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Embedding digital and research-literacy support program into postgraduate studies curriculum

A proposed program for sub-Saharan African postgraduate schools

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Abstract

Purpose – This viewpoint paper aims to propose a digital and research literacy support program for postgraduate schools in sub-Saharan Africa institutions.

Design/methodology/approach – The paper reviewed literature on postgraduate students' skills and postgraduate information literacy programs and proposed one for postgraduate schools in sub-Saharan Africa institutions.

Findings – Information literacy programs are not implemented at the postgraduate level in sub-Saharan Africa possibly because of lack of contents for these programs.

Research limitations/implications – The course is only a proposed course that can be embedded into the postgraduate curriculum in sub-Saharan African universities. The effectiveness of the course has not been evaluated in this study.

Originality/value – The proposed information literacy program focused on digital and research literacy, which is still relatively new in sub-Saharan Africa.

Keywords Information literacy, Postgraduate program, Digital literacy, Postgraduate curriculum, Postgraduate students, Research literacy

Paper type Viewpoint

Introduction

The need for research and digital literacy skills at the postgraduate level is becoming increasingly indispensable for research enablement in Africa. Valuable research churned out worldwide has not reflected the African output to a large extent. Higher education research capacity in the form of published peer-reviewed articles, masters and doctoral output is



disturbingly low in Africa, with African universities producing less than 1 per cent of global scholarly articles. (Venitha, 2015). This indicates that there exists a paradigm shift in the global research procedure with the Web and mobile technology being pertinent for the dissemination of scholarly information. This also means there is a need for a systematic review of information literacy policies in these institutions. Other areas of emphasis which are new include literature-searching skills, social media use, open science, open scholarship and publishing, to mention but a few. According to Miller *et al.* (2009), research and digital literacy can take different forms like stand-alone courses, or classes, online tutorials, workbooks, course-related instructions or course integrated instructions.

The increasing rate of information explosion and overload has made it imperative that students and researchers in Africa have the skills to find, make visible, evaluate and use information within the ethical and legal limits for research enablement. Postgraduate students constitute adult learners that use information for thesis writing and publication, which thus creates a need for encompassing forms of information literacy programs (Oyewo and Samuel, 2016). Literacy has since been researched and discussed in other forms such as information literacy, digital literacy, computer literacy and research literacy, which goes to indicate that “basic literacy is needed in order to acquire other forms of literacy” (Kimani, 2014). Thus, the ability for people to recognize their own need for good information and to have the skills to identify, access, evaluate, synthesize and apply the needed information makes them information-literate (Baro and Zuokemefa, 2011). It is imperative to state that cognizance has not been given to these new “literacies” in the postgraduate curriculum of sub-Saharan Africa. This has been corroborated with evidence from literature that revealed that there is an utter neglect for computer and technology literacy in the information literacy courses of postgraduates in many institutions (Okpala *et al.*, 2015).

Preliminary investigations by the researchers revealed that majority of the institutions in Nigeria, Ghana, Tanzania and Uganda do not have information literacy courses in their postgraduate curriculum, except for research methodology, which does not cover digital and research literacy that these students need to know. Further compounding this problem is the fact that these courses are not even taken as short courses which academic libraries in developed countries have adopted and put up for postgraduate students. In fact, most of the programs that academic libraries in these countries have are basically for undergraduates. It could be hypothetically presumed that lack of contents for information literacy courses is basically one of the reasons these courses are not embedded in the postgraduate curriculum of institutions in sub-Saharan Africa.

Digital literacy

The proliferation of information and communications technology (ICT) has shifted information literacy education toward digital education. This shift, thus, requires students in general and postgraduate students in particular to have the capabilities which fit an individual for living, for learning and for working in a digital society (Beetham, 2010).

Digital literacy is not only connected to studying at an institution. It is essential to all areas of an individual's Online /web presence. A person's confidence and competence with email, word processing and presentation programs (e.g. MS Word and PowerPoint); the different ways individuals and groups interact with social media (e.g. Facebook and Twitter); and awareness of the different “digital footprints” created by use of the internet are all part of digital literacy (<http://makingdigitalhistory.blogs.lincoln.ac.uk/>). At the academic institutions, there are different types of digital environments. Libraries include digitized resources such as e-books; e-theses and dissertations; and e-journals in their resource database. Lecturers use institutional virtual learning environments to support their teaching

and student learning. Digital literacy, thus, encompasses the ability of students (and lecturers) to make use of these tools effectively. The digital divide between African countries, especially sub-Saharan Africa and the West is obviously wide and experts envisage that if this divide is not tackled, the 2030 agenda would fail. Thus, digital literacy has the power to put millions of young Africans on the path to successful careers.

Research literacy

Research literacy encompasses the traditional method of research in addition to the application of modern computing skills which include making the research process easy and making research output visible. It is about knowing how to find information for a research, evaluating the information and using the information in the research process. It involves all the steps in the research life cycle from conception to publication. After publication, research literacy widens the horizon of the researcher to newer terms in the research world. Concepts like open science, open data, research data management and virtual research environment are part of research literacy. In fact, digital literacy has also been embedded into research literacy, e.g. the use of mobile technologies to increase research collaboration and networking. In essence, it incorporates information literacy (finding, evaluating and using information) and digital literacy (using computer and computing skills to disseminate research findings and collaborate). This research literacy has little to do with the traditional research methodology/design.

Research literacy can be said to be currently generic and needs to be interpreted in relation to one's disciplinary practices and assessment demands. It is defined as "The ability to be a critical consumer of research and also, where possible, to design and undertake at least a small-scale research project in the discipline, using appropriate methodology" (<https://wiki.brookes.ac.uk/display/GAA/Research+Literacy>). According to the Association of College and Research Libraries, "Research Literacy is the ability to understand and use information technology tools to carry out research including the use of discipline-related software and online resource".

Review of literature

A peruse of literature on the information literacy skills revealed a dearth of studies that have focused on the literacy skills of postgraduate students. Majority of the few ones have reported low information literacy skills. [Omeluzor *et al.* \(2013\)](#) investigated the level of information literacy skills of postgraduate students of Babcock University, Nigeria. Their study revealed that postgraduates in this university had low-level information literacy skills focused on searching for information which has been the contents of information literacy programs. The study did not investigate the use of new research and digital tools for enabling research. At Babcock University, Nigeria, [Omeluzor *et al.* \(2013\)](#) in their study stated that despite the importance of IL skill programs which prepare students ahead of academic tasks, these programs are only given to the undergraduates, while postgraduate students were usually given briefing and orientation. The authors stated that studying and understanding the basis of using information tools is very helpful to carry out research. However, over time, the complexity in accessing research information has increased. ICT has changed the forms in which these tools come. For example, libraries now have e-databases that come with their search terms and evolve periodically. The use of social media and alternative metrics to define the impact of the research output are also skills postgraduates have to grapple with. [Dorvlo and Dadzie \(2016\)](#) investigated the level of information literacy of

postgraduate students in the University of Ghana and stated that majority of the postgraduate students were not information-literate.

Baro (2011) conducted a study on information literacy education in library schools in Africa to ascertain whether librarianship is taking the leading role in the development of information literacy in the universities. The study revealed that only few library schools have successfully integrated an information literacy course as a stand-alone course in their curriculum.

Ratanya (2012) corroborates this when she stated that:

Considering complexity associated with access to certain information, in addition to emerging concepts in ICT and the need to effectively utilize of information resources in any library, a user requires certain degree of skills and knowledge to access and use information.

Ratanya (2012) statement indicates that postgraduate students do not only need the web facilities or tools, they also require the skills to navigate and make judicious use of these facilities for scholarly communication; this is evidently lacking in sub-Saharan African institutions postgraduate students. Oyewo and Samuel (2016) examined the level of information literacy *vis-à-vis* ICT and library facilities use by PhD students and its implication on their research, scholarship and publication opportunities. The authors used forty Nigerian students enrolled at the Universities of Lagos, Nigeria and KwaZulu-Natal, South Africa. The descriptive qualitative research revealed that in terms of information literacy, research, scholarship and publications, Nigerian students enrolled at the University of KwaZulu-Natal fared better than their counterparts in the University of Lagos mainly because of the availability and accessibility of ICT and an efficient library. However, in this era of information overload, an information literacy support system for postgraduate students needs more than facilities to survive in the tsunami of information they find themselves. The skills thus become pertinent and this is obviously absent in the curriculum of postgraduate students in sub-Saharan African universities.

Secker and Macrae-Gibson (2011) evaluated the impact of a six-week information literacy course designed for PhD research students in the London School of Economics by librarians. The study found that the course benefitted the students immensely, as extended doctoral-level information literacy courses were relatively uncommon.

O'Clair (2013) described and evaluated a graduate-level course in information research for thesis-based master's degree students in the College of Agriculture, Food and Environmental Sciences at California Polytechnic State University. The students' self-perceived levels of confidence and preparedness increased after taking the course. Majority of the respondents felt the course was useful and the content would help them complete the thesis efficiently and effectively.

Bruyn (2013) opined that the support of postgraduate research may, therefore, require a much broader scope of skills and activities, which implies a necessary shift in focus between the planning of basic information and more advanced information literacy support. Information literacy support should go beyond the mere seeking and retrieving of information (Brewerton, 2012; Streatfield *et al.*, 2010). He further gave evidence to suggest that information literacy support for postgraduate researchers should cover managing and organizing research information, repository capabilities, publishing channels and dissemination of research findings, among others.

Thus, to effectively carry out research and disseminate the same requires the dissemination of new set of digital skills. For academic libraries in Africa to be able to play their crucial role of assisting research enablement, there is a need to evaluate the information literacy policies in academic institutions and the roles of libraries in its implementation.

Need for digital and research literacy program in sub-Saharan Africa

With the increasingly hi-tech information society, the means of authoring, information finding, organizing and research as well as information use are increasingly mediated by information technology. This, thus, calls for improved literacy skills in the academic and research environment. Research studies have, however, indicated that the literacy skills of students are inadequate, especially at the postgraduate level. This problem is further heightened by the non-inclusion of information literacy programs at the postgraduate level because of the general belief that postgraduate students should be sufficiently literate enough. On the contrary, many postgraduate students in African universities do not have the needed information literacy skills to assist them in information searching, information retrieval, information evaluation and authentication, referencing and others, which are an integral part in the research process. Embracing this into postgraduate curriculum is something that needs to be explored in African universities. Justifying the need for inclusion of information literacy courses at the PhD level, [Oyewo and Samuel \(2016\)](#) stated that PhD students access information for publishing, research, literature review, conference, evaluation of literature materials and grants, which comes from varying filtered and unfiltered sources and can be tedious and time-consuming for early career and novice PhD students.

Many universities in Africa do not emphasize the teaching of research literacy and if they do, they do not incorporate a big percentage to research literacy in their syllabuses; therefore, postgraduate students finish their courses without comprehensive research skills to enable them to collaborate, disseminate and publish in high-impact journals around the world. Research studies have indicated this; for example, [Omeluzor *et al.* \(2013\)](#) found out that most of the respondents experienced difficulty accessing and retrieving information and this was attributed to the non-inclusion of information literacy programs at the postgraduate level. [Adeleke and Emeahara \(2016\)](#) affirmed that postgraduate students need to be more competent in using communication technologies to meet up with the expected research-led enquiries in the digital age.

The dearth of information literacy programs at the postgraduate level could, thus, be tentatively said to be owing to inadequate contents for such courses. A program like this would definitely fill that gap.

Conclusion

In the current world, where information has become ubiquitous and its explosion is imminent, there is a need for postgraduate students to be equipped with information literacy skills that incorporate research and digital literacy. Most available literacy programs at postgraduate levels focus on research methods/design. This is because they conduct research works and must submit a detailed and focus research output in the form of theses and dissertations as part of graduation requirements. It is, however, important for these students to know how to collaborate, manage, disseminate, make visible and protect their research output. This is even pertinent now more than ever with the shift from analog thesis and dissertations to digital thesis and dissertations which encompasses different contents and format. Postgraduates require and manage more scholarly information, as their research output is geared toward producing knowledge ([Fleming-May and Yuro, 2009](#)).

It is, thus, important for postgraduate students in sub-Saharan Africa to be encompassing information literates. To achieve this, digital and research literacy programs must be embedded for them to be prepared for lifelong learning.

Recommendations

- Universities in sub-Saharan Africa should incorporate information digital and research literacy support programs in postgraduate-level curriculum so as to ensure that postgraduate students are well equipped with skills that can enable them to effectively and efficiently disseminate their scholarly works.
- Training and re-training of postgraduate instructors are needed so as to equip their literacy skills. Training and retraining of instructors will empower them with necessary updated information digital and research literacy skills for teaching the postgraduate students, shaping them to be good researchers who can bring impact through their works.

Proposed digital and research literacy program (DRL711)

Short description of the course

The proposed course “Advanced digital and research literacy” (DRL 711) is designed to equip postgraduate students in Africa with the skills, attitude and ethical considerations needed to be good researchers in the twenty-first century. The course outline has been selected from the ICT and the digital world to sharpen the research skills of postgraduates either as individual researchers or in their collaborative ventures.

It is to enable postgraduates in Africa to appreciate the contribution of ICT and the digital world in research. It is also to enable them to read, write, critique, collaborate and publish in today’s digital world of research.

Objective (s)

The objectives include and are not limited to the following:

- to understand and be able to communicate their specific information needs as regards to research in a digital environment;
- to be able to surf the internet, IRs, databases and other electronic resources to satisfy their information needs and also to verify the authenticity of the information;
- to be responsible writers who will respect intellectual property rights and their responsibilities toward upholding it;
- to learn and use the various tools that can be used to manage their personal information;
- to expose them to tools that can be used to corroborate with other researchers in their works irrespective of where they are; and
- to be aware and also use the social media platforms that are available in sharing and making their research visible.

Teaching-learning activities

The teaching and learning activities that may be used include project works, workshops and seminars. Students would be given group and individual works that would require their practical usage of the ICT. They would be required to do presentations on what they have produced. The instructor would serve as the facilitator and also moderate the projects works and workshops. They would be questioned by their colleagues to explain how they have used the tools and knowledge in the work that they have produced.

Learning strategies

- Students would be marked and graded on every workshop, seminar and presentation.
- Individual students would be questioned on his or her contribution to the work if it is a group work.
- Students would be questioned on the challenges that they faced in their exercises and how they were able to solve them.
- Marks would be awarded to the individuals and also do groups on the work they do.
- Attention would be paid to details and how steps were followed to arrive at a result or solution in exercises.

Duration of each activity

The course is for a semester of 12-13 weeks (preferably the first semester). The course would be 2 credit h (2 h per week):

- Week 1: Basic computing/internet skills – Word processing, PowerPoint presentations, research poster making tools, browsing the internet.
- Week 2 and 3: The research process – research outline, conceptualizing, developing and formulating research topics and questions, reviewing literature from theories/models, empirical studies, research methodology/design.
- Week 3: Repositories – searching, uploading and retrieving contents in institutional repositories, subject repositories and electronic theses and dissertation repositories.
- Week 5: Cloud computing services – types of cloud computing services, use of cloud services for management and organization of personal information.
- Week 6: Mobile technologies.
- Week 7 and 8: Research data management – research life cycle, research data archiving, citing data, open science.
- Week 9: Management and organization of information – managing research profiles and contents and data on ResearchGate, Academia.edu, Mendeley, ORCID, using Mendeley, Zotero for reference and citation management.
- Week 10: Use of social media in research – academic use of social media, social research environments.
- Week 11: Intellectual property rights – copyright issues in Open access, digital environments.
- Week 12: Virtual learning environments.

Evaluation

- Students should be evaluated based on the accuracy of their work. How students followed laid down steps and procedure in solving problems should also be considered in the evaluation. Group works would be assessed and evaluated by other groups.

- To ensure that students are familiar with the terminologies in the digital and research world, they should be given works that would require them to apply the skills, knowledge and the terminologies to the solution of a real research work.

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