

ADOPTION OF INSTITUTIONAL REPOSITORIES AND ACADEMIC SOCIAL NETWORKS FOR WEB VISIBILITY BY LIS ACADEMICS IN NIGERIA

¹David Oguche, ²Rose Eze and ³Aishat Joyce Egbunu (Ph.D)

Article Info

Keywords: Institutional repositories, academic social networks, research visibility, digital infrastructure, academic libraries, scholarly communication, technology adoption.

DOI

10.5281/zenodo.17426816

Abstract

This study examines the adoption patterns, motivating factors, and barriers associated with the use of IRs and ASNs among LIS academics. A quantitative survey approach was employed to collect data from 311 respondents using a 4-point Likert scale. The findings reveal strong adoption rates across all measured indicators with means ranging from 3.15 to 3.52. Participants demonstrated high engagement in depositing publications in institutional repositories ($M = 3.52$) and recognised significant improvements in web visibility through these platforms ($M = 3.44$). The study identified pragmatic motivations as primary drivers, with making research discoverable ($M = 3.52$) and compliance with institutional mandates ($M = 3.48$) scoring highest, while altruistic motivators, such as global knowledge sharing, were notably rejected ($M = 2.03$). Infrastructure challenges emerged as the most significant barriers to adoption, with poor internet connectivity scoring highest ($M = 3.65$), followed by time constraints and heavy workloads ($M = 3.58$). Interestingly, technological barriers such as complex user interfaces ($M = 2.44$) and resistance to change from traditional practices ($M = 2.41$) were not considered major obstacles, suggesting that adequate infrastructure and institutional support provide high user acceptance of these platforms. The research concludes that successful IR and ASN adoption depends primarily on addressing infrastructure limitations and providing strong institutional support rather than focusing on user interface improvements or change management initiatives.

Introduction

The increasing adoption of digital tools and platforms that facilitate academic work creation, dissemination and evaluation is shaped by the evolving landscape of scholarly communication. Institutional Repositories (IRs) and Academic Social Networks (ASNs), such as ResearchGate and Academia.edu, have become indispensable in enhancing the accessibility, discoverability, and visibility of scholarly outputs. These tools are particularly

¹Senior librarian, Nigerian Institute of Advanced Legal Studies, FCT, Abuja, Nigeria

²Principal librarian, Nigerian Institute of Advanced Legal Studies, Akoka, Lagos, Nigeria

³Deputy librarian/Associate Professor, University of Abuja, FCT, Abuja, Nigeria

Orcid ID: <https://orcid.org/0000-0003-1859-2174>

relevant for LIS academics given their dual roles as producers and custodians of scholarly content. For instance, universities archive and share institutional research output through IRs, while ASNs provide interactive spaces for global scholarly networking, metrics tracking, and collaboration (Thelwall & Kousha, 2015).

Despite policy interest in enhancing Nigeria's research visibility, the extent to which LIS academics in Northern Nigeria leverage these tools remains unclear. Tise (2020) observed that there are gaps in understanding the adoption patterns, motivating factors, and demographic variations that influence adoption patterns. This study addresses these gaps by focusing on web visibility patterns arising from the use of IRs and ASNs by LIS academics in selected federal universities in Northern Nigeria.

Literature Review

Since the early 2000s, the growth of institutional repositories has been substantial. According to the Directory of Open Access Repositories (OpenDOAR), the number of repositories worldwide has grown from fewer than 100 in 2005 to over 5,000 by 2020 (Bosc & Harnad, 2005; OpenDOAR, 2021). However, adoption rates significantly vary across regions and disciplines. Lynch (2003) initially conceptualised institutional repositories as digital collections that capture and preserve universities' intellectual output. Crow (2002) and Suber (2012) emphasised their role in advancing open access principles and enhancing institutional visibility. Despite these benefits, actual faculty participation has often fallen short of institutional expectations. Multiple studies have identified persistent barriers to the adoption of IR among faculty. Swan and Brown (2005) conducted one of the earliest comprehensive surveys and found that while academics were generally supportive of open access principles, actual self-archiving rates remained low due to concerns about copyright, additional workload, and lack of awareness about repository services. Recent research by Kim (2010) and Creaser et al. (2010) has confirmed these findings while identifying additional barriers, including perceived lack of technical support, concerns about version control, and uncertainty about long-term preservation. Notably, Xia (2007) found significant disciplinary differences in adoption rates, with LIS faculty showing higher engagement with IRs than other fields, possibly due to their professional familiarity with information systems and open access advocacy. Research on the adoption of IR in developing countries has revealed unique challenges and opportunities. Abrizah et al. (2010) studied repository development in Malaysia and found that while institutional commitment was strong, faculty participation remained limited due to inadequate training and technical support. Similarly, Christian (2008) examined African institutional repositories and identified infrastructure limitations, policy gaps, and capacity-building needs as the primary barriers to successful implementation.

Okiki (2013) surveyed university libraries in Nigeria and found that while many institutions had established IRs, the content population remained challenging due to faculty reluctance and inadequate promotional strategies. Ani et al. (2016) specifically examined Northern Nigerian universities and noted additional challenges, including limited internet connectivity, irregular power supply, and insufficient funding for digital infrastructure. These findings are corroborated by Oguche (2018), Abba and Anene (2022), and Akinola et al. (2022).

Academic social networks emerged in the mid-2000s as specialised platforms designed to meet the unique needs of researchers. ResearchGate, launched in 2008, pioneered features such as publication sharing, collaboration tools, and research metrics (Thelwall and Kousha, 2015). Academia.edu, established in the same year, focused more on repository functions and profile-based networking (Niyazov et al., 2016). These platforms differentiated themselves from general social networks by incorporating academic-specific features, such as citation tracking, research interest matching, and institutional affiliation verification. Jordan (2014) analysed the evolution of these platforms and noted their increasing sophistication in providing analytics and visibility metrics that appeal to academic users.

Research on ASN adoption has revealed diverse motivations among academic users. Theall and Kousha (2014) found that visibility and networking were primary drivers, with academics particularly valuing the ability to share work-in-progress and connect with international colleagues. Their analysis of ResearchGate usage patterns showed that younger academics and those in certain disciplines were more likely to be active users.

Ovadia (2014) identified additional motivations, including the desire to track research impact, discover relevant literature, and maintain professional profiles outside institutional constraints. However, he also noted concerns about platform sustainability and data ownership, which influence adoption decisions.

Studies examining actual usage patterns have revealed significant variations in academic engagement with these platforms. Hoffmann et al. (2016) analysed the activity of ResearchGate and found that while registration rates were high, actual engagement levels varied considerably, with many users maintaining passive profiles rather than actively participating in platform features. Meishar-Tal and Pieterse (2017) studied the usage of Academia.edu and found that academics primarily used the platform for visibility rather than networking, with most users uploading publications but rarely engaging in social features. Their research highlighted a disconnect between platform capabilities and actual user behaviour.

LIS Academics and the Adoption of Digital Platforms

Library and Information Science professionals occupy a unique position in the adoption of academic digital platforms due to their professional expertise in information systems and advocacy for open access principles. Palmer et al. (2009) found that LIS academics were early adopters of institutional repositories and often served as champions for their implementation within universities. Weller (2011) examined social media adoption among academic librarians and found higher than average usage rates, attributed to the profession's emphasis on information sharing and community building. However, Aharony (2012) noted that despite high levels of awareness, actual participation in academic social networks among LIS professionals varied significantly based on career stage and institutional context. Academics' adoption of digital platforms in developing regions is influenced by unique cultural, economic, and technological factors. Onyancha (2015) studied African LIS researchers and found that while there was strong interest in web visibility, infrastructure challenges and lack of institutional support limited actual platform usage. Owolabi et al. (2016) examined social media adoption among university librarians in the Nigerian context and found that while personal use was common, professional adoption of academic platforms remained limited. They identified training needs and institutional policies as key factors influencing adoption decisions.

Web visibility and academic impact

The concept of web visibility has evolved from simple citation metrics to encompass broader measures of digital presence and engagement. Ortega (2015) conceptualised web visibility as the degree to which academic work is discoverable and accessible through web-based platforms, encompassing both passive and active visibility through repository deposits and social networking platforms, respectively. Barbosa et al. (2018) expanded this framework by proposing a multidimensional model of academic digital identity that includes visibility, networking, and reputation management. Their research highlighted how academics strategically use different platforms to achieve distinct professional objectives, with institutional repositories primarily serving archival and compliance functions and academic social networks facilitating networking and collaboration.

The measurement of academic web visibility has evolved to encompass multiple metrics and platforms. Mas-Bleda and Aguillo (2014) proposed a comprehensive framework that includes traditional citation metrics, altmetrics, and social media indicators. Their research demonstrated significant correlations between web visibility and traditional academic impact measures although they noted important disciplinary variations. Bar-Ilan et al. (2012) examined the relationship between Google Scholar profiles and traditional academic metrics,

finding strong correlations and identifying potential for manipulation and gaming. Similar concerns have been raised about academic social network metrics, with Thelwall and Kousha (2017) cautioning against over-reliance on platform-specific indicators.

Research on the career implications of web visibility has produced mixed findings. Piwowar and Priem (2013) found that academics with higher web visibility received more citations and collaboration opportunities. However, Ortega and Aguillo (2014) noted that the relationship between web presence and career advancement varied significantly across disciplines and career stages. Furthermore, graduate students and junior faculty were more likely to maintain active academic social network profiles and reported greater benefits in terms of networking and collaboration opportunities.

Technology Infrastructure and the Digital Divide

Academics' adoption of digital platforms in developing regions is significantly influenced by technological infrastructure limitations. Asongu and Nwachukwu (2018) examined internet penetration across African universities and found substantial variations in connectivity quality and reliability, with Northern Nigeria showing particular challenges in rural and semi-urban areas.

Bhargava et al. (2006) identified power supply reliability as a critical factor affecting sustained engagement with digital platforms. Their research in similar contexts showed that irregular electricity supply significantly impacted academics' ability to maintain consistent online presence and platform engagement.

Beyond infrastructure, DL represents a significant factor in platform adoption. Rafiq et al. (2018) studied digital competencies among academic staff in Pakistani universities and found significant gaps in advanced platform usage despite basic computer literacy. Their findings indicated that targeted training programmes could substantially improve adoption rates.

In the African context, Lwoga (2012) examined the adoption of web technology among academics and identified training as a critical success factor, noting that institutions with comprehensive digital literacy programmes showed higher rates of repository and social network adoption.

Institutional Support and Policy Framework

Institutional repositories' success is closely linked to supportive policies and administrative commitment. Cullen and Chawner (2011) examined repository policies across multiple institutions and found that MDPs significantly increased content volume, although they noted potential negative impacts on faculty satisfaction. Kankanhalli et al. (2005) applied KMT to repository adoption and emphasised the importance of organisational culture and incentive structures. Their research affirms that institutions that view repositories as strategic assets are more likely to achieve high adoption rates.

Unlike institutional repositories, ASNs operate independently of institutional control, creating different policy considerations. Jamali et al. (2014) examined institutional attitudes towards faculty use of academic social networks and found significant variation, with some institutions actively encouraging participation while others remained neutral or cautious.

The question of ownership and control of institutional data has emerged as a significant concern. Nicholas et al. (2017) studied institutional policies regarding academic social network participation and found that most institutions lacked clear guidelines, creating uncertainty among faculty about appropriate usage.

Current gaps and research opportunities

Despite the global nature of digital platforms, most existing research has focused on developed countries, particularly North America and Europe. The African context remains significantly under-researched, with limited studies examining academics' specific challenges and opportunities in sub-Saharan Africa (Onyancha, 2015).

In the Nigerian context, there is a paucity of research examining platform adoption among LIS academics, despite their potentially important role as information professionals and open access advocates. The unique challenges, including infrastructure limitations and cultural factors, that Northern Nigerian institutions face have received minimal scholarly attention.

Most existing research provides snapshot views of adoption at specific time points. Longitudinal studies that track adoption patterns over time and examine how usage evolves as platforms mature and institutional contexts change are needed (Nicholas et al., 2017).

While significant research exists on the technical and behavioural aspects of platform adoption, the integration of perspectives from fields such as sociology, anthropology, and development studies that could provide deeper insights into the cultural and social factors influencing adoption in different contexts is limited.

For LIS academics in Northern Nigeria, existing research suggests unique opportunities and challenges. Their professional expertise in information systems positions them as potential leaders in platform adoption. However, regional infrastructure limitations and institutional constraints may impede full participation. The limited research specific to this context highlights the need for empirical studies that can inform policy development and practice improvement.

Objectives of the study

The objectives of the study are as follows:

1. Determine the level of institutional repositories and academic social networks among LIS academics in Northern Nigeria
2. Determining the motivating factors that influence the adoption of IRs and ASNs by LIS academics in federal universities in Northern Nigeria
3. Barriers faced by LIS academics in federal universities in Northern Nigeria in adopting and effectively utilising institutional repositories and academic social networks

Research Questions

The study addresses the following research questions:

1. What is the level of institutional repositories and social networks among LIS academics in Northern Nigeria?
2. What are the motivating factors that influence LIS academics' adoption of IRs and ASNs in federal universities in Northern Nigeria?
3. What barriers do LIS academics in federal universities in Northern Nigeria face in adopting and effectively utilising institutional repositories and academic social networks?

Methodology

This study employed a quantitative descriptive survey design. Of the 16 federal universities in northern Nigeria, 9 were selected for the study using a purposive sampling method. The selected federal universities are as follows: Ahmadu Bello University, Zaria; Bayero University, Kano; Usmanu Danfodiyo University, Sokoto; Federal University of Technology, Minna; University of Abuja; University of Ilorin; Modibbo Adama University of Technology, Yola; University of Maiduguri; and Abubakar Tafawa Balewa University, Bauchi. The purpose sampling method was adopted because the nine federal universities had both academic libraries and LIS departments. All LIS academics in the selected federal universities were included using the total enumeration method. A structured questionnaire using a 4-point Likert scale was used to collect data from the respondents. A total of 414 (414) copies of the questionnaire were administered, and 311 (311) were retrieved; hence, the response rate was 74.9%. A criterion mean score of 2.5 was used as a benchmark for data interpretation. Any mean score above 2.5 is accepted, whereas any mean score below 2.5 is rejected.

Results

Research Question 1: What is the level of adoption of institutional repositories and social networks among LIS academics in Northern Nigeria?

Table 1: Opinion of Respondents on the Level of Adoption of IRs and ASNs by LIS academics in Northern Nigeria

S/N	Level of adoption	SD	D	A	SA	Mean	Decision
1	I actively use the repository of my institution to deposit my publications	0	0	150	161	3.52	Accepted
2	I regularly update my social network profiles	15	27	128	140	3.27	Accepted
3	IRs and ASNs are used as part of my regular research workflow	10	19	172	110	3.23	Accepted
4	Increased my web visibility through IR and ASN platforms	0	0	173	138	3.44	Accepted
5	I recommend IRs and ASNs to my colleagues and students.	50	11	92	158	3.15	Accepted

Key: - SD=Strongly Disagree D=Disagree A=Agree SA=Strongly Agree

All five adoption measures were accepted with means ranging from 3.15 to 3.52, indicating strong positive adoption patterns (Table 1). Repository usage with the highest mean score indicates that participants actively deposit publications in their institutional repositories, with 311 respondents agreeing or strongly agreeing. Furthermore, increased web visibility (mean = 3.44) indicated a strong consensus that IRs and ASNs have enhanced online presence, with all 311 participants positively responding. While still accepted, recommendation to others (mean = 3.15) had the lowest score, with 61 participants expressing some disagreement, affirming that not all users are advocates for these platforms.

Research Question 2: What are the motivating factors that influence LIS academics' adoption of IRs and ASNs in federal universities in Northern Nigeria?

Table 2: Respondents' opinions on the motivating factors that influence their adoption of IRs and ASNs

S/N	Motivating Factors	SD	D	A	SA	Mean	Decision
1	Increasing the citation rates of my publications	0	0	200	111	3.36	Accepted
2	Enhancing the global visibility of my research	28	44	89	150	3.16	Accepted
3	Building my online academic reputation	12	40	141	118	3.17	Accepted
4	Making my work more discoverable	0	0	149	162	3.52	Accepted
5	Connecting with researchers in my field	0	0	194	117	3.38	Accepted
6	Identifying potential research collaborators	0	0	168	143	3.46	Accepted
7	Knowledge sharing with the global academic community	108	150	50	18	2.03	Rejected
8	Career advancement and promotion requirements	17	20	130	144	3.29	Accepted
9	Institutional mandates and policies	7	14	112	178	3.48	Accepted
10	Grant applications and funding opportunities	120	126	35	25	1.86	Rejected

Key: - SD=Strongly Disagree D=Disagree A=Agree SA=Strongly Agree

Table 2 shows the motivating factors for LIS academics in federal universities in northern Nigeria to adopt institutional repositories and academic social networks. 8 of 10 factors were accepted as motivating factors, with means ranging from 3.16 to 3.52. The data reveal a pragmatic approach to IR and ASN usage. Users are primarily

motivated by discoverability, compliance with institutional requirements, and professional networking rather than altruistic knowledge sharing or funding opportunities, hence the low mean scores of 2.03 and 1.86, respectively. This shows a shift from idealistic open access motivations to practical career and research benefits.

Research Question 3: What barriers do LIS academics in federal universities in Northern Nigeria face in adopting and effectively utilising institutional repositories and academic social networks?

Table 3: Opinion of respondents on barriers to IR and ASN adoption

S/N	Barriers to IR and ASN adoption	SD	D	A	SA	Mean	Decision
1	Poor Internet connectivity and speed	0	0	108	203	3.65	Accepted
2	Lack of reliable power supply	89	45	100	77	2.53	Accepted
3	Limited access to computers and digital devices	45	33	129	104	2.94	Accepted
4	Complex user interfaces and navigation systems	72	109	50	80	2.44	Rejected
5	Insufficient digital literacy skills	25	38	118	130	3.14	Accepted
6	Lack of Institutional Support and Encouragement	5	11	180	115	3.30	Accepted
7	Absence of clear institutional policies	15	27	128	140	3.27	Accepted
8	Inadequate funding for the digital infrastructure	10	19	172	110	3.23	Accepted
9	Time constraints and heavy workload	0	0	131	180	3.58	Accepted
10	Resistance to Change from Traditional Practices	79	90	77	65	2.41	Rejected

Key: - SD=Strongly Disagree D=Disagree A=Agree SA=Strongly Agree

Table 3 shows that the barrier analysis reveals that technical infrastructure (i.e., internet connectivity (3.65) and organisational factors i.e. time (3.58) and institutional support (3.30)) are the primary obstacles. Interestingly, user experience issues with a mean score of 2.44 and resistance to change (2.41) are not major concerns, suggesting that the technology itself is acceptable when infrastructure and support are adequate.

Discussion of the Findings

The findings reveal several important insights into the current state of IR and ASN adoption among academic professionals. The strong adoption rates across all measures, i.e., means ranging from 3.15 to 3.52, indicate that these platforms have achieved substantial penetration in the academic community, aligning with previous research by Majhi, Sahu, and Bereha (2023), who identified growing acceptance of digital platforms for research visibility. The dominance of pragmatic over altruistic motivations represents a significant shift in the landscape of open access. While early adopters were often driven by idealistic goals of democratising knowledge (Aguaded, 2021), this study shows that users are primarily motivated by discoverability ($M = 3.52$) and institutional compliance ($M = 3.48$). The rejection of GKS as a motivator ($M = 2.03$) suggests a more career-focused approach to platform adoption, consistent with Ortega's (2017) findings on disciplinary differences in academic social networking behaviour.

Furthermore, the identification of infrastructure barriers as the primary challenge contradicts assumptions that user resistance or technological complexity is major obstacles. Poor internet connectivity ($M = 3.65$) and time constraints ($M = 3.58$) emerged as critical barriers, whereas complex interfaces ($M = 2.44$) and resistance to change ($M = 2.41$) were rejected. This finding is particularly relevant in developing contexts where digital

infrastructure remains inadequate, supporting Mingle et al.'s (2020) observations about building digital capacities in West African academic libraries. Furthermore, the high acceptance of institutional mandates as a motivating factor ($M = 3.48$) suggests that policy-driven adoption is effective, confirming the earlier observations of Davis and Connolly (2007) about the importance of institutional support. However, the concurrent identification of lack of institutional support as a barrier ($M = 3.30$) indicates inconsistent implementation across institutions. The strong emphasis on professional networking and collaboration (means of 3.38-3.46) reflects the evolving role of these platforms beyond simple repositories to active research communities, aligning with Thelwall and Kousha's (2015) analysis of ResearchGate's multifaceted functions.

These findings reveals that successful IR and ASN implementation requires a holistic approach addressing infrastructure, institutional support, and user-centred design rather than focusing solely on platform features or change management strategies.

Conclusion

This study demonstrates that institutional repositories and academic social networks have achieved substantial adoption among academic professionals, with strong positive acceptance across all measured indicators. This study reveals a pragmatic shift in user motivations, where discoverability, institutional compliance, and professional networking have superseded altruistic knowledge-sharing goals. Infrastructure limitations, rather than technological complexity or user resistance, constitute the primary barriers to effective adoption.

The findings indicate that successful IR and ASN implementation depends on addressing foundational infrastructure challenges and providing consistent institutional support. While users have embraced these platforms and recognised their benefits for research visibility and collaboration, persistent connectivity issues and time constraints continue to limit optimal utilisation.

Recommendations

Based on the research findings, the following recommendations are made:

1. Academic institutions and policymakers should prioritise investment in reliable Internet connectivity and digital infrastructure. Given that poor connectivity emerged as the highest barrier ($M = 3.65$), addressing this fundamental requirement is essential for maximising platform use and ensuring equitable access to digital scholarly communication tools.
2. Institutions should develop comprehensive policies that combine mandatory adoption with adequate support systems. While institutional mandates were effective as motivators ($M = 3.48$), the simultaneous identification of insufficient institutional support as a barrier ($M = 3.30$) suggests the need for balanced approaches that include training, technical assistance, and clear implementation guidelines.
3. To address time constraints, academic institutions should develop strategies to integrate IR and ASN activities into existing research workflows ($M = 3.58$). This could include automated submission processes, dedicated time allocation for digital scholarship activities, and streamlined procedures that reduce the administrative burden on researchers while maintaining platform engagement.

References

- Abba, T., & Anene, I. (2022) "Application of online platforms for research visibility by professional librarians in Nigeria Universities." (2022). Library Philosophy and Practice (e-journal). Retrieved from <https://digitalcommons.unl.edu/libphilprac/7396>
- Abrizah, A., Noorhidawati, A., & Kiran, K. (2010). Global visibility of Open Access institutional repositories of Asian universities *Malaysian Journal of Library & Information Science*, 15(3), 53-73.

- Aguaded, I. (2021). Visibility and impact of our research: Publons, Scopus and Google Scholar Metrics. <https://doi.org/10.3916/school-of-authors-165>
- Aharony, N. (2012). Facebook use in academic libraries: Perceptions of students *New Library World*, 113(5/6), 237-254.
- Akinola S. and Ngeme, F., (2022). Accessibility and usage of electronic information resources on the research output of librarians in the Ekiti, Ondo, and Osun States (2010–2015) *Library Philosophy and Practice*, 1-14
- Ani, O. E., N. B. Edem, and E. J. Ottong. 2016. Analysis of Nigerian institutional repositories *Library Philosophy and Practice*, 1381.
- Asongu, S. A., & Nwachukwu, J. C. (2018). Educational quality thresholds in the diffusion of mobile phone-based knowledge for inclusive human development in sub-Saharan Africa *Technological Forecasting and Social Change*, Vol. 129, pp. 164-172.
- Barbosa, S. D., Borges, M. M. and Ramos, F. (2018). Academic social networks: Modelling scientific collaboration networks. In *Proceedings of the 18th ACM/IEEE on Joint Conference on Digital Libraries* (pp. 23-32).
- Bar-Ilan, J., Haustein, S., Peters, I., Priem, J., Shema, H., Terliesner, J., 2012. Beyond citations: Visibility of scholars on the social Web *arXiv preprint arXiv: 1205.5611*.
- Bhargava, A., Kirova-Petrova, A., & McNiven, S. (2006). Computers and internet use by women academics in Eritrea: A case study. *Campus-Wide Information Systems*, 23(4), 238-247.
- Bosc, H. and Harnad, S. (2005). A new role for academic libraries in a paperless world: Providing open access. *Learned Publishing*, 18(2), 95-99.
- Christian, G. E. (2008). Issues and challenges to the development of open-access institutional repositories in academic and research institutions in Nigeria *International Development Research Centre*, 1-56.
- Creaser, C., Fry, J., Greenwood, H., Oppenheim, C., Proberts, S., Spezi, V., & White, S. (2010). Authors' awareness and attitudes towards open access repositories. *Journal of the American Medical Association. New Review of Academic Librarianship*, 16(sup1), 145-161.
- Crow, R. (2002). The Case for Institutional Repositories: A SPARC Position Paper. *ARL Bimonthly Report*, 223, 1-4.
- Cullen, R., and B. Chawner. 2011. Institutional repositories, open access, and scholarly communication: Conflicting paradigms *Journal of Academic Librarianship*, 37(6), 460-470.
- Hoffmann, C. P., Lutz, C. and Meckel, M. (2016). A relational altmetric Network centrality of ResearchGate as an indicator of scientific impact *Journal of the Association for Information Science and Technology*, vol. 67, no. 4, pp. 765-775.

- Jamali, H. R., D. Nicholas, A. Watkinson, E. Herman, C. Tenopir, R. Volentine,... Levine, K. (2014). How do academics find scholarly information and what use do they make of it? In *Proceedings of the ISSI 2014 Conference* (pp. 569-578).
- Jordan, K. (2014). Academics and their online networks: Exploring the role of social networking sites for academics. *First Monday*, November 19 (11).
- Kankanhalli, A., Tan, B. C. and Wei, K. K. (2005). Contributing knowledge to electronic knowledge repositories: An empirical investigation *MIS Quarterly*, 29(1), 113-143.
- Kim, J. (2010). Faculty self-archiving: motivations and barriers *Journal of the American Society for Information Science and Technology*, 61(9), 1909-1922. 4.2
- Lwoga, E. T. (2012). Making Learning and Web 2.0 Technologies Work for Higher Learning Institutions in Africa. *Campus-Wide Information Systems*, 29(2), 90-107.
- Lynch, C. A. (2003). Institutional repositories: The essential infrastructure for scholarship in the digital age. *Portal: Libraries and the Academy*, Vol. 3, No. 2, 327-336.
- Mas-Bleda, A., & Aguillo, I. F. (2014). Can a personal website be useful as an information source for assessing individual scientists? The case of highly cited European researchers. *Scientometrics*, 96(1), 51-67.
- Meishar-Tal, H. and Pieterse, E. (2017). Why do academics use social networking sites? *The International Review of Research in Open and Distributed Learning*, Vol. 18, No. 1, pp. 1-22.
- Mendez, E., M. E. Catarino, C. B. Amat, and I. R. Retolaza. 2012. Research data and institutional repositories: A repository manager's perspective *New Review of Academic Librarianship*, 18(2), 169-188.
- Nicholas, D., Huntington, P., & Rowlands, I. (2005). Open access journal publishing: The views of some of the world's senior authors *Journal of Documentation*, 61(4), 497-519.
- Nicholas, D., Rodríguez-Bravo, B., Watkinson, A., Boukacem-Zeghmouri, C., Herman, E., Xu, J., & Świgoń, M. (2017). Early career researchers and publishing and authorship practices. *Learned Publishing*, 30(3), 205-217.
- Nicholas, D., Watkinson, A., Volentine, R., Allard, S., Levine, K., Tenopir, C., and Herman, E. (2014). Trust and authority in scholarly communications in light of the digital transition. *Learned Publishing*, 27(1), 3-12.
- Niyazov, Y., Vogel, C., Price, R., Lund, B., Judd, D., Akil, A. & Shron, M. (2016). Open access meets discoverability: Citations to articles posted to Academia.edu. *PloS One*, 11(2), e0148257. <https://doi.org/10.1016/j.plosone.2011.09.007>
- Okiki, O. C. (2013). Availability and use of electronic resources by postgraduate students at the University of Lagos: A case study *International Journal of Information and Communication Technology Education*, vol. 9, no. 4, pp. 60-68.

- Onyancha, O. B. (2015). Social media and research: An assessment of the coverage of South African universities in ResearchGate, Web of Science, and the world universities' webometric ranking *South African Journal of Libraries and Information Science*, 81(2), 8-20.
- Open DOAR. (2021). Directory of Open Access Repositories. University of Nottingham Retrieved from <http://www.opendoar.org>
- Ortega, J. L. (2015). Relationship between altmetric and bibliometric indicators across academic social sites: The case of CSIC members *Journal of Informetrics*, vol. 9, no. 2, pp. 39-49.
- Ortega, J. L., & Aguillo, I. F. (2014). Microsoft academic search and Google scholar citations and the impact/visibility of systems and software engineering conferences. *Scientometrics*, 99(3), 645-665.
- Ovadia, S. (2014). ResearchGate and Academia.edu: Academic social networks. *Behavioural and Social Sciences librarian*, 33(3), 165-169.
- Owolabi, S., Idowu, O. A., Okocha, F., & Ogundipe, T. C. (2016). Utilisation of social media by librarians in Nigerian academic institutions *The Electronic Library*, Vol. 34, No. 2, 213-227.
- Palmer, C. L., L. C. Teffeu, and C. M. Pirmann. 2009. Scholarly Information Practices in the Online Environment: Themes from the Literature and Implications for Library Service Development *Report commissioned by OCLC Research*, 1-104.
- Piwowar, H. and Priem, J. (2013). Power of altmetrics on a CV. *Bulletin of the American Society for Information Science and Technology*, 39(4), 10-13.
- Ponte, D., and J. Simon. 2011. Scholarly communication 2.0: Exploring the opinions of researchers on Web 2.0 for scientific knowledge creation, evaluation, and dissemination. *Serials Review*, 37(3), 149-156.
- Rafiq, M., Batool, S. H., Ali, A. F., and Ullah, M. (2018). University Libraries' Response to the COVID-19 Pandemic: A Developing Country Perspective *Journal of Academic Librarianship*, 47(1), 102280.
- Suber, P. (2012). *Open access*. MIT press.
- Swan, A. and Brown, S. (2005). Open access self-archiving: An author study *External Collaborators, Key Perspectives Inc., Technical Report*
- Thelwall, M., & Kousha, K. (2014). Academia.edu: Social network or academic network? *Journal of the Association for Information Science and Technology*, 65(4), 721-731.
- Thelwall, M., & Kousha, K. (2015). ResearchGate: Disseminating, Communicating, and Measuring Scholarship? *Journal of the Association for Information Science and Technology*, 66(5), 876-889.
- Thelwall, M., & Kousha, K. (2017). ResearchGate articles: Age, discipline, audience size, and impact. *Journal of Public Health. Journal of the Association for Information Science and Technology*, Vol. 68, No. 2, pp. 468-479.

- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Towards a unified view *MIS Quarterly*, 27(3), 425-478.
- Weller, M. (2011). *The Digital Scholar: How Technology Transforms Scholarly Practice* Bloomsbury Academic.
- Xia, J. (2007). Self-archiving assessment in institutional repositories: Across disciplines. *Journal of Academic Librarianship*, 33(6), 647-654.