

ASSESSMENT OF LEVELS OF OPEN ACCESS AWARENESS AND ITS USAGE IN RELATION TO SCHOLARLY COMMUNICATION IN TANZANIAN UNIVERSITIES**Evans Ogoti Okendo (PhD) 1* Elliah, E.E Mligite 2**

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ABSTRACT: *The study investigated the awareness and use of open access within Tanzanian universities. The investigation was conducted at 2 universities: the Mwenge University College of Education (MWUCE) and the Moshi University College of Cooperative and Business Studies (MUCCoBS) in Moshi Municipality in Kilimanjaro Region. A semi-structured questionnaire was used to collect data from 60 (30 from each university) respondents who were randomly selected using stratified random sampling from a population of researchers in the 2 universities as follows: 20 researchers (academic staff and students), 4 administrators, and 6 librarians and ICT staff in each university. Also interview involving respondents from among policy makers, ICT personnel and librarians was conducted. Archival or content analysis to complement the questionnaire survey was also done. The validity of the research instruments was ascertained by two educational experts from the department of education. The reliability of the questionnaires was determined through pilot testing by test-retest and split half technique of the questionnaires with five faculty staff members and university administrators who were obtained from one university which was not involved in the actual study. Descriptive and regression statistics was used for data analysis. Data was obtained and analyzed by using descriptive statistics (frequencies and percentages) and presented in tables. Data was presented, interpreted and discussed with support of relevant statistics and in relation to the information in the literature review. The study concluded that majority of the staffs manage to access and disseminate on the internet when they get assistance from their friends. Many staff members and the library/ICT members acquired their knowledge and skills of internet by self-training and Incompatibility of open access with the scholarly communications, unguaranteed availability of open access publications, low quality of open access and lack of skills and knowledge to publish in open access outlets are the major challenges facing scholars in the sampled universities.*

KEYWORDS: Open Access, Open Access Journals, Open Access Archives and Open Access Scholarly Communication

INTRODUCTION

Until 1665 when the first print journal known as Philosophical Transactions was launched by the Royal Society of London (Swan, 2007), scholarly communication involved exchange of letters and lectures among scattered peers. The current scholarly communication system evolved from economic and technological changes (Moller, 2006; Swan, 2007). Until after World War II, scholarly publishing was dominated by the scholars who could not cope afterwards with the proliferation of research activities and output. Commercial publishers joined the industry as a

result (Yiotis, 2005). The early scholars were not interested in making profits through journal sales, but the emerging commercial publishers took control of the scholarly publishing industry and raised the journal prices until they are beyond the ability of the libraries to buy, as is the case today. Even libraries in rich countries cannot afford to subscribe to every journal that is required by their users. The problem is even worse for university libraries in developing countries.

The launch of scholarly journals was an important breakthrough in terms of scholarly communication improvement. The appearance of the print journal was just a beginning of further reforms in the scholarly communication. The serial crisis and ICTs are the main forces behind the changes in scholarly communication witnessed today. Until the late 1950s, the scholarly publishing system was dominated by the scholarly societies and journals were quite affordable since they were not very costly to libraries and the research community in general (Yiotis, 2005). After World War II (during 1960s and 1970s), the expansion of universities accompanied by the rapid increase of research output resulted into scholarly societies' failure to absorb all the generated scholarly content (Yiotis, 2005). The exponential growth of information, resulting from increased specialisation within all disciplines also brought about further expansion of new journal titles leading to the so called information explosion (Moller, 2006).

The existing commercial publishing industry is not only considered prohibitive but also exploitative to the research community in that the research institutions fund the research project, pay the scholars who conduct the research and carry out the peer review, but finally the research institutions purchase, at very high prices, the publication resulting from the research output that is handed over to the commercial publishers free of charge, at no cost to the publishing industry! Open access on the other hand is seen as liberator through which the scholars can archive, disseminate and access information freely without any subscription or password restrictions.

While publishers have used technological developments to change their business styles to increase sales, the scholarly community likewise has used similar developments to cope with the serial crisis by developing alternative scholarly communication to ensure easy and wide dissemination of scholarly content. The coping strategies to the serial crisis being adopted by both commercial publishers and the scholarly community capitalise on ICTs developments. The serial crisis, resulting from the information explosion accompanied by the unaffordable journal prices have affected publishers as they sell less of their publications due to the diminishing purchasing power of many libraries. Taking advantage of ICTs developments, publishers have transferred most of their print journals to electronic versions and in turn changed their marketing strategies to ensure that they sell most of what they publish in what is termed "Big Deals". The essence of "Big Deals" is that parts or a publisher's entire journal lists are offered to a library (or group of libraries within a consortium) at a reduced price per journal than the library had been originally paying and with additional journals that were not subscribed before (Swan and Brown, 2004). Although this has helped publishers to offset the impact of the serial crisis by selling most of their publications, the new marketing strategy by the commercial publishers has not provided much relief to libraries and the scholarly community, as it is the publisher and not libraries or users who determine what to exclude or include in the package and pressure on library budgets as a result of "Big Deals" has not lessened as Swan and Brown (2004) noted. The "Big Deals" may not therefore be a practical solution to the existing scholarly communication problems but

rather a different marketing strategy practiced by commercial publishers, even as most of the “Big Deals” that have been adopted in developing countries have been possible through external supported programmes that are also deemed to be unsustainable (Chan, 2004; Kirsop and Chan, 2005; Chege, 2006).

Open Access on the other hand is a coping strategy spearheaded by the scholarly community in their effort to free themselves from exploitation and restrictions of the commercial publishers. Based on the Internet technologies, OA provides the potential for developing countries to revolutionise the manner in which scholars can access and disseminate scholarly information since it offers better prospects of meeting the needs of scholarly communication than is the case in commercial publishing, and its advocacy and use is increasing with profound impact on scholarly communication; it has made it possible to archive and disseminate, access and retrieve scholarly information easily and without any subscription or password restrictions. Since it has no restrictions it is appropriate, more efficient and quicker than traditional modes of communication and has added advantage as it provides an alternative publishing platform for material in print media as well as material in other formats that could not be put in print media to be archived, disseminated, accessed and retrieved freely and easily without any restrictions. Further, much of the research output from developing countries is grey literature which could be published and made visible to the scholarly community if the developing countries establish and use open access repositories in documenting and disseminating their research output that is currently invisible in the business mode of publishing.

The digital commercial publishing and networking technologies harnessed by an increasing dissatisfied library market as well as authors have led to the birth of open access (Yiotis, 2005; Moller, 2006). Although it is viewed as one of the means of addressing the escalating journal prices and the information explosion that has culminated into the ‘serial crisis’, the emerging open access publishing is likely to meet some resistance from commercial publishers as well as authors themselves, because publishers would like their business mode to continue for them to remain in business while authors will need some time before they are ready to adopt the new system, which is true for the adoption of any innovation (Rogers, 2003). The business mode of scholarly publishing has existed for more than three centuries and publishers are already making huge profits from such a venture while authors have become used to such a system. It is thus important to speed up the spread of open access.

Several institutions have declared their support and commitment to open access; the Timeline of the Open Access Movement provides a full list of events regarding open access developments; OpenDOAR records open access repositories. The Directory of Open Access Journals (DOAJs) lists OA journals. It is interesting to note that in less developed continents, there were fewer open access repositories, possibly due to unawareness of its benefits.

Dulle (2010) noted that continents or countries [and institutions] with pronounced research output and well developed ICTs infrastructure are also the ones which are far ahead in open access development and vice versa. ICTs infrastructure development is more acceptable as the possible cause for the differences in open access development in respective institutions due to the fact that the scholarly communication in question is dependent on the Internet technologies. It is

thus important for high level policy making bodies at institutional and country level in developing countries such as in Africa to advocate open access in order to improve the adoption of this mode of scholarly communication in their institutions. In a study on Open Access in public Tanzania, Dulle (2010) noted that the increasing usage of open access materials may also influence users of open access materials to publish their materials in open access domain, meaning that such users become more aware of open access avenues for scholarly dissemination and may easily be convinced to make their research findings openly accessible and thus promote open access adoption and usage.

The proliferation of research activities and output; prohibitive commercial journal prices and the ensuing inability of libraries to acquire information material to meet the ever-growing demand for research literature by the researchers; dwindling library budgets to buy books and journals and the resulting need for libraries to cut costs on bought information resources; and the emergence of new technologies, to mention some, add to the thrust towards Open Access (OA) as a viable form of scholarly communication which universities are striving to grasp in order to meet the needs of their researchers. However, OA is a new mode that is emerging from a well established scholarly communication system which would like to ensure that the existing commercial system continues, although the scholarly community would, on their part, wish to get liberated from being exploited by the commercial scholarly publishers.

The progress of science largely rests on authors, librarians, employers and research funding agencies as they are the main fundamental change agencies since at best publishers would defend the existing system to continue (Johnson, 2002; Swan, 2007; Voss, 2007), while on their part, authors also have the power to decide to publish in open access journals or post their pre- and post-print articles in open access repositories, while employers and funding agents may influence authors to make their scholarly content openly accessible by putting in place favourable policies for open access development. Librarians on the other hand, could play a leading role in advocating open access to ensure it is well known by the authors, employers and research funding agencies.

Each institution however has its own peculiar scholarly environment and, therefore, different needs from the other based on such matters as technology, know-how, infrastructure, financial, policies etc. Also OA usage is highly dependent on the scholarly community being aware of this mode of communication. The basic problem to adoption and use of OA is lack of awareness as supported by many studies including Dulle (2010). Awareness is an aspect that has raised interest of many scholars of open access studies to address the awareness aspect before further investigations. It is against this background that this study sought to assess of levels of open access awareness and its usage in relation to scholarly communication in Tanzanian universities.

Research questions

The study was guided by the following questions:

1. How is the open access awareness and usage in Tanzanian universities rated?
2. What factors facilitate the use of open access outlets by researchers in accessing scholarly literature?
3. What factors facilitate the researchers' use of open access outlets in disseminating research output?

4. How do the researchers and policy makers perceive the establishment of open access repositories at their institutions for the dissemination of scholarly content?
5. What factors hinder the use of open access scholarly content in research activities?
6. What factors hinder the dissemination of research findings through open access avenue
7. How can the identified hindrances be resolved for more adoption of open access to improve scholarly communication in Tanzanian universities?

Research Methodology

The study used a combination of survey design and naturalistic design. Survey design was selected because it is an appropriate method when a research wants to describe the characteristics of universities, lecturers and students at a specific point in time. The naturalistic design that was employed for this study was case study that generated in-depth information on open access variables that influence this study.

The target population of the study was university researchers drawn from among the two universities in Tanzania namely Mwenge University College of Education (MWUCE) and Moshi University of College of Cooperative Studies (MUCCoBS). The study targeted a population of 20 university researchers from the ranks of assistant lecturers to professor. Researchers were addressed by the study on the understanding that they are the prime determinants of open access development through its usage in accessing and disseminating of scholarly content (Fullard, 2007). The study also targeted 20 policy makers involved in various administrative positions from the referred universities [the deputy-vice chancellors, principals, deputy principals, deans and directors] for the interview part of this study. The main motivation for involving policy makers in the study was due to the fact that they are responsible with the enforcement of various university policies likely to influence the adoption of open access in such institutions. Junior researchers (tutorial assistants) were not be included in the study on the assumption that they are not much experienced with research and scholarly communication and therefore their contribution to this kind of study could be minimal.

The sample included 2 universities one public and the other private, 30 Faculty staff of the rank of assistant lecturer and above, 8 university administrators, and 12 library and ICT staff members in two randomly sampled universities in Tanzania. Stratified random sampling procedures were used to select the two universities that took part in the study. Simple random sampling procedures was used to select 30 faculty staff from the two randomly selected universities to take part in the study, purpose sampling procedures was applied in selecting university administrative, library and ICT staff to participate in the study with key informants being selected to take part in the study.

The instruments for data collection included, Questionnaires, In-depth interview guide, Document analysis guides and Facilities observation guide. Prior to data collection, a research permit was sought from the Ministry of Education and Vocational Training where a written authority to conduct the study was given. The researcher presented a copy of the written authority/permit to the relevant university administration. The researchers visited the universities during the working hours for administration of the research instruments. The researchers collected the filled in questionnaires from the Faculty members, and arranged for an appointment with the respective university personnel and administrators for interviews and observation. An

attempt was made to record the interviewee's answers and deliberations from the focused group discussion as exactly as expressed. The researchers concluded by thanking the informants.

The researchers validated the instruments in terms of its content and face validity. The researcher requested two experts in education and research to review the instruments for content coverage and face appropriateness. The suggestions given were then incorporated to improve the validity of the instrument. Content validity was further ensured by a careful examination of relevant test takers (Best & Khan, 1993) a group of individuals (Test takers) from the selected respondents provided input in terms of what the test items are. If the test takers find the items relevant, they are more likely to respond appropriately (Kline, 2005). Data collection validity was enhanced by source and instrument triangulation whereby different sets of instruments were used namely; interview guide for principals and directors, questionnaire for lecturers and library staff and document observation guide on university facilities, the four instruments were designed to elicit the same information from the respondents.

Cronbach alpha formula which requires only a single test to determine the internal consistency of the instruments was used. The Cronbach alpha technique is generally the most appropriate type of reliability test for survey research and other questionnaires in which there is a range of possible answers for each item (McMillan and Schumacher, 2001). The coefficient reliability was computed on quantifiable items of questionnaire instruments at the pilot testing stage using SPSS. According to McMillan & Schumacher (2001) a reliability coefficient of 0.70 or more implies that there is a high degree of reliability of the instruments. However, there are no fast and hard rules about acceptable rules in reliability. For Mason and Bramble (1997), instruments with reliability coefficient of 0.50 could be used to collect data. The study adopted the arguments of Mason and Bramble (1997) to determine the reliability of the instruments. Pilot testing was to enable the researchers to identify sensitive or ambiguous items in the instrument and undertake the necessary modification on them. The reliability of the pilot tested questionnaire instruments were 0.79 and 0.81 respectively. The researcher concluded that the instruments were reliable to be used in the study.

The data collected was coded using SPSS, version 11.5 for Windows. The outcomes of the quantitative data from the coded closed-ended questions were tabulated using tables, frequencies and percentages. On the other hand, the qualitative data generated from open-ended questions and from interview guide, focus group discussion and document observation guide was analyzed and categorized in themes in accordance with research questions and was reported in a narrative form.

Findings and conclusions of the study

In order to assess the levels of open awareness and its usage in relation to scholarly communication in Tanzanian universities, the university researchers from the ranks of assistant lecturers to professor, library and ICT staff and the University management gave their views. Their responses were as follows.

Table 1. Distribution of staff responses about familiarity with open access outlets before this study

	yes		No		No response	
	f	%	F	%	F	%
Have you heard about open access before this survey to staff	16	35.6	23	51.1	6	13.3
Use of open access to access* literature by staff	23	51.1	18	40	4	8.9
Use of open access to disseminate research	13	28.9	16	35.6	16	35.6

The study found that majority of people in the university lack knowledge and skills of accessing and disseminating information on the internet. The study also revealed that some people consult their friends when they want to access or disseminate information on the internet. The implication of the findings is that faculty staff members differ in their acceptance of the four items asked. Since they have positive attitude towards searching and publishing on the internet the universities should take the initiatives the same people are also confident in designing websites and publishing on the internet without depending on their friends. In an interview, one of the administrators said:

“It is true that research is our mission, and we want to ensure that all the staff members are competent on it. The university has ensured that the internet network is powerful, that is why we linked our university on the fiber. Also motivations to people who engage on research, allowing our staff members to attend conferences nationally and internationally are all efforts to maximize dissemination of research”.

A deduction from the study therefore is that this mission cannot be achieved if a large number of the staff members are incompetent on internet services.

Table2: Distribution of staff responses about rate of internet usage skills and knowledge to access and disseminate scholarly information

	Very good		Good		Fair		poor		No response	
	F	%	F	%	f	%	f	%	f	%
Rate of internet usage skills and knowledge to access scholarly information	9	20	26	57.8	5	11.1	2	4.4	3	6.7
Rate of internet usage skills and knowledge to disseminate scholarly information	5	11.1	25	55.6	6	13.3	4	8.9	5	11.1

The study revealed that majority of the staff in the university can neither open websites nor can they access the information freely from the internet due to protection of some of the information such as the use of passwords and PDF files. Few university staff members were aware of the open access outlets before the conduction of this study. Many respondents claimed that they acquired the knowledge and skills of using the internet from self training.

Table. 3. Distribution of staff responses about the factors facilitating the use of OAO at the university

Facilitating factors	Agree		Strongly agree		disagree		Strongly disagree		Don't know		No response	
	f	%	f	%	f	%	f	%	F	%	f	%
Have necessary knowledge to publish In open access	12	26.7	7	15.6	7	15.6	13	28.9	-	-	6	13.3
Have the necessary resources(IT infrastructure, internet)	16	35.6	1	2.2	11	24.4	9	20	-	-	8	17.8
Guidance is available for using internet effectively for information access	17	37.8	2	4.4	6	13.3	12	26.7	-	-	8	17.8
My institution recognizes open access publications(promotion criteria)	18	40	4	8.9	4	8.9	6	13.3	7	15.6	6	13.3
Guidance is available for using internet effectively for publishing research in the open access outlet	15	33.3	7	15.6	5	11.1	8	17.8	2	4.4	8	17.8

The results revealed that majority of the respondents 19 (42.2%) said it is very important for the funding research agency to look favorably on OAO publications in order to influence publications in OAO while 8(17.8%) said it is important and less important respectively. about 2(4.4%) responded that they know nothing on the question asked while 8(17.8%) respondents did not say anything.

The study revealed that majority of the respondents 26(57.2%) rated their internet usage knowledge and skills in accessing scholarly information as good whereas others 5(11.1%) and 2(4.4%) respondents rated as fair and poor, respectively. Majority of the respondents reported inadequate infrastructure (computers with internet connectivity) in the universities which hinder staff members to access/disseminate information in due time.

Table 4. Distribution of staff responses about the confidence of faculty staff members in searching scholarly information on the internet

	Agree		Agree strongly		Disagree		Disagree strongly		Don't know		No response	
	f	%	F	%	f	%	F	%	f	%	f	%
confident on searching scholarly information on the internet	16	35.6	20	44.4	6	13.3	-	-	-	-	3	6.7
confident in publishing research on the internet	5	11.1	27	60	6	13.3	-	-	2	4.4	5	11.1
Confident in designing personal website	3	6.7	15	33.3	19	42.2	2	4.4	3	4.4	3	6.7
Confident in publishing on the internet even if no one show me how to do it	1	2.2	21	46.7	13	28.9	2	4.4	5	11.1	3	6.7

There was large number of respondents who responded that failure to use open access outlets due to incompatibility of the open access with the scholarly communications, unguaranteed

availability of the open access publications, low quality of open access and lack of skills and knowledge to publish in open access outlets was a hindrance.

Table. 5. Distribution of staff responses about the staff members who are likely to publish in future

Response	Frequency	Percent
very likely	20	44.4
Likely	13	28.9
Unlikely	4	8.9
very unlikely	2	4.4
no response	6	13.3
Total	45	100.0

As seen in Table 5 the findings revealed that majority of the staff members 20(44.4%) were very likely to publish in the open access outlets and 13(28.9%) were also likely to publish. The respondents who were not ready to publish in the OAO were very few, that is 4(8.9%) reported to be unlikely, 2(4.4%) very unlikely and 6(13.3%) did not say anything.

Factors hindering the use of open access scholarly content in research activities

The study sought out the factors that hinder the access and dissemination of the OAO in the universities.

Table. 6. Distribution of faculty staff responses about reasons of failure to use open access outlets to publish scholarly output

	Agree		Agree strongly		Disagree		Disagree strongly		Don't know		No response	
	f	%	f	%	f	%	f	%	f	%	f	%
Lack of adequate skills to publish in open access	16	35.6	8	17.8	2	4.4	2	4.4	3	6.7	14	31.1
Open access is of low quality	9	20	2	4.4	12	26.7	4	8.9	4	8.9	14	31.1
Availability of open access publications is not guaranteed	5	11.1	6	13.3	14	31.1	-	-	6	13.3	14	31.1
Open access publications are likely to be misused/plagiarized	10	22.2	5	11.1	4	8.9	2	4.4	2	4.4	22	48.9
Open access publications is not compatible with existing scholarly communications	2	4.4	2	4.4	7	15.6	4	8.9	4	8.9	26	57.8

According to results on Table 6 faculty staff members failed to use open access outlet due to lack of skills to publish in open access represented by 16(35.6%) agree and 8(17.8%) agree strongly. The responses on the rest of the items in the given list do not have significant marginal difference as compared to item of skills. This means that responses were spread fairly from strongly agree to strongly disagree. Generally the results reveal that there is failure to use open access outlets due to incompatibility of the open access with the scholarly communications, non-guaranteed availability of open access publications, low quality of open access and lack of skills and knowledge to publish in open access outlet.

Factors hindering the dissemination of research findings through open access avenue

Faculty members were asked to identify the main problems they face while using the internet in accessing information. The most frequently mentioned problem was the network problem whereby the downloading process was mentioned to run very slowly. It was mentioned by 16(35.6%) of respondents. Another problem which had high frequency is lack of sufficient skills of using the internet represented by 14(31.1%) of the faculty member respondents. They claimed that some information on the internet is protected to the extent that downloading them is not easy. The use of passwords and PDF files were also problems to many people who took part in this study. Unreliable power is another problem which alters the dissemination of scholarly information on the internet. It was mentioned by 8(17.8%) of the respondents. Other problems which appeared in the responses were few computers and slow computers,

The study concluded that majority of staffs in the universities where the study was done acquired the knowledge and skills of using the internet from self-training. Majority of the respondents 26(57.2%) rated their internet usage knowledge and skills in accessing scholarly information good whereas others 5(11.1%) and 2(4.4%) respondents rated as fair and poor.

The study concluded that majority of the staffs manage to access and disseminate on the internet when they get assistance/help from their friends. Many staff members and the library/ICT members acquired their knowledge and skills of internet by self-training

The study further concluded that Incompatibility of open access with the scholarly communications, unguaranteed availability of open access publications, low quality of open access and lack of skills and knowledge to publish in open access outlets is the major challenges facing scholars in the sampled universities.

RECOMMENDATIONS

Based on the findings of this study it is recommended that Universities formulate policies to govern training of the staff members to be able to access and disseminate their scholarly information on the internet. The universities must facilitate free access and dissemination of scholarly information on the internet. The university should strive to establish a web site for accessing and disseminating information and, to have an alternative source of power in the university especially as the supply of hydro-electricity power is not reliable. The universities should integrate ICT use in all university process.

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