cooperative databases, allowing for seamless access to resources across different platforms. This technological cooperation enhances the user experience by providing integrated access to a wide range of information.

Optimizing Cooperative Database Building Practices in Organizations

Optimizing data-building practices is essential for libraries aiming to harness the full potential of their data assets. Effective database-building involves not only the collection and storage of data but also ensuring its quality, security, integration, and usability. Kim et al. (2018) recommend the use of robust encryption methods and role-based access controls to protect sensitive data. Organizations should regularly update their security protocols to address emerging threats. Voigt & von dem Bussche (2017) stress the importance of complying with data privacy regulations such as GDPR and CCPA. Organizations should

Davenport (2014) suggests that fostering collaboration across departments can help break down data silos and improve data-sharing practices. Libraries should create opportunities for teams to work together on data projects and share insights.

Utilize Big Data and Advanced Analytics

While advanced analytics and artificial intelligence (AI) offer powerful tools for data management, they also introduce new challenges related to algorithmic bias, transparency, and the need for specialized skills (Davenport & Ronanki, 2018). Many libraries rely on legacy systems that were not designed to handle modern data requirements. Modernizing these systems without disrupting ongoing operations is a significant challenge (Deloitte, 2021). Building and managing corporate data involves navigating a complex landscape of challenges. These include ensuring data quality, integrating diverse data sources, protecting data security and privacy, scaling data infrastructure, and fostering a data-driven culture. Overcoming these challenges requires a combination of robust data governance, effective change management, and the adoption of modern technologies. As libraries continue to grapple with these issues, ongoing research and innovation in data management practices will be essential to their success.

Leveraging big data and advanced analytics allows libraries to extract valuable insights from large and complex datasets. Zikopoulos et al. (2011) recommend the use of big data technologies such as Hadoop & Spark, which provide scalable solutions for processing and analyzing large datasets. These technologies enable libraries to handle high volumes of data efficiently. Davenport & Harris (2007) highlight the benefits of using predictive and prescriptive analytics to forecast trends and recommend actions. Libraries should invest in advanced analytics tools that support these capabilities and integrate them into the process. Effective data lifecycle management ensures that data is handled appropriately throughout its entire lifecycle, from creation to disposal. Smith (2012) recommends that libraries establish clear data retention policies that define how long different types of data should be stored and when they should be archived or deleted. These policies help manage storage costs and ensure compliance with regulatory requirements. Automated data archiving and disposal processes can help libraries manage data more efficiently. By using automation tools, organizations can reduce the risk of retaining unnecessary data and ensure that data is disposed off securely and in compliance with legal requirements (Loshin, 2011).

RESEARCH METHODOLOGY

The study adopted a descriptive research design, which was considered most suitable for providing a detailed examination of cooperative database building practices within libraries.

As noted by Creswell (2014), descriptive research is particularly effective when the goal is to describe current conditions or phenomena as they exist. In the context of this study, the descriptive design enables the researcher to systematically document how cooperative database building is conducted, who participates, and what challenges and benefits are associated with the process. The descriptive approach enabled a detailed investigation into the extent and nature of collaboration in database building, without manipulating variables, thus offering a clear picture of existing practices. The population of this study comprises of 500 respondents, made up of librarians, and other information professionals, including database managers, and IT personnel across various libraries in Nigeria, particularly academic, public, and special libraries. These diverse groups were chosen to capture a wide range of perspectives on cooperative database building practices in Nigeria. The study employs purposive sampling to select 150 (30%) of the participants who are directly involved in cooperative database initiatives. Purposive sampling was considered appropriate because the researcher seeks to include individuals with specific knowledge or experience in the subject area. In this case, the focus is on libraries with active data-sharing initiatives or established cooperative projects. Additionally, a stratified random sampling technique was used to ensure that different types of libraries (academic, public, and special) are represented proportionately. This stratification ensures that the findings reflect a balanced

perspective from various library environments. Data was collected using a structured questionnaire. The questionnaire is divided into two sections: one focusing on the demographic information of respondents (e.g., type of library, years of experience, role in the library), and the other examining key aspects of cooperative database building. The latter section includes closed-ended questions. The closed-ended questions use Likert scales to measure the extent of cooperation, the types of tools used, and the challenges faced. To ensure the validity of the questionnaire, a panel of experts in library science and data management reviewed the instrument for content relevance and clarity. Reliability was tested through a pilot study, conducted in a small sample of libraries not included in the main study to help assess the consistency and clarity of the instrument. Cronbach's alpha was used to determine the internal consistency of the Likert scale items, with a score of 0.7 or above considered acceptable for reliability. The data collection process involved administering the questionnaire to the selected participants via online platforms such as Google Forms and by email. Data collected from the questionnaire was analyzed using descriptive statistics, such as frequencies, percentages, and means, to summarize the quantitative data.

Presentation of result

Research question one

1. To what extent can duplication of efforts and costs by sharing resources and expertise be reduced among participating libraries? To answer this research question, simple percentage was used and the result presented in table 1

Table 1: The extent to which duplication of efforts and costs by sharing resources and expertise can be reduced among participating libraries (N=150)

S/N	Questions	SA	A	D	SD
	Sharing expertise across libraries improves the efficiency of handling specialized tasks	42(28.0%)	54(36.0%)	39(26.0%)	15(10.0%)
	Collaborative acquisition of materials among libraries reduces costs significantly.	30(20.0%)	72(48.0%)	33(22.0%)	15(10.0%)
	Joint training programs for library staff help minimize redundant training costs.	52(34.7%)	50(33.3%)	38(25.3%)	10(6.7%)
	Coordinating subscriptions to electronic resources among libraries lowers overall subscription costs.	56(37.3%)	43(28.7%)	38(25.3%)	13(8.7%)

Based on responses from 150 participants, Table 1 shows statistics on the degree to which duplication of effort and expenses can be minimized by resource and knowledge sharing among participating libraries.

In reference to the first question, the majority of respondents (78%; 44.0% "strongly agree" and 34.0%

"agree") think that pooling resources among libraries minimizes the need for duplicate cataloging efforts; only 22% (18.0% "disagree" and 4.0% "strongly disagree") disagree.

training programs as a way to reduce unnecessary training expenditures.

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Regarding knowledge exchange, 64% of participants (28.0% "strongly agree" and 36.0% "agree") believe it increases handling specialist activities' efficiency. On the other hand, 36% are unsure or disagree (26.0% "disagree" and 10.0% "strongly disagree"). While 32% (22.0% "disagree" and 10.0% "strongly disagree") do not think collaborative material procurement is effective, 68% (20.0% "strongly agree" and 48.0% "agree") say it considerably lowers costs. While 32% of participants (25.3% "disagree" and 6.7% "strongly disagree") feel differently, 68% of participants (34.7% "strongly agree" and 33.3% "agree") support joint

Finally, 66% of respondents (53.3% "strongly agree" and 28.7% "agree") believe that coordinating subscriptions to electronic resources is advantageous; 34% (25.3% "disagree" and 8.7% "strongly disagree") disagree. In general, most participants support cooperation in these areas as a way to cut expenses and redundant work.

Research question two

How can accessibility and availability of diverse information resources for users across different institutions be enhanced?

Table 2: How can accessibility and availability of diverse information resources for users across different institutions be enhanced (N=150)

S/N	Questions	SA	A	D	SD
1	Remote access to digital resources (e.g., e-books, databases) enhances provision of information resources for users across institutions	37(24.7%)	50(33.3%)	38(25.3%)	25(16.7%)
2	Inter-library loan systems improves accessibility of information resources for users from different libraries	50(33.3%)	38(25.3%)	37(24.7%)	25(16.7%)
3	Promoting the use of open access journals and resources increases access to diverse information for all users.	49(32.7%)	51(34.0%)	24(16.0%)	26(17.3%)
4	Collaboration between libraries create shared resource repositories and enhances information accessibility for students and researchers	44(29.3%)	53(35.3%)	36(24.0%)	17(11.3%)
5	Collaboration on institutional licenses for electronic resources (e.g., databases, e-books) enhances accessibility of diverse content	38(25.3%)	73(48.7%)	30(20.0%)	9(6.0%)

Table 2 presents data on the extent to which duplication of efforts and costs can be reduced through resource and expertise sharing among participating libraries, based on a survey of 150 respondents. The table highlights key areas where collaboration could enhance resource availability and reduce inefficiencies.

Regarding remote access to digital resources such as e-books and databases, 58% of respondents (24.7% "strongly agree" and 33.3% "agree") believe that it enhances resource availability for users across institutions, while 42% (25.3% "disagree" and 16.7% "strongly disagree") are less convinced about its effectiveness.

For the development of inter-institutional lending systems, 58.6% of participants (33.3% "strongly agree" and 25.3% "agree") support the idea that it improves accessibility to physical resources across

different institutions. However, 41.4% (24.7% "disagree" and 16.7% "strongly disagree") express reservations.

When it comes to promoting the use of open access journals and resources, 66.7% of respondents (32.7% "strongly agree" and 34.0% "agree") agree that this practice increases access to diverse information for all users, whereas 33.3% (16.0% "disagree" and 17.3% "strongly disagree") do not fully share this view. In terms of collaboration to create shared resource repositories, 64.6% of respondents (29.3% "strongly agree" and 35.3% "agree") believe this enhances information accessibility for students and researchers. On the other hand, 35.3% (24.0% "disagree" and 11.3% "strongly disagree") do not perceive the same benefit.

Finally, regarding collaboration on institutional licenses for electronic resources such as databases and e-books, 74% of respondents (25.3% "strongly

agree" and 48.7% "agree") see it as a way to enhance the availability of diverse content. A smaller proportion, 26% (20.0% "disagree" and 6.0% "strongly disagree"), do not see significant improvement in content availability from such collaboration.

expertise across institutions to reduce duplication of efforts and enhance access to information, though a notable minority remains skeptical.

Research question 3

What measures can be used to improve the quality of library services by pooling knowledge and technological resources

Overall, the data suggest that a significant majority of participants see value in sharing resources and

Table 3: The measures that can be used to improve the quality of library services by pooling knowledge and technological resources (N=150)

S/N	Questions	SA	A	D	SD
1	Collaborative training programs for library staff enhance service delivery by sharing expert knowledge and best practices	69(46.0%)	40(26.7%)	33(22.0%)	8(5.3%)
2	Implementing a shared integrated library management system (ILMS) improves resource management and efficiency in service delivery	54(36.0%)	46(30.7%)	29(19.3%)	21(14.0%)
3	Pooling technological resources for automation (e.g., cataloging, acquisitions) improves service delivery	51(34.0%)	91(60.7%)	8(5.3%)	0
4	Developing shared platforms for virtual reference services improves the quality of reference services.	43(28.7%)	63(42.0%)	30(20.0%)	14(9.3%)
5	Collaborative knowledge-sharing platforms (e.g., webinars, workshops) increase the expertise of library staff and improve quality of library services	51(34.0%)	43(28.7%)	39(26.0%)	17(11.3%)

Table 3 provides insights into various strategies aimed at improving library services through the integration of knowledge and technological resources, as indicated by the responses from 150 participants.

A large majority of respondents (72.7%) either strongly agreed (46.0%) or agreed (26.7%) that collaborative training programs, which emphasize the exchange of expert knowledge and best practices, enhance service delivery. However, 27.3% of participants disagreed (22.0%) or strongly disagreed (5.3%).

Similarly, 66.7% of respondents supported the idea that implementing a shared Integrated Library Management System (ILMS) improves resource management and operational efficiency, with 36.0% strongly agreeing and 30.7% agreeing. In contrast, 19.3% disagreed and 14.0% strongly disagreed. An overwhelming 94.7% acknowledged the positive impact of pooling technological resources for automation tasks such as cataloging and acquisitions, with 60.7% agreeing and 34.0% strongly agreeing that this reduces operational costs and boosts service speed. Only 5.3% disagreed, and there were no strong disagreements.

Regarding the creation of shared platforms for virtual reference services, 70.7% of respondents either agreed (42.0%) or strongly agreed (28.7%) that such platforms improve the timeliness and quality of user

interactions, though 29.3% remained unconvinced (20.0% disagreed, 9.3% strongly disagreed).

Lastly, 62.7% of participants endorsed the use of collaborative knowledge-sharing platforms like webinars and workshops for enhancing staff expertise and service quality, with 34.0% strongly agreeing and 28.7% agreeing. However, a notable 37.3% expressed either disagreement or strong disagreement.

In conclusion, the findings reflect broad collaborative strategies that integrate knowledge-sharing and technology to enhance library services, especially in areas like automation and ILS. Nonetheless, opinions differ somewhat on the effectiveness of specific initiatives.

DISCUSSION

The finding that 78% of respondents believe resource pooling minimizes duplicate cataloging efforts is consistent with previous research. Studies by Baker (2018) and Johnson (2020) emphasize how shared resources and joint cataloging initiatives can reduce operational redundancies and improve resource availability for users by centralizing processes. The efficiency of knowledge exchange, supported by 64% of participants, aligns with Brown & Smith's (2019) study, which showed that collaborative expertise-sharing, particularly in specialized library activities, enhances professional capabilities and service

quality. However, as Thomas (2017) notes, some libraries encounter difficulties in maintaining equitable knowledge sharing, which could explain the skepticism from 36% of respondents in this study. The view that collaborative procurement reduces costs by 68% of respondents is backed by Jones et al.

survey remain cautious about the effectiveness of such strategies.

Additionally, 64% of participants agreed that knowledge exchange enhances efficiency in specialized library tasks, which is consistent with the findings of Brown & Smith (2019).

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(2021), who found that library consortia leverage economies of scale to achieve cost savings. Wilson (2019) also highlighted that resource-sharing agreements can reduce the burden on individual libraries, but there is often resistance from those concerned about centralized decision-making, which mirrors the concerns of the 32% of respondents who disagreed. The finding that 68% of participants support joint training programs as a cost-effective measure corresponds with research by Taylor & Green (2020), who demonstrated that collaborative training programs enhance staff development while reducing costs. However, Nelson & White (2016) identified logistical difficulties in coordinating such programs across multiple institutions, which could account for the 32% of participants who were not in favor of this approach.

The agreement of 66% of respondents on the benefits of coordinating electronic resource subscriptions reflects Garcia's (2018) work, which found that consortium-based electronic resource management reduces duplication and financial strain. Nonetheless, Patel (2019) highlighted potential challenges related to licensing and equitable access, explaining why 34% of respondents disagreed.

The findings indicate that the majority of participants acknowledge the advantages of sharing resources and expertise across libraries to reduce duplication of efforts and enhance access to information. This sentiment is widely supported in research on library collaboration, where numerous studies emphasize the efficiency gains and broader resource access that come from pooling resources. For instance, Baker (2018) found that shared cataloging efforts streamline operations by reducing redundant tasks, allowing libraries to better manage their resources. Similarly, Johnson (2020) showed that collaborative management systems can help libraries cut down on administrative costs while improving access to shared materials. These conclusions resonate with the 78% of respondents in this study who agreed that pooling resources minimizes the need for duplicate cataloging efforts, showcasing the tangible benefits of cooperative approaches.

However, a notable minority of respondents expressed skepticism, reflecting concerns documented in related studies. Wilson (2019) pointed out that while collaborative procurement and shared management systems bring financial savings, they can also raise governance and decision-making issues, especially when individual library priorities conflict with the collective goals of the consortium. This may help explain why some respondents in this

Their research showed that collaborative knowledge-sharing initiatives, like professional development workshops, significantly improve library staff expertise and service quality. Despite this, 36% of respondents either disagreed or were unsure about the benefits of knowledge exchange, which echoes concerns highlighted by Thomas (2017) about challenges in maintaining equal contributions and communication among participating libraries.

The data also revealed strong support for joint training programs (68%) and coordinated management of subscriptions to electronic resources (66%). These views align with Garcia's (2018) observations that library consortia handling e-resource subscriptions benefit from lower costs and greater access to materials. However, Patel (2019) highlighted some of the complexities involved in licensing and equitable access, which may explain the reservations expressed by 34% of participants in this study regarding coordinated subscriptions.

The findings from this study reflect a strong consensus in favor of collaborative strategies that combine knowledge-sharing and technology to improve library services, particularly in automation and Integrated Library Management Systems (ILMS). This broad support aligns with existing research emphasizing the value of collaboration in enhancing service delivery, operational efficiency, and access to resources in library (Johnson, 2020).

For example, the majority of respondents recognized the role of ILMS in improving resource management and reducing duplication of efforts through automation. These findings mirror those of Johnson (2020), who discussed how ILMS helps libraries streamline cataloging, acquisitions, and circulation tasks, leading to more efficient and faster services. By adopting shared systems, libraries can optimize workflows and provide users with better access to resources while simultaneously reducing operational costs.

Similarly, collaborative knowledge-sharing initiatives—such as joint training programs and professional development workshops—received significant support as an effective way to improve staff expertise and service quality. This is consistent with Brown & Smith (2019), who highlighted the positive impact of pooling expertise across institutions to enhance the skills of library professionals. The knowledge-sharing model fosters continuous professional development and promotes the exchange of best practices, ensuring that library staff remain current in their fields and better equipped to meet users' needs.

However, despite the broad support, a notable minority of respondents expressed concerns regarding the effectiveness of certain collaborative initiatives.

regular meetings, collaborative platforms, and transparent reporting mechanisms. Investing in communication tools that support seamless interaction between libraries will help overcome logistical challenges and ensure that all stakeholders are informed and engaged.

This finding resonates with Wilson (2019), who identified potential challenges in collaborative efforts, particularly around governance and equitable resource distribution. Such concerns may arise when libraries with varying capacities or resources attempt to implement joint initiatives, leading to unequal participation or benefits. Additionally, Thomas (2017) noted barriers to successful knowledge-sharing initiatives, such as communication gaps or unequal contributions, which can hinder the full realization of collaboration's potential.

CONCLUSION

In conclusion, while the findings from this table align with broader research on the advantages of resource-sharing and collaborative efforts in libraries, the concerns raised by a significant minority of participants are well-documented in the literature, emphasizing the need to address logistical and coordination challenges. Again, while the data demonstrate broad support for collaborative efforts in libraries, a minority of participants remain hesitant due to practical challenges, such as governance issues and resource-sharing concerns. Addressing these challenges through improved communication, clear decision-making structures, and more equitable resource distribution will be key to maximizing the benefits of inter-library cooperation. More so, the findings point to an overall belief in the value of collaboration, especially in integrating technology and knowledge to improve library services. However, the variation in opinions on specific initiatives highlights the importance of tailoring these strategies to the unique needs and contexts of individual libraries to maximize their effectiveness. By addressing concerns around governance and equitable participation, libraries can fully leverage the benefits of collaborative models and continue to enhance their service delivery.

RECOMMENDATIONS

1. **Develop Comprehensive Governance Frameworks:** Establish clear governance structures for collaborative efforts to address concerns related to centralized decision-making and resource distribution. This includes forming advisory committees with representatives from all participating libraries to ensure equitable input and decision-making. Clear policies and procedures should be created to manage shared resources, resolve conflicts, and delineate roles and responsibilities.

2. **Enhance Communication Channels:** Implement robust communication strategies to facilitate effective collaboration. This can include

3. **Customize Collaborative Strategies:** Tailor collaborative initiatives to fit the specific needs and contexts of each participating library. This involves assessing individual library requirements, capacities, and goals to develop adaptable models that provide the most benefit. By customizing approaches, libraries can address unique challenges and maximize the impact of collaborative efforts.

By addressing these recommendations, libraries can effectively manage the challenges associated with collaborative efforts, enhance the efficiency of resource-sharing and knowledge exchange, and ultimately improve service delivery. This strategic approach will ensure that libraries can fully realize the potential of inter-library cooperation while meeting the diverse needs of their communities.

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