

Chapter 5

Scholarly Communication Practice and Strategies in Institutions of Higher Learning in Africa: An Overview

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ABSTRACT

This chapter explores scholarly communication practices and strategies in institutions of higher learning in Sub-Saharan Africa to increase visibility and reputation. For long, it has been acknowledged that foundations of institutions of higher learning rest upon creating and disseminating knowledge, which serves as an engine for scientific progression leading to a knowledge society. This is true despite scholarly communications receiving limited recognition from senior leadership at most institutions of learning. Visibility of institutions via scholarly communications is of high significance considering the inputs made by scholars and the applicability of study findings for perfecting routinized works or correcting faulty systems in departments, ministries, and agencies in nations. This is evident in developed countries who furnish their scholarly communication offices with librarians to enhance the production and communication of knowledge. Strategies and practices of scholarly communications among institutions of higher learning are discussed.

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INTRODUCTION

Scholarly communication in sub-Saharan Africa will remain latent or in a state where it is, unless ramped up by using technologies and freed from decades-old models of publishing (Malape, 2017). This is true as scholars on African continent account for 1% of the total global research output (World Bank, 2014). To buttress this point, sub-Saharan Africa produced only 11,142 scientific researches in 2008 where South Africa contributed 46.4%, followed by Nigeria (11.4%), and Kenya (6.6%) (UNESCO, 2010, p. 285), which make these countries the top three knowledge producers on the continent. Alternatively, according to Ezema and Onyanchan, (2016), in terms of the global representation of Registry of Open Access Repositories (ROAR), Africa contributed only 136 (3.4%) of the total 4055 repositories. There is discrepancy of repository with respect to 56 countries in Africa. That is, only four countries accounted for 60% of the total repositories in the entire continent. These countries are South Africa, Kenya, and Egypt and Nigeria contributing 47 (34.6%), 14 (10.3%), and 11 (8.1%) respectively. The implication of this low number of repositories implies poor visibility of universities in Africa. In addition, for regional distribution of African contribution to Directory of Open Access Repositories (DOAR), out of 132 repositories, Central Africa contributed 2 (1.52%), East Africa 35 (26.52%), North Africa 27 (20.45%), South Africa 45 (34.09), and West Africa 23 (17.42%). Among the 20 countries present in ROAR and DOAJ, South Africa has more repositories in ROAR and DOAR while Egypt has more than 70% of contributions to DOAJ. Furthermore, in DOAR, multidisciplinary has majority (66%) of the entire entries in the repositories, science has more entries than humanities and social sciences combined (Ezema & Onyanchan, 2016). By implication, positioning of Egypt as the most contributing country (70%) among the 20 participating countries in Africa to the Directory of Open Access Journal (DOAJ) paves way for her to retain an apex in scholarly communication practice (Ezema & Onyanchan, 2016).

Besides, to curtail these inherently invisible statuses of the continent, research output compelled adoption of three approaches, namely; “*OA journals, donor-funded schemes, and negotiated access schemes*” (Malape, 2016, p. 7). Throughout these activities, scholars in institutions of higher learning are the engine behind knowledge production. The major concern of institutions of higher learning, where these scholars mostly operate, is the improvement of their efficiency and effectiveness that maximizes the relevance of the impact of funded research outputs (Neylon et al., 2014a). The effects of these impacts are beyond scholarly community consumption but encompass “*influence on policy, improvement in health and living standards, cultural enrichment or an improved environment*” (Neylon et al., 2014a, p. 1). The assessment and reward of these impacts are in conformity with the missions and visions of those institutions. From altmetrics analysis, mentions in blogs, number of re-tweets or saves of articles used as a measure of scientific publication (Priem, & Hemminger, 2010; Torres-Salinas et al., 2013); it follows that, a scholar’s visibility, impact of research, and scholarly contributions can be attested via many platforms (Czerniewicz et al., 2014). In this regard, Open Access (OA) is the only hub to access research outputs optimally and rapidly nowadays (Lwong, 2013). This is a threat to academic libraries, which continue to risk irrelevance in the scholarly information use practice (Schonfeld & Housewright, 2010) since most libraries have failed to employ strong technology, service policies, and marketing strategies. This is against the already established findings that indicated an increased usage of those libraries for supporting researches (Budd, 2009). This raised some questions regarding the central or marginalized role academic libraries can perform in the contemporary practices of scholars (Nyquist, 2010).

Using Google Scholar and OA in the scholarly communication system is taking over the discovery process (Burns, 2014). In the chaining process, Google is the third (70%) intermediary component in the

discovery process; serves as a platform for searching electronic resources including full text databases (90%), etc. (Ellis et al., 1993). To support the above claims, in January 2013 alone, there was an estimated 957,958 OA articles published in 8,537 journals (Directory of Open Access Journals, 2013). Similarly, 17% of the 1.66 million articles published in 2011 and indexed in the comprehensive article-level index (Scopus) are OA (Laakso & Björk, 2012). Furthermore, 67% of 1,184 of the larger scientific publishers formally declared for self-archiving (SHERPA/RoMEO, 2012) are OA. To buttress this point further, as of 12 January 2013, there were about 2,251 institutional repositories globally (Directory of Open Access Journals, 2013). In terms of awareness about OA, there was a drastic decrease from 50% unaware scholars in 1990s to 15% by 2007 (Xia, 2010). This finding concurred with Schroter et al., (2005). Likewise, in sub-Saharan Africa, there is an increase in terms of awareness of OA from less than 60% in 2007 (De Beer, 2006; Lwoga et al., 2006) to more than 60% (Fullard, 2007; Southern African Regional Universities Association, 2008). In fact, some well-established publishers like Elsevier, Springer, and Taylor & Francis began to convert to OA but with a consequential cost on authors who want to publish with them (Narayan et al., 2018).

With regards to some specific issues about OA, such as self-archiving or existence of institutional repositories, Swan and Brown, (2005) indicated that a substantial number of respondents were unaware of self-archiving. In addition, Kim (2010); Mischo and Schlembach, (2011) in USA and Kennan (2007) in Australia separately indicated that scholars were unaware about the existence of institutional repositories in their respective institutions. Similar findings on unawareness about self-archiving were analogous in developing countries like Malaysia (Abrizah, 2012; Singeh et al., 2012) and Cuba (Sánchez-Tarragó & Fernández-Molina, 2010). The fact that, the vigor of research can be misplaced, potential access denied, and usage deprived of, and research impact lost, encouraged many researchers to proclaim that, articles published in OA must receive maximum readability. To support this claim, Davis et al. (2008) showed that, OA journals accounted for 89% more full text downloads compared with subscription journals. OA articles receive 25-250% or higher citation, which increases research impact (Swan, 2010). Besides, the advantage associated with OA articles in all domains is around 300-450% (Swan, 2010) than the corresponding subscription journals. OA articles from Africa are very low in numbers (De Beer, 2006; Dulle et al., 2010; Lwoga et al., 2006; Southern African Regional Universities Association, 2008). The software used to archive information repositories in Africa are mainly D-space, Eprint, and Greenstone. While D-space remains the dominant 97 (73%) software for archiving, 12 (9%) used Eprint to archive their resources and only 4 (3%) used Greenstone for archiving (Ezema & Onyanchan, 2016).

The low OA in Africa is attributable to many factors. Notably among the most prominent reasons are the facts that, publishers and stakeholders lack sensitization about the services and benefits of Open Access Journals (OAJs) as well as unawareness on how to include journals on database (Nwagwu & Makhubela, 2017). Secondly, the financial handicap with regards to limitation in accessing subscription-based journals for resource-constrained authors in developing countries (Bjork et al., 2009), reduction in subscribing to commercial publications due to high prices by academic institutions and libraries (Alemu, 2009) fueled African OA to lag behind. This served as a catalyst for UK government to intervene in Africa's OA with the intention of designing policies that can complement the lack of visibility of Africa's research in the global domain, thereby annealing the flaring gap between Northern publishers and poor countries (Harle & Warne, 2020). Among the major findings of this report is that, stakeholders in low and middle-income countries (LMICs) agreed that OA is significant but its scope, acceptability, and impact, surrounded by uncertainty and confusion, may suffer. There exists both divergence and convergence among LMICs and Northern stakeholders: they unite in ambition but differ markedly on achieving their desired goals,

which necessitates Northern policies to be flexible and LMICs to draft their policies and regulatory tools if a profitable future is required. LMICs journals are a threat to national and regional research systems, which makes Northern journals more fruitful for LMIC researchers but with unaffordable skyrocketed prices (Harle & Warne, 2020). Summing these findings up will reveal a rather complicated scenario between the Northern and LMICs stakeholders with the optimum conditions of one party becoming the opposite of the other. This signals the complexity of the clear-unclear, objective-subjective, research-practice dichotomies between the haves and have-nots that necessitates their augmentation. This shifts concern to LMICs to understand their invisibility in the global scholarly communications to supplement funders with literature that impede the regional progression through the ages. By so doing, it becomes a limelight to policymakers, program implementers, etc. the depth and scope of LMIC's invisibility so that they can lend their hands to support them accordingly.

It is against this background that, this chapter tries to discuss the caption according to the following subheadings

1. Who is a Scholar?
2. Scholarly Communications in sub-Saharan Africa
3. Scholarly Communication in Institutions of Higher Learning
4. Social Media in Scholarly Communication Processes for Societal Development
5. Open Access (OA)
6. Strategies of Scholarly Communication in Higher Institution of Learning
7. Practices of Scholarly Communication in Higher Institution of Learning

WHO IS A SCHOLAR?

The word scholar has a multiplicity of definitions. For instance, a scholar is engaged in intellectual enquiries and serves as a cornerstone for solving societal problems or testing phenomena and rated based on their scholarly contribution (Adakawa et al., 2019) that is beyond mere learning but encompasses understanding principles and laws of a particular discipline. In other words, scholar is the one whose whole inward intellectual and moral being is correspondingly spread-out, well-organized, nurtured, and reinforced by the stimulus and guidance of truth (Gerhart, 1847) and has interdisciplinary mastery of all or some other branches of knowledge. The most closely related word to scholar is the word "scholarship". Scholarship refers to "*the creation, development, and maintenance of the intellectual infrastructure of subjects and disciplines, in forms such as dictionaries, scholarly editions, catalogues, and contributions to major research databases*" (Higher Education Funding Councils, 2001). This guards scholars against intellectual isolationism and ensures publicly available information objects undertaken not in isolation (Halliday, 2001). Thus, scholarship is a social process where researches are validated through review processes and sharing with others (Borgman, 1990).

Perhaps that is why scholarly communication is a process that denotes output to frequentative process where scholarship remains communicated, used, and developed in a scholarly community (Kling & Mc-Kim, 1999). Scholarly communication also refers to "*how scholars in any field... use and disseminate information through formal and informal channels*" (Borgman, 1990, pp. 13-14) or a small portion of scholarly output usually published in scholarly articles or in similar formats (Alexander & Goodyear, 2000). While Graham (2000) divided scholarly communication into communication within formal

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networks, public dissemination of research through conferences and preprints and formal publication in prestigious journals; Halliday (2001) referred to encompass journal articles that report empirical research, review or opinion papers, monographs, multi-contributor editions, software, and databases. Alternatively, scholarly communication envisions “*the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use. The system includes both formal means of communication (such as publication in peer-reviewed journals), and informal channels, such as electronic listservs*” (Association of College and Research Libraries (ACRL), 2017).

Stressing on the informal scholarly communication, it is observed that, blog shapes a new third place for academic discourse (Halavais, 2006). Some scholars questioned the legitimacy and appropriateness of blog usage within scholarly communication. Braxton et al. (2002) contended that, “*—unpublished scholarly outcomes fully meet the definition of scholarship if they appear in a publicly observable form (p. 141)*” noting three parameters in mind that, it must be public, open for critical review and allow for use and exchange among scholars. To augment the legitimacy and impact of a blog, Borgman (2007) reiterated that,

While most of these new genres are too informal to have been considered publications in a print realm, they do contain important discussions, facts, and reports that are part of the scholarly discourse of a field. Furthermore, they can be captured because digital communications leave a trace. (p. 99)

But how long opens up another dimension of debate. Perhaps that is why Rothenberg (1995) admonished that,

... the significance of many digital documents we consider too unimportant to archive become apparent only long after they become unreadable. Unfortunately, many of the traditional methods developed for printed matter are not applicable to electronic files. The content and historical value of thousands of records, databases, and personal documents may be irretrievably lost to future generations if we do not take steps to preserve them now. (p. 42)

To support the above claims, a rather neologisms (bloggership and blogademia) evolved to denote how frequent scholars adopt blogs as channel for scholarly communications with respect to legal scholarship blogs and across domains (Caron, 2006; Saper, 2006; Smith, 2006; Dayal, 2005). (For details on scholarly communication using blog, see Hank, 2011); (For details on scholar and characteristics of a scholar, see Adakawa et al., 2019).

SCHOLARLY COMMUNICATIONS IN SUB-SAHARAN AFRICA

Sub-Saharan Africa unlike developed countries always faces adversarial implications in terms of its development agendas. Scholarly communication is not an exception. Scholarly communication in sub-Saharan Africa suffered setbacks characterized by subordination, rendering it irrelevant thereby regarding the locals as incompetent in understanding their own problems to subjugation in participating in global transformation agendas, to mention but a few. To begin with, the work of Mitcheli et al. (2020) has detailed greatly these hindering issues that make scholarly contribution of the region invisible, un-

felt, and irrelevant in solving societal predicaments and improving the quality of life and sustainability of the environment. That is why African scholars' works used to be under-resourced, undervalued, and under-represented in so doing overlooking considerable impacts they can play in nation-building, transforming sub-Saharan African regions, or even in global applicability especially in issues bordering policy formulation, program implementation, or decision-making processes (Mitcheli et al., 2020). While some scholars have attributed this handicap to colonialism or post-colonialism (Tikly, 2019), still a critical look at the contribution of African scholars is sidelined thereby rendered of little significance if any (Collyer, 2018). This is specifically visible where Global Northern researchers have dominated all nooks and crannies of academia and scholarly publishing in all ramifications including African studies, and preferences are given to those Westerners neglecting indigenous African scholars experiencing the problems (Briggs & Weathers, 2016). This dominance has fueled the emergence and involvement of Global Southern scholars to publish in international journals (Trahar et al., 2019), which resulted in the creation of Research Database Project for education research in Africa (Mitcheli et al., 2020). Prior to this development, most of the publications in sub-Saharan Africa are confined to institutions and are in hard copy, which implies their reduced visibility and circulation (Mitcheli et al., 2020). Even though there is evidence that shows that, "when a problem is local, locals appear best placed to solve it" (McLean & Sen, 2019, p. 133), still that African region experiences such a domination from developed countries. Production and dissemination of high-quality research truncates due to the restriction of human, material, and economic resources, and faculty members of universities are the producers despite constrained by other responsibilities (Fussy, 2018). From these few instances, it is apparently clear that, the scholarly communication of sub-Saharan Africa is hanging, perplexed, and surrounded by smock-screened issues that its freedom from the shackles of irrelevance will have to go a long way for redemption.

For these reasons, several scholars pointed out the problems of invisibility and impact of scholarly communications in Africa. For instance, Trotter et al. (2014) have outlined three main reasons why African research is relatively invisible, namely

- Despite research in the continent increases absolutely, it decreases in relative terms especially considering high research production by Global North rendering African research invisible.
- Most of the African research outputs are in analogue form or restricted only to formal scholar-to-scholar output (like journal, books or book chapters) failing to take into account considering other informal social media outputs as scholarly communications as shall be seen underneath in developed countries.
- African universities have woefully failed to use a strategic approach to embrace technology in enhancing their knowledge productivity thereby preserving it for future purposes. These are the main tenets of minimizing visibility of research in African continent and its impact on global scale.

Unless the notion of visibility is transformed by mere referring it to include accessibility to *digital accessibility*, African research will continue to suffer invisibility and low impact on a global scale (Trotter et al., 2014). Investigations by these scholars indicated that, the technologies required for OA are either obtainable in African institutions of higher learning, available without restrictions on the internet, or low-cost to buy. To support these views, Malapela (2017) noted that, the factors responsible for the deceleration and invisibility of scholarly communications in Africa include—absence of sustainable funding, bandwidth issues (especially its unavailability and subscription), cost of production, and dwelling

more on local journals that have no impact factors or visibility. In addition, there is the issue of parallelism of European problems and local problems where African scholars must write within the themes of European journal to publish their works, neglecting local issues in sub-Saharan Africa, among others.

SCHOLARLY COMMUNICATION IN INSTITUTIONS OF HIGHER LEARNING

Foundations of institutions of higher learning are usually built upon principles that catalyze the concrete structure formation which reflects the missions and visions of those institutions, which include but are not limited to the production and dissemination of knowledge. This is true, despite some institutions of higher learning not treating the publishing function or scholarly communication as an important, mission-centric effort (Brown et al., 2007), still researchers point out that, scholarly communication receives little attention from senior leadership of those institutions. Scholarly communication, a global product of academic environment that entails generating and sharing knowledge is the root of scientific progress leading to knowledge society (Lederberg, 1993) that has been in existence since the distant past even though having different nomenclature (Feather & Sturges, 2003) for ensuring availability of scholarly information through publication and preservation for future use.

While some scholars consider scholarly communication to refer only to the peer-reviewed literature put out after completing research (Rowlands et al., 2004); others regard it to denote all communication among peers (Harnad, 1995). In the interest of full disclosure, scholarly communication has to do with the methods and approaches employed to pass scholarly information from scholar to information users through various intermediaries. In other words, scholarly communication means the study of how scholars in any academic discipline use and share information via formal or informal channels (Borgman, 2000). Unfortunately, only a small portion of scholars is highly productive, visible and publishing in target top-tier journals (Dubini et al., n.d.) in institutions of higher learning. This dormancy is attributable, according to Cohen (2017), to latency of research outputs by faculty members of institutions of higher learning in highly reputable journals, which lies in the incapacity of scholarly communication skills of academic librarians. The triads mainly scholarly contents, OA and subscribed scholarly resources are usually unfairly imbalanced and blamed for upsetting the equation of institutional mission (Chan, 2018) of meeting the scholarly visibility of such institutions globally. This is true considering the shift from traditionally acclimatized practice where libraries pay to read to authors pay to publish via author pay charge (APC) a consequence of disrupting the subscription models and market (Chan, 2018).

For instance, to harmer on the paradigmatic shift, Chan, (2018) referenced Pinfield and Johnson, (2018) who observed that, “globally the proportion of all scholarly journal articles accessible immediately upon publication, which includes gold or full OA, hybrid APC articles, and green OA, accounted for about 25% of global scholarly articles in 2016 compared to 18% in 2014”. Similarly, in UK alone, there was an increment of 20% of OA articles in 2014 to 37% in 2016 (RIN, 2017). Furthermore, there is a projection of annual growth rate of 25% from 2014 to 2020 (Research Consulting et al., 2017). Despite that, there was a decline in OA content growth of 10-15%; however, the report released between periods of 2014 to 2017 indicated a rather good appreciation of 16% increase annually (Outsell Report, 2015). For this reason, the tipping point is extended to 2024 (Research Consulting et al., 2017) for a more elaborate calculation of OA. To make this point clearer, the prognosis for 2018 growth predicted at 15-20% over 2017 in excess of \$500M in 2018 (Pollock, 2018) was a clear indication for OA rising costs.

Several researches showed that, gaining relevance and momentum by academic libraries is possible if the library budget is enough to cater for these library services. Commenting on the true picture of the drowning library budgets in the hands of few skewed publishing companies; Johnson et al. (2018) noted that, the International Association of Scientific, Technical, and Medical Publishers (STM), a leading professional publisher that accounts for 66% of all journal articles, which encompasses learned societies, university presses, private companies, new starts, and established researchers. Similarly, STM employed 110,000 people globally where 40% are employed in the EU. It has annual revenues of about \$3.3 from book market, \$10 billion from English-language STM journal, and \$25.7 billion from broader STM Publishing journal. About 41% of the STM revenues come from USA, 27% from Europe/Middle East, 26% from Asia/Pacific and 6% from the rest of the world. This agrees with Steele's (2014) stance that, Big Deal subscriptions nowadays siphon the university library budgets, which benefit a small member of multinational publishers. Equally, despite publishing content witnessing a remarkable switch off where the shift from open information commons to an expensive firewalled multinational publishing environment usually referred to "information feudalism" has become a reality (Drahos & Braithwaite, 2002), maintaining scholarly communication infrastructure (SCI) by scholarly communication infrastructure providers (SCIP) present difficulties or even impossibilities (Skinner, 2019) to those bodies.

On the other hand, in order to ensure equilibrium among scholars, institutions of higher learning in developed countries, staff their scholarly communication offices with librarians, legal counsel, information technology, and publishing professionals (Cohen, 2017). In the same way, in those institutions, they recruit at least one scholarly communication librarian who functions in developing and managing an institutional repository and partnering with other stakeholders on campus (Gilman, 2013). This is to show how scholarly communication plays varying roles at different phases of research cycle (Johnson et al., 2018). Every year, in academic settings, academic environments put pressure on scholars to publish too much, too soon, and the choice for speedy dissemination where targeted audience is expected requires fundamental expertise (RIN, 2009) and well-known scholars have preferences for journal outlets, a recognition for generating grants (Harley et al., 2010). The format for disseminating research remains peer-reviewed journals, conference proceedings and scholarly monographs (Housewright et al., 2013; RIN, 2010). This is the case particularly in this era where the future of scholarly knowledge cannot escape the duality of research-driven or publisher-driven complexities and the roles that universities and libraries can play in this scholarly communication framework (Steele, 2014) brought many scholars to question the usefulness and impartiality of the models used.

To be precise, scholarly communication is the responsibility of every academic librarian (Lankes, 2016; Kirchner & Malenfant, 2013) whose tasks are to sensitize faculty staff on "scholarly publishing, open access, institutional repositories, author's rights, copyrights, information literacy, and librarian-faculty relationships" (Cohen, 2017, p. 10). This is attested to by Harley, et al.'s (2010) report that, first-timer researchers need some pre-requisite information that encourage them to publish in the right venues and avoid wasting time in public engagement or developing blogs, website designs, etc. To augment this finding, Housewright et al. (2013) discovered that, only 1/3 of the researchers make their research available via blogging. Conversely, research showed that, active social media users are enthusiastic and expressed positive attitudes towards disseminating their research findings through emails, blogs, social networks, etc. (Nicholas & Rowlands, 2011; Rowlands et al., 2011; Tenopir et al., 2013). For encouraging staff involvement in using social media for disseminating research findings, RIN (2010), Tenopir et al. (2013), and Nicholas and Rowlands (2011) found out that, age has no relations with using social media and that, according to Nicholas and Rowlands (2011), only passion differentiates young from old scholars.

SOCIAL MEDIA IN SCHOLARLY COMMUNICATION PROCESSES FOR SOCIETAL DEVELOPMENT

Digital technologies have changed the nature of scholarly communication, provided platforms mainly Twitter, LinkedIn, Academia.edu, Facebook, ResearchGate, YouTube, blogs, etc. to support OA (Narayan et al., 2018), transmuted the identity of scholars by enabling networked scholarship (Veletsianos, 2016; Greenhow & Gleason, 2014). These digital platforms connect, and promote research outputs; build networks, and ensure a scholarly culture of openness (Gruzd & Goertzen, 2013) or creating techno-cultural scholarly system (Al-Aufi & Fulton, 2015) different from traditional convention; increase opportunities for scholarly communication (Nentwich & König, 2014); to the extent lack of these platforms hinder scholars from participating in informal communications (Al-Aufi & Fulton, 2015). For long, scientific information that involves a scientist acquiring knowledge to carryout research, knowledge gained or produced, and communicated in the context of research (Romary, 2012) remains an important component for developmental purposes. This makes scientific development possible, economic progress conceivable, and social improvement promising, which depend largely on information transfer (Ying, n.d) prospectively throughout the ages. That is why dissemination of information is an important ingredient in modern society (Garvey, 1979) for solving societal problems or testing phenomena (Adakawa et al., 2019). Research pointed out that, readability of scholarly work depends largely on usage, citation, among others. Perhaps that is why many scholars concurred that, to ensure acceptability of scholarly content of web-based information; quality of information, authority, and topical interest are important (Rieh, 2002). In addition, scholars still use traditional criteria (i.e. presence in the citation indexes, reputation of the publishing venue, open access journal, or archives) for assessing the quality of such scholarly contents (Ponte & Simon, 2011).

Besides, research showed that, usage depends solely on those articles produced by a top-tier authors, published in a peer-reviewed journals attracting no cost for the reader; or alternatively, those articles written by a top-tier authors, in a peer-reviewed not in the top tier journal but electronically available at no cost to end users (Tenopir et al., 2010; 2011). It is important to note that; peer-review is a measure of ensuring quality and reliability of research findings (Mulligan & Mabe, 2011; Rowlands et al., 2004). It functions in filtering academic quality (Harley et al., 2010); selecting the outstanding manuscripts for journal publications, advancing readability of the published works, and detecting errors (Ponte & Simon, 2011). However, this finding contradicted the value of un-refereed social media information (RIN, 2009; Procter et al., 2010; RIN, 2010; Schonfeld & Housewright, 2010) which usually do not replace traditional scholarly information but merely supplement it (Nicholas and Rowlands, 2011; Procter et al., 2010; RIN, 2010; Rowlands et al., 2011; Tenopir et al., 2012). To buttress this point, while RIN's (2010) study indicated untrustworthiness of social media information to many researchers, however, Nicholas and Rowlands, (2011) and Rowlands', et al., (2011) research proved the opposite. Social media reshapes and simplifies scholarly communication especially with respect to sharing and dissemination of research (Veletsianos, 2016; Greenhow, & Gleason, 2014) despite researchers showed inconsistencies with the use of such tools (Manca & Ranieri, 2017; Veletsianos, 2016) in communicating their research. Against this finding, it is conspicuously true that many scholars use social media platforms to promote their research outputs (Donelan, 2016; Manca, & Ranieri, 2017). In addition, it is the academic librarians' roles to inform scholars about the development and trends in scholarly communication (Rodriguez, 2014).

From the citation behavior of researchers, scholars differ on citing other researchers' works, which depend on the perceived authority of the cited work, its author or dissemination channel (RIN, 2009;

Van Dalen, 2005). In other words, it is the author's professional status rather than the methodology used or the demographic features of the author (Lindgren, 2011) that is important especially in performance measurement studies. Likewise, citation is contingent with the quality of information, visibility of the author and not dependent upon the title length or clarity of the theoretical explanation (Stremersch et al., 2007) or personal knowledge of the author (RIN, 2009) except if the author knows something that is worth knowing (White et al., 2004). Many factors attract authors to publish in journals, which encompass refereeing quality or speed, perceived reputation, and impact factor (Mulligan & Mabe, 2011) of the journals. Access to a high targeted audience and readership (Rowlands et al., 2004); or a journal's closeness to faculty members, impact factor and its circulation within the scholarly community (Housewright et al., 2013) are also found to attract scholars to publish in specific journals. It has become commonplace nowadays that; researchers do consider quality of the research more than the quantity of publications (Harley et al., 2010) even if that means to publish less (Mabe & Mulligan, 2011).

OPEN ACCESS (OA)

OA has been in existence since 1990s especially when Harnard (1999) made a proposal on using preprint and post-print articles that caused an intense reaction in scholarly community. This, according to Harnad (1999) would result in publishers stopping charging subscription fees. This brought about open access.

WHY DOES OPEN ACCESS MATTER?

Domain specific research has a critical role to play in disseminating its research to maximize access, show the relevance of scholarly communication that can ensure minimal disparity in scholarly research outputs in such domains globally. Issues on OA are important to study as they assist in the proliferation of publications and the continuity of scholarly communication cycle. For instance, in Tanzania, among the 415 faculty members surveyed, Lwoga (2013) observed that, there was high level of engagement in scholarly publishing, where senior staff were more likely to participate in the scholarly communication as authors, referees, and editors. The research further revealed that the respondents were aware about OA but with a scanty literature of faculty members' research resources in OA. Similarly, the research showed that, the senior faculty members possess more expertise, technical know-how than their counterpart fellow junior staff and the research recommended *inter alia* the responsibility of librarians on creating awareness about OA, conducting information literacy programs, and providing information services on copyright management issues, etc. These issues have a corresponding implication for policy formulation, implementation on OA.

It thus follows from the above that, libraries laden with the responsibility of meeting the needs of users as described by Ranganathan, have been constrained by the skyrocketed prices of journals to make them readily available to end users. Therefore, users can have access to scholarly contents anywhere anytime. To start with, the OA movement has paved the way for libraries to have freedom and compelled the publishing sector to negotiate their pricing and other practices (Bailey, 2005). Furthermore, Suber, (2003) opined that, "open-access literature is characterized by two essential properties. First, it is free of charge to everyone. Second, the copyright holder has consented in advance to unrestricted reading, downloading, copying, sharing, storing, printing, searching, linking, and crawling. The first property

solves the pricing crisis. The second property solves the permission crisis”. OA has to do with “an ongoing publication practice which differs from the traditional methods of publishing papers, particularly in context of how the papers get submitted, reviewed, authenticated and finally published (PLoS, 2005). In other words, OA deals with “digital, online, free of charge, and free of most copyright, and licensing restrictions” (Suber, 2004); or more appropriately as captured by Harnad, (2005) that, OA is the “immediate, permanent, free online access to the full text of all refereed research journal articles”. Open access, according to BOA and PLoS, is “the free availability of literature on the public Internet, permitting any user to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose without financial, legal, or technical barriers other than those inseparable from gaining access to the Internet itself” (Budapest Open Access Initiative, 2002; Public Library of Science, 2005). Similarly, following the promulgation of The Bethesda Statement on Open Access Publishing (2003), and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003), the report reads thus that, “the author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship, as well as the right to make small number of printed copies for their personal use”.

The fact that publishers are strangled in terms of funding and archiving gave rise to several questions and models. Models like authors pay charges (APC), a grant budget, assists in publishing research results (Mukherjee, 2009). In this regard, authors can pay up to \$525 to \$1500 to publish in PLoS and BioMed journals (Regazzi, 2004). Two strategies were identified in OA: self-archiving and open access journal, the green and gold strategies. For green publisher, they mandate the authors to self-archive their scholarly published work in an open repository. A gold journal or publisher permits the author to self-archive and archives all articles on their website for public consumption (Willinsky, 2003). Purely OA journals do not charge authors any fee rather derive their funding from the institution for staff and infrastructure (Mukherjee, 2009). Less than 20% of journals in the Directory of Open Access Journal (DOAJ) are APC; 28% are the online versions of the print journal whereas governments specifically institutions, and societies sponsor the remaining journals (Regazzi, 2004). There are varieties of other OA that have different colors against the above-mentioned ones. To sum it all, Mukherjee, (2009) referenced ACRL (2004) which uses the following codes for identification.

1. Open Access Journals (OA Journals, color code: green): These journals provide free access to all articles and utilize a form of licensing that puts minimal restrictions on the use of articles, such as the Creative Commons Attribution License.
2. Free Access Journals (FA Journals, color code: cyan): These journals provide free access to all articles and utilize a variety of copyright statements (e.g., the journal copyright statement may grant liberal educational copying provisions), but they do not use a Creative Commons Attribution License or similar license.
3. Embargoed Access Journals (EA Journals, color code: yellow): These journals provide free access to all articles after a specified embargo period and typically utilize conventional copyright statements.
4. Partial Access Journals (PA journals, color code: orange): These journals provide free access to selected articles and typically utilize conventional copyright statements.

STRATEGIES OF SCHOLARLY COMMUNICATION IN HIGHER INSTITUTION OF LEARNING

Knowledge creation is a process that entails “quite rigidly codified pattern” (Dubini et al., n.d., p. 119) that is tedious to adapt, and beyond that, challenges, and causes scholars to limp back and front as if doing nothing with regards to research but works for as a podium for gratification and solving societal problems. It subjects scholarly knowledge to rigor and into a “systematic, premeditated, reflective, and continuously submitted to the scrutiny of a community of experts” (Dubini et al., n.d., p. 119) for inputs from these universally recognized scholars usually in accordance with standardized practice in their respective disciplines for guiding the novices and continuity of scholarly knowledge in a logarithmic phase. The enthusiasm and passion to contribute to scientific growth and development is the ultimate motivating factor for scholars to publish their works (Dasgupta & David, 1994; Merton, 1973) in recognized journals or aids as a badge of sort and scaffolding for promotion and recognition in their institutions (Adakawa et al., 2019; Coe & Weinstock, 1969; MacMillan & Stern, 1987; Gordon & Purvis, 1991).

Thus, from this purview, it appears that the process of creation of knowledge is long, energy-, time-, and steps-consuming prior to conveying knowledge delivery to readers (Cope & Kalantzis, 2000). In a similar manner, scholars do publish their works for economic and social professional progression and as visibility, reputation and personal achievement of scholars increases so does the ability to publish in prestigious journals that give them insights into developing other publication patterns for younger researchers (Dubini et al., n.d., p. 119) to adopt and prosper. Creation of knowledge marks the first stage in the scholarly process (Cope & Kalantzis, 2009) which depends upon the design, a backbone to represent the social process of knowledge. This immediately follows with the integration of concepts whose choice depends upon *inter alia* the domain of interest and inclination (Dubini et al., n.d.).

The essence of communication is to bring about a change (Stanikzai, 2017). The spectrum and wavelength of scholarly communication is broader as it encompasses the growth of scholarly information, associations among grey areas or disciplines, information needs and use of user groups and relationship between formal or informal methods of communication, etc. (Mukherjee, 2009). With the Computer Mediated Communication (CMC), communication changes form from print journals to computer networks (Peek & Pomerantz, 1998) a consequence of affecting the means, strategies, and practices of scholarly communication. Perhaps that is why ACRL (2019) dwells more on the open and equitable scholarly communication with the hope to bring about change. For example, from ACRL’s (2019) report, more priority is given to three components: people, content, and systems. The report further suggested that, for people, there is the need for change in embracing diversity and inclusion; improving the working lives of those engaged in SC and increasing awareness on author’s rights. While for content, transformation in rethinking what counts, and creating more representative and open collections is highly needed; and for systems, the change should reflect supporting technological infrastructure that are sustainable; creating systems that permit more access to more people, building mission-aligned organizational and financial systems, and advancing innovations in academic libraries.

NEED FOR STRATEGIC PLAN IN SCHOLARLY COMMUNICATION

For the past three hundred and fifty years, only two scholarly journals existed: *Journal des Scavans* (first issue published in 5 January 1665 in Paris) and in the next two months, *Philosophical Transactions of*

Royal Society (first published 6 March 1665 in England) (Fjallbrant, 1997) appeared. During that time, the proceedings of the meetings as well as the review of scientific investigations or facts were the main scholarly contain in these journals and were in print format. This trend continued for about 200 years up to the beginning of the 20th century where the journals astounded the libraries. In this respect, a major portion of the library budgets found their way to purchasing these journals (Mukherjee, 2009) a consequence for maximizing the production to meet the demands of those libraries by publishers. Following the speed of change (Senders, 1977), these journals transformed into web-based formats using different e-journal models; for example, ASCII text-based journal (McKnight, 1993). These e-journals are mainly the serials publications available in digital format (Harrassowitz, n.d.) usually distributed through CD-ROM, WWW, e-mail. Some are in ASCII texts, HTML WWW Pages, etc. In other words, two eras were identified in the literature as regards development of e-journal: ASCII (Peek & Pomerantz, 1998) [where the dominant journals were in form of newsletters, non-refereed e-journal, refereed e-journal, and tailored or structured e-journal]; and graphics-enabled e-journals (Kling & McKim, 1997) which can be e-; e-p; p-e; p+e journals.

The fact that performing traditional roles in a new environment is multitasking and challenging has changed libraries as publishers, recruiters of legal practitioners into the milieu of librarianship to function in copyrights laws, scholarly communications and other related legal issues testifies the readiness of these knowledge hubs for the future. The future of scholarly communication should be employing both formal and informal tools in interpersonal, institutional, responsive, and more focused on communication aspects. To differentiate between formal and informal scholarly communication, strategic planning is necessary in this regard. Since libraries select, organize, and disseminate information, they function in collaborating with the scholarly community in universities and around the world; libraries are and should act in this digital environment for the production of electronic resources to audience. To begin with, as Brown et al. (2007, p. 3) argued that, scholarly communication “can enable universities to more fully realize the potential global impact of their academic programs, enhance the reputations of their specific institutions, maintain a strong voice in determining what constitutes important scholarship and which scholars deserve recognition, and in some cases reduce costs”. This is only possible if the scholarly community designs strong strategies that can function in this respect. Despite university presses lacking critical resources, capabilities, and technical know-how but possessing unique skills and assets, universities should not underrate or abandon the dexterity or expertise of publishing, as it is very difficult to reestablish. In this perspective, Brown et al. (2007) have proposed several strategies, which include:

- Each university that produces research should have a publishing strategy that employs predominantly e-dissemination channels.
- Consolidation of certain activities and assets in the digital environment into larger platforms.
- Presses should change as the environment evolves that enables creating, storing, distributing, and monetizing e-contents. In this way, emphasis should be on new workflows that create e-editions, digitization, storage, and re-versioning of services using Bibliovault, codeMantra, etc. for the development and maintenance of e-content.
- Furthermore, experimentation with large commercial e-book aggregators such as Amazon, Google, ebrary, etc. is important.
- Finally, there is the need for symbiotic relationships (Neal, 2001) or collaboration between presses and libraries that can create added values. This is because, “Press/library collaborations must be

interactive, nimble, pushing the window on new forms of scholarship—creating new knowledge using technologies and reinventing business models” (p. 26).

- Why don't faculty members want to make their research out into repositories? According to Lwong, (2013), this challenge has nothing to do with the technical challenge rather the cultural change necessitating faculty members to adopt scholarly communication. In other words, policy mandates scholars to self-archive their drafts of researches in a freely accessible institutional repository. Research showed increase of contents after a policy mandate (Xia et al., 2012). However, mandatory policies without creating awareness will be in vain ultimately (Lwong, 2013).

On the other hand, Trotter et al. (2014, p. 8) observed that, for management of universities, the following should be the strategic plan for maximizing visibility and impact of research.

- Offer a reduction in teaching time to scholars who demonstrate ambitious research activity.
- Establish digital platforms for sharing publication success by university scholars.
- Develop policies mandating that all publicly funded research be made open access.
- Put all university-affiliated journals online and make them open access.
- Induce academic staff to create personal profiles on their departmental web pages.
- Establish or identify support service providers who can translate scholars' research for government- and community-based audiences.
- Develop a network of communication officers/content managers so that disparate dissemination activity can be pursued in a more cohesive and strategic manner.
- Encourage scholars to share their research insights on Wikipedia.
- Invest in training for library staff so that they can operate effectively in the new scholarly communication landscape.
- Train and incentivize scholars to use Web 2.0 platforms

PRACTICES OF SCHOLARLY COMMUNICATION IN HIGHER INSTITUTION OF LEARNING

In a contemporary political setting that places more emphasis on transparency, accountability (Lao et al., 2009) and obviously noticeable return-from-investment (Kruss, 2012; Huisman & Currie, 2004); institutions of higher learning are under greater pressure to provide an evidence-based account of the services they render to communities (Neylon et al., 2014b). Despite traditional teaching service has been forthright to measure via national/international accreditations; performance of postgraduate qualifications; etc., scholarly impact of institutions of higher learning, is a significant component of institutional evaluation, puts these institutions on a competitive edge, and the desire to be relevant, persuasive so as to provide desirable scholarly services (Neylon et al., 2014b). Perhaps this is the reason why Neylon et al. (2014b, p. 1) raised a striking metaphor, “whether institutions in sub-Saharan Africa are in a position to meet demands for the improved measurement and dissemination of research outputs”. Similarly, the fact that we are living “in a zero-proximity world [where] traditional space-time boundaries have collapsed in a globalized world, and this has garnered an unwavering expectation that any signal to make contact will be returned without delay” (van Schalkwyk, 2014). This implies that, institutions of higher learning are challenged to keep abreast with emerging technologies that can enhance scholarly practices.

There is growing evidence that scholarly communication is changing shape as a result of transformations in research activity itself in higher education system worldwide (Etzkowitz, 2004) and emerging technologies (Tenopir 2003; Palmer, 2005; Thorin, 2006; Procter et al., 2010; Weller, 2011). These make research topography an open space (Van der Vaart et al., 2013) against the traditional one. In other words, libraries and scholarly communication are changing rapidly in a similar proportion (Pendleton-Jullian, 2013) due to the demands of this new age. The choice to pay more considerable emphasis on practice in scholarly communication practice is because of “practice return” in social sciences (Czerniewicz et al., 2014). According to Palmer and Cragin, (2008, p. 169), practice refers to “arrays of human activity” that are “materially mediated” and “organized around shared practical understanding”. This pays a particular importance to activities rather than texts and goes opposite to many models of scholarly practice UNISIST (1971), the Garvey-Griffith (1972), Hurd (2000) and Sondergaard, Andersen and Hjørland (2003) models, as cited by Czerniewicz et al., (2014). These models are process-based ones that show where texts go and which group of people take responsibility for processing them (Czerniewicz et al., 2014). Against these models, Procter et al. (2010) and Kraker and Lindstaedt (2011), and Czerniewicz et al. (2014) developed another model that does not concern itself with text and its movement rather the activities undertaken by scholars and their choices in these activities across scholarly culture of each domain specific environment. The fact that, scholars find and disseminate research (Bulger et al., 2011; RIN (2009); they are consumers and producers (Palmer, 2005), scholarly practice is very important for exploration. From the research cycle, that involves knowledge creation and dissemination cycle, there are certain features that define it (Czerniewicz, 2013), there are basic elements, which include conceptualization, data collection and analysis, articulation of findings and, translation and engagement. (For detailed description on practice of scholarly communication, see Czerniewicz, et al., 2014).

The movement for OA paved the way for the institutional repository, a digital archive of intellectual products (Johnson, 2002) which, to some is at the dead end. Institutional repositories, usually developed and managed by academic librarians, offer the opportunity to outreach and promote the contents to the scholars in a respective institutions (Narayan et al., 2018). To some scholars, institutional repositories did not escape their misconception about it because they perceive green OA as a substitute that provides alternatives especially with regards to personal repositories, disciplinary repositories, social network and innovative combination of three (Van de Velde, 2016). Conversely, some scholars in HASS (i.e. humanities, arts, and social sciences) have expressed slow adoption of OA (Suber, 2017) and negative attitudes towards OA (Rodriguez, 2014). This implies that, scholarly communication practice across disciplines is different.

CONCLUSION

Mission and vision of institutions of higher learning must include production and dissemination of knowledge either through formal or informal channels. This is important for their visibility and reputations in the 21st century. Institutions do so by funding research undertaken mostly by scholars that maximize the relationality of the findings to impact on policy, enhanced healthcare services, and delivery, augmenting culture, and better-quality environments. Library budget has relevance if it is enough to cater for all services rendered by those libraries, and scholarly communication offices have to include librarians to perform excellently on the overall development. Institutions of higher learning have to rise up to the challenge and archive their information resources in ROAR, DOAR, and DOAJs for increased visibility.

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