

## **A Desk Review of the Impact of Open Access and Open Data on Research Productivity of Lecturers in Developing Countries**

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### **Abstract**

*This desk review examines the impact of open access and open data on the research productivity of lecturers in developing countries. Open access refers to unrestricted access to scholarly literature, while open data refers to the sharing of research data openly and freely. The study aims to address the knowledge gap regarding the influence of these open practices on the research productivity of lecturers in developing countries, considering their unique challenges and contexts. Despite the growing availability of open-access resources and the increasing emphasis on transparency and sharing of research data, there is a lack of comprehensive understanding regarding the actual impact of these initiatives in the unique context of developing countries. Developing countries face unique challenges related to infrastructure, funding, and institutional support that may influence the effectiveness of these initiatives. Furthermore, the review identifies barriers and challenges, such as limited internet connectivity, language barriers, and lack of awareness about open access initiatives, that hinder the effective utilization of open access and open data resources. The findings indicate a scarcity of empirical studies specifically focusing on the impact of open access and open data on research productivity among lecturers in developing countries. Existing research tends to be anecdotal or based on limited case studies, necessitating the need for more robust empirical investigations to provide concrete evidence of the relationship between open access/open data and research productivity. In conclusion, this desk review underscores the need for further empirical research, consideration of contextual factors, addressing barriers and challenges, and understanding cultural and institutional factors to enhance research productivity through open access and open data initiatives in developing country contexts.*

**Keywords:** Open access, open data, research productivity, lecturers, developing countries

### **Introduction**

The impact of open access and open data on research productivity in low-income countries like Nigeria is a significant and evolving topic within scholarly communication. On one hand, open access refers to unrestricted access to academic research publications, enabling anyone to read, download, copy, distribute, and utilize research findings without financial or legal barriers (Anglaret, 2020); (Veena, 2016). On the other hand, open data involves making research data openly available for others to view, use, and share (Ifeoma, 2022). It is typically characterized by data that is accessible in a standardized, machine-readable format, allowing users to easily retrieve and utilize the information.

Open data aims to promote transparency, accountability, and collaboration by enabling individuals, organizations, and governments to access and leverage valuable datasets. This data can come from various sources, including government agencies, research institutions, non-profit organizations, and private entities. Across the globe, the concept of open data initiatives has gained significant momentum worldwide, with governments, organizations, and communities embracing the concept to promote transparency, foster innovation, and drive social and economic development (Rashidian et al., 2017), (Mamat et al., 2019). According to the literature, the literature that the effects of open access and open data on research productivity may vary among developing nations due to institutional characteristics (Anthony, 2020) cultural contexts (Kim & Madison, 2020), and disciplinary differences. In the case of underdeveloped nations such as Nigeria, potential effects of open data and open access on the research productivity of lecturers may include:

**Increased Visibility and Influence:** Open access enables research conducted by professors in low-income countries to have greater visibility and influence. Scholars have argued that when research outputs are publicly available, they have a higher likelihood of reaching a wider audience, including researchers, policy-makers, and practitioners (Lamba & Madhusudhan, 2019); (Ugochukwu et al., 2020). This increased visibility can lead to research opportunities, collaborations, and higher citation rates.

**Enhanced Knowledge Exchange:** Open access and open data facilitate the sharing of ideas and knowledge within the international research community. In the study of Nkiruka and Thomas (2015), they established that educators in developing nations including Nigeria have access to a broader range of research outputs, enabling them to stay updated with the latest advancements in their fields and build upon existing knowledge, on the contrary, access to a broader range of research outputs are not fully utilized for lack of policy and institutional supports.

**Addressing Information Gaps:** Access to subscription-based publications and databases can be costly for researchers in underdeveloped nations (Tella et al., 2018). Open access provides a workaround for these budget constraints, ensuring that educators have equal access to scholarly materials. Additionally, studies have shown that open data can help address issues related to data scarcity by allowing academics to access and utilize existing datasets for their research (Kodua-Ntim & Fombad, 2020).

**Collaboration and Networking:** Open access and open data create opportunities for collaboration and networking among educators in underdeveloped nations (Renwick, 2011). When research outputs are widely accessible, researchers from different regions can interact

more easily, leading to diverse ideas and shared expertise. Collaborative projects and partnerships can enhance research productivity and generate new knowledge (Opele, 2022).

### **Statement of Problem**

The rapid development of open access and open data initiatives has the potential to significantly impact research productivity among lecturers in developing countries. However, despite the growing availability of open-access resources and the increasing emphasis on transparency and sharing of research data, there remains a lack of comprehensive understanding regarding the actual impact of these initiatives on research productivity in the context of developing countries. The problem lies in the limited empirical evidence and scholarly research specifically examining the influence of open access and open data on the research productivity of lecturers in developing countries. While numerous studies have explored the benefits of open access and open data in general, there is a critical need to examine their specific impact on research productivity in the unique socio-economic and infrastructural context of developing countries.

The potential barriers and limitations faced by lecturers in developing countries, such as limited access to quality research resources, inadequate technological infrastructure, and institutional constraints, may significantly affect their ability to effectively utilize open access and open data resources. Additionally, cultural factors, publication practices, and institutional policies specific to developing countries may also play a role in shaping the impact of open access and open data initiatives on research productivity. Therefore, a comprehensive desk review is required to evaluate the existing literature, identify gaps in knowledge, and provide a synthesis of the current understanding of the impact of open access and open data on research productivity among lecturers in developing countries. This review will contribute to the identification of best practices, challenges, and strategies for effectively leveraging open access and open data resources to enhance research productivity in developing country contexts.

### **Gaps in knowledge**

Several key gaps in knowledge have been identified concerning open access and open data resources to enhance research productivity in developing countries in areas highlighted in this section:

**Empirical Evidence:** There is a scarcity of empirical studies specifically focusing on the impact of open access and open data on research productivity among lecturers in developing countries (Yasmin et al., 2020). Most of the available research tends to be anecdotal or based on limited case studies, making it difficult to draw generalizable conclusions (Rendell et al., 2020). A more robust empirical investigation is needed to provide concrete evidence of the relationship between open access/open data and research productivity in developing country contexts.

**Contextual Factors:** Literature has shown that developing countries often face unique challenges related to infrastructure, funding, and institutional support that may influence the impact of open access and open data initiatives on research productivity (Akintayo & Onajite, 2015). However, the existing literature does not adequately account for these contextual

factors (Elkomy et al., 2020). Further research is required to understand how the specific socio-economic, technological, and institutional contexts in developing countries shape the effectiveness of open access and open data in enhancing research productivity.

**Barriers and Challenges:** Studies have indicated that while open access and open data are seen as potential catalysts for research productivity, there is a lack of comprehensive understanding regarding the barriers and challenges faced by lecturers in developing countries when accessing and utilizing open access resources and open data (Mumtaz & Tjakraatmadja, 2022). Identifying and addressing these barriers, such as limited internet connectivity, language barriers, and lack of awareness about open access initiatives, is crucial to fully harnessing the benefits of open access and open data in developing country contexts (Rashidian et al., 2017).

**Cultural and Institutional Factors:** Cultural and institutional factors play a significant role in shaping researchers' behaviours and practices (Kaya & Secim, 2018). However, the literature has not adequately explored how cultural norms, publication practices, and institutional policies specific to developing countries interact with open access and open data initiatives. Understanding these factors is essential to effectively promote and integrate open access and open data practices into the research workflows of lecturers in developing countries.

### **Strategies for managing the identified knowledge gaps in open access and open data**

Existing literature has revealed that more can be done to ameliorate knowledge gaps in open access and open data in developing countries as highlighted below:

**Knowledge Equity:** The goal of open access and open data projects is to bridge the gap between developed and poor nations' access to research resources (Albert et al., 2021). Hence, by granting unlimited and free access to research findings, academics in developing nations can interact with the global scholarly community on an equal basis. It was suggested in the study (Shepherd, 2019), that this has the potential to narrow the knowledge gap and promote a more diverse research environment.

**Research Visibility and Recognition:** Open access can increase the visibility and discoverability of research conducted by lecturers in developing countries. According to the literature (Shukla & Ahmad, 2018), (Ayeni & Adetoro, 2017), when research articles are freely available online, they are more likely to be accessed, read, and cited by other researchers globally. This increased visibility can enhance the recognition and reputation of individual researchers, their institutions, and their countries.

**Building Capacity and Developing Skill:** In underdeveloped nations, research institutes and libraries may be extremely helpful in educating and supporting instructors in subjects like data management, licensing, open-access publication, and copyright (Kodua-Ntim & Fombad, 2020). Lecturers may improve their research output and help the larger academic environment expand by honing these abilities.

**Collaboration and Multidisciplinary Research:** scholars argued that open access and open data facilitate collaboration not only within disciplines but also across different fields of study (Janssen et al., 2018), (Opele, 2020). Thus, Lecturers in developing countries can leverage open-access resources to engage in multidisciplinary research projects, which can lead to innovative solutions to complex problems. Collaborative research networks can also

provide access to funding opportunities and resources that may not be readily available within their institutions.

**Policy and Advocacy:** Institutional, national, and international policies that support the movements for open access and open data are essential. In underdeveloped nations, lecturers may actively support open access policies at their universities and have an impact on national research and information dissemination policy. They may help to create a supportive atmosphere for open access and open data practices by participating in policy debates.

**Impact on Society:** it has been published that the dissemination of open-access research has the potential to affect society in ways that go beyond the scholarly world (Mumtaz & Tjakraatmadja, 2022). Research carried out by educators in developing nations has the potential to enhance social and economic development, bolster evidence-based practices, and influence governmental choices. Researchers may communicate their results to practitioners, politicians, and the general public through open access and open data, which promotes better-informed decision-making and beneficial social effects.

**More Citation and Collaboration Possibilities:** in the study of (Glänzel et al., 2019), the authors reported that research published under open access may be cited more frequently than research published behind paywalls. This is so that a wider range of readers, including scholars, decision-makers, and practitioners, can find and use open-access papers. Increased citation counts can draw new collaborators, increase the influence and exposure of the study, and promote both domestic and international academic cooperation.

**Access to Up-to-Date and Relevant Research:** Open access removes cost barriers from academics in poor nations' access to the most recent research results (Stein et al., 2016). They can remain abreast of developments in their disciplines thanks to this access to pertinent and current research, which might enhance research output. Additionally, it enables them to advance current understanding and add to the conversation on international research.

**Innovation and Technology Development:** In poor nations, open access and open data may foster innovation and technology development. according to the literature (Shelley et al., 2019), (Akpa et al., 2022). Hence, through unrestricted access to research outputs and information, educators may utilize current knowledge to create novel concepts, approaches, and technology. Additionally, open access can encourage multidisciplinary partnerships that result in the fusion of several areas and the creation of novel responses to regional problems.

**Local Relevance and Contextualized Research:** Researcher sharing and publication of pertinent localized research is facilitated by open access and open data initiatives (Alawode & Adewole, 2021). It has also been published that educators in developing nations can provide knowledge that specifically addresses the possibilities, difficulties, and requirements unique to their locations (Alawode & Adewole, 2021). Social welfare, economic growth, and policy-making may all be directly impacted by this focused study.

**Advocacy for Local Research and Intellectual Property:** Professors in developing nations can be better equipped to promote the acknowledgement and defence of local research and intellectual property rights by utilizing open access and open data. Researchers may take ownership of their work and increase the exposure and acknowledgement of research done in their nations by freely sharing the results of their studies. This can promote the variety of

knowledge creation worldwide and counteract the dominance of research from rich nations (Ayanbode & Nwagwu, 2021).

**Knowledge transmission and Local Research Networks:** The development of local research networks and knowledge transmission are facilitated by open access and open data (Jeyshankar et al., 2018), (Ankamah, 2019). Lecturers in developing nations can establish connections with scholars in their local locations working on related themes by freely sharing the results of their study. In the end, this collaboration can improve research productivity and promote a feeling of academic community by facilitating the sharing of resources, ideas, and cooperative research initiatives.

**Reputation and Career promotion:** Lecturers in underdeveloped nations can benefit from open access and open data in terms of their professional reputation and promotion (Akinwale & George, 2020). Researchers may get more citations, partnerships, conference invitations, and speaking engagements by making their research results more visible and discoverable. The chances for finance, employment opportunities, and professional advancement may all benefit from this greater visibility.

The aforementioned considerations underscore the multifaceted and extensive effects of open access and open data on the research output of lecturers in developing nations. While there are many potential advantages to open access and open data efforts, to guarantee that these advantages are properly realized, it is crucial to address issues including sustainable finance models, technological infrastructure, and support for capacity building.

## **Conclusion**

In conclusion, this research has examined the impact of open access and open data on the research productivity of lecturers in developing countries. The findings shed light on the awareness, attitudes, utilization, and perceived impact of these open practices among lecturers in these contexts. The study has revealed that open access and open data initiatives have the potential to significantly enhance the research productivity of lecturers in developing countries. By providing unrestricted access to scholarly literature and facilitating the sharing of research data, these practices enable lecturers to overcome information barriers, collaborate more effectively, and contribute to the global research community. The findings also highlight the barriers and challenges that lecturers face in adopting and utilizing open access and open data. Limited awareness, inadequate infrastructure, and concerns about intellectual property rights are among the key obstacles that need to be addressed to fully leverage the benefits of open practices in developing countries. The implications of this research are far-reaching. Policymakers and institutions in developing countries should prioritize the promotion and support of open access and open data initiatives. By investing in infrastructure, capacity building, and awareness campaigns, they can empower lecturers to embrace these practices and unlock their full potential.

Furthermore, the global research community should recognize the importance of inclusivity and equity in the open science movement. Efforts should be made to bridge the research divide between developing and developed countries, ensuring that lecturers in developing countries have equal opportunities to participate, collaborate, and contribute to research. In summary, this research underscores the transformative potential of open access and open data

for lecturers in developing countries. By embracing these practices and addressing the associated challenges, lecturers can enhance their research productivity, foster collaborations, and contribute to the advancement of knowledge in their respective fields. The findings of this research provide valuable insights for policymakers, institutions, and lecturers themselves, guiding efforts to promote open practices and drive positive change in research productivity in developing countries.

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