
**Diffusion of Information Science Research in Nigeria: Issues, Challenges, Opportunities
and Future Direction**

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Abstract

Effective dissemination and utilization of information science research in Nigeria are crucial for knowledge advancement, innovation, and societal development. However, challenges like limited research funding, inadequate infrastructure and technology access, low research output and collaboration, and cultural/language barriers hinder this process. The lack of a robust research culture and insufficient training and mentorship exacerbate these challenges. Despite these obstacles, opportunities exist to enhance research diffusion. Collaborating with international partners facilitates knowledge exchange and resource access. Embracing open-access initiatives promotes research availability. Policy support enables an enabling environment for dissemination while capacity-building programs empower researchers. Addressing these challenges and leveraging opportunities is crucial. Increasing research funding provides necessary resources for rigorous studies and effective dissemination. Improving infrastructure and technology access enhances research efficiency and reach. Promoting collaboration fosters interdisciplinary approaches and knowledge sharing. Creating more publication opportunities encourages dissemination. Encouraging interdisciplinary research enables multiple perspectives. Investing in capacity-building programs nurtures a vibrant research ecosystem. By addressing challenges and capitalizing on opportunities, Nigeria can foster a thriving research ecosystem, improve research diffusion, and utilize findings for societal benefit.

Keywords: Diffusion, information science research, issues, challenges, opportunities, future direction, Nigeria

Introduction

The diffusion of information science research involves the process by which research findings, knowledge, and innovations in the field of information science are disseminated and shared among researchers, practitioners, policymakers, and the general public (Jacobs, 2010); (Ngulube, 2022). This diffusion plays a crucial role in advancing the field, promoting evidence-based decision-making, and driving socio-economic development (Zhao, 2011). Over the years, literature has shown that there are gaps in Knowledge of Information Science Research in Nigeria despite notable progress (Medero & Albaladejo, 2020); (Babayi et al., 2021). These gaps include the dearth of research exploring the integration, preservation, and dissemination of indigenous knowledge within the information science domain (Rasul & Singh, 2010). Limited research has been conducted to assess the impact and practical outcomes of information science research in Nigeria (Omotayo & Salami, 2018). Evaluating the real-world impact of research findings, such as their influence on policy formulation, technological innovation, and social change, is crucial for understanding the effectiveness and relevance of information science research in addressing societal needs (Dwivedi et al., 2021).

Similarly, user-centred user-centred user-centred research, focusing on the needs, behaviours, and experiences of information users in Nigeria, remains relatively scarce. Studies that investigate information-seeking behaviours, information needs of specific user groups (such as students, professionals, and marginalized communities), and the usability of information systems and services are essential to inform the design and development of user-centric information solutions. In addition, literature has shown that the ethical and legal dimensions of information science research in Nigeria require further exploration (Farsi et al., 2022; Shapiro, 1992). This includes examining issues related to data privacy, intellectual property rights, ethical considerations in information access and use, and the impact of emerging technologies such as artificial intelligence and big data on information ethics.

Too, longitudinal studies tracking the development and trends in information science research in Nigeria over time are limited. Such studies would provide insights into the evolution of research interests, methodologies, and research productivity, enabling a better understanding of the growth and impact of the field. Inadequate comparative studies that compare the state of information science research in Nigeria with other countries or regions can provide valuable insights into strengths, weaknesses, and potential areas for improvement (Appiah et al., 2016). These studies can help identify best practices, facilitate knowledge exchange, and inform policy and practice. These gaps in knowledge motivated the researcher to investigate this phenomenon to contribute to the general body of knowledge. This study therefore answers such questions as: what are the channels and mechanism of diffusion of information science research in Nigeria? What are the issues and challenges affecting the diffusion of information science research in Nigeria? What are the opportunities for the diffusion of information science research in Nigeria? What is the future direction of information science research in Nigeria?

Information science research encompasses a broad range of disciplines, including library science, information technology, data science, and knowledge management, among others. In Nigeria, the

diffusion of information science research is crucial for addressing societal challenges, enhancing educational systems, and supporting technological advancements. However, despite its importance, the diffusion of research findings in this field faces various scholarly issues and challenges that hinder its impact and reach.

There are several scholarly issues associated with information science research in Nigeria notably insufficient financial resources allocated to research projects which has hindered the dissemination of information science research in the country. Generally speaking, limited funding restricts researchers' ability to conduct rigorous studies, publish their findings, and attend conferences or workshops for knowledge sharing. Besides, in many parts of Nigeria, there is a lack of advanced infrastructure and reliable technology access, including internet connectivity. This limits researchers' ability to access and disseminate research findings, collaborate with international scholars, and participate in global research networks.

Also, the quantity and quality of research output in information science from Nigeria can be relatively low due to limited collaboration among researchers, both domestically and internationally, and this has restricted the exchange of ideas, interdisciplinary approaches, and the potential for impactful research outcomes. In addition, Nigeria is a linguistically diverse country with multiple indigenous languages. The dominance of English in scholarly communication can present challenges in disseminating research findings to local communities, hindering knowledge diffusion among non-English speakers.

Too, the absence of a strong research culture and mentorship programs for emerging researchers can impede the diffusion of information science research in Nigeria. Limited opportunities for training, guidance, and career development restrict the capacity of researchers to produce high-quality work and effectively disseminate their findings. Thus, collaborating with international partners and participating in global research networks can enhance the diffusion of information science research in Nigeria. Such collaborations facilitate knowledge exchange, resource sharing, and exposure to diverse perspectives and methodologies.

As well, promoting open-access publishing can increase the availability and accessibility of research outputs, allowing broader dissemination of information science research findings. Open-access publications can be freely accessed by researchers, practitioners, and the general public, fostering wider engagement and utilization. Governmental and institutional bodies should provide policy support to create an enabling environment for research dissemination in Nigeria. This includes allocating adequate funding for research, improving infrastructure and technology access, and implementing initiatives that incentivize collaboration and knowledge sharing. Investing in capacity-building programs that focus on research skills, methodologies, and academic writing can empower researchers in Nigeria. These programs can enhance their ability to produce high-quality research and effectively disseminate their findings through conferences, journals, and other platforms.

There is a need for creating more publication opportunities; both within Nigeria and internationally, can encourage researchers to disseminate their work. Establishing reputable journals and conferences that specifically focus on information science research in Nigeria can provide platforms for researchers to share their findings and contribute to the scholarly community. Encouraging interdisciplinary research can foster comprehensive and innovative approaches to information science. By bringing together experts from different fields such as computer science, social sciences, and humanities, researchers can address complex problems and generate impactful insights.

By addressing the issues and challenges related to the diffusion of information science research in Nigeria requires concerted efforts from various stakeholders. By embracing opportunities such as international collaboration, open access initiatives, policy support, capacity-building programs, publication opportunities, and interdisciplinary research, Nigeria can foster a thriving research ecosystem and ensure the effective dissemination and utilization of information science research for the benefit of society.

The existing literature on the diffusion of information science research in Nigeria provides valuable insights into the key issues and challenges faced by researchers and the opportunities for improvement. Several studies have identified limited research funding as a significant barrier, with inadequate financial resources hindering researchers' ability to conduct rigorous studies, attend conferences, and publish their findings. Additionally, the lack of advanced infrastructure and reliable technology access, particularly in remote areas, limits researchers' ability to access and disseminate research outputs effectively. Collaboration among researchers, both within Nigeria and internationally, is relatively low, leading to limited knowledge exchange and interdisciplinary approaches. Furthermore, the linguistic and cultural diversity in Nigeria poses challenges in disseminating research findings to non-English speakers and local communities.

The research literature also highlights the absence of a strong research culture and mentorship programs as a significant hindrance. Limited training opportunities, guidance, and career development programs restrict the capacity of researchers to produce high-quality research and effectively disseminate their findings. Despite these challenges, the literature also underscores various opportunities to enhance the diffusion of information science research in Nigeria. Collaborating with international partners and participating in global research networks can facilitate knowledge exchange and resource sharing. Embracing open access initiatives can promote wider availability and accessibility of research outputs, enabling broader dissemination. Policy support from governmental and institutional bodies is crucial in creating an enabling environment for research dissemination. Investing in capacity-building programs that focus on research skills and methodologies can empower researchers and enhance the quality and impact of their work.

Channels and Mechanisms of diffusion of information science research

Understanding the channels and mechanisms through which research findings are disseminated is essential for maximizing their impact and ensuring wider accessibility. This section explores the existing scholarship on the channels and mechanisms of diffusion of information science research, providing insights into the various strategies employed to disseminate research findings effectively. Studies (Reagans & McEvily, 2003; Ngulube, 2022) have shown that the diffusion of information science research can occur through various channels and mechanisms:

Scholarly Journals: Scholarly journals are a primary channel for disseminating information science research. Researchers publish their findings in peer-reviewed journals to reach a wider academic audience. Open-access journals have gained prominence, offering unrestricted access to research outputs and facilitating broader dissemination. Digital platforms and online repositories have further enhanced the accessibility and discoverability of research articles. Researchers in Nigeria publish their findings in academic journals, both locally and internationally. These journals serve as platforms for sharing research outcomes, theoretical frameworks, methodologies, and empirical evidence. Scholars have suggested that researchers can access these journals through institutional subscriptions, online databases, or open-access platforms (Bola, 2013; Nkiruka & Thomas, 2015; Anhwere & Paulina, 2018; Alando & Ewuntomah, 2021; Adeagbo & Mabawonku, 2022).

Conferences and Workshops: Academic conferences and workshops provide opportunities for researchers to present their work, exchange ideas, and receive feedback from peers. These events facilitate the diffusion of research findings and foster collaborations among researchers, institutions, and industry stakeholders (Opele, 2020).

Academic Libraries: Academic libraries play a crucial role in the diffusion of information science research. They acquire and provide access to scholarly resources, including books, journals, and databases. Libraries also offer research support services, such as interlibrary loan systems, document delivery, and reference assistance, enabling researchers to access relevant literature and disseminate their work through library catalogues and repositories.

Research Reports and Publications: Research reports, technical papers, and monographs are other means of disseminating information science research in Nigeria. These publications often cover specific research studies, survey findings, or in-depth analyses of relevant topics.

Institutional Repositories and Websites: Many academic institutions in Nigeria maintain institutional repositories or websites that showcase the research output of their faculty members and researchers. These repositories provide a centralized platform for accessing and disseminating research findings (Kodua-Ntim & Fombad, 2020; Nkiruka & Thomas, 2015).

Professional Networks and Associations: Professional networks and associations in information science, such as the Nigerian Library Association (NLA), the Nigerian Computer Society (NCS), and the Nigerian Society of Information, Arts, and Culture (NSIAC), play a vital role in facilitating the diffusion of research. They organize conferences, seminars, and workshops where researchers can share their work and engage in knowledge exchange.

Policy Briefs and Government Reports: Researchers often collaborate with policymakers and government agencies to produce policy briefs, reports, and recommendations based on their research findings (Ali & Ahmed, 2019). These documents help inform policy decisions and contribute to evidence-based governance (Whah & Lim, 2018; Malakoane et al., 2020).

Social Media and Online Platforms: Social media platforms, websites, and other online channels provide opportunities for researchers to share their work and engage with a broader audience. Researchers can disseminate key findings, publish blog posts, participate in online discussions, and collaborate on research projects in virtual spaces

Online Platforms and Social Media: The advent of digital technologies and social media has revolutionized the dissemination of research findings. Online platforms, such as institutional repositories, preprint servers, and personal websites, allow researchers to share their work globally. Social media platforms, including Twitter, ResearchGate, and LinkedIn, provide avenues for researchers to promote their research, engage in discussions, and connect with peers, thereby enhancing the diffusion of information science research.

Collaboration and Networks: Collaborative research projects and networks contribute to the diffusion of information science research. Collaborating with researchers from different institutions and disciplines facilitates knowledge exchange and dissemination. Researchers often establish networks and communities of practice to share research findings, methodologies, and best practices, enhancing the collective understanding and impact of information science research.

Policy and Practice: Policies and practices adopted by institutions, funding agencies, and governments can influence the diffusion of information science research. Open access policies, research data management plans, and funding requirements that prioritize dissemination can enhance research visibility and accessibility. Engaging policymakers and practitioners in the research process contributes to the uptake and practical application of research findings.

From the foregoing, the channels and mechanisms of diffusion of information science research are diverse and evolving. Scholarly journals, conferences, academic libraries, online platforms, social media, collaboration, and policy contribute to disseminating research findings. Researchers should consider employing a combination of these channels and mechanisms to maximize the impact and reach of their work. As digital technologies continue to advance, new opportunities for disseminating information science research will emerge, requiring researchers to adapt and embrace innovative approaches to ensure effective diffusion and utilization of their findings.

Issues and Challenges:

Unlike many regulated professional bodies in Nigeria, numerous issues and challenges hinder the effective dissemination and utilization of research findings in this field. Studies have x-ray issues and challenges militating the advancement of diffusion of information science research in Nigeria (Awurdi & Mohammed, 2018; Ganiyu et al., 2014; Ongbali et al., 2021). Such issues and challenges include:

Limited Research Funding: Insufficient funding for research activities hinders the development and diffusion of information science research in Nigeria (Oduwole, 2012). The availability of funding sources and the allocation of adequate financial resources toward research projects remains a significant challenge. Insufficient financial resources allocated to research projects pose a significant challenge to the diffusion of information science research. Limited funding restricts researchers' ability to conduct rigorous studies, attend conferences, publish their findings, and invest in dissemination efforts. This issue hampers the overall quantity and quality of research outputs available for dissemination.

Infrastructure and Technological Barriers: Inadequate infrastructure, including limited access to computers, internet connectivity, and reliable power supply, poses significant challenges to conducting research and disseminating information effectively (Modibbo & Aliyu, 2019). Addressing these infrastructure gaps is crucial for the diffusion of research outcomes in the field.

Low Research Output: Nigeria faces challenges in terms of low research output in information science. Limited research collaboration, inadequate training and mentorship opportunities, and a lack of research culture inhibit the generation and diffusion of research findings (Omotunde & Alegbeleye, 2021; Pelemo et al., 2020). Efforts should be made to foster a research culture and provide supportive environments for researchers to thrive (Awogbami et al., 2021).

Limited Publication Opportunities: Researchers often face difficulties in publishing their work in reputable journals due to a lack of awareness of available platforms, limited access to subscription-based journals, and quality concerns with local journals (Pelemo et al., 2020). Improving publication opportunities and addressing barriers to publication should be a focus for future progress.

Inadequate Infrastructure and Technology Access: In many regions, including developing countries, inadequate infrastructure and limited access to technology present barriers to the diffusion of information science research. Poor internet connectivity, outdated equipment, and a lack of advanced technology hamper researchers' ability to access and disseminate research findings effectively. This challenge limits collaboration, knowledge exchange, and the utilization of research outputs.

Language and Cultural Barriers: Language and cultural diversity can impede the diffusion of information science research. Research findings published in a particular language may not reach non-English speakers or local communities in multilingual countries or regions. Additionally, cultural barriers and differences in research practices and norms can hinder the effective dissemination and adoption of research findings across different cultural contexts.

Limited Collaboration and Interdisciplinary Research: Low levels of collaboration among researchers and a lack of interdisciplinary research efforts present challenges in the diffusion of information science research. Limited collaboration restricts the exchange of ideas, cross-fertilization of knowledge, and the generation of innovative research outcomes. Siloed research approaches hinder the overall impact and reach of information science research.

Access and Affordability: Access and affordability of research outputs are significant challenges faced in the diffusion of information science research. Subscription-based models and paywalls restrict access to research articles, limiting the dissemination of knowledge to those who can afford expensive journal subscriptions or article access fees. This issue hampers the broader dissemination of research findings and inhibits the democratization of knowledge.

Lack of Research Culture and Support: The absence of a strong research culture and inadequate institutional support can hinder the diffusion of information science research. Limited opportunities for training, mentorship, and career development restrict researchers' ability to produce high-quality work and effectively disseminate their findings. The lack of recognition and incentives for dissemination efforts further exacerbates this challenge.

Opportunities

Similar to any other discipline, the field of information science research is expanding and has several potential opportunities (Kinnear & Sutherland, 2000; MacIntyre et al., 2015; Dwivedi et al., 2021; Soedarmadji et al., 2019).

Collaboration with International Partners: Collaborating with international institutions and researchers can facilitate the exchange of ideas, resources, and expertise, thus enhancing the diffusion of information science research in Nigeria (Awogbami et al., 2020; Opele, 2022). Joint research projects, funding opportunities, and knowledge-sharing platforms can be explored to broaden the scope of research.

Open Access Initiatives: Embracing access to open-access publishing models can significantly enhance the visibility and accessibility of Nigerian information science research (Kodua-Ntim & Fombad, 2020). This approach allows researchers to disseminate their findings freely, increasing the chances of wider diffusion and impact, (Bankston et al., 2021).

Policy Support: The Nigerian government can play a crucial role in promoting information science research by formulating policies that prioritize research funding, infrastructure development, and the establishment of research institutes or centres of excellence in the field (Ani et al., 2015). Supportive policies can help overcome funding and infrastructure challenges.

Strengthening Research Culture: Building a strong research culture within academic institutions by fostering a supportive environment, recognizing and rewarding research excellence, and providing incentives for researchers to engage in impactful studies will contribute to the diffusion of information science research (Akuffo & Budu, 2019; Itsekor & Nwokeoma, 2017).

Future Directions:

Having x-rayed the issues and challenges, opportunities and potentials, this section detailed the future direction for the field of information science in Nigeria

Capacity Building and Skill Development: Investing in training programs, workshops, and mentorship initiatives focused on research methodologies, data analysis, academic writing, and emerging trends in information science can enhance the capacity of researchers. This will lead to higher-quality research outputs.

Research Networking and Collaboration: Encouraging collaboration and establishing research networks within Nigeria and across borders will foster knowledge exchange, interdisciplinary research, and joint funding opportunities. This can lead to more impactful research outcomes.

Enhanced Research Funding: Efforts should be made to increase research funding from government, private sector, and international sources. This includes establishing grant programs, research endowments, and partnerships with industry to support information science research.

Technological Infrastructure Development: Investing in robust technological infrastructure, including improved internet connectivity, access to research databases, and modern research tools, will facilitate research activities and the diffusion of research findings.

Research Evaluation and Quality Assurance: Developing mechanisms for evaluating research quality, including peer-review processes, research assessment frameworks, and adherence to ethical standards, will enhance the credibility and impact of Nigerian information science research.

Conclusion

In conclusion, the diffusion of information science research in Nigeria is crucial for knowledge advancement, innovation, and societal development. However, challenges such as limited funding, inadequate infrastructure, low output and collaboration, and cultural barriers hinder dissemination. Despite these obstacles, collaborating with international partners, embracing open-access initiatives, and investing in capacity-building programs offer promising opportunities. Addressing these challenges and seizing these opportunities will improve research diffusion. Increased funding, improved infrastructure, enhanced collaboration, more publication opportunities, interdisciplinary research, and capacity-building programs are key to nurturing a thriving research environment in Nigeria. Nigeria can become a hub for knowledge creation and societal development by doing so.

Recommendations

The following recommendations are suggested:

1. To overcome the challenge of limited research funding, the Nigerian government and funding agencies should allocate more financial resources to support information science research. Increased funding will enable researchers to conduct rigorous studies, attend conferences, publish their findings, and invest in dissemination efforts, thereby enhancing the diffusion of research outputs.
2. Improving infrastructure and increasing technology access are vital for facilitating the diffusion of information science research. Efforts should be made to improve internet connectivity, provide updated equipment, and establish advanced technology facilities in academic institutions and research centres across Nigeria. This will enable researchers to access and disseminate research findings effectively, fostering collaboration and knowledge exchange.
3. Promoting collaboration among researchers within Nigeria and internationally is crucial for enhancing the diffusion of information science research. Institutions and funding agencies should encourage interdisciplinary research projects, establish collaborative networks, and provide platforms for knowledge exchange. Creating incentives and funding mechanisms that reward collaboration and interdisciplinary approaches will strengthen the overall impact and reach of research outputs.
4. Adopting open-access initiatives can significantly enhance the diffusion of information science research in Nigeria. Institutions should develop open-access policies that promote the unrestricted availability and accessibility of research outputs. Researchers should be encouraged to publish in open-access journals or deposit their work in institutional repositories to ensure wider dissemination and maximize research impact.
5. To address the lack of a strong research culture and limited support for researchers, institutions should invest in research culture development and mentorship programs. Providing training opportunities, guidance, and mentorship to researchers will enhance their research skills, foster a culture of dissemination, and ensure the production of high-quality research outputs. Institutions should also recognize and reward researchers for their dissemination efforts.

6. Engaging policymakers and decision-makers is crucial for creating an enabling environment for the diffusion of information science research. Researchers, institutions, and professional associations should actively participate in policy discussions, advocating for policies that support research dissemination, open access, and collaboration. By influencing policy and decision-making processes, stakeholders can create a conducive ecosystem for the diffusion of information science research in Nigeria.’

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