



## EXPLORING THE GROWTH OF OPEN ACCESS PUBLICATIONS IN DEVELOPING COUNTRIES: A SYSTEMATIC LITERATURE REVIEW

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### ABSTRACT

Open Access (OA) publishing has revolutionized academic communication by providing free and unrestricted access to scholarly work. Although OA adoption is well documented in developed countries, its progress in developing nations is less consistent and less studied. This paper offers a systematic review of existing literature to examine how OA publications have grown in developing countries, highlighting key challenges and facilitating factors.

Using established systematic review protocols, a thorough search was performed across major academic databases, including peer-reviewed articles, conference papers, and grey literature. Studies focusing on OA in developing regions were carefully selected and analyzed to identify prevalent themes and gaps in knowledge.

Results indicate that while OA awareness and supportive policies are increasing in many developing countries, barriers such as limited infrastructure, financial constraints, and insufficient institutional backing still hinder wider OA adoption. Although some national and regional initiatives, often aided by international partnerships, have made progress, the viewpoints of essential stakeholders like publishers, academic institutions, and scholarly organizations in these regions are not extensively covered in existing research.

This review emphasizes on the various theories used and gives us an insight into how the growth and adoption of OA has been studied so far. The findings provide valuable insights for researchers and policymakers aiming to enhance equitable access to scholarly knowledge worldwide.

### INTRODUCTION

Scholarly publication plays a crucial role in research by providing a platform for sharing new knowledge and findings with the scientific community (Zafar, 2023; Ranjan et al., 2021). It serves as a verifiable indicator of academic achievement, offering authors respect among peers, opportunities for promotion, and global visibility (Ranjan et al., 2021). In countries where research is gaining momentum, publications are essential for

showcasing scientific advancements and promoting Research & Development on a large scale (Ademola, 2018). The transition from publishing behind paywalls to open access has been a significant shift in scholarly publishing over the past two decades. This shift required stakeholders in OA publishing, that is, scholars, researchers, publishers, academic institutions, scholarly societies, librarians, and readers (Edelmann & Schoßböck, 2020; Maddi 2021; Quinn 2015;

Eskevich, 2016) to be onboard with the aim to support OA because they play crucial roles in shaping the landscape of OA publishing.

In scholarly publishing, scholars and researchers are involved in producing content, while publishers and institutions determine publishing strategies thus highlighting their importance in the shift towards OA in the long term (Harms, 2016). Academic libraries are also key stakeholders, moving beyond advocating for OA to educating researchers on navigating OA publishing realities. Additionally, stakeholders in OA publishing are influenced by factors like reputation, impact, and digital literacy, which impact their motivation and choices in publishing. The evolving dynamics of OA are reshaping traditional publishing models and fostering a more open and accessible scholarly communication environment.

With a common goal, in the last 2 decades, scholars and institutions began to gradually shift towards OA, with publishers adopting hybrid models in the short term but ultimately converging on OA strategies in the medium to long term (Maria, 2016). OA movement gained momentum in 2018 when coalitions, a consortium of national research agencies and funders from 12 European countries, launched Plan S, an initiative for OA publishing with the aim to make all research freely available, challenging the traditional academic publishing system and emphasizing the unsustainability of paywalls. The OA movement led to changes in the dissemination of knowledge and publication models; however, the transition came with its own set of challenges, mainly in breaking away from publishing behind the paywall and moving to complete OA publishing system.

One major stakeholder of OA is publishers who must run a sustainable publishing business while supporting OA. Shifting from a traditional paywall system (or subscription business) to OA has led to the adoption of Article Processing Charges (APCs), creating a new financial burden for scholars, especially those from developing countries (Zhang et al., 2022). Additionally, the issue of equity in OA publishing is addressed in various studies. For example, an open letter on equity in low-income countries (Cabrerizo, 2022) discusses how APCs deepen inequalities between

scientists from developed and developing countries. If anything, the Covid-19 crisis has exposed the traditional academic publishing system as unsustainable (Markus et al. 2022; Smits R. & Pells R. 2022) and an urgent push towards OA.

Moreover, despite the growing importance of OA publishing, the uptake of OA publishing is not uniform across the world. Researchers like Makoni & Sawahel (2023) found that researchers from developing countries tend to publish more pay-walled articles than Gold OA articles and that developing countries are facing a negative impact because researchers may have limited access due to paywalled journals and databases (Nazim & Asher, 2022; Nobes & Harris, 2019), thus highlighting the need for increased access to OA publishing in these regions.

The significance of OA publications in developing countries has been a topic of interest in recent literature. Furthermore, OA publishing is essential for low-income countries to support the UN Sustainable Development Goals (SDGs) by enabling important research findings to reach a broad and diverse audience (Springer Nature, 2024). Increased exposure to research through OA publishing is also beneficial for authors, particularly those in developing countries, as it allows their work to reach a wider audience, including the public and researchers in other regions (University of Wollongong, 2024).

Over the decades, the gap in growth of OA between the developed and developing countries appears to have widened. Therefore, to understand the growth of OA in different parts of the world, a clear understanding of the scope and trajectory of this movement is crucial. The overall objective of the scoping review was to systematically scope the existing peer-reviewed empirical research on the growth of OA to answer the following RQs:

*RQ1.* How many studies have been conducted on OA in developed vs. OA in developing countries?

*RQ2.* What are the themes discussed in the studies of OA in developed countries vs. OA in developing countries?

## RESEARCH METHODOLOGY

### *Inclusion criterion*

Our focus was on identifying resources that addressed OA publications, rather than reviews that examined specific subject areas. We cast a wide net, including studies from diverse fields like medicine, information technology, education, biology, and so on, without limit on the geography of the originating work. Some articles that were published in interdisciplinary science and medical journals and addressed OA publishing in non-medical context were retained. However, to ensure consistency in analysis, we limited our selection to Englishlanguage publications.

### *Exclusion criterion*

Besides reviews, erratum and notes were also excluded from the study. Furthermore, to avoid duplication of records and ensure that only published content (not preprints) was considered and for similar reasons, the search excluded publications hosted on repositories like Academia.edu and ResearchGate.com. Articles without abstracts were also excluded from the review.

### *Literature identification*

For the review of existing literature on OA publishing, articles were identified using Scopus and Web of Science (WoS), the two reputed databases and popular indexing databases with high volume of content (Scopus with over 94 million records and WoS with over 194 million records in May 2024). Content was searched using the search terms "Open" AND "Access" AND "Publishing" OR "scholarly" for articles across the globe.

The initial search on both databases was conducted using the keyword combinations "open access" AND "publishing" on the titles of the publications. The first limitation we faced was that Scopus had data only from 2003 onwards. For WoS, the search was wider and custom range for publication years set to 1990 to 2024 as 1990 is often cited as a key event that marked the beginning of the digital age and therefore the origin of OA publishing can be traced from 1990 onwards. Within both databases, the advance search option was used to exclude reviews, erratum, conferences, and notes. Total of 304 titles were identified on Scopus (2003 to 2024) and 1,000 articles were identified on Web of Science (WoS).

Titles were initially screened to assess potential relevance to the topic of Open Access publishing. Manuscripts with titles mentioning "Open Access" were then selected for further evaluation. This evaluation involved acquiring the full reference details, including author names, publication year, title, and abstract.

To understand the challenges of adoption of OA in social sciences within India, it was important to know --- What were the gaps in studies of OA experience in India versus rest of the world? Hence, the filter that was used was "Open" AND "Access" AND "Publishing" OR "scholarly" AND "India," The number of articles that came up with those search terms were 16 on the WoS and 1 on Scopus. With limited literature specifically addressing India, the search term "developing" was added to broaden the search to include other developing countries with similar challenges to adoption of OA. This resulted in 3 articles on Scopus and 35 articles on WoS.

After using the inclusion and exclusion criteria on 304 Scopus and 1000 WoS articles, the search resulted in 184 articles in Scopus and 306 articles on WoS. (Table 1)

Table 1: Search Terms

Search terms	Scopus	WoS
Open" AND "Access" AND "Publishing" OR "scholarly"	184	255
"Open" AND "Access" AND "Publishing" OR "scholarly" AND "India"	1	16
"Open" AND "Access" AND "Publishing" OR "scholarly" AND "India" OR "Developing"	3	35

### **Journal selection**

Various studies have highlighted the crucial role journal choices play in the publishing process. Hopper (2005) emphasized the importance of journal selection based on experience in editing and publishing, while Kishi (2008) discussed the significance of high-quality review papers in open access journals to contribute to the research activities of materials scientists globally. Mamdapur et. al. (2014) highlighted the importance of journals as a preferred source of information in research, emphasizing their role in

disseminating research output and influencing authors' choices in communicating their work. Hence, it was important to understand where these articles were being published or rather, what areas of discussions they were contributing to. Both Scopus and WoS lists were manually scanned to identify top subject areas (Table 2). The results were as follows:

**Table 2: Journal Database Wise**

Subject areas	Scopus	WoS
Library and Information Science	54	93
Science and Medical	43	34
Other Social Science subjects	87	179
Total	184	306

### Theories

Theories act as a guiding force in quantitative, qualitative, and mixed methods research, shaping the rationale, research questions, methodology, data collection, analysis, and interpretation. Moreover, it gives us an insight into how the growth and adoption of OA has been studied so far. An investigation into the common theories mentioned in the literature were as follows:

**Table 1: Theories Used**

Theories	Citations
Unified Theory of Acceptance and Use of Technology (UTAUT)	Hadad & Aharony (2023); Waithaka & Omwoyo (2023); Dwivedi <i>et al.</i> (2020); Oye <i>et al.</i> (2024)
Diffusion of Innovation	Skelly & Rusu (2023); Pinfield & Middleton (2016); Allahar (2018)
Theory of Planned Behavior (TPB)	Moksness & Olsen (2017); Lim <i>et al.</i> 2024
Personal Innovativeness in Information Technology (PIIT)	Moksness & Olsen (2017);
Diffusionist Theory	Xia (2012)
Social Stratification Theory	Davis (2011)
Communities of Practice Theory	Davis (2011)
George Herbert Mead's Theory of Emergence	Price & Puddephatt (2017)

The primary theories utilized to study the adoption of Open Access is indicative of how

this form of publishing is viewed and therefore guiding the treatment of the topic. The two most common theories that were seen were the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Diffusion of Innovation, which indicated the OA publication was being viewed as a technology and investigated the attitude of the limited number of shareholders, mainly researchers, toward OA. Research has applied UTAUT to evaluate the adoption of open access scholarly publishing (OASP) in universities in Kenya (Waithaka & Omwoyo, 2023), the acceptance of Learning Management Systems (LMS) in educational settings (Ekayanti, 2018), and the modification of UTAUT for user acceptance of Telecentre projects in developing countries. Additionally, UTAUT has been used to evaluate user experience with Digital Audio Workstations (DAWs) among artists in the European Union, emphasizing the importance of understanding users' attitudes towards technological tools (Ekayanti, 2018; Etinger & Orehovački, 2018). These studies collectively highlight the significance of UTAUT in assessing the acceptance and utilization of various technologies, including open access publications, educational platforms, and digital tools.

On the other hand, the Theory of Diffusion of Innovation has been utilised to understand the signs of disruption in the publishing industry leading to low acceptance of open access journals in academia (Allahar, 2018). The concept of open innovation ecosystems emphasizes the diffusion of innovations as a critical condition for sustainability, highlighting the need to understand how innovations spread within these ecosystems. The growth of open access citations in patents over the years indicates a trend towards increased utilization of openly available scientific literature in technological advancements, with notable variations across countries and sectors (Pinfield & Middleton, 2016). This interconnected relationship between open access publications and Diffusion of Innovation underscores the importance of further research and monitoring to leverage the benefits of open access for driving innovation forward.

There has also been research undertaken to understand the beliefs of the adopters or

stakeholders of OA publications through theoretical lens of Theory of Planned Behavior (TPB) along with their willingness to try new technology through Personal Innovativeness in Information Technology (Moksness & Olsen, 2017). Anthropological angle has also been explored to explore the role of culture and growth of OA acceptance across the globe through Diffusion Theory (Xia, 2012). While some have explored the phenomenon through Social Stratification Theory by dividing stakeholders into groups based on socioeconomic factors like wealth, income, race, education, and so on and how they learn and evolve their beliefs in a social settings explored through Communities of Practice Theory (Davis, 2011) while some others suggest role of the nature of the self and intersubjectivity through George Herbert Mead's Theory of Emergence (Price & Puddephatt, 2017).

From the reviewed literature it was evident that there was focus on the role of stakeholders as a group and as individuals in the adoption of OA; however, the main focus was on researchers and libraries and literature insufficiently explored other stakeholders such as policy makers, Editors, and publishers.

## DISCUSSION

The primary identification of published articles on OA highlights the paucity of study in what is major shift in the way research is consumed across the world. The studies that exist indicate a leaning toward understanding the adoption of OA in the context of the Global North with negligible attention on the growth of OA in the developing countries hence leading to poor understanding of the experiences and challenges that may be unique to these countries.

The focus of the subject areas indicates that studies have predominantly been from the perspective of library and information sciences. The second highest publication was in scientific and medical journals that published interdisciplinary articles of OA, even though they were only a fraction of the total number of medical journals that published articles on OA. Most of the articles in both Scopus and WoS list, studies OA from the author or researcher perspective.

The theories used in the papers imply that OA has been studied mainly as a technology. The few studies on stakeholders have focused on the academic community with researchers experiences and mindset and challenges of OA in Library and information sciences in trying to understand their views on OA.

## Implications for Future Research

This study highlights critical gaps in the existing body of literature on the growth and development of Open Access (OA), indicating several important directions for future research. One of the most pressing concerns is the inequitable treatment of the topic across different global contexts. While OA has gained momentum in developed countries, there is a clear lack of research focusing on its adoption, challenges, and impact in developing countries—regions where OA has the greatest potential to democratize knowledge and bridge educational and informational divides. Future studies should prioritize the examination of OA in these underrepresented contexts, with the aim of fostering a more inclusive and equitable academic ecosystem.

Furthermore, future research should adopt a more holistic approach by systematically analyzing the roles and perspectives of the various stakeholders involved in the OA movement. These include scholars, independent researchers, academic institutions, scholarly societies, librarians, publishers, and readers. Each of these groups plays a distinct and interconnected role in shaping the OA landscape, and a deeper understanding of their interests, challenges, and contributions is necessary for designing more effective and sustainable OA policies and practices.

Moreover, interdisciplinary and comparative studies could provide valuable insights into how OA operates across different academic disciplines and institutional settings. Such research would help uncover patterns, best practices, and persistent barriers that are specific to certain fields or regions.

By addressing these gaps, future research can contribute meaningfully to the global discourse on OA, support evidence-based policymaking, and ultimately help build a more accessible, equitable, and collaborative academic community.

## SUGGESTIONS FOR FUTURE STUDIES

To support the global growth and equitable adoption of Open Access (OA), future research must address the imbalance between developed and developing countries. While OA initiatives have seen significant progress in developed regions, many developing countries lag behind due to limitations in infrastructure, funding, and institutional support. As a result, there is substantial scope for research focused on the unique challenges and opportunities for OA growth in these regions.

Future studies should explore the structural and policy-related factors that influence OA adoption in developing countries. This includes examining national OA mandates, access to digital platforms, and the role of international collaborations in bridging knowledge gaps. Such research could offer actionable insights for promoting OA in underserved areas.

Additionally, the perspectives of key stakeholders—publishers, academic institutions, and scholarly societies—remain insufficiently explored, particularly in the context of the Global South. Understanding their roles, motivations, and constraints will help create more inclusive and effective OA policies.

Comparative studies between developed and developing regions could further illuminate best practices and inform scalable strategies. By expanding the research scope in these directions, future studies can contribute to a more inclusive and globally representative OA movement.

## LIMITATIONS OF THE CURRENT STUDY

Despite its contributions, this study is subject to several limitations that must be acknowledged. First, there is a notable paucity of scholarly literature on Open Access (OA) within the Social Sciences. While OA has been widely explored in STEM disciplines, its presence in Social Science research remains relatively underrepresented. This limited body of work restricts the ability to conduct a comprehensive review, thereby constraining the depth of insights that can be drawn specifically for this domain.

Second, the study did not include an in-depth content analysis of individual articles to

evaluate the extent to which various stakeholder groups have been addressed in the existing literature. Stakeholders such as researchers, academic institutions, funding bodies, publishers, and policymakers each play a crucial role in shaping the OA ecosystem. However, the uneven representation of these actors in previous studies makes it difficult to form a holistic understanding of their roles and perspectives. A systematic mapping of stakeholder coverage across the literature could have added greater analytical depth but was beyond the scope of the current research.

Additionally, the temporal and geographical scope of the literature reviewed may present further limitations. The study may not fully reflect the most recent developments in OA policy and practice due to the potential time lag in publication and indexing. Moreover, the literature included is predominantly from developed countries, which may skew the findings and limit their applicability to regions where OA practices differ significantly.

These limitations highlight the need for future research that broadens the disciplinary focus, incorporates more comprehensive stakeholder analysis, and includes greater geographic diversity to better understand the evolving landscape of OA, particularly in the context of the Social Sciences.

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