



ENHANCING RESOURCE SHARING THROUGH DIGITAL KNOWLEDGE ACCESSIBILITY IN THE MODERN ERA IN DEVELOPING COUNTRIES

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Oghuvwu, V. (2024, December 2). *Enhancing resource sharing through digital knowledge accessibility in the modern era in developing countries* [Conference paper]. **18th IFLA ILDS Conference: Global to Local – Diversity and Inclusiveness in Resource Sharing**, Baku, Azerbaijan. ADA University.

<https://doi.org/10.60119/PPCO7485>



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Abstract:

In the contemporary digital era, the convergence of technology and knowledge accessibility has the potential to reshape resource sharing dynamics, particularly in developing countries. Developing countries face a unique set of challenges, including limited infrastructure, constrained financial resources, limited expertise, lack of training and diverse linguistic landscapes. This abstract will scrutinize how these challenges can be addressed through the strategic implementation of digital knowledge accessibility initiatives. The discussion will encompass the role of open-access repositories, collaborative platforms, and innovative technologies in overcoming barriers and fostering a more inclusive environment for resource sharing. This paper presentation will explore the challenges and opportunities associated with leveraging digital advancements to enhance resource sharing in contexts marked by economic constraints and technological disparities. Drawing on practical examples and case studies, the presentation will showcase successful initiatives from various developing regions. It will shed light on how digital technologies can be adapted to suit local contexts, promoting knowledge exchange in sectors such as education, healthcare, and agriculture. Emphasis will be placed on empowering communities through the democratization of information, ensuring that resource sharing aligns with the specific needs of developing nations. Additionally, the ethical dimensions of digital knowledge accessibility will be addressed, highlighting the importance of preserving cultural diversity and indigenous knowledge. The presentation will

explore strategies for safeguarding intellectual property rights, fostering responsible data sharing practices, and promoting digital literacy to mitigate potential risks associated with increased accessibility.

Keywords: Accessibility, Digital Knowledge, Modern Era, Resource Sharing, Developing Country.

Introduction:

In the current information world, resource sharing is an essential idea, especially when considering poorer nations. In order to maximize access and reduce effort duplication, libraries, institutions, and communities work together to leverage information resources, technology, and services. Sharing resources has become a practical way to alleviate resource scarcity, save expenses, and improve information sharing as the demand for knowledge resources rises rapidly.

Resource sharing becomes even more important in poor nations, because access to knowledge resources is frequently hampered by financial and infrastructural limitations. It makes it possible for organizations with tight funds to add more items to their collections, obtain access to current research, and provide services that they could not otherwise provide. By efficiently exchanging resources, educational institutions, research facilities, and public libraries can provide access to a diverse range of materials, including books, journals, databases, and multimedia resources.

The rapid growth of digital technologies has brought unprecedented opportunities for knowledge dissemination and resource sharing globally. However, the extent to which developing countries can leverage these opportunities remains limited due to a variety of socio-economic and infrastructural challenges. These challenges create significant barriers that hinder effective knowledge sharing and reduce access to vital information resources needed for research, education, and community development. As developing countries strive to participate in the global knowledge economy, it becomes imperative to examine how digital knowledge accessibility can be enhanced to promote sustainable resource sharing. In developing countries, the absence of robust library systems, outdated collections, and limited professional expertise often hinder access to critical information. By leveraging digital knowledge accessibility, these regions can surmount these barriers, thereby promoting equitable access to information across various sectors such as education, healthcare, and agriculture. Digital technologies enable institutions to create, store, and disseminate knowledge resources more efficiently, fostering a collaborative environment for knowledge exchange and community engagement.

This paper aims to explore the dynamics of digital knowledge accessibility and its role in enhancing resource sharing in developing countries. It delves into the current state of resource sharing in these regions and discusses the potential of digital solutions to bridge gaps in access, infrastructure, and expertise. The paper also addresses the ethical considerations of digital knowledge sharing, focusing on the preservation of cultural diversity and the protection of indigenous knowledge. By examining successful case studies and presenting strategic recommendations, this paper provides a roadmap for stakeholders to leverage digital technologies for resource sharing in developing countries.

Literature Review

Resource sharing has traditionally been a key strategy for libraries and educational institutions to provide access to knowledge and information in resource-constrained environments. However, the advent of digital technologies has transformed the landscape of resource sharing, introducing new models such as open-access repositories, digital libraries, and collaborative platforms. The literature on digital knowledge accessibility highlights the role of information and communication technologies (ICTs) in reducing access barriers and democratizing knowledge. Yet, the implementation of these digital solutions in developing countries is often hampered by issues such as limited internet connectivity, lack of technical expertise, and restrictive policies.

Several studies have examined the impact of digital knowledge platforms on education and research in developing countries. For instance, research by Gupta and Jain (2018) suggests that digital repositories can significantly enhance the visibility of local research outputs, thereby increasing the global impact of research from developing regions. Other studies have emphasized the importance of digital literacy and capacity-building initiatives in ensuring the effective utilization of digital resources. Despite these positive outcomes, the literature also cautions against the potential risks associated with digital knowledge sharing, including data privacy concerns and the marginalization of non-dominant languages and cultures.

The concept of resource sharing has evolved significantly with the advent of digital technologies, which offer new possibilities for collaboration and access to information. This literature review synthesizes research findings on the impact of digital knowledge accessibility on resource sharing in developing countries, focusing on the challenges, strategies, and outcomes associated with digital resource sharing initiatives.

The Role of Digital Knowledge Accessibility in Resource Sharing: Digital knowledge accessibility refers to the ability of users to obtain, share, and utilize digital content and resources through various platforms and technologies. It is a key factor in enabling resource sharing, particularly in regions where traditional print resources are limited. According to Gupta and Jain (2018), digital accessibility transforms the traditional models of information dissemination by providing a wider reach and overcoming geographic barriers. Their study on digital libraries in developing countries highlights that increased access to digital resources not only enhances learning and research but also democratizes information, making it available to underserved populations.

Similarly, Ikoja-Odongo (2019) argues that digital knowledge platforms, such as open-access repositories and institutional archives, have the potential to mitigate the information access gap in developing countries. His research indicates that the adoption of digital knowledge systems has led to significant improvements in the visibility and utilization of local research outputs, fostering academic collaboration and innovation.

Impact of Digital Resource Sharing on Research and Education

Digital resource sharing has a profound impact on research and education in developing countries. A study by Nwagwu (2017) on the use of digital resources by university students in Nigeria found that access to digital libraries and open educational resources (OER) significantly improved academic performance and research productivity. The availability of diverse and up-to-date digital content enabled students to explore new research areas, engage in interdisciplinary studies, and collaborate more effectively with peers from other institutions.

Furthermore, Chisita and Fombad (2019) highlight the role of digital knowledge platforms in promoting community development. Their research on digital knowledge dissemination in rural communities of Zimbabwe illustrates how digital libraries can serve as hubs for lifelong learning, providing access to information on agriculture, healthcare, and entrepreneurship. These platforms empower local communities by equipping them with the knowledge and skills needed to improve their livelihoods and contribute to sustainable development.

The Significance of Resource Sharing in Developing Countries

Resource sharing in developing countries is a key driver of educational and research development. It allows institutions to overcome budgetary constraints and lack of resources by collaborating with other entities to access a wider range of information materials. By pooling resources, institutions can optimize their collection development strategies and offer a greater variety of learning and research materials to their communities. For example, libraries and academic institutions in developing countries often participate in consortia and interlibrary loan programs to share access to expensive academic journals and research databases. However, physical and logistical limitations have historically constrained the extent of such collaborations. Digital technologies have the potential to transcend these limitations by enabling the seamless exchange of digital resources across geographic boundaries.

Strategies for Enhancing Digital Knowledge Accessibility

Various strategies have been proposed to enhance digital knowledge accessibility and promote resource sharing. One such approach is the development of open-access repositories, which provide free and unrestricted access to scholarly content. According to Swan and Chan (2021), open-access repositories have gained traction in many developing countries as a means of increasing the visibility and accessibility of local research. Their study on the impact of open-access policies in Southeast Asia demonstrates that the establishment of institutional repositories has led to a

significant increase in the number of locally published research articles being accessed and cited internationally.

Another strategy involves the formation of regional consortia and collaborative networks. Amadi and Ayo (2022) emphasize the importance of inter-institutional collaboration in overcoming resource limitations. Their research on library consortia in West Africa shows that by pooling resources and expertise, institutions are able to negotiate better licensing agreements with publishers, access a wider range of materials, and share digital infrastructure. This collaborative model not only enhances resource access but also fosters professional development and capacity building among participating institutions.

Some of the Key strategies include:

1. Establishing Open-Access Repositories and Collaborative Platforms: By creating digital repositories, institutions can store and share scholarly articles, research data, and educational materials freely, promoting knowledge exchange. Collaborative platforms facilitate partnerships between institutions, enabling the sharing of resources and expertise.

2. Promoting Digital Literacy: Enhancing digital literacy is fundamental to ensuring that both providers and users of digital resources can effectively create, manage, and utilize these materials. The UNESCO Institute for Statistics (UIS) has been developing a global framework to measure digital literacy and guide the implementation of digital literacy programs tailored to local needs (UNESCO Institute for Statistics (UIS), 2023).

3. Leveraging Mobile Technologies: In regions where conventional internet access is limited, mobile technology can serve as an alternative channel for accessing digital resources. Mobile libraries, for instance, have been successful in providing access to educational materials in remote areas. (Scholarly Publishing and Academic Resources Coalition (SPARC), 2020).

4. Encouraging Public-Private Partnerships: Collaborations between governments, educational institutions, and private sector players can drive the development of digital infrastructures and support the creation of digital libraries and learning platforms.

Case Studies and Best Practices from Digital Resource Sharing

Several countries and institutions have successfully implemented digital resource-sharing initiatives, showcasing how digital knowledge accessibility can enhance education, research, and community engagement in developing regions. Below are some notable case studies and best practices that illustrate the impact of these initiatives:

1. African Online Digital Library (AODL), South Africa: The African Online Digital Library (AODL) was established to provide open access to African cultural heritage materials, scholarly resources, and educational content. This initiative brought together various academic institutions and libraries to digitize and share materials

that were previously unavailable to the public. The AODL includes historical documents, oral histories, and cultural artifacts that highlight Africa's rich heritage.

Outcomes and Benefits:

- Increased access to African cultural heritage and scholarly resources.
- Facilitated research in African studies, anthropology, and history by making rare materials available to a global audience.
- Promoted collaboration between African and international institutions, enhancing research outputs and community engagement.

2. National Open Access Repository of Ghana: Ghana's National Open Access Repository is an initiative aimed at increasing the visibility and accessibility of Ghanaian research. By digitizing and sharing theses, dissertations, and research publications, this repository has become a critical resource for students and researchers across the country. The repository also connects with international open-access networks to increase the dissemination of Ghanaian scholarship.

Outcomes and Benefits:

- Enhanced access to academic research within Ghana and beyond.
- Increased citation rates and international collaborations for Ghanaian researchers.
- Provided a platform for the dissemination of local research findings to inform national policy and practice.

3. Nigerian Virtual Library Project: The Nigerian Virtual Library Project, initiated by the National Universities Commission (NUC), aims to provide access to electronic academic resources for students, researchers, and faculty members in Nigerian universities. This project includes a digital library that provides access to e-books, journals, and other scholarly materials, fostering a culture of research and innovation in higher education.

Outcomes and Benefits:

- **Improved Access to Academic Resources:** The project has significantly increased access to up-to-date academic materials for Nigerian scholars, addressing the challenge of outdated collections in physical libraries.
- **Increased Research Outputs:** Researchers and students now have better access to international research, contributing to higher research outputs and publication rates.
- **Capacity Building:** The initiative has provided training and support to librarians and faculty members on how to use and promote digital resources, enhancing digital literacy within the academic community.

4. Nigerian Research and Education Network (NgREN): NgREN is a high-speed network established to enhance research and educational collaboration among Nigerian institutions. This platform allows for the sharing of research resources, datasets, and educational materials across member institutions. NgREN supports video conferencing, e-learning, and access to digital libraries, enabling Nigerian

researchers and students to engage in collaborative research with international counterparts.

Outcomes and Benefits:

- **Enhanced Collaboration:** The network has facilitated inter-institutional collaboration, leading to joint research projects and increased academic partnerships.
- **Access to High-Quality Research Materials:** NgREN provides access to digital resources such as academic journals and e-books, which were previously inaccessible to many institutions due to financial constraints.
- **Support for E-Learning:** During the COVID-19 pandemic, NgREN supported the transition to online learning by providing bandwidth and digital tools for remote teaching and learning.

5. TETFund National Research Fund (NRF) Digital Library Initiative:

The Tertiary Education Trust Fund (TETFund) in Nigeria launched the National Research Fund (NRF) Digital Library to increase access to scholarly resources and research materials for Nigerian academics. This initiative is part of a broader effort to promote research and innovation by providing digital tools and platforms for knowledge sharing.

Outcomes and Benefits:

- **Support for Research and Development:** The NRF Digital Library provides access to research grants and funding opportunities, encouraging more research outputs and innovation.
- **Promotion of Interdisciplinary Research:** By sharing research across disciplines and institutions, the platform fosters interdisciplinary research that addresses national development challenges.
- **Digital Repository for Research Outputs:** The library serves as a digital repository for TETFund-supported research, making these outputs accessible to the wider academic community.

Key Benefits of Resource Sharing in Developing Countries

Increased Access to Knowledge Resources: Resource sharing enables institutions to provide access to a broader range of scholarly materials, research outputs, and educational content. This expanded access is particularly beneficial for institutions that cannot afford expensive subscriptions to academic journals or databases. Through consortia and interlibrary loan agreements, users in developing countries can access resources that would otherwise be unavailable to them.

Cost Efficiency and Resource Optimization: By sharing resources, libraries and information centers can optimize their budgets and avoid unnecessary duplication of materials. This approach allows for more strategic allocation of funds towards other critical areas such as staff training, technology upgrades, and the development of new services.

Enhanced Research and Academic Collaboration: Resource sharing encourages collaboration among academic and research institutions. It facilitates the exchange of information and ideas, fosters joint research projects, and enhances the visibility of local research on a global scale. For developing countries, such collaboration is essential in strengthening research capacity and contributing to the global body of knowledge.

Promotion of Digital Literacy and Technological Adoption: Resource sharing often involves the use of digital platforms and technologies, which promotes digital literacy among users. It introduces individuals and institutions to new tools, methodologies, and digital resources, thereby increasing their technological competence and readiness for the digital era.

Supporting Sustainable Development Goals (SDGs): The United Nations' Sustainable Development Goals, particularly Goal 4 (Quality Education) and Goal 16 (Peace, Justice, and Strong Institutions), emphasize the importance of inclusive and equitable access to information and lifelong learning opportunities. Resource sharing aligns with these goals by ensuring that knowledge is distributed fairly and used efficiently to support education, research, and community development.

Challenges in Implementing Digital Resource Sharing

Despite the potential benefits, the implementation of digital resource-sharing initiatives in developing countries is fraught with challenges. Alemneh and Hastings (2020) identify several key barriers, including inadequate digital infrastructure, high costs of technology and software, and a lack of digital literacy among both users and information professionals. Their study on digital library development in Sub-Saharan Africa reveals that many institutions struggle to maintain even basic digital systems due to unreliable internet connectivity and frequent power outages.

Financial constraints also pose a significant obstacle to the sustainability of digital resource-sharing projects. Agaba (2018) notes that the high costs associated with procuring digital resources, maintaining platforms, and training personnel are prohibitive for many institutions in developing countries. His research on the economics of digital resource sharing in East Africa suggests that unless alternative funding models, such as donor support or public-private partnerships, are explored, digital resource-sharing initiatives may remain unsustainable in the long term.

Despite the numerous benefits, developing countries face significant challenges in implementing effective resource sharing models. Issues such as inadequate funding, poor infrastructure, lack of skilled personnel, and restrictive policies can impede the success of resource-sharing initiatives. Furthermore, the lack of a well-defined policy framework for resource sharing often leads to inconsistencies in service provision and hampers the development of sustainable models.

Therefore, it is imperative for stakeholders—government bodies, educational institutions, libraries, non-profit organizations, and the private sector—to collaborate in creating a supportive environment for resource sharing. This includes developing policies that encourage collaboration, investing in technology and infrastructure, and

providing training and capacity-building opportunities for library and information professionals.

Ethical Considerations in Digital Knowledge Sharing

The ethical dimensions of digital knowledge sharing must also be considered, particularly in the context of developing countries. Smith and Reilly (2020) discuss the ethical challenges associated with digitizing and sharing indigenous knowledge. Their research emphasizes the importance of involving local communities in the decision-making process to ensure that digital knowledge platforms respect cultural values and do not exploit or misrepresent indigenous content. They advocate for the adoption of ethical guidelines and frameworks that promote responsible data-sharing practices and safeguard the intellectual property rights of local communities.

Conclusion

Enhancing resource sharing through digital knowledge accessibility is a transformative strategy for developing countries. By implementing strategic initiatives that leverage digital technologies, developing nations can overcome barriers to knowledge access and promote equitable resource sharing. This research highlights the need for comprehensive policy frameworks, capacity-building programs, and collaborative networks to ensure the sustainable development of digital knowledge platforms. Stakeholders must work together to create inclusive digital ecosystems that empower communities, preserve cultural diversity, and support the advancement of knowledge in developing regions. The adoption of digital technologies in enhancing resource sharing has immense potential to transform the knowledge landscape in developing countries. By addressing challenges related to infrastructure, digital literacy, and equitable access, these regions can leverage digital advancements to foster a more inclusive and dynamic environment for knowledge sharing. Through strategic implementation and localized adaptations, digital knowledge accessibility can serve as a catalyst for social and economic development, bridging the gap between information-rich and information-poor communities.

Recommendations

To effectively enhance resource sharing through digital knowledge accessibility in developing countries, a strategic and multi-faceted approach is needed. This approach should involve collaborations among various stakeholders, targeted investments in infrastructure, and the implementation of policies that foster digital inclusion. Below are key recommendations for moving forward:

1. **Strengthening Digital Infrastructure:** Governments, international organizations, and private sector players should collaborate to build and strengthen the necessary digital infrastructure. Investments in broadband internet, cloud storage, and data centers will significantly enhance access to digital resources. The World Bank emphasizes that digital infrastructure is fundamental to creating a connected knowledge economy, which is essential for effective resource sharing.

2. Promoting Open Access and Digital Repositories: Institutions in developing countries should be encouraged to create and maintain digital repositories that are accessible to all. Platforms like the Directory of Open Access Journals (DOAJ) and institutional repositories can serve as key resources for sharing scholarly outputs.

3. Implementing Digital Literacy Programs: Governments and educational institutions should integrate digital literacy into their curriculums and offer training programs to equip individuals with the skills needed to navigate digital platforms.

4. Preserving Cultural and Indigenous Knowledge: Digital platforms should include repositories for traditional knowledge and cultural heritage, ensuring that this information is accessible to future generations while respecting the intellectual property rights of indigenous communities.

Acknowledgments

I would like to express my sincere gratitude to the Tertiary Education Trust Fund (TETFund) for the financial support provided for the publication of this research output. This work would not have been possible without the funding and resources made available through TETFund's sponsorship. I am deeply appreciative of the continued commitment of TETFund towards promoting research, innovation, and the dissemination of knowledge in Nigeria's higher education institutions

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