

The Role of Institutional Repositories in Promoting Grey Literature in Academic Libraries in Tanzania

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Abstract

This paper is based on a study, which examined the role of Institutional Repositories (IRs) in promoting Grey Literature in Tanzania's academic libraries. Specifically, the study assessed the status and date birth of IRs in academic libraries in Tanzania; examined the types of content covered in the institutional repositories of academic libraries in Tanzania; and determined the policies on management of IRs in academic libraries in Tanzania. Purposive sampling was used to select population for the study. Data for the study was collected using a combination of methods including Institutional Repositories web-based survey conducted from September to November, 2016 and telephone interviews with five (5) directors of academic libraries to enhance the validity and reliability of data collected because each method has its strengths and weaknesses. Content analysis was conducted by visiting individual IRs. To accommodate the research problem and fulfil the objectives of the study, 31 public and private universities registered on the website of the Tanzania Commission for Universities (TCU) participated in the study. The data obtained from the TCU were verified through the directory of the Open Access Repository (OpenDOAR) because it is the authoritative directory of Open Access Repositories in the world. Key findings indicate that, the uptake of institutional repositories in academic libraries in Tanzania was in their formative stages and are not full-fledged as most of them started the implementation in 2012-2016. Out of the 31 academic libraries only eight (8) had an IRs in place. Findings further revealed that content types available in the IRs showed the majority (7,533[60.2%]) was grey literature. The study concluded that, many academic libraries in Tanzania have great potential of putting in place IRs that can increase the collection, preservation and visibility of research outputs in the form of grey literature, but have yet to do so. As such, the study recommends that, first, through internally-generated funds such as tuition fees and in collaboration with other stakeholders including the government, the university managements should support the establishment and sustainability of IRs in their respective institutions. Second, the Consortium of Tanzania Universities and Research Libraries (COTUL) should raise awareness amongst managements of universities and the Tanzania Commission for Universities (TCU), academic staff and students on the centrality of institutional repositories in the collection, storage and dissemination of digitally-borne intellectual output they generate such as grey literature. Third, since academic libraries have started to embrace IRs, they should also develop clear and explicit policies for supporting the development, management and operational procedures for management of digital information resources in the IRs.

Key words: Institutional Repositories-Tanzania, Grey Literature in academic libraries-Tanzania.

Introduction

The focus of the study is confined to two key concepts—grey literature and Institutional repositories. It is important to start by defining these concepts for a clear understanding of the essence of this study. The Twelfth International Conference on Grey Literature in Prague in 2010 defines Grey Literature as



“manifold document types produced on all levels of government, academics, business and industry in print and electronic formats that are protected by intellectual property rights, of sufficient quality to be collected and preserved by libraries and institutional repositories, but not controlled by commercial publishers; i.e. where publishing is not the primary activity of the producing body” (Schopfel,2010). Grey literature includes research reports, theses, dissertations, unpublished seminars, technical specifications and standards, workshop proceedings, official documents (GreyNet, 2015). The Prague definition on grey literature appreciates the role of libraries and institutional repositories as essential tools for collecting, organising and providing access to a wide range of grey literature content that was previously inaccessible or scattered. On the other hand, Institutional Repositories are tools for collecting, storing and disseminating scholarly outputs within and without the institution (Jain, 2011). Although Prague definition emphasises on the collection and preservation side of grey literature, the Jain definition embarks on collection, preservation and accessibility. The importance of Institutional Repositories (IRs) is to attain long-term preservation; organisation and distribution of scholarship created by the institution and its community (Wikipedia, 2017). Academic libraries and research institutions all over the world contribute to the development of scientific communication by launching Open Access repositories to promote widely visibility and accessibility of intellectual output of the institution to the world (Rychlick, 2015).

For sub-sub-Saharan Africa, academic libraries IRs represent a singular opportunity platform for the collection, storage and dissemination of all aspects of scholarly output which otherwise will remain obscure, un-used or disappear all together (Mohamed, 2014). The establishment of IRs still supports the traditional roles of libraries; that is to archive and disseminate the intellectual outputs created by faculties, staff and students of the university to be made accessible to end users within and outside the institution with limited barriers to access and thereby increasing visibility. IRs, therefore, are considered to be valuable for African research and development because they offer instant access to information and knowledge resources being generated on the continent (Schofel & Soukouya, 2013). In reality, IRs do contribute to the universities’ commitment to the furtherance of the world of knowledge.

Statement of the problem

University and college libraries around the world are increasingly embracing institutional repositories to communicate effectively institutional scholarly output of all types, including grey literature. The

collection, processing, preservation and integration of academic institutional grey literature are critical to the mission of the university and college, regardless of the format. However, developments in Information and Communication Technologies (ICT) have resulted in the emergence of open access institutional repository which is a digital archive for the preservation and dissemination of institutional research outputs. Institutional repositories have facilitated possible wide dissemination of all types of research outputs, including grey literature. The growth of open access institutional repositories has been a remarkable feature in many developed countries.

Academic and research libraries in many developing countries including Tanzania, are still battling to overcome many challenging issues in attempt to make their research outputs, including grey literature, openly accessible via institutional repositories. Despite the conceptual importance attached to the role of IRs in promoting grey literature in academic libraries, no studies exist which have critically examined the role of IRs in promoting grey literature in academic libraries in Tanzania. Those which exist, including (Muneja, 2009), Mgonzo and Zaipuna (2014) and Mhongole and Loserian (2014) have focused on the creation of IR, analysis of open access scholarly communication in Tanzania, and a review of open access publication.

The absence of focused studies on the role of Institutional Repositories in promoting grey literature in Tanzania leaves an erroneous impression that IRs have played no role in promoting Grey Literature in Academic Libraries in Tanzania because those initiatives are either lacking or remain unknown to the public and end-users. This study, therefore, was conducted in the context of Tanzania to fill the gap by examining the status of IRs in academic libraries in the country, grey literature coverage in the institutional repositories and policies on the development, management and operational procedures of IRs content.

Objectives of the Study

The study sought to achieve the following objectives:

- i. Assess the status of IRs in academic libraries in Tanzania;
- ii. Examine the types of content covered in the institutional repositories of academic libraries in Tanzania; and
- iii. Evaluate the policies on the development, management and operational procedures of IRs content in academic libraries in Tanzania.

Research questions

Based on the objectives, the study was guided by the following research questions.

- i. What is the status of IRs in academic libraries in Tanzania?
- ii. What types of content are covered in the IRs of academic libraries in Tanzania?
- iii. What guiding policies exist on the management of collections, preservation and accessibility of content?

Literature review

Academic libraries worldwide have embraced the setting up of IRs to capture, preserve and provide access to their research output emanated from their Institutions. Such output includes grey literature. As the study was focused on issues related to grey literature in the Institutional Repositories, literature review is framed on articles dealing with the status of IR in academic libraries in Tanzania, grey literature content in the academic libraries institutional repositories, IR policies and their relationships to grey literature.

Studies on the role and potential of Institutional Repositories in the collection, management and dissemination of information have attracted wider attention from many parts of the world. Dulle (2010) carried out an Analysis of Open Access Scholarly Communication in Tanzania Public Universities. The study involved eight public universities. On the other hand, Samzug (2012) conducted a study entitled the Accessibility of Grey Literature Originating from Public Universities in Tanzania. Both studies recommended that public universities in Tanzania should establish Institutional Repositories to handle all internally generated grey literature. However, the two studies by Dulle (2010) and Samzug (2012) did not include private universities which are also part of the information cycle with the mandate of collecting, preserving and transmission of knowledge to public for productive use. Mgonzo and Zaipuna (2014) provided a review of Open Access Publication in Tanzania. The study reported that there were only five (5) open access repositories in Tanzania out of 51 higher learning institutions. Findings of this study were based on repositories registered in the OpenDOAR. The study provides a good piece of information on Institutional Repositories and indicates that the uptake of open access repositories was promising. As the study was conducted two years ago, the current study set out to establish whether the situation has improved ever since.

Gelfand's (2005) paper titled "Knock, Knock': Are Institutional Repositories a Home for Grey Literature" ascertain that grey literature would neither be homeless nor any longer at risk but would be in a good collegial neighbourhood and be well sought after, instead of being a weak commodity in a chain of information products. This implies that the value and demand for grey as a key source of information will be enhanced by academic institutions through IRs. In the context of Tanzania, however, no reported similar empirical studies exist that support such a claim. This study, therefore, intended to knock and open the door to ascertain the place of grey literature in the Institutional Repositories in academic libraries in Tanzania in relation to other materials.

Rychlik (2015) conducted a study on the role of the academic library in disseminating grey literature using Adam Mickiewicz University repository in Poland as a case study and found that about the 89 percent of digital objects collected in the repository comprised white literature (articles, books and book chapters). Grey literature accounted for only 11 percent. This implies that despite the presence of IRs, the content available in the form of grey literature remains minimal. In the context of Tanzania, this study sought to establish the percentage of grey literature content in relation to other literatures in academic libraries IRs.

Siegel (2010) examined Institutional Grey Literature in the University Environment of the US. In an analysis of the content of the repositories, the study found that overall, 33 percent of the items in the Institutional Research Repositories were full records whereas 62 percent of the records were grey literature. The study also noted that grey literature contributes to the success of institutional repositories and compared it with "a low hanging fruit".

Malero *et al.* (2009) carried out a situational analysis of open access institutional repositories in Spain in 2009. The survey included the Consortium of Catalonian University Libraries. The report established that about 23 percent of the items deposited in full-text were grey. Schopfel and Prost (2011), on the other hand, surveyed French repositories and found that grey literature consisted of 18 percent of all documents. The results of both studies established the presence and growth of grey literature content in institutional repositories.

In an evaluative survey on Grey literature in French digital repositories, Schopfel and Stock (2009) collected data from 38 French archives registered with OpenDOAR. Out of 38, twenty-one sites provided no policy statement. The study further established that 71 percent of the repositories in France provided access to full-text document whereas 48 percent had the entire documents available in open access. More



recently, Prost and Schopfel' (2014) paper titled "Degrees of Openness: Access Restrictions in Institutional Repositories", discussed issues connected to open access policies in relationship to their level of openness with specific attention paid to different categories of documents in the institutional repositories. The study found that some of the items in the repository metadata were provided without full links to the full-text. This practice tends to defeat the spirit of putting in place IR. As a way out, they suggested that institutions should clarify and be explicit about their openness policies. In the context of Tanzania, this study is designed to examine policy issues guiding the best practices of operating IR and their mandates on grey literature.

The literature reviewed has provided an insightful overview on the situation in the world. On the whole, the literature review has helped to establish that there are studies on IRs, but none of these have had examined the role of Institutional Repositories in promoting Grey Literature in Tanzania's academic libraries . Hence, the current study was designed to fill this gap.

MATERIALS AND METHODS

Study Area

The study was conducted in Tanzania and involved both public and private university Institutional Repositories. The study targeted universities registered on the website of Tanzania Commission for Universities (TCU) available at <http://www.tcu.go.tz>. The TCU a corporate body mandated to recognise, approve, register and accredit universities operating in Tanzania and maintain a register of all these institutions operating in the country. Both public and private university academic library repositories were selected because they traditionally have supported the mission of parent universities by collecting, preserving and transmitting of knowledge to the public for productive use even before the age of digital storage.

Population of the study

The population of the study comprised 31 universities registered in the TCU directory, five directors of university libraries, content types covered in the institutional repositories, policies on the development, management and operational procedures of IRs content in the 31 academic libraries surveyed, 10 being public and 21 being private institutions.

Data Collection Method

Data for this study data was collected using a combination of methods including web-based IRs survey, telephone interviews with directors of libraries and IRs content analysis. The web-based IRs survey was chosen because it is easier and cheaper to administer than other research techniques. This is particularly true if the necessary data is readily available as web-based content (Kim & Kuljis, 2010). Similarly the method was used because it academic libraries usually have necessary data available in Rs. Furthermore, the Directory of Open Access Repository (openDOAR) available at www.opendoar.org and Registry of Open Access Repositories available at <http://roar.eprints.org/> were also consulted to establish the presence of IRs in respective university libraries and provide useful information on their content and policies.

Data collection procedure

To appraise and validate the content available, the IR home page of individuals' universities were visited and searched to elicit the status of IRs, content types and policies of each IRs. This was followed by coding whereby all the types of information contained in them were grouped, tabulated and analysed. To differentiate between Grey literature and other materials, the definition of grey literature as defined in this paper was applied. A web-based survey was used based on Dubinsky's (2014) observation that one measure of the success of IR is the volume and scope of its contents. As such, the content available in IR was carried out from September to November, 2016.

Besides, the study also examined the existence of the Institutional Repository policies on the development, management and operational procedures pertaining to IRs content in academic libraries in Tanzania. To achieve this aim, policy documents on IRs were analysed to establish the nature of content deposited and scope of its accessibility as well as submission. In addition, site visits to selected academic libraries were carried out. The site visit helped the researcher interact with the directors of libraries to gather some informed opinions on issues not covered through website survey and content analysis but regarded as vital. In addition to site visits, telephone interviews were conducted to get candid opinions from the directors of academic libraries on the issue under investigation. This approach was used to supplement and validate information collected through the web survey. Telephone interviews facilitated the gathering of relevant information from directors of the University of Dar es Salaam (UDSM), Ardhi University (ARU), Sokoine National Agriculture Library (SNAL), Mzumbe University, the Open University of Tanzania (OUT) and the Nelson Mandela-African Institute of Science and Technology.

RESULTS AND DISCUSSION

Status and date birth of Open Access Repositories in Academic Libraries in Tanzania

Findings revealed that Tanzania has 31 universities as cited TCU statistics provided on its web (<http://www.tcu.go.tz>) indicate. The findings further revealed that, out of these 31 universities 11 are public and 20 are private. Similarly, Of the 31 universities surveyed, only eight university libraries as shown in Table 1, have put in place open access IRs whereas 24 had yet to set up institutional repositories. This information was acquired through institutional repositories websites and verified by visiting the open Directory of Open Access Repository (openDoAR) available at www.openoar.org. The open door is an authoritative directory of academic open access repositories. The results indicate significant progress towards the implementation of IRs from five (5) as earlier reported by Wasiwasi and Jonah (2014) to eight. In contrast to the number of academic libraries in Tanzania, the uptake remains strangely rather minimal.

Table 1: Status of Institutional repositories

	Academic library	Type of Institution	Institutional repository	URL	Date formed
1	Muhimbili University of Health and Allied Sciences (MUHAS)	University (Public)	MUHAS institutional Repository	ir.rmuhas.ac.8080jspui/	27 th August, 2012
2	Mzumbe University	University (Public)	Mzumbe University Scholar repository	http://scholarymzumbe.ac.tz	2 nd July, 2016
3	Nelson Mandela African Institute of Science and Technology	Institute (Public)	NM-AIST Repository	http://dspace.nm-aist.ac.tz	21 st April, 2017
4	The Open University of Tanzania	University (Public)	Digital Library of the Open University of Tanzania	http://repository.out.ac.tz	10 th October, 2012
5	Saint Augustine University of Tanzania (SAUT)	University (Private)	Mario Mgulunde Learning Resource Centre Repository (MLRC) Institutional repository	http://41.59.391:8080/xmlui	20 th March, 2015
6	Sokoine University of Agriculture	University (Public)	Sokoine University of Agriculture Institutional Repository	www.suaire.suanet.ac.tz	20 th May, 2015
7	The State University of Zanzibar (SUZA)	University (Public)	SUZA Repository	http://repository.suza.ac.tz:8080/xmlui	

8	University of Dar es salaam	University (Public)	University of Dar es Salaam Research Repository	http://repository.udsm.ac.tz:8080/xmlui	23 rd March, 2016
9	Aga Khan University Institutional Repository	University (Private)		ecommons@AKU	14 th Feb.,2013

Source: opendoar.org visited 2nd November, 2016

*Launch Date is either when the repository was first registered in ROAR or the earliest record found via the OAI-PMH interface.

The analysis of the findings revealed that the uptake of institutional repositories in academic libraries in Tanzania is a new phenomenon compared to other academic libraries in the developed world as most of them started the implementation in 2012-2016. The findings also indicate that public universities have increasingly established IR compared to private universities. For example, out of 11 public university libraries, seven have put in place IRs, whereas for private universities only one (1) out of 21 has done so. The findings suggest that penetration of IRs in Tanzania academic libraries has been limited as only few institutions actually have IRs. However, it is clear from the survey data that there are more repositories in public academic libraries than in private universities. As one Director of Library Services put it, “The situation in private universities may have been occasioned by poor advocacy and marketing of the IRs, lack of awareness, lack of understanding the values, inadequate allocation of financial resources by the respective authorities for building repositories” (Personal Interview, ,2016). There is, thus a need for Consortium of Tanzania Universities and Research Libraries (COTUL) to carry out an awareness raising campaign for managements of universities and the TCU, academic staff and students on the centrality of institutional repositories in the collection, storing and dissemination of digitally-borne intellectual output they generate such as grey literature. Similarly, during telephone interviews with the directors of public academic libraries it was suggested that universities without IRs have to set aside funds from fees collection and the government to increase its investment in supporting the establishment and maintaining of such repositories.

Content types in the IRs

Content type refers to the particular characteristics of the materials that can be deposited in a given repository (Russell, 2009).The web survey addressed the issue of content in the IRs. Specifically, it established the availability of grey literature in comparison with other types of resources available in the



IRs. The study found that by the end of November 2016, IRs hosted 12,513 items. According to Table 2 findings show that out of 12,513 items 6,436(51.43%) are theses and dissertations, 3,969(31.7%) are journal articles, 859(6.86%) are book chapters, 386(3.08%) are conference/workshop proceedings 365(2.91%) are unpublished cases, 210(%) are books, 255(2.03%) are reports, 78(1.6%) are working papers, 65(%) are journals, 62(0.49%) are abstracts 25 (0.19%) are book reviews. These results in the context of academic libraries in Tanzania generally show that, amongst the types of content available in the IRs identified, grey literature ranks highly since the majority of the content (7,533[60.2%]) is grey literature. The findings further revealed that grey literature comprised a wide range of items such as theses and dissertations, conference/ unpublished workshop proceedings, unpublished cases, reports and working papers. The deposited grey literature include theses and dissertations forms, which constitute the majority (6,436 [51.435%]). These findings are in line with those of Lippincott (2006) who asserted that electronic theses and dissertations which are part of grey literature have frequently served as a foundation or pilot for IR content. The results are in agreement of those of Siegel (2010) who found that 62 percent of the records were grey literature. Siegel (2010) further asserted that grey literature contributed to the success of institutional repositories and compared it with “a low hanging fruit”. What is particularly interesting in the findings is that at least all the surveyed handle grey literature. This further serves to emphasise the critical role IRs play in promoting grey literature in academic libraries in Tanzania.

Table 2: Content types in the IRs by Institution

N=12,513

S/N	CONTENT TYPE	NAME OF INSTITUTION							TOTAL
		OUT	MUHAS	SUA	MZUMBE	SUZA	NELSON M	AGAKAN	
1	Theses/Dissertations	2325	859	535	1612	4	200	901	6436 (51.43 %)
2	Reports (Unpublished)	-	157	14	-	-	-	84	255(2.0 3%)
3	Working papers	-	-	46	-	10	-	22	78(1.6 %)
4	Conference/workshop proceedings	-	10	126	-	-	30	220	386(3.0 8%)
5	Book chapters	3	-	-	1	-	-	855	859(6.8 6%)
6	Books Multimedia and audio visual materials	-	-	-	-	-	-	-	0
7	Journal articles	30	650	75	10	42	-	3162	3969 (31.7%
8	Teaching resource materials/Lecturer notes	6	-	6	-	-	-	-	12 (0.09%
9	Speeches	-	-	-	-	-	-	-	0
10	Unreported Cases	-	-	-	365	-	-	-	365(2.9 1%
11	Journals	5	-	-	-	-	10	50	65(0.5 %)
12	Inaugurals Lecture	-	-	-	-	-	-	-	1(0.007 %)
13	Abstracts	-	-	43	-	-	-	19	62(0.49 %)



14	Book reviews	-	-	-	-	-	-	25	25(0.19 9%)
	TOTAL								12,513

Source: IR Survey September to November, 2016

Institutional repository Policies

The purpose of Open access repositories is to support the traditional functions of the library, which is to collect, preserve and disseminate information of research and scholarly output of the university (Baker, 2001). It is the policy which theoretically guides the best practice, and defines the scope, role, responsibilities and legal requirement of the institutional repositories. Therefore, policy issues analysed were related to the level of openness with specific attention being paid to different categories of grey literature documents in the institutional repositories. Specifically, policy items covered comprised full data items. The submissions on the institutional repository policies have been analysed and discussed in this section. Table 3 presents the results:

Table 3: Academic Libraries with Institutional Repository Policies

S/N	Name of the Library	Policy	Metadata statements	Data statement	Content Policy statements	Submission Policy statements	Preservation Policy	Intellectual Property	Access policy statements	withdrawal policy
	Muhimbili University of Health and Allied Sciences	√	√	√	√	√	√	√	√	√
	Mzumbe University	√	√		Undefined	Undefined	Not defined		√	
	Nelson Mandela African Institute of Science and	Not yet in place	Not found	—	—	—	—	—	—	—

Technology										
The Open University of Tanzania	—	—	—	—	—	—	—	—	—	—
Saint Augustine University of Tanzania (SAUT)	—	—	—	—	—	—	—	—	—	—
Sokoine University of Agriculture	√	√	√	√	√	√	√	√	√	√
The State University of Zanzibar (SUZA)										
University of Dar es salaam	—	—	—	—	—	—	—	—	—	—
Aga Khan University Institutional repository	√	√	√	√	√	√	√	√	√	√

Source: IR Survey September to November, 2016

Repository policy

Results presented in Table 3 show that out of eight (8) repositories surveyed four (4) have put in place functional institutional repository policies. The results show heightened efforts by academic libraries in Tanzania to put in place policies aimed to guide the proper management of institutional repositories. For academic libraries, which so far had no policy in place, it emerged from interviews with directors that the process of preparing such policies was underway. The interviews involved directors of the Open University of Tanzania (OUT) and Ardhi University (ARU). The findings also revealed that the issue of grey literature in those policies is well-addressed. Formulated IRs policies underscored the need to collect materials emanating from the parent institution and ensure maximum dissemination of unpublished scholarly information including theses and dissertations, conference papers, speeches,



policies, university research project reports, technical reports, working papers and inaugural lectures which were part of grey literature.

On Access policy statement, the findings revealed that Muhimbili University of Health and Allied Sciences (MUHAS), Sokoine National Agriculture Library (SNAL) and Mzumbe University (MU) have functioning IR policies in place. Despite the presence of policies, which is a prerequisite for functioning IRs, these policies are not hosted on their respective IR web pages. However, the situation is different at the Aga Khan University Library IR where the policy is inserted within the repository page. This may explain why the DOAR report (2016) suggested the need for MUHAS, SNAL and MU to put in place IR policies because their policies were nowhere to be seen as they were not inserted where they were visible to all and sundry. As a way forward, to avoid ambiguities and to foster transparency, it is suggested that policies should be inserted within the IR page for easy reference and follow-up: “However, on further probing with library directors, it was revealed that the latter are aware of the anomaly and that plans are underway to create a policy link within the respective IRs web pages” (Director, 2016).

On level of access, the findings revealed that access varies among academic libraries repositories. For instance, at the Aga Khan University repository, access to theses and dissertations is only permitted through abstracts (e commons.aku.edu accessed. 18 November, 2016). For Sokoine University of Agriculture (SUA) theses and dissertations are freely available in full-texts but some conference papers but technical reports are embargoed and users are required to log in for access. Such conditions contradict the philosophy of institutional repositories which is to make research outputs freely available without any restrictions. These findings collaborate with those of Prost and Schopfel (2014) who reported that repositories contained many scientific document but some items were embargoed, while others did not provide links to full-texts or with full-texts only for authorised users. The policies are also silent on issues related to embargoed items as they do not provide a timeframe for lifting the embargoes. Yet the conditions for embargoed items are clearly stated. These conditions include conditions set, if the works prove scurrilous, plagiarised libellous or breaches copyright or if content breaches Tanzania laws (MUHAS, 2012; SUA, 2014). Other universities in Tanzania have yet to come up IRs policies.

On the other hand, it was observed from the survey results on issues related to access in universities which have no IRs policies in place yet. In these institutions, the intellectual outputs deposited in the IRs

are available in full-texts, including grey literature. Such repositories include the OUT, Nelson Mandela African Institute of Science and Technology (NMAIST), and SUZA. The findings on the situation in academic libraries in Tanzania can be compared to that of MIRACLE Census of IRs (Markey *et al.*, 2007) which states: “*It may not be necessary for all IRs policies to be in place for IR implementation. Institutions may take a wait and see attitude, evaluating what transpires after a period of time, and then firming up existing policies and implementing new ones as needed*” (added emphasis). As discussed earlier elsewhere in this document, it is possible that academic libraries in Tanzania, which have no IR policies in place yet, have adopted this approach by evaluating what transpires on institutions with repositories and then firming up the existing policies and implementing new ones tailored to suit their needs.

Submission policy statement

IRs exist to serve the institution and the public at large. They serve that purpose by providing a platform for members of the parent institution both academic and non-academic staff, postgraduate students, researchers and the general public in populating IR with content. Therefore, the success of populating IRs, to a large extent, depends much on the availability of a submission policy. The analysis of IRs with submission policy indicated that four academic libraries out of eight have submission policy statements in place. The policies enforce all staff and registered postgraduate students to submit immediately their research output to the IR. Such output which is covered under the submission policy includes grey literature such as theses and dissertations, conference proceedings, manuscripts, working papers, inaugural lectures, technical reports, research reports, extension materials, books and book chapters and administrative documents (MUHAS, 2012; SUA, 2014). For those academic libraries, which had no IR policy in place including the OUT, NMAIST, and SUZA, the study established through interviews with directors of libraries that their institutions had instituted internal mandatory submission policies as a strategy to populate their IRs. The mandatory policies require staff, students and researchers to submit their publications in the library. Works covered in the internal policies include grey literature generated in departments, faculties and Institutes. The same conditions apply to reports of researchers and conference papers registered with the university. For example, the director of OUT library said during an interview, “*Besides theses and dissertations, academic members of staff are also required to deposit their publications they had submitted for promotion in the IR as well as conference papers funded or sponsored by the university*” (Director, OUT, 2016).



For theses and dissertations, students are also required to submit both the hardbound and soft-copies of their theses and dissertations for uploading in the IR. Generally, the findings suggest that the presence of institutional and submission policies helps to populate the IR even for those academic libraries which have yet to develop IR policies. These findings on the situation in academic libraries in Tanzania corroborate with those of Jain and Oladiran (2010) who assert that experience suggests that the IR will only function to its capacity when the mandate is in place to populate it.

Conclusion and Recommendations

The study has established that, many academic libraries in Tanzania have great potential for the establishment of IRs which can preserve, increase the visibility and widen access to research outputs of the universities including grey literature. Findings revealed that the majority of content types available in the IRs are grey literature. This underlines the need for developing IRs policies which is one of the preconditions set by OpenDOAR for aspiring institutions to achieve the envisaged local and global visibility on research outputs such as grey literature. The IR policy is intended to provide the necessary guidance to support IRs development, management and sustainability. The use of IRs and good institutional policies will enhance the availability and accessibility of grey literature as a key information resource that support teaching research and learning in the universities. In view of this, the study recommends the following:

- i. Through internally-generated funds such as fees and in collaboration with other stakeholders including the government, university managements should support the establishment and sustainability of IRs in their respective institutions to increase visibility and widen accessibility of the research output within the institution and globally.
- ii. Since academic libraries in Tanzania have started to embrace IRs, they should develop clear and explicit policies on IR development, management and operational procedures.
- iii. The Consortium of Tanzania Universities and Research Libraries (COTUL) should carry out an awareness raising campaign amongst managements of universities and the TCU, academic staff and students on the centrality of institutional repositories in the collection, storing and dissemination of digitally-borne intellectual output they generate such as grey literature.

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