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An Overview of Issues, Challenges and Opportunities of Scholarly Publishing in Information Studies in Africa

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Abstract

Scholarly publishing has been extensively used by many generations of scholars for self promotion and publicity, networking, the creation and development of new knowledge, announcement of ownership of research output, justification for funding, and proof of the existence of a scholar or department/research unit, among other reasons. Although scholarly publishing is not a new concept, e-scholarly publishing is, and many scholars still struggle to embrace it for promoting the dissemination and visibility of their research output. The digitisation of research publications and electronic publishing has made scholarly communication exceedingly versatile, accessible, effective and efficient. But these positive traits have also been obscured by the challenges. This paper discusses various issues, opportunities and challenges of e-scholarly publications, focusing on open access, institutional repositories and self archiving, conferences, electronic journals, the Web and the relevant ethical issues, particularly from the perspective of African countries and scholars.

Introduction

Publishing options and publications have increased significantly with the evolution of information technologies and communication networks, increased literacy, and the commercialisation of these important educational activities and facilities. Since the famous Gutenberg Press in 1440, publications have continued to proliferate with the Internet becoming the greatest publishing medium of all time. Because of the Internet, the publishing industry, which now spans three main categories - general, commercial, and academic publishing, is swiftly moving away from print to electronic -publishing, and from the traditionally large publishing firms to small or personal publishing initiatives, thereby introducing new challenges.

This paper discusses the status and challenges of scholarly publishing and e-scholarship in information studies. The paper focuses on two main issues: (i) conceptualising and contextualising publishing, scholarly publishing and e-scholarship; and (ii) the challenges of various aspects of e-scholarship, including peer review as a quality management activity, errors in scholarly publishing, mapping and auditing, self-archiving, Institutional Repositories (IRs) and Open Access (OA), publishing from theses, dissertations and conferences, visibility and web presence, etc.

Scholarly Publishing and E-Scholarship

Publishing is the process of making information and knowledge public or known by distributing and circulating that knowledge or information beyond the jurisdiction of its origin or source through the publication of content, mainly in print and electronic format. Of the three types of publications, i.e.

general, commercial and scholarly or academic, the latter is where e-scholarship resides.

A scholar is still viewed to be a learned person; he or she could be an academic or a person involved or engaging with investigative or knowledge based activities, mainly as a learner, researcher or teacher. Scholarship is what the scholar does in terms of activity or work. E-scholarship therefore would be an academic or research activity or work undertaken or fulfilled by a scholar using an electronic medium to enhance teaching, learning and research. Electronic scholarship (i.e. e-scholarship) is closely tied to digital scholarship. Digital scholarship can be "any element of knowledge or art that is created, produced, analysed, distributed, published, and/or displayed in a digital medium, for the purpose of research and teaching"(Kirsten Foot cited by Mutula, 2009:6). Most of the terms provided by Mutula (2010:6) for defining digital scholarship, such as the electronic handling of research articles, peer review, blended learning, evaluation of scholarly work, collaborative research, communication and e-resources, show that there are insignificant differences between the meanings of e-scholarship and digital research, although not all digitised publications are 'e-something' and vice versa. We note that e-scholarship and digital scholarship provide solid opportunities for e-research, enabling researchers to collect research data or information and share their research activities or output virtually.

The purpose of scholarly publishing is to promote and support scholarship, research, and academic or learning activities. A large number of scholarly publications now occur in both print and electronic format, and web-based publications are growing increasingly popular in the academic community for the rapid dissemination of research results. Scholarly publishing differs from other types of publications because of its characteristics. Most scholarly publications are conveyors of scientific research output and there are specific requirements for such output to belong to the scholarly output category, such as research quality and rigour, audience, readability and originality, and so on (Mabawonku, 2005)

Research output has been described as "textual output where research is understood as original, systematic investigation undertaken in order to gain knowledge and understanding" http://www.researchoffice.uct.ac.za/publication_count/overview/. The publication of research findings is a fundamental aspect of research dissemination and knowledge sharing processes, and such publications often go through a number of stages before they appear in the public domain for wider circulation and readership. Authors of research papers come from different backgrounds and scholarly and writing traditions. One of the main aspirations of scholarly publishing is the publication of quality papers, mainly in credible and prestigious peer-refereed scholarly journals and other publishing houses of good national and international standing. There is a diverse range of publications for scholarly research papers, the most common being books (largely monographs), articles in academic or professional journals, chapters in books, reviews and peer-refereed conference proceedings or papers, research reports (e.g. theses and dissertations), and patents and creative works (such as those originating from the visual and performing arts). However, journal articles in peer-refereed scholarly or academic journals with good national or international standing still dominate when measuring research output.

Motivation to Publish

Several widely cited reasons explain why scholars publish their research output (Ocholla, 2007; Stilwell, 2006). Calvert and Gorman (2002) observe that authors write "to disseminate new research findings or ideas. The publication of a paper establishes precedents in the formation of new knowledge, and puts new information in the professional domain where it can be scrutinised, criticised and either accepted or rejected. It may then contribute to further discourse. The author also makes personal gains by adding to a list of publications that can be used for tenure and promotion, for gaining professional acceptance that may lead to speaking engagement, consultancy work, perhaps even awards." Murray, in Stilwell (2006) summarises the reasons as follows: career progression or moving up to the next rung on the ladder, gaining recognition for work done, preventing others from taking credit for one's work or using one's materials, helping one's students gain recognition for their work, learning higher standards of writing, contributing to knowledge, building the

institution's status, and developing a profile. Other noteworthy reasons, in our view, include: to justify funding for an individual, department or institution; for tenure or permanent appointment, "publish or perish", or as a job requirement; career progression/ promotion and other forms of reward, gratification, or boosting one's ego through recognition/visibility; knowledge sharing; announcement of propriety or ownership; community practice and incentive; and education and training.

E-Scholarship Processes, Challenges and Opportunities

The processes, challenges and opportunities of e-scholarship can be viewed from different perspectives. This paper dwells on these issues in respect of peer review, errors in e-scholarship and publishing, mapping and auditing of research and scholarship, institutional repositories, self archiving and open access, publishing from theses, dissertations and conferences, and web presence.

Peer Review

Scholarly publication would not be what it is today without peer review, and e-scholarship is not exempted from this process. Peer review has a history that extends back to more than 300 hundred years of learned inquiry, acting as a traditional instrument of quality control that involves the screening of intellectual output for quality, reliability and credibility. Peer review is standard practice amongst scholars, where research output undergoes thorough evaluation by peers who are mostly in the same research domain or discipline. This is done in order to determine or vet the quality of output in terms of originality, relevance or significance and contribution to knowledge, methodology, awareness of research in the domain through the review of related studies, and readability, among other variables. Thus, peer reviews are important quality control mechanisms used by the scholarly community and most scholarly journals and publishers to establish the suitability of a manuscript for publication. In the words of Pouris (2006), "no analysis of research publishing can avoid underlining the critical role of editing and peer review in the maintenance of the global system of knowledge production, accumulation and use".

Peers are assumed to be credible scholars or qualified adjudicators in a discipline or subject domain, on whom scholars, editors or journals rely upon for views or comments on the content suitability of a manuscript up for publication in a scholarly publication or academic journal. The process of this 'review' service in the form of comments to the scholarly publisher or journal editor and/or author, is referred to as 'peer review'. It is built on the premise that research output (articles, monographs, research reports, patents, etc.) would earn more credibility, be more accepted, contribute more towards a society or discipline, command more respect, and be more reliable if peers (experts in the discipline) vet its quality by scrutinising, screening and evaluating its content and format. Peer review, therefore, should generally improve the quality of research output and the standard of scholarly communication, protect the public/scholarly community from unreliable or invalid information or knowledge, and safeguard the reputation and recognition of individuals, affiliate institutions and academic journals and scholarly publishing houses.

Although peer review is widely used to determine the quality of publication in journals, it is also liable to weaknesses. Most of these weaknesses are intellectual, such as insufficient knowledge in the subject domain, moral or psychological bias, and sociological (distance from context) and political arrogance and ignorance. Strong critics of peer review, such as Tipler (2003) when referring to and analysing cases involving prominent discoveries in science such as "Copernicus's heliocentric system, Galileo's mechanics, Isaac Newton's grand synthesis and Charles Darwin's evolution theory" as well as highly respected Nobel prize winning papers (such as Albert Einstein's theory of relativity), argue that "today, the peer refereeing process works primarily to enforce orthodoxy", and offer "evidence that 'peer' review is not peer review: the referee is quite often not as intellectually able as the author whose work he judges. We have pygmies standing in judgment of giants" (Tipler, 2003). However, Tipler does compromise by proposing that "leading journals in all branches of science establish a 'two-tier" system. The first tier is the usual referee system.

The new tier will consist of publishing a paper in a journal automatically if the paper is submitted with letters from several leading experts in the field (Tipler, 2003). However, in the view of this author, that still leads us back to the importance of peer review. Equally intriguing, but a fairly constructive and sometimes subversive take on this issue is offered by Harnad (1998) who argued that journals [scholarly work] should not be free from the "process of peer review, whose 'invisible hand' is what maintains its quality".

Peer Review Process

Peer reviewers are expected to be competent and credible scholars in order to be sufficiently eligible to participate in a review process that comes with critical challenges at each stage of the review process. Gorman (2000), for example, identifies three qualities of good reviewers: competent researcher, objective assessor, and comparative evaluator. Although there are variations in the peer review process from journal to journal and publisher to publisher, there exist strong threads concerning manuscript flow from author to editor to reviewer, as outlined in a study by Ocholla (2007) focusing on the *South African Journal of Libraries and Information Science* (*SAJLIS*). While guidelines are important for guiding reviewers, most journals unfortunately do not provide them, as is the case with LIS journals in Nigeria (Mabawonku, 2005). The main tenets of the peer review process are outlined graphically in Figure 1.

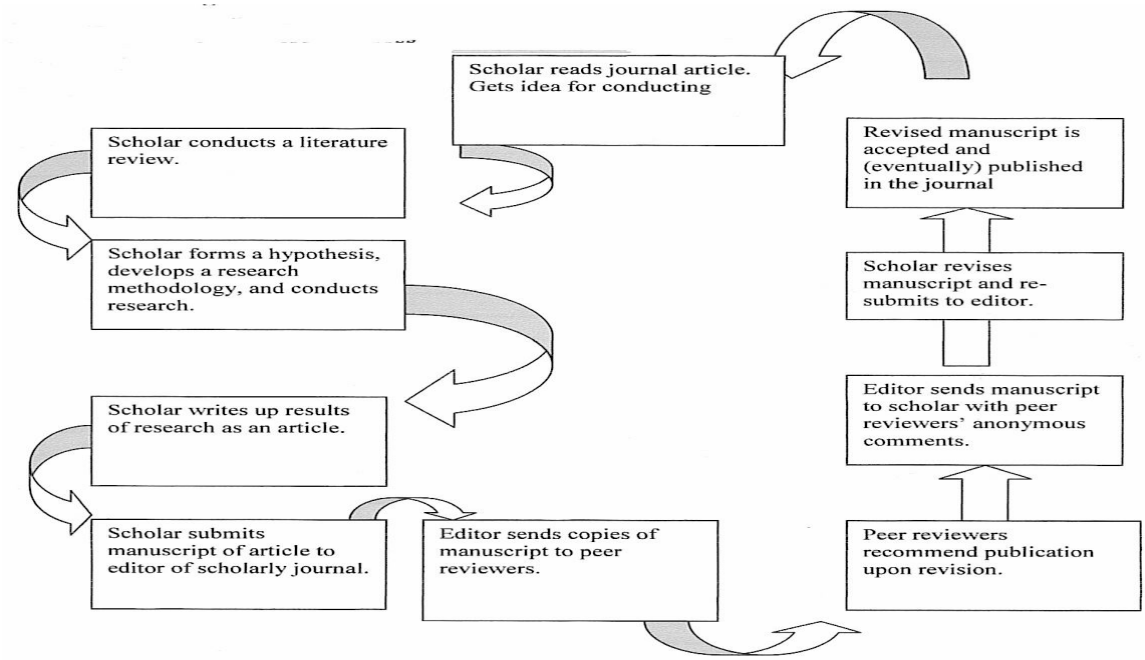


Figure 1: Peer review process
Source: http://www.lmunet.edu/library/INFL/materials/INFL100_InfoEval_Part2.ppt

Types of Peer Review

The nature, type and level of review are normally outlined in instructions to reviewers which are sent to the reviewers together with or separately from the manuscript. Reviewers are normally required to evaluate and rate the manuscripts and either recommend them for publication - without [any] corrections, with minor corrections, with substantial corrections that may demand a complete revision of the manuscript and a follow up review - or reject them. In most instances, reviews are required to determine or judge the quality of the manuscript in terms of theoretical and methodological validity, originality, significance and contribution, and readability. Tipler (2003) outlines three criteria informing judgment, listing them as the validity of the claims made in the paper, originality of the work

or whether similar work has already been done, and "whether the work, even if correct and original, is sufficiently 'important' to be worth publishing in the journal". Gorman, citing Gorman (2000), identifies six criteria for assessing submissions to Asian LIS Journals: the advancement of knowledge, new information or data; theoretical validity (use of appropriate theory or multiple theories); level of scholarship (quality of analysis and author's ability to generate new knowledge); acceptable research design and appropriate methodology and analysis that assists referees in establishing levels of "contribution in terms of knowledge or information conveyed"; originality of the contribution; and the soundness of the methodology, findings and structure.

Avoiding Errors in Manuscripts for Scholarly Publication

Errors may occur not only during the preparation of a manuscript for publication, but also at the early stages of research design. Mistakes that occur during the preparation of LIS theses and dissertations by students, as discussed by Kaniki (2000), are frequently carried on to the final preparation and submission stage of manuscripts prior to publication. Hinchliffe (2003) advises that "thinking about your final manuscript begins when you start thinking about your project." In her view, this includes searching for or reviewing literature and placing the project in context; choosing a topic and determining the relevance of the topic; manuscript and component organisation; and technical preparation (proofreading, removing typographical errors, and adherence to the requirements provided by publishers in their 'guide to authors', etc.).

Smarby, Crews and Downing (1999), citing Dies, Henson and McGowen, identify the following areas under which technical writing errors are made by aspiring authors: selecting topics to write about; describing research methods; following the American Psychological Association (APA) format; citing related research; using the appropriate writing style; and responding productively to feedback on manuscripts from editors. Searing (2003) advises that in the case of journals, it is important to find out whether or not the journal is peer reviewed and whether the journal is prestigious (highly selective), and to assess the journal's audience. Foster (2003) is of the view that a good manuscript is created when the author has current and concise references, the manuscript is repeatedly revised, the paper is well edited and proofread, instructions to authors are familiarised (leading to finer submission requirements), the manuscript is read by others for comments, and the paper is accurately submitted. It is important to review recent issues of journals in order to be inline with their latest requirements.

An editor, according to Fischer (2004), functions as a "gatekeeper" that ascertains the suitability of a paper for publication in a journal, or separates what he calls "wheat from chaff", using the following criteria:(i) The paper does not fit the journal's editorial mission;(ii) The submission is poorly written;(iii) The use of out-of-date literature, (iv) Inadequate levels of scholarship (no academic rigour or opinion, no validation of viewpoints); and(v) Unwieldy writing (e.g. overly complex, poorly organised, etc.). Results from a related study conducted by Ocholla (2007) on "Common errors and challenges of publishing in a peer refereed Library and Information Science journal" based on the content analysis of reviewers' reports for research articles published in *SAJLIS* from 2002 – 2006, identified more or less similar errors, with the top five falling under research methodology, presentation/organisation, readability/language, literature review, and referencing. Based on this study, Ocholla (2007) highly recommends that authors for scholarly journals, and indeed scholarly LIS publications, take note of the following eight pieces advice as outlined by Fischer (2004) based on referees' and editors' comments: (i) One must pick one's level and build up (begin with less competitive publication sources or outlets and build on them); (ii) Diversify your portfolio of submissions (decide whether you want to go a mile wide and an inch deep or an inch deep and a mile wide); (iii) Follow your comparative advantage (explore and engage co-authorship for sharing expertise and to reduce your workload); (iv) Partake in apprenticeships (work with experienced authors); (v) Network to enable partnership and knowledge sharing; (vi) Learn from the best - access and read the 'best papers' in journals or as declared at conferences; (vii) Get critical feedback - benefit from the expertise of colleagues who offer critical feedback, some of which can be offered at conferences or other paper

presentation forums; and (viii) Learn critical evaluation skills - look at your own work critically and market your submission to the editor (a good covering letter clarifying items in the paper is worthwhile). Organising and participating in authors' workshops, seminars and conferences is essential. Above all, actively participating in scholarly communication at various levels regularly, learning from one's mistakes, and not being afraid of the peer review process produce good results. Error studies suggest that no author, not even the most experienced, produces error-free manuscripts.

Mapping and Auditing of Scholarly Research Output

Research auditing and mapping, like information auditing (see Robertson, 1994: Booth and Haines, 1993), should be viewed as "a routine process of gathering, sometimes limited to creating an inventory" of research resources that include both tacit and explicit knowledge (e.g. records of all formats) produced by individuals and organisations. An information audit maps the network of an organisation's information processes and flows, showing the links between the communication process, the users of information within the organisation, and the means by which information is transferred and used (Thornton, 2001), and research auditing and mapping should allow the same. Thus, a research audit should permit research mapping by enabling the mapping of the university's or organisation's research producers, processes, flows, links/ networks, dissemination and users.

It is essential for researchers and institutions to know what is going on around them in other words, who (individual/department/school) is doing what, why, how, where and when. It would be impossible to discern research capability and progress without the auditing and mapping of research. One of the purposes of the research audit is to evaluate the effectiveness of an existing research system and service in order to determine effective ways of making the research operation and services relevant, and also to establish the strengths and weaknesses of the existing research system by identifying the research culture, practices, activities and challenges. Some of the benefits of the research audit are closely tied to those of information auditing and mapping (Thornton, 2001), e.g. providing a comprehensive listing of existing research resources and output.

As the name suggests, mapping provides a blueprint of something, for example the research environment within an institution or organisation, by providing a map of all the research entities that exist within that organisation for its effective management and exploitation that is also achievable through digitisation. Similar to what Burk and Horton (1998) observed when referring to information mapping, research mapping is a process of discovery based on the research activities and entities within an organisation that includes people (researchers); facilities, equipment and technology; and energy (information flow processes), information (content) and other inputs that have the capacity to create, acquire, process, store or disseminate research information. Mapping normally involves several approaches (see Burk and Horton, 1998) and includes a survey that allows one to list all of the research resource entities currently in use and identify their strengths and weaknesses for improvement or intervention to occur. With research mapping, it is easy to do an inventory of all the research sources, services and systems in the organisation.

A recent study by Ocholla and Mostert (2010) captured data relating to individual, departmental and faculty research output and visibility through publication count by using research data reflecting on on-going and completed arts, humanities and social science research publications by staff and students from 1994 – 2008, based on research records originating from the University of Zululand's Research Office for the period. Data analysis was done by categorising research output by overall research publication by department, publication in accredited (SAPSE) journals by department, author productivity, and comparison of research output by categories. Results showed the status, strengths and weaknesses of research activities and output in the faculty that could be used to inform research decisions. Ultimately, research projects need to translate into quality publications. As noted in Table 1 and Figure 1, there is a strong correlation between research projects and publication output.

Table 1: Registered Research Projects and Research Publication Output by Categories and Departments at the University of Zululand, 1994 - 2008

Department	Dept	Ms	D	Total	Pub	SAPSE
Library & Information Science	27	13	15	55	220	85
English	17	4	5	26	170	100
Social Work	19	8	3	30	7	4
Criminal Justice	18	3	6	27	63	25
Centre for Arts & Culture/dram	19	5	2	26	13	5
Afrikaans	4	0	4	8	35	27
Communication Science	10	5	5	20	54	24
Sociology	4	0	4	8	12	7
Psychology	6	5	1	12	86	56
IsiZulu	6	5	9	20	17	6
Theology & Religion Studies	17	0	3	20	154	70
History	4	0	0	4	26	16
Anthropology & Development Studies	8	3	1	12	20	11
Centre for Recreation & Tourism	8	2	5	15	10	0
General Linguistics	8	1	1	10	32	16
Philosophy	0	0	4	4	26	17
German	5	0	0	5	11	1
IsiZulu Language Research & Development Centre	2	0	0	2	8	1
Zulu Dictionary Project	1	0	2	3	1	1
Totals	**183**	**54**	**70**	**307**	**965**	**472**

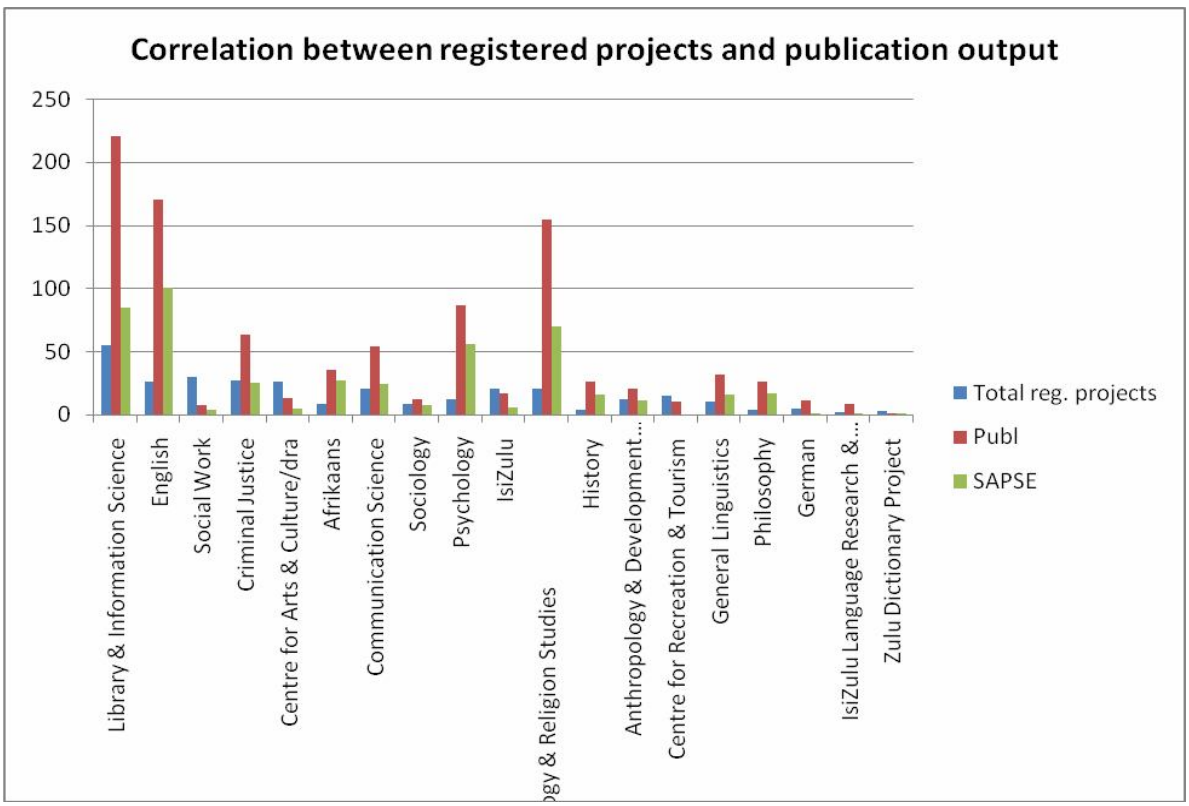


Figure 2: Correlation between registered projects and research output by categories and departments at the University of Zululand, 1994 - 2008

A related study enabling the auditing and mapping of LIS research was done by Ocholla and Ocholla (2007), entitled "Research in Library and Information Science in South Africa: an analysis of journals research output from 1993 - 2006". This study was based on a publication count and analysis of peer refereed articles indexed in the Library and Information Science Abstracts (LISA) and Thompson Reuters (TR) or ISI Web of Science databases (Science Citation Index or SCI, Social Science Citation Index or SSCI, and Arts and Humanities Citation Index or A&HCI) between 1993 and 2006 by 250 LIS authors, using journal, subject and author indicators for the analysis. The study provided information on some trends in LIS scholarly journal publishing in South Africa. Closely related to this was a study by Onyancha (2007), which examined library and information science (LIS) literature as produced and published by researchers in Africa in order to establish the productivity and impact of LIS research in the region by using publication count and citation analysis. The study also provided insight on the LIS research output and impact on the continent. Several other related studies have used informetric, bibliometric or quantitative methods for auditing and mapping of research at various levels.

Scholarly Publishing from Theses and Dissertations

A large part of scholarly research output emanates from postgraduate theses and dissertations at the master's and doctoral levels. Unfortunately, such scholarly output, particularly in Africa, rarely gets disseminated beyond the walls of the higher education institutions (HEI) of origin. For example, a study by Ocholla (2000) focusing on research output based on the analysis of 218 master's and doctoral theses and dissertations from 1993 to 2000 indexed in the Union of Theses and Dissertations (UTD) database (hosted by the South African Bibliographic Network, SABINET), revealed that approximately 52 per cent of this kind of research output gets published. This trend was confirmed once again in a study by Sitienei and Ocholla (2010) that investigated the publication pattern of academic librarians in Eastern and Southern Africa. Here it was found that scholarly research publications are often motivated by a reasons of career growth, tenure, promotion and financial gain. Unfortunately, in the experience of this author, most postgraduate students find it difficult to publish their dissertations because they lack knowledge on how to prepare their research output for publication in scholarly journals or outlets, and also because they fear possible criticism from peer reviewers. As we will learn later, archiving theses and dissertations in institutional repositories for open access is becoming standard practice in higher education institutions (HEIs), and promotes e-scholarship.

Generally, the nature, size, level, structure, quality and orientation of a thesis or dissertation largely varies from one research paradigm to the next, and in some cases from discipline to discipline. For example, variations between positivists or quantitative and interpretive/critical/analytical/ constructionist or qualitative research, as well as a blend of the two (mixed method, or quantitative and qualitative) paradigms, would influence the structure or appearance of a thesis or dissertation. The research articles emanating from these variations could be analytical, empirical, descriptive, evaluative, and so on. However, there are common structures in theses and dissertations that can be used to develop an easy publication formula, as illustrated below. From this author's extensive experience of joint publication with postgraduates, one can produce research publications by combining one or more of the following sections of the thesis or dissertation, using any of the formula provided:

1. Preliminaries (title, address, abstract and keywords)
2. Introduction
3. Problem statement, purpose, aim and objectives
4. Literature review
5. Methodology
6. Results
7. Discussions
8. Summary, conclusion and recommendations
9. References

Formula:

- A=1+2+4+5+7+8+9.

- B=1+2+3+5+6+8+9
- C=1+3+5+6+8+9
- D= 1+2+3+4+8+9
- E= 1+3+5+7+8+9
- 1+3+4+7+8+9

Successful publication from theses and dissertations calls for significant support for and mentorship of novice researchers by research supervisors, experienced peers and established researchers, and this calls for a great deal of collaboration, as alluded to earlier.

Publishing Opportunities from Conferences, Seminars and Workshops

Most research and scholarly publications appear in conference proceedings and either end there or get revised and published in journals. I visualise research conferences, seminars and workshops as the enablers of conference proceedings, which in turn act as a formidable supply chain for journal articles and other scholarly publications. Conferences offer opportunities for on-going and completed research to be shared, discussed, scrutinised and validated for further dissemination and use. As a matter of fact, many of the reasons behind why researchers publish relate to their engagement and participation in conferences and seminars. I find conferences, workshops and seminars to be extremely essential for research and publication management. Increasingly, I observe that they are strong research capacity building tools as well. Fisher's (2004) advice to researchers is that: "One must pick one's level and build up (begin with less competitive publication sources or outlets and build from them)." A lot of research papers published by scholars emanate from conference presentations, which are largely used to share knowledge on ongoing and completed research and enable peers to evaluate research output and activities and thereby improve research quality. In essence, for novice and even established researchers, conferences act as important forum for self development and research capacity building.

While conferences, seminars and workshops are important for scientific and scholarly publication, opportunities for participation in conferences are limited mainly by financial constraints. This is not the only constraint. Another major challenge is the possession of the knowledge, skills and courage or attitude necessary to prepare a conference paper. This is where a strong support system, such as mentorship and research collaboration between novice and established researchers, is required within a department, faculty or research unit.

There are many conferences announced nationally and internationally that invite LIS researchers to participate and present their research work. A large number of these conferences are organised by professional associations and societies as well as HEIs such as universities. For example, in the Eastern, Central and Southern Africa region, one can list the Southern Central Eastern Conference of African Libraries (SCECSAL), the Library and Information Association of South Africa (LIASA) Conference, Progress in Library and Information Science Research in South Africa (ProLISSA) Conference, and the ZA WWW Conferences. In addition to LIS schools and libraries, the University of Zululand, Moi University (Kenya), University of South Africa (UNISA), University of Johannesburg, University of Stellenbosch, University of Pretoria, and the University of Botswana are increasingly organising conferences, seminars and workshops that push LIS research. This means that there are avenues in Africa within closer proximity that translate to fewer expenses for those who wish to present and publish LIS research. The challenges of cost and knowledge for conference paper preparation still remain, however, and methods of intervention require attention. For example, the publication of less costly conference proceedings is a challenge that can now be addressed through electronic publishing and institutional repositories (see http://www.dissanet.com/jsp/index.jsp and http://www.lis.uzulu.ac.za/index.php/research/56-research-conferences for examples).

Electronic Publishing, Self Archiving, Institutional Repositories and Open Access

Electronic publishing is an activity and a process for all types of publications, such as scholarly or research work on the web by an individual or organisation for private or public access and use. Self-archiving, which involves posting or publishing one's research

output and documents in digital form, on private (e.g. blogging) and/or public web space (e.g. institutional repositories, websites), is increasingly popular in scholarly electronic publishing. Increasingly, the scientific or scholarly community is using self–archiving to enable better access, searchability, usability, and visibility of their research output by those with Internet access. It is, however, encouraged that such digital documents be compliant with the open access initiative (OAI) (http://www.eprints.org/openaccesss/self-faq/, accessed 10 October 2009). Figure 3 and Tables 2 and 3 illustrate the global, African and South African OA situation.

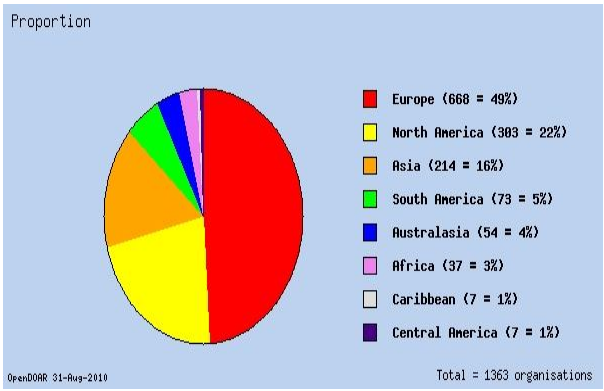


Figure 3: World Proportion of Open Access Repositories (OAR)

Source: http://www.opendoar.org/onechart.php

Table 2: Institutional Respository in Africa

Repository name	Country	Num. Recs.	Pubs	Confs	Theses	Unpub	Other	Base URL	Software
University of Botswana Research, Innovation and Scholarship Archive	Botswana	343							DSpace
Biblioteca Digital da Universidade Jean Piaget de Cabo Verde	Cape Verde	178	+	+	+	+	+		DSpace
AUC DAR Repository (Digital Archive and Research Repository)	Egypt	595		+	+		+		DSpace
Cairo University: جامعة القاهرة	Egypt	707	+	+	+		+	OAI	DSpace
Digital Assets Repository	Egypt	62000	+				+		[Unknown]
Institutional Digital Repository For Library and Information Department at Faculty of Arts, Menofia University	Egypt	49	+	+	+	+	+		Greenstone
The BUE e-print repository	Egypt	46		+				OAI	EPrints
Addis Ababa University Libraries Electronic Thesis and Dissertations Database	Ethiopia	1568			+			OAI	DSpace
knustspace	Ghana	1211		+	+		+		DSpace
KARI e-repository	Kenya			+			+		[Unknown]
Mahider	Kenya	88	+		+	+	+		DSpace
Sudan Open Archive	Kenya					+			Greenstone
Digital Collections of the University Library	Namibia						+		Greenstone
Ounongo Repository	Namibia	45		+	+	+		OAI	DSpace
University of Jos Institutional Repository	Nigeria	839		+			+	OAI	DSpace
University of Nigeria Nsukka	Nigeria	21102			+	+			[Unknown]
Biens Culturels Africains	Senegal	133	+	+		+	+	OAI	DSpace
African Higher Education Research Online	South Africa	165	+	+	+	+	+	OAI	[Unknown]
Boloka: Research Repository North-West University	South Africa	1391			+			OAI	DSpace
CSIR Research Space	South Africa	3257		+				OAI	DSpace
Digital Innovation South Africa	South Africa		+	+	+	+	+		[Unknown]
Digital Knowledge	South Africa	383			+	+			Digital Commons
DUT IR	South Africa	248			+				DSpace
Rhodes eResearch Repository	South Africa	1279		+	+			OAI	EPrints
Scientific Electronic Library Online - South Africa	South Africa								SciELO
Stellenbosch University SUNScholar Repository	South Africa	3390		+	+		+	OAI	DSpace
UCT Computer Science Research Document Archive	South Africa	290	+	+	+	+		OAI	EPrints
UCT Lawspace	South Africa	197		+	+	+	+		DSpace
UJDigispace	South Africa	405			+			OAI	DSpace
UKZN Institutional Repository	South Africa	551			+			OAI	DSpace
Unisa Institutional Repository	South Africa	2928			+	+	+		DSpace
University of Fort Hare Institutional Repository	South Africa	121			+				DSpace
University of Limpopo	South Africa	70			+				DSpace
University of Pretoria Electronic Theses and Dissertations	South Africa	4224			+			OAI	ETD-db
University of the Free State ETD	South Africa				+				ETD-db
University of the Western Cape Research Repository	South Africa	26		+		+		OAI	DSpace
University of the Witwatersrand Institutional Repository	South Africa	5405		+	+	+	+	OAI	DSpace
University of Zululand Repository	South Africa	31			+				DSpace
UPSpace at the University of Pretoria	South Africa	5562		+	+		+	OAI	DSpace
UWC Theses and Dissertations	South Africa	479			+			OAI	[Unknown]
Uganda Scholarly Digital Library at Makerere	Uganda	630		+					DSpace
Institutional Repository at University of Zimbabwe	Zimbabwe	227		+			+	OAI	DSpace

Table 3: Institutional Respository in South Africa

Repository name	Country	Num. Recs.	Pubs	Confs	Theses	Unpub	Other	Base URL	Software
African Higher Education Research Online	South Africa	165	+	+	+	+	+	OAI	[Unknown]
Boloka: Research Repository North-West University	South Africa	1391			+			OAI	DSpace
CSIR Research Space	South Africa	3257		+				OAI	DSpace
Digital Innovation South Africa	South Africa		+	+	+	+	+		[Unknown]
Digital Knowledge	South Africa	383			+	+			Digital Commons
DUT IR	South Africa	248			+				DSpace
Rhodes eResearch Repository	South Africa	1279		+	+			OAI	EPrints
Scientific Electronic Library Online - South Africa	South Africa								SciELO
Stellenbosch University SUNScholar Repository	South Africa	3390		+	+		+	OAI	DSpace
UCT Computer Science Research Document Archive	South Africa	290	+	+	+	+		OAI	EPrints
UCT Lawspace	South Africa	197		+	+	+	+		DSpace
UJDigispace	South Africa	405			+			OAI	DSpace
UKZN Institutional Repository	South Africa	551			+			OAI	DSpace
Unisa Institutional Repository	South Africa	2928			+	+	+		DSpace
University of Fort Hare Institutional Repository	South Africa	121			+				DSpace
University of Limpopo	South Africa	70			+				DSpace
University of Pretoria Electronic Theses and Dissertations	South Africa	4224			+			OAI	ETD-db
University of the Free State ETD	South Africa				+				ETD-db
University of the Western Cape Research Repository	South Africa	26		+		+		OAI	DSpace
University of the Witwatersrand Institutional Repository	South Africa	5405		+	+	+	+	OAI	DSpace
University of Zululand Repository	South Africa	31			+				DSpace
UPSpace at the University of Pretoria	South Africa	5562		+	+		+	OAI	DSpace
UWC Theses and Dissertations	South Africa	479			+			OAI	[Unknown]

Unfortunately, according to data obtained from the Directory of Open Access Repositories (DOAR, http://www.opendoar.org/countrylist.php) and Registry of Open Access Repositories (ROAR, [1]http://roar.eprints.org/), the development of Institutional Repositories (IRs) in Africa is weak: only 11 of the 53 independent African countries have established 42 IRs, which account for approximately 3 % of the world's total. South Africa has the largest number of IRs (23 of 42). Institutional repositories have become popular vehicles for self-archiving and e-scholarship. The self-archiving process is outlined in Figure 4 below, while Table 4 provides scholarly publishing/open access routes and options.

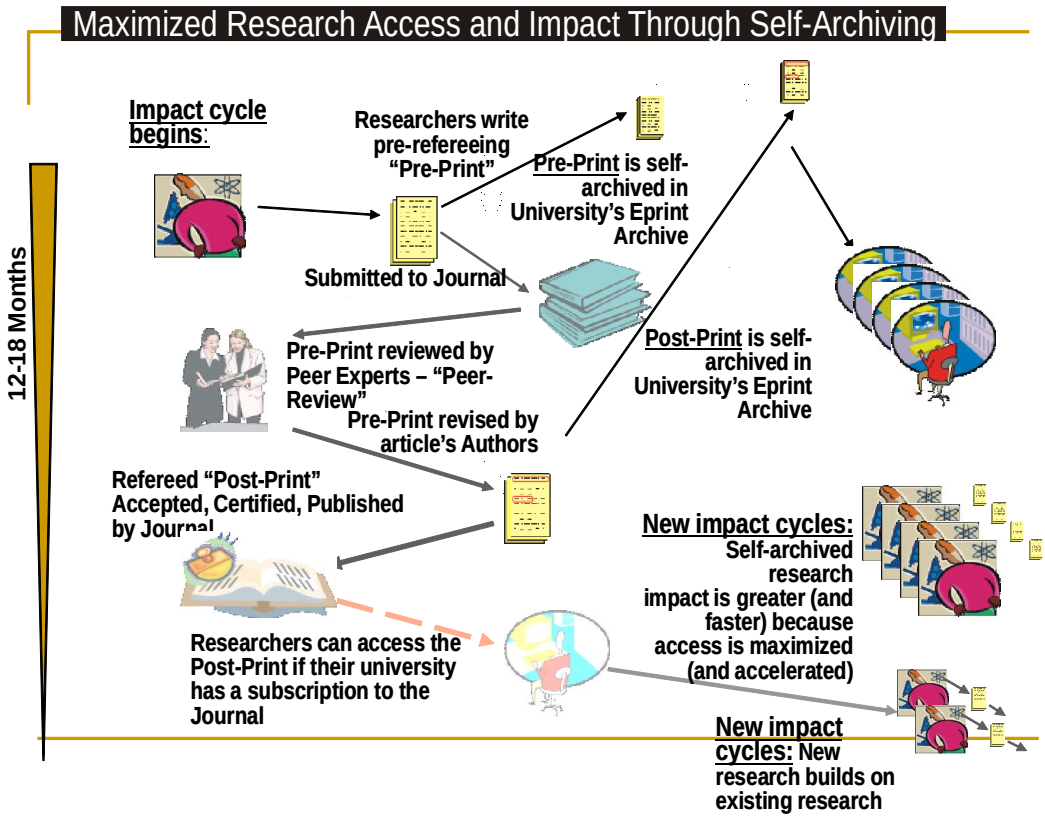


Fig. 4: Maximized research access and impact (Source: Brody & Harnard,

Table 4: Scholarly publishing/open access routes/options

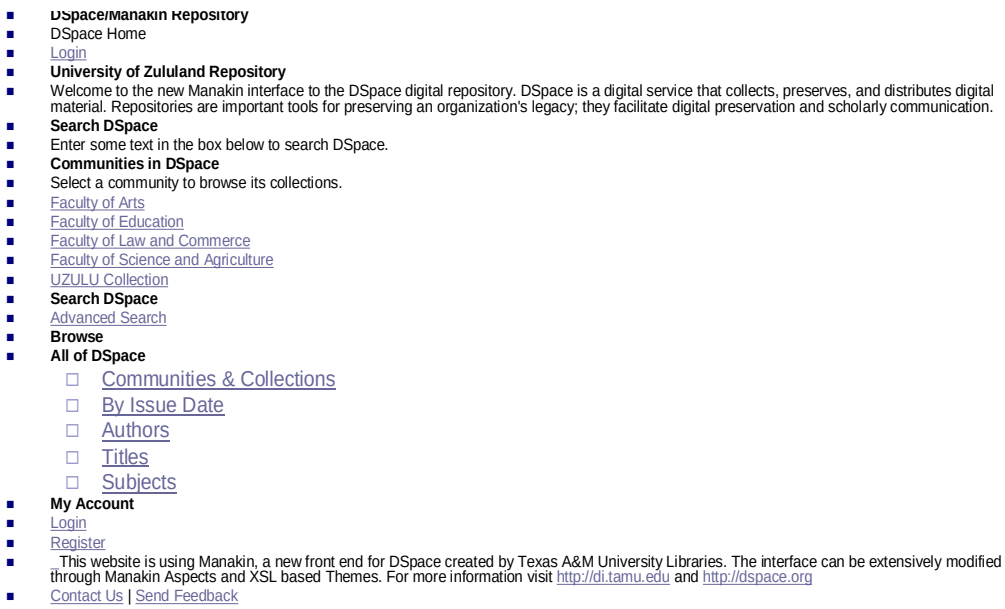
Green Route	The author can self-archive at the time of submission of the publication whether the publication is grey literature, a peer-reviewed journal publication, a peer-reviewed conference proceedings paper or a monograph
Golden Route	The author or author institution can pay a fee to the publisher at publication time, the publisher thereafter making the material available 'free' at the point of access.
Preprints	Preprints are articles that are pre-peer-review
Postprints	Postprints are articles that are post-peer-review
eprints	eprints can be either preprints or postprints but in electronic form
White Literature	White literature is peer-reviewed, published articles
Grey Literature	Grey literature is preprints or internal 'know-how' material

A recent study by Onyancha (2008) entitled "Self-archiving by LIS schools in South Africa: practices, challenges and opportunities", cites Eprints' (Eprints.org, n.d.) recommendation for collaboration between stakeholders where the institutions' or universities' role could be installing an OAI-compliant EPrint archive; encouraging staff to deposit their scholarly work, both pre-print and post-print, in departmental or institutional repositories; and training digital librarians who may assist as 'proxies' in self-archiving.

Onyancha's study noted that some institutions (or departments) conduct self-archiving activities by posting documents on their websites,

but while such initiatives are encouraging access to digital documents, such as online scholarly publications, Onyancha observes that they pose challenges with respect to preservation and the permanence of the material archived on the websites. His advice is therefore to develop an OAI-compliant EPrint archive or repository. For example, in the process of developing a new LIS departmental website at the University of Zululand, South Africa, some documents that were posted on the website are removed. From this author's experience, the lack of an OAI-compliant Eprint repository should not prevent self-archiving as an interim measure. The Department of Information Science of the University of Zululand (http://www.lis.uzulu.ac.za) has been fairly successful in enabling online access to some content, benefiting from the advantages of IRs and sensitizing the university towards the development of a compliant repository (see http://uzspace.uzulu.ac.za), as reflected below.

Fig 5: UZ Space



Source: http://uzspace.uzulu.ac.za

Essentially, Onyancha's (2008) proposal and suggestion for workshops and seminars on IRs, the evaluation of existing IRs, and enabling OAI-compliant EPrint archives, among others recommendations, are highly essential for the development of LIS scholarly publishing. Moreover, the involvement of HEIs' libraries in this activity is fundamental because of their strong academic role.

Web Presence and Visibility

E-scholarship plays a major role in pushing web presence and visibility that, to some extent, translates into the widely published and often controversial university rankings (see http://www.webometrics.info/). Webometric studies on in-links, co-links and out-links to institutional websites, such as those done by Onyancha and Ocholla (2007, 2008), also rely a lot on e-scholarship activities on the web. For instance, in Onyancha and Ocholla's study in 2008, the authors executed a co-link analysis of 95 (out of a total of 142) institutions of higher education in Eastern and Southern Africa. Data was collected using a uniform search strategy, i.e. two search queries were used to extract relevant data

from the Yahoo! search engine. UCINET version 6 (comprising several analytic technologies) was primarily used to analyse the data in order to find out the number of external in-links for each institution; determine the most co-linked institutions; map the co-linkages; measure the strengths of co-link ties; examine co-link relationships; and establish the motivations for co-linking. For the presentation of the findings, 40 institutions that recorded a normalised co-link count of 1.5 and more were selected. Results indicated that most South African institutions have the highest number of in-link and co-link counts. Institutions belonging to the same geographic region established closer relationships amongst themselves than institutions located in different geographic regions. Institutions that yielded fewer in-link and higher co-link counts produced stronger co-link ties. Strong web presence and visibility played a major role for higher counts.

Onyancha and Ocholla's (2007) study used link analysis to compare Kenyan and South African universities according to several web-based indicators, including the number of pages and the number of in- and out-links. Here the authors examined the external out-links in order to determine the institutions targeted by South African and Kenyan universities. Also investigated were the networks or links between universities. Web impact factors (WIFs) were calculated and reported in order to compare the universities' web influence. Results indicated that Kenyan universities, like most African universities, have embraced the Internet and its constructs fairly recently, therefore most of their websites are at initial stages of construction. Comparatively, South African universities have made remarkable progress in their web presence, which is at an advanced stage of development when measured against institutions in more developed countries. The study's recommendation was that regional webometric studies should be conducted periodically in order to investigate and map the web-related developments of African universities. The authors' conclusion was that African universities, although not at the same level as institutions in developed countries, can have their websites evaluated webometrically.

There have been significant improvements in the web presence and visibility of the studied institutions since those studies were conducted and reported. It may be assumed that the development of websites is becoming increasingly important for HEIs for visibility, and that web content is increasing, driven by e-scholarship, such as publications in institutional repositories. Whether university rankings have anything to do with this burgeoning interest in web presence and visibility is difficult to tell, but websites and web presence are becoming common practice and a showcase of achievement and credibility among institutions. We believe that e-scholarship should spearhead web content or publications, strengthen web presence and increase visibility, and continue to influence all types of institutional rankings.

Conclusion

Electronic publishing is increasingly the catalyst behind scholarly publishing's phenomenal growth, mainly because of web-based publications. Library and information science is one of the disciplines that are benefiting heavily from this burgeoning publication outlet. Because unpublished research is the equivalent of 'dead research', reasons why researchers conduct research and publish have to be regularly evaluated to ensure maximum benefits are accrued from research activities. Therefore research quality control through the peer review process, among other emerging quality measures, has to be maintained. But peer review should not only be viewed from a quality control or assurance point of view. Peer review should also be used as an instrument for research capacity building. In this case, peer reviewers must be prepared to go a step further by understanding that their job as peer reviewers also involves pushing researchers to be better authors and publishers. Researchers therefore need to know what types of errors they make, why they make them, how to correct the errors and improve their manuscripts and increase the quality and volume of publications.

The challenges and opportunities identified in this paper are fundamental for library and information scholarly publications. We need to explore, use, evaluate and strengthen self–archiving, institutional repositories, and open access. As a matter of fact, self-archiving and institutional

repositories without OA are unattainable, particularly in Africa which has been suffering an 'information famine' for ages. Institutional repositories (IRs) act as the mirror that allows the world to interact with our stories or content and enable the sharing of knowledge and creation of better understanding. I think that enabling knowledge sharing should be our (information science's) primary activity. For this reason, publication from theses and dissertations should be encouraged and supported, at least through IRs. We should also create regular and relevant platforms for conferences, seminars and workshops and support participation in such scholarly gatherings by bringing conferences closer to those who cannot afford far-off locations. Conferences should be seen as research capacity building platforms aimed at better knowledge and information dissemination. We most certainly have to keep our options open in exploring and exploiting new additions to e-scholarly publishing that may also extend to rapidly expanding social networks.

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