Royal Tropical Institute

Knowledge, attitudes and practices with respect to institutional repositories in Mozambique

A benchmark study

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KIT Information & Library Services

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Acronyms

AJOL	African Journals Online
	http://ajol.info
BioMedCentral	Publisher of 206 peer-reviewed open access journals
	http://www.biomedcentral.com
BIREME	BIblioteca Regional de Medicina
	http://regional.bvsalud.org
Blogs	Type of website usually maintained by an individual (weblogging)
BMJ	British Medical Journal
	http://www.bmj.com
BOCC	Biblioteca On-line de Ciências da Comunicação,
	http://bocc.ubi.pt
BVS	Biblioteca Virtual em Saúde (Virtual Health Library),
	http://regional.bvsalud.org/php/index.php
CAPES	Scientific Information Portal Brazil
	http://acessolivre.capes.gov.br
CFJJ	Centro de Formação Jurídica e Judiciária
CINAHL	Cumulative Index to Nursing and Allied Health Literature
Cochrane	A collection of databases in medicine and other healthcare specialties provided by the Cochrane Collaboration
DOAJ	Directory of Open Access Journals
	http://www.doaj.org
EBSCO host	Database services of the publisher EBSCO
	http://www.ebscohost.com
EMBASE	Comprehensive online source on biomedics
	http://www.embase.com
DATAD	Database of African Theses and Dissertations
	http://www.aau.org/?q=datad
Dspace	Free and open source software package that provides the tools for management of digital assets and is widely used as the basis for an institutional repository
HINARI	Health InterNetwork Access to Research Initiative
	http://www.who.int/hinari
ICT	Information and Communication Technology
INASP	International Network for the Availability of Scientific Publications,
	http://www.inasp.info
IR	Institutional Repository
ISCTEM	Instituto Superior de Ciência e Tecnologia de Moçambique Maputo, Mozambique
ISPU	Instituto Superior Politécnico e Universitário; Higher Polytechnic and University Institute, Maputo, Mozambique
	http://www.ispu.ac.mz
ISRI	Instituto Superior de Relações Internacionais,
	http://www.isri.ac.mz
KAP	Knowledge, Attitudes and Practices
KIT ILS	Information & Library Services, Royal Tropical Institute (KIT)
	http://www.kit.nl/ils
KIT	Royal Tropical Institute / Koninklijk Instituut voor de Tropen
	http://www.kit.nl/
LILACS	Index of Latin American and Caribbean Health Sciences Literature,
	http://regional.bvsalud.org/bvs/I
LivRe!	Portal of peer reviewed journals
	http://livre.cnen.gov.br/Inicial.asp
MDGs	Millennium Development Goals
	http://www.un.org/millenniumgoals

Medline	Medical Literature Analysis and Retrieval System Online	
	http://www.ncbi.nlm.nih.gov	
OpenDOAR	Directory of academic open access repositories	
	http://www.opendoar.org	
PBL	Problem-based learning	
PDF	Portable Document Format	
PubMed	Search engine for medical databases	
Refworks	Online bibliographic management software	
	http://www.refworks.com	
RSS (feeds)	Really Simple Syndication	
	Format for automatic synchronization of metadata of frequently updated internet content	
Saber	First (multi-) institutional repository of Mozambique,	
	http://www.saber.ac.mz	
SAS	Statistical software (Statistical Analysis System)	
SciELO	Scientific Electronic Library Online, bibliographic database and a model for cooperative electronic publishing in developing countries,	
	http://www.scielo.br	
ScienceDirect	Online collections of published scientific research in the world operated by publisher Elsevier	
	http://www.sciencedirect.com	
Scopus	Database of abstracts and citations for scholarly journal articles	
	http://info.scopus.com	
SIDA	Swedish International Development Cooperation Agency	
	http://www.sida.se	
SPSS	Statistical Package for the Social Sciences	
SurveyMonkey	Platform for administering online questionnaires	
	http://www.surveymonkey.com	
SwetsWise	Electronic gateway of choice among libraries and information professionals	
	https://www.swetswise.com	
UCM	Universidade Católica de Moçambique, Beira (hq)	
	http://www.ucm.ac.mz	
UDM	Universidade Técnica de Moçambique (UDM) Maputo, Mozambique,	
	http://www.udm.ac.mz	
UEM	Universidade Eduardo Mondlane, Maputo (hq), Mozambique	
	http://www.uem.mz	
UFSC	Peer-reviewed journal database hosted by the Universidade Federal de Santa Catarina, Florianópolis, Brazil	
	http://www.periodicos.ufsc.br	
Unilúrio	Universidade Lúrio, Nampula (hq), Mozambique	
	http://unilurio.ac.mz	
UniZambeze	Universidade Zambeze, http://www.unizambeze.ac.mz	
UP	Universidade Pedagógica, Maputo (hq), Mozambique	
	http://www.up.ac.mz/	
URL	Identifies internet address (Uniform Resource Locator)	
USTM	Universidade São Tomás de Moçambique, Maputo	
	http://www.ustm.ac.mz	
VLIR	Flemish Interuniversity Council, Vlaamse Interuniversitaire Raad,	
	http://www.vliruos.be	
WHO	World Health Organization	
	http://www.who.int	
WiFi	Wireless internet connection	
Wikis	Websites that allow the easy creation and editing of any number of interlinked web pages via a web browser to create collaborative websites	

Executive summary

A benchmark study was carried out on the knowledge surrounding, attitudes toward, and use of institutional repositories at Mozambican Universities, especially with regard to their medical faculties.

This benchmark study was part of a two-step research set-up which examined:

- The level of knowledge, the attitudes and practices (KAP) of university library users in Mozambique;
- Factors or interventions that could have an effect on the KAP of library users in the near future;
- How the spread of information and knowledge among those working in the medical faculties of these universities was perceived.

It was concluded that although the research did not start with a random sample of respondents, it gave a good insight into the level of knowledge and practices in Mozambican universities when dealing with academic information. Despite the fact that the majority of the respondents were not familiar with the institutional repository concept, they found the survey itself very educational, and at the end of the questionnaire many people suggested ideas for its content.

Compared with earlier assessments, the survey showed that the use of the internet, WiFi, desktop computers and laptops had increased immensely. Whereas only two years ago students depended on internet cafés and the scarcity of available computers at the university, more than 50% of the survey population now rely on their laptops and WiFi. For 80% of the respondents, searching the internet has become a daily habit.

However, as far as self-archiving of digital content of interest to the faculty or university is concerned, all respondents claimed to hardly ever have shared this in an open-access environment. The causes mentioned for this were: underestimation of own knowledge; lack of awareness of possibilities; absence of policies; lack of quality; copyright restrictions; and even educational practices and traditions.

This may be solved by the education and instruction of library personnel and users, as well as advocacy of the benefits of an institutional repository by the university's management. Collaborative action between the ICT department and the library is needed. The role of the librarian as facilitator in a student-centred learning environment needs to be evaluated. This requires an up-scaling of the librarian's profile, education, qualifications, and salary.

The baseline study was executed only one week before the first Mozambican institutional repository was launched. A future appraisal of the situation, as planned, could show the impact of institutional repositories on electronic publishing practices in Mozambique.

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1 The context

1.1 Intention

Obviously, like elsewhere, research reports, theses and dissertations are produced digitally in Mozambique. However, when searching for the university's publications in its digital library or the catalogue of the faculty library, the (full text) content of this research output can hardly be found; hence is hardly used. This benchmark study tries to uncover the attitudes towards the phenomenon of institutional repositories (IRs) in Mozambique. It describes the state of affairs in the use and management of digital health resources in university libraries.

Exchange of knowledge is critical for development. Bridging the knowledge divide does not only refer to the differences between North and South. Apart from regional differences in access to the internet, there are also individual differences of attitude. These may be related to indicators such as education, experience, skills, age, and gender. The fact that this research was done in a context where IRs were still to be established may help to understand the needs and expectations of potential users of health science information in similar settings.

In developing countries such as Mozambique, people - confronted with the digital overload of Anglo-Saxon research - tend to think that they have very little to offer in terms of knowledge generation and knowledge transfer. This state of mind obviously affects attitudes and practices with respect to online publication of their research output. This survey pointed out why people underestimate the importance of their own content. Once people are conscious of the importance of their intellectual output, the need to publish in a digital repository becomes evident. Then, strengthening the IR's function becomes an obvious next step.

An online questionnaire was filled out by 55 library users (students, lecturers) as well as the library personnel of health science libraries in three Mozambican universities: Universidade Eduardo Mondlane (UEM); Universidade Católica de Moçambique (UCM); and the Universidade Lúrio (Unilúrio). After the survey results were analyzed, a small but representative sample of respondents was selected for in-depth interviews.

This study is the first of two knowledge, attitudes and practices (KAP) appraisals measuring change in these areas in response to a series of interventions, such as the launch of the first IRs, awareness-raising seminars and training workshops for (library) staff. It will provide the baseline for a second KAP study in 2012. By that time, Mozambique's first IR, at UEM, will have been in operation for more than one year.

1.2 Institutional repositories

An institutional repository is an online locus for collecting, preserving, and disseminating - in digital form - the intellectual output of an institution, particularly a research institution. IRs are broadly described as the collection of digital material hosted, owned and controlled or disseminated by an institution. More specifically, IRs are the digital archives of the intellectual product created by faculty members, research staff and students of an institution and accessible to end-users both within and outside of the institution (Christian, 2008)

For a university, this could include materials such as research journal articles, before (preprints) and after (postprints) undergoing peer review, and digital versions of theses and dissertations. But it could also include other digital assets generated by normal academic life, such as internal and administrative documents, curricula, programmes, course notes or learning material. An IR may thus become the online conscience of a university or faculty. All its intellectual content should be (self-) archived into it.

The five main reasons for having an IR are to:

- Create global visibility for an institution's scholarly output;
- Collect content in a single location;
- Provide open access to the institutional research output by self-archiving it;
- Store and preserve other institutional digital assets, including unpublished or otherwise easily lost ("grey") literature (e.g. theses or technical reports);
- Create persistent identifiers for online resources.

According to Smith (2008), apart from the free access to all and the central archiving and preservation function, the most important benefit of an IR is that it increases the visibility and usage of research. Open access papers are read more widely, and therefore cited more frequently. Consequently, they also have greater impact.

Knowledge production could therefore be viewed as a pyramid, where grey literature, theses and dissertations form the base of the pyramid. Higher up the pyramid, this can be translated into peer-reviewed research publications higher up the pyramid: the larger the base, the larger the volume of activity at the middle and apex of the pyramid. This creates the future shape and size of research productivity (Abrahams et al., 2008). The free flow of scientific articles will greatly benefit African countries, should they as a matter of priority adopt collaborative strategies with agencies and institutions in the developed countries, where research infrastructures are better developed, and where the quest for access to scientific publication is on the increase (Bradley, 2008).

1.3 Repository development in Africa

IRs are a common feature of a modern university or research institution in most Northern countries. More and more African institutions and organizations are starting to implement digital preservation strategies and repositories in order to collect, disseminate, manage, preserve, and index their digitally born and non-digitally born assets, following a world-wide paradigm.

According to the OpenDOAR website[2] in March 2008, at that time there were just 13 registered institutional repositories originating in the African continent. Virtually all of these repositories were from South Africa. By the end of 2010, the situation has clearly improved. See Figure 1 below. Out of the 46 registered repositories, 22 are from countries other than South Africa.

In African universities, the dissemination of one's research findings is unfortunately still a major concern, mainly because of publishing and access restrictions. Most scholars who feel the 'publish-or-perish' pressure will try to publish their research findings in a well circulated and highly reputed periodical. Because of this urge to publish in such journals, most African scholarly output is severely delayed or never published (Anbu, 2006). The visibility of African scholarship is kept to the minimum, mainly because of these access and publishing limitations. This handicap contributes to the low level of research activities in African universities. Such problems are not unique to Africa alone, for the scholarly publishing industry, with its monopoly and elitist system of journals and publishers, has created a world of intellectual haves and have-nots (ibid.). The unavailability of appropriate African descriptive literature is a major constraint on the growth of research capacity. The already existing work that is not currently widely available, constitutes a potential windfall for the change management process (Abrahams et al., 2008).

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[2] See: http://www.opendoar.org
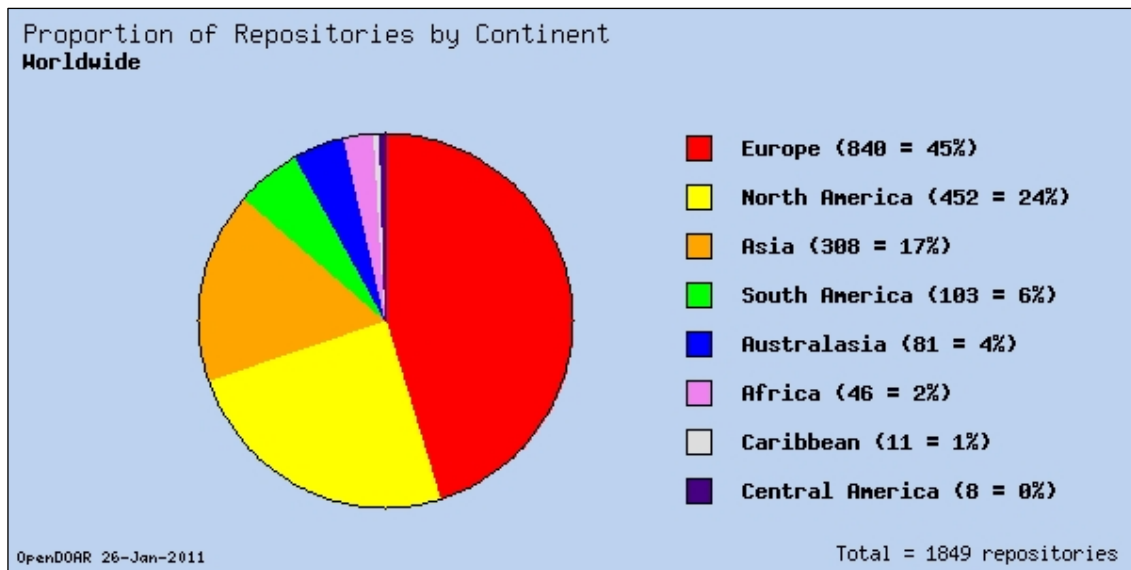
Figure 1.   http://www.opendoar.org, University of Nottingham, UK. January 26, 2011

In Africa, the reservations about or reluctance to publishing in open access environments could have several underlying factors (e.g. underestimation of one's own knowledge and content; lack of awareness and knowledge of open access alternatives; restrictive faculty or library policies). Hatakka (2009) mentions the underestimation together with the fact that it is hard to assess the quality, overcome copyright restrictions, and meet the time requirements for modifying the material.

Although Africa is experiencing a digital information revolution, which has already brought about new ways of generating and distributing information, there is still a widespread emphasis on access to the printed word. This situation is well illustrated by the large number of universities and research institutes in Africa that still require their students and researchers to submit printed copies only of theses, dissertations and research reports to their institutional archives and libraries. Libraries request print copies, even when electronic copies are available on the hard disks of the researchers' computers. As a result, libraries in Africa have not progressed very far in making local content available electronically (Rosenberg 2005:10) and the attitude towards digital information resources has to change for digital information repositories to flourish on the continent (Chisenga, 2006).

Scientific publication in general has received little attention from senior leadership at universities in Africa. The result has been that current publication practices, according to many in the academic community, are increasingly out of step with the important values of the academy. It is critical that universities deploy the full range of their resources – faculty research and teaching activity, library collections, information technology capacity, and publishing expertise – in ways that best serve both local interests and the broader public interest. There seems to be a pressing and urgent need to revitalize the university's publishing role and capabilities in this digital age (Gray, 2008).

Educational practices and traditions, which historically have shaped the educational system of African countries, also pose a hindrance (ibid.). Content developers are used to teaching material based on text books. They also want control over what information is passed on to their students. Moreover, they often use content that is not easily understood by their students, such as course material in English and Spanish. That they do not trust the information in open content is problematic. The risk is that only institution-provided content will be used. Open content is based on the idea that everyone should be able to contribute, but if users only trust content from recognized institutions, the whole community-provided content side will be ignored (ibid.). But even though these inhibiting factors make content developers reluctant to use open access, many see the benefits of using it. What is required is the flexibility to meet a wide range of requirements and overcome the various hindrances.

1.4 Repository development in Mozambique

Despite the fact that the government in Mozambique has initiated a project whereby optic fibres will be installed throughout the country, internet access is still limited and unstable in most regions outside Maputo. Although a few provinces have been covered already, the vast majority of the population still has no access to these facilities. At the time of this survey there were no official IRs registered in Mozambique, although the Portuguese-speaking scientific community could draw on 30 IRs in Portugal and 24 in Brazil (Website OpenDoar, March 2010). Yet only a few of these repositories appear as links on the universities' websites. Although Mozambique has 24 higher education institutions, the country has no academic journals listed, for example in African Journals Online[3], probably because of the use of Portuguese, a less dominant language in the academic environment.

Enrolment of students in higher education in Mozambique has exploded from approximately 4,000 in 1990 to 20,000 in 2009 (Majoor, 2010). The number of higher education facilities increased from 3 to 24 in this period. Apart from the three universities under study, other important institutions are: Instituto Superior de Ciência e Tecnologia de Moçambique (ISCTEM); Instituto Superior de Relações Internacionais (ISRI); Instituto Superior Politécnico e Universitário (ISPU); Universidade Mussa Bin Bique; Universidade Pedagógica (UP); Universidade São Tomás de Moçambique (USTM); Universidade Técnica de Moçambique (UDM); and Universidade Zambeze (UniZambeze).

The websites of the universities under study include a digital or virtual library: a *biblioteca virtual.* These so-called digital libraries are basically portals offering links to external databases, most of which hold bibliographic data only and not full-text content. A few of these databases provide full-text journal articles - thus resolving, at least partially, the problem of the lack of printed textbooks in the physical library. The most popular academic databases presented on several university portals are: Biblioteca Virtual em Saúde BIREME; BOCC; CAPES; Cochrane library; Directory Of Open Access Journals (DOAJ); LILACS; LivRe!; Medline; Periódicos UFSC; SciELO; Scopus and ScienceDirect (through KIT ILS). However, most of the available full-text content in Mozambique was originally destined for foreign partners, and consists of the online publication of reports and strategies that are meaningless to local students (Gaster et al., 2009).

In recent years, KIT ILS has entered partner agreements with three universities in Mozambique. Together with each of these universities, projects have been initiated to strengthen the capacity of university libraries, also in the field of institutional repositories.

1.4.1 *Universidade Catolica de Mocambique (UCM)*

The UCM was established in 1996 (faculty of economics). Since the establishment of the medical faculty in 2001, KIT ILS has assisted the faculty library with building collections and developing services. Other UCM faculties have been established in Nampula (law, education), Pemba (tourism, informatics) and Cuamba (agriculture). Since 2009 the UCM has further expanded to other cities like Tête and Chimoio. At present a total of 3,500 students are enrolled at the UCM.

In the first few years of the UCM, the emphasis of the cooperation with KIT ILS was on the printed collection and the physical infrastructure. Also in those early tears, access to several online databases was provided; but a stable internet connection and WiFi on campus have been established only quite recently. Since the beginning of the partnership there have been a number of developments and initiatives to improve the accessibility of online documents.

Secondly, in 2003 KIT ILS started to set up an Information Master Plan for UCM. This resulted in the assignment of one library coordinator for the nine (at present) faculty libraries. Library operations are now more or less standardized, including a uniform cataloguing system and indexing. Thirdly, rather than depending on the ICT section, an information-oriented teacher and student themselves set up an intranet site for the medical

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[3]   See: http://ajol.info/

faculty, to which full-text documents and curriculum information were uploaded. Just recently, an online community was added for use by the students. Next, the Library coordinator was trained in several courses and on-the-job training. He recently graduated in information sciences at UNISA (University of South Africa, Pretoria). The librarian acts as a trainer of trainers now, organizing training courses for library users. In 2008 KIT ILS invited the librarian to attend the eIFL Workshop on Institutional Repositories and Open Access held in Maputo, Mozambique (eIFL, July 2008). The workshop was also attended by librarians from the other two universities.

1.4.2 *Universidade Lúrio (Unilúrio)*

Since the establishment in 2007 of the Lúrio University, including the faculty of health sciences, KIT ILS has been committed to supporting Unilúrio's Library. Last year three other faculties opened: agricultural sciences; engineering and natural sciences; and an ICT faculty. At present this young university has 2,000 enrolled students.

At the opening ceremony of the university, in the presence of Unilúrio's rector, KIT ILS committed to supporting the development of a digital library. This *biblioteca virtual* has since grown into a portal of links to online databases. Even though internet access is still not very stable, WiFi has been available on campus for a year now, and students are now able to access the databases without difficulty. Here the cooperation of the library and the ICT section brought good progress in terms of access to material outside the university. Now the computers of the ICT section are also used for library training and literature research. In 2009 KIT ILS invited the vice-rector of the University, Mr Abdulcarimo Ismael, to attend a workshop in Ghana for decision makers about open access and IRs. This workshop, organized by the Association of African Universities (AAU), was attended by several KIT ILS partners with the aim of promoting repositories at the managerial level of universities.

When the first students of Unilúrio graduate a few years from now, the library needs to be prepared for the archiving and electronic publication of Unilúrio's theses and other intellectual output.

1.4.3 *Eduardo Mondlane University (UEM)*

The UEM was established in 1969. It is the largest and oldest public university in Mozambique. Since 2008 the main UEM campus has a new central library, hosting the paper collections of ten faculties and about thirty courses. Ms. Rosa Pinto Munguambe, representing the Library Services of Eduardo Mondlane University (UEM) attended with support from KIT ILS a DATAD workshop in March 2009, organized by the AAU. This workshop was facilitated by Eloy Rodrigues, director of Documentation Services in Minho University, Portugal, who is one of the champions of Open Access in Portugal. A major outcome of this workshop was the plan to build a joint repository for institutions in Mozambique, gathering the intellectual production of all academic and research staff in the country. The Minho University subsequently assisted UEM in setting up this IR, Saber, using Dspace (eIFL, 2009).

1.5 Problem Based Learning

Problem Based Learning (PBL) is a student-centred instructional strategy in which students collaboratively solve problems and reflect on their experiences. It has emerged since the 1970s, particularly in medical education. In a nutshell, in PBL the paradigm of knowledge transfer from teachers and professors to students in lectures is abandoned. Rather, students are presented with real problems derived from their prospective professional domain. Globally, more than 350 universities and higher education institutions use this type of curriculum (Majoor, 2009).
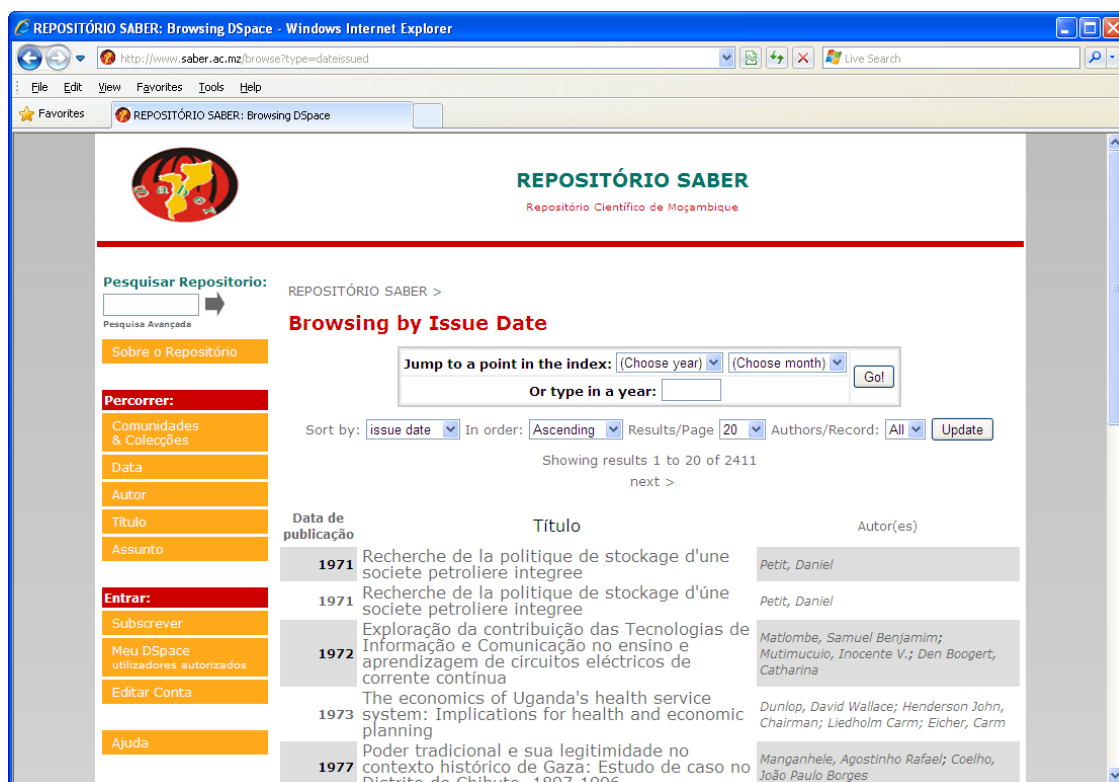
Figure 2   **Saber, the multi-institutional repository established by four universities in Maputo (UEM, UP, CFJJ and ISUP) at http://www.saber.ac.mz/**

In PBL, the students themselves determine what information they need. For an assignment, the students typically have a few days to consult resources (internet, books, journals, audio-visual materials, et cetera) to satisfy their learning needs. In the subsequent meeting of their group, they compare and discuss their findings and exchange what new knowledge they have acquired. A didactic advantage of this so-called student-centred approach is the emphasis on active learning driven by intrinsic motivation, rather than passive absorption of knowledge driven by exams (Schmidt et al., 2009).

A PBL programme has requirements that deviate from those of traditional higher education. Most importantly, the curriculum needs to be governed by a central body (or educational committee) with representatives of al important stakeholders (such as basic sciences departments, clinical departments, professional organizations, and patient organizations). Next, PBL requires many small tutorial rooms instead of large lecture halls. And the school should provide a well-equipped and spacious library catering for the students' self-study activities.

In PBL the (faculty) library functions as a learning environment. Teachers take on the role as facilitators or tutors of learning and the learning is driven by challenging, open-ended problems. Students work in small groups collaboratively. The learning process is broken down into steps (brainstorm, self-study, discussion) giving the student a large individual responsibility. As a consequence, the library needs to meet additional requirements and to provide more facilities than a classical library. A PBL library becomes a learning environment with secluded rooms for study and discussion, multiple copies of the same resource, more journal articles on cases studies, more internet access points, facilities for presentations, and a wider as well as deeper collection.

With the establishment of a medical faculty at UCM in 2001, PBL was introduced as a new didactic approach in Mozambique. Since then the medical faculties of UEM and Unilúrio have also adopted it.

2 Objectives and methodology

2.1 Scope

To better understand the needs and expectations of (potential) users of an IR in Mozambique, research was carried out on knowledge, attitudes and practices at three different universities. Each of these universities has a medical faculty. It was decided to focus on these faculties for the following reasons:

1. Health issues are at the core of the Millennium Development Goals (MDGs).
2. In the field of health, extensive digital content is available.
3. The three medical faculties are all using a Problem Based Learning curriculum.

It should be noted that the three universities are in different stages of development. Unilúrio, established only two years ago, not having graduates yet, and starting from scratch with respect to library development, could learn from the experience of the older universities. UCM has been producing graduates and doctors as a private university for some time. UCM can be seen as a well-established young university. UEM, a public university, is the largest and oldest university of the three and has already acquired an international reputation.

2.2 Research questions

Research was based on the following questions:.

1. What is the current knowledge of repositories in Mozambique?
2. What are the current attitudes towards repositories in Mozambique?
3. What is the current usage of repositories in Mozambique?
4. In Mozambique, what are the currently perceived characteristics of an IR?
5. What are the factors that inhibit Mozambican scientists from publishing their content in an open access environment?
6. Which factors are important to enable movement towards the deployment of repositories in Mozambique (mindset, technical and practical aspects, other)?

2.3 Theoretical considerations

Open access is a very new, dynamic, yet disruptive force that is compelling those within the scholarly communication cycle (scholars, research funders, research evaluators, publishers, libraries) to reconsider their positions and strategies. Its hugely attractive benefits cannot be won without considerable wrestling with and reconfiguration of existing processes, protocols and mindsets (Fullard, 2007).

Various factors underlie the behavioural intention to use a library innovation such as an IR. Park (et al., 2009) mentions seven factors: computer experience, (domain) knowledge, English literacy, interest in publishing, visibility, accessibility, and Library assistance; set against the ease of use and usefulness of an IR. These seven factors were taken into account in the design of the questionnaire.

2.4 KAP study

KAP studies tell us what people know about certain things, how they feel and how they behave. Determinants of these dimensions with respect to institutional repositories may be: social networks; technical infrastructure; internet access and usage; apprehension of copyright and intellectual property right issues. This is why we have chosen to focus on knowledge, attitudes and practices in repository development. KAP studies are a standard

social research method which can be tailored to a specific location, project, or problem. Over time, the KAP surveys can be presented in a graphic presentation with milestones (interventions) on a timeline. These surveys can clearly track pre- and post intervention knowledge, attitudes and practices over time (Eckman and Walker, 2008).

The current study is part of such a longitudinal design. After a series of anticipated interventions, a second study will be able to establish the changes in knowledge, attitudes and practices that can be attributed to these interventions. This could trigger an impulse (momentum) in library development in one of the institutions, changing knowledge, attitudes or practices with respect to publishing in open access environments such as repositories. This impulse or intervention might be a seminar[4] or the launch of an actual IR. In this scenario, data from the benchmark survey can be used to establish a baseline for comparison with the second post-intervention KAP survey.

Box 1. ***Knowledge***

Knowledge is defined by the Oxford English Dictionary as (i) expertise, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject: (ii) what is known in a particular field or in total, facts and information or (iii) awareness or familiarity gained by experience of a fact or situation. Philosophical debates in general start with Plato's formulation of knowledge as justified true belief. There is however no single agreed definition of knowledge presently, or any prospect of one, and there remain numerous competing theories (Wikipedia, March 2010). Indicators of this dimension may be language skills; education (abroad); experience.

Box 2. ***Attitudes***

An attitude is a hypothetical construct that represents an individual's mindset or degree of belief in an item (Eckman and Walker, 2008). It refers to a person's feelings toward the subject, as well as any preconceived ideas they may have towards it. Indicators of this dimension may be: age; gender; salary etc. Of course, there may also be other determinants, such as character, culture, and/or ethnicity, but these are difficult to measure objectively.

Box 3. ***Practices***

Practices refer to the ways in which people demonstrate their knowledge and attitudes through their actions. In the current study this has to do with the use of information (Eckman and Walker, 2008).

2.5 Methodological considerations

For this research KIT ILS identified the stakeholders from the health science faculties of UEM, UCM and Unilúrio as the research population. These consisted not only of researchers, but all potential users: lecturers, students, health professionals and library personnel (information professionals) were also included. Before starting the data collection, an extensive desk review and literature study was performed. To put everything into perspective, nine reports of previous KIT ILS missions to Mozambique were reviewed as well.

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[4] The advocacy seminar (on IRs) held in March 2009 in Accra, Ghana, organized by the African Association of Universities, CARLIGH and KIT, can be considered as such an intervention. Two participants came from Mozambique: one from Unilúrio, one from UEM.

The first step in the data collection process was drawing the sample to which the questionnaire was to be administered. Division of the population into smaller categories was desirable, as different groups in the university communities had varying educational, cultural and socioeconomic backgrounds and were therefore likely to show differences in knowledge, attitudes and practices. Selection of the research sample was supposed to be random. However, the people volunteering for the survey were usually quite information-minded. People with no connection to the internet and no e-mail were excluded, almost by definition, from the online survey.

The sample size was originally set at around 20 respondents per university. A sample of lecturers, scientists (in medicine), students and librarians was drawn from the three universities population. The online interviewees were completed by 55 researchers, lecturers, students and information specialists. They all received a multiple-choice questionnaire by e-mail, using Survey Monkey™, a platform for administering online questionnaires. The ultimate sample size of 55 respondents proved to be a serious limitation. This is quite a small number for quantitative research.

After the (multiple choice) questionnaire (see Appendix 2) had been filled out, some respondents were approached for the focus group (at least three key informants for each of the three participating universities) and invited to more in-depth interviews in sequences of semi-structured interviews with open questions. In October and November 2009, eight in-depth interviews were held after the online survey was completed by the respondents.

The survey questionnaire was set up and the interviews were conducted in Portuguese. The statistical data analysis was performed on the Excel™ sheets downloaded from the SurveyMonkey™.

2.6 Survey

A survey questionnaire was circulated in October 2009. The survey was administered via SurveyMonkey™[5]. The text of the questionnaire was based on the research questions and hypotheses. The draft versions were shared with project coordinators and fellow practitioners. The questionnaire was administered in the Portuguese language. To make sure all respondents were able to answer the questions even without the use of internet of electricity, printed versions of the survey were also distributed ll. The translated questionnaire is presented in Appendix 2.

The survey consisted of 42 multiple choice questions and was divided into six parts.

1. Personal data of research population
2. Access and connectivity
3. Knowledge level
4. Practices
5. Publication
6. Institutional Repository

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[5]   See www.surveymonkey.com.

3 Data analysis

3.1 Personal data of research population (Question 1 – 12)

The first section of the questionnaire comprised ten questions on personal data. A total of 57 people completed the questionnaire. Although the sample was spread evenly over the three universities, gender, age and occupation, it cannot be considered as representative from a statistical point of view. For the sample to be truly representative, the sample size should have been larger and all the criteria of random sample drawing should have been fulfilled. The sample drawing was far from random. As all selected respondents were volunteers and willing to participate, they represented already very information-minded people. On the other hand, the even spread across particular characteristics allowed us to cross-tabulate these characteristics with the level of knowledge and practices in order to test hypotheses.

The research population consisted of 27 male and 28 female respondents. Fifty percent of the population were students aged under 25. The mean age of all respondents was 28. Among the non-students, the numbers of teachers and library personnel were equal. UEM, Unilúrio, UCM were proportionately represented in the survey (37%; 30% and 33% respectively). Dealing with universities and medical faculties, needless to say the educational level was very high. Knowledge of the English language was considered to be reasonable; most respondents could read and understand the language well, although writing and speaking skills were considered less good. Only two respondents qualified their English as poor, even though 35% of the respondents had never been abroad.

Personal data were cross-tabulated with several others. A cross-tabulation with gender showed that men use the internet more frequently than women. The daily use of the internet by men is twice as high compared to use by women. Women under 25 stated use of the internet on a daily basis much more often than women in higher age groups. Sharing knowledge through various online media was mostly practiced by younger respondents.

3.2 Access and connectivity (Question 13 -16)

This section comprised four questions. All respondents reported reasonable access to the internet. Six stated the connection was always excellent and only eight mentioned the connection was slow and unreliable. Most respondents did not know what kind of connection they were using. While previous studies two years earlier (van Dam, 2007) stated that more than 50% of access was in internet cafes, this survey showed that only 2% rely on internet cafes to access the internet. The use of wireless illustrates the tremendous growth in laptop use, especially among students; 37% make use of a laptop. As for access to information, most respondents considered the lack of printed books in the library as the most important limitation. Lack of training and lack of knowledge were considered to be the second and third limitations respectively. Most of the respondents also considered the lack of money (for hardware and books) as a limitation. Only one respondent stated that he or she was not limited at all in the search for information.

3.3 Knowledge (Question 17 – 22)

Six knowledge questions in this section focused on skills and training. Although most respondents could find their way on the internet quite well, their searching skills still needed to be improved. For sharing of information within Mozambique, personal meetings, publications and journals were considered most important. Social networks scored relatively high (30%) compared to sharing of information through lectures or e-mails (both mentioned by 24%). Only a few respondents were familiar with the new information literacy vocabulary (bookmarking, tagging, RSS feeds, open source, open access and Web 2.0). The term 'digital library' was well known to almost everybody (90%). The knowledge question on (full text) online journals and databases showed that respondents were quite knowledgeable in

this area. Both HINARI and PubMed/Medline were known and sometimes used by 80% of the respondents. Awareness of these databases seems to be in good standing, but we did not collect specific data on their usage. HINARI and similar full-text databases are believed to be more effective, with strong institutional endorsement and management to promote and ensure access (Smith et al., 2007).

3.4 Practices (Question 23 – 32)

Results regarding practices may be compared with data on the South African situation five years ago (Beer, 2005) as it is expected that attitudes towards open access publishing in South Africa then, might be similar to those in Mozambique now.

Most respondents (80%) used the internet on a daily basis. While 36% indicated doing this on a daily basis for study and research purposes, 46% used the internet at least once a week for these purposes. Also, 44% of the respondents, mostly students, said they pay a visit to the Library every day. Thirty percent, mostly teachers, visit the library on a weekly basis. The university website was less popular, although 25% stated that they use their university website on a daily basis too.

Twenty-six percent of the respondents stated that they still liked to have information in the form of photocopies. The percentage of those stating they would like to have information in the form of discussions was also 26%. Fifty-six percent used online social networks more or less frequently: Hi5 scored highest; Facebook and Netlog score approximately equally high; UNYK came next, followed by Flixter, LinkedIn and Dgroups. Twitter was known and used by only one respondent. See Table 1 below. Twenty percent used social networks daily, while 30% stated they use such networks once a week.

Rank	Social network	Percentage
1.	Hi5	24 %
2.	Facebook	20 %
3.	Netlog	12 %
4.	UNYK	10 %
5.	Flixter	6 %
6.	LinkedIn	5 %
7.	Irkut	5 %
8.	Dgroups	4 %
9.	Plaxo	1 %
10.	Twitter	1 %
11.	no usage	12 %

Table 1 Popularity of online communities in KAP research

Textbooks were still reported as an important source of health information by 77% of the respondents, now followed closely by the internet (reported by 70%). For journals this was different: the majority of respondents used electronic journals, while only a minority used printed journals. Colleagues or fellow students were reported as a relatively important source of information (35%).

3.5 Publication (Question 33 – 37)

There were four questions to assess the situation regarding publication practices. Although every respondent stated that he or she had written reports, theses or even dissertations, none of these publications were accessible online. Just over half of the respondents would like to publish in an open access environment or on the internet in one way or another (53%), while almost half (49%) would like their papers to be published by a publisher of

printed material or in a journal. Nevertheless, it was not a common practice to offer a printed copy or electronic copy of any publication to the library. Eighty percent of the respondents who wrote a document (usually a report), never made it available electronically, either through the library or the website. The main reason given by the respondents for not making a publication available online was feeling insecure about the quality of the contents (51%). Female respondents gave this reason twice as often as male respondents. Other reasons mentioned were insufficient knowledge about how and where to publish and a lack of institutional publication policies.

3.6 Institutional repository (Question 38 -41)

This section comprised five questions on the maintenance of a (future) repository for the institution (faculty or university). Even though very few of the institution's publications were available from the library, and even though knowledge about IRs is very limited, respondents have clear opinions about the preferred content of an IR. It was stated that a repository should consist of (in order of importance): curriculum and course information for all course years, theses and dissertations, journal articles, audiovisual material, presentations and lectures, unofficially published material (grey literature) of students and staff, newsletters and papers relevant to the faculty.

When asked what the most important characteristic of a repository would be, the following were reported (in order of importance): scientific, current and recent material, in English, in Portuguese, with bibliographic details and summaries (in Portuguese), audiovisual, and peer reviewed. To guarantee quality of the IR's content, 66% of the respondents thought an editorial team should be established. Twelve percent stated that this quality is the responsibility of the librarian. Although not many respondents are knowledgeable about copyright issues, 50% responded that the copyrights should be with the author, who should give written consent for publication in the IR.

3.7 Comments and miscellaneous (Question 42)

A comment frequently encountered in the survey is appreciation of the survey itself: the respondents found it useful for planning future IRs and actually very educational in itself. Upon completion of the questionnaire, most respondents feel that IRs are a necessary development in Mozambique. The following two quotes from the survey illustrate this point.

> *"Access to health information in Mozambique is still very limited because there are very few professionals who are able to explore available information on the internet in an adequate way. To facilitate the acquisition of information, the organization of workshops is eminent (such as the one given at UEM on 5 and 6 November, 2010). These can train library users in the use of electronic content and how to retrieve relevant health information."*

> *"It is very important that the available health material is up to date, because in this field there are new developments continuously. The existence of digital libraries and online databases has helped tremendously to be able to access current scientific material."*

3.8 In-depth interviews

Per university at least three representatives in three categories, lecturers, librarians and students, were interviewed in face-to-face, in-depth interviews. A general synopsis of the interviews is presented in the following paragraphs.

3.8.1 *UCM*

The lecturer

This teacher happens to be a practicing physician at the Beira hospital. He is very information-minded; gives his students the latest journal articles to read. Together with a student, he created an intranet where he can share all his presentations and relevant articles. He knows that this is not common practice for the other lecturers, but hopes they will soon follow once the intranet becomes more institutionalized. He is aware that setting up an archive for digital content is not supposed to be his responsibility. Managing this intranet should be a task of the librarian.

The librarian

There is no collaboration between the ICT department and the Library at all. They operate in a sort of competition. The intranet is an initiative of a lecturer and a student and is not supported by the ICT department or the Library. There is no library or faculty policy to regulate the publication of digital content. Management should assign this responsibility to the library staff. Regulations, procedures and training should all be a part of an integrated Information Management Plan.

The student

It is always difficult for the student to find relevant information. A sort of intranet does exist at UCM, but only very few people know which information can be retrieved or uploaded. It is not an official UCM intranet, nor is it supported by the library or the ICT department. It is not well promoted. A lot of (printed) daily communications exist, but there is no central archive or official intranet. Retrieving the right information therefore depends on being in touch with the right people. Instead, there should be a proper communication channel, managed by appropriate staff. Written notifications posted on the walls are always at risk of being out of date, whereas information on the intranet/internet can be updated in real-time.

3.8.2 *Unilúrio*

The lecturer

This (Cuban) teacher thinks Mozambique or this university is not yet ready for PBL. There are no publishing policies. Sharing of information seems to be the responsibility of the student and the lecturer, and all have different views on information sharing. As there is no central archive, this lecturer shares her PowerPoint presentations with students on an USB stick, which makes it very random as to who gets the information and how.

The librarian

We do not have the right software for cataloguing or archiving in a repository. Even open source software is highly dependent on a stable internet connection. Here in Nampula, both the internet connectivity and the electric power network are unreliable. This is why most library operations are still performed manually. Apart from these problems, there is not enough (money for) hardware to set up an extended internal network that can be accessed by a larger number of students in the study rooms and in the library.

The student

Access to information is highly dependent on laptop ownership. There is no institutional policy to guarantee equal access to information for the students. Students with laptops are usually better informed about the curriculum and have better access to learning material. But even laptop owners are dependent on WiFi availability. In fact, sometimes the WiFi works, sometimes it does not.

In some cases students inform one and other about the curriculum and learning material through Hi5 and Facebook. Again, the use of these social media is for the well-to-do

students. If you don't have a laptop you need to access the internet in internet cafés or other public places. The willingness to publish electronically in an open access environment is generally high among students.

3.8.3 *UEM*

The lecturer

Students should be instructed about digital publications in their first year. Searching for, retrieving and publishing online information should be taught as early as possible and be made an integral part of the curriculum. The availability of online information and databases should be communicated better with faculty members, lecturers and students. There is a huge difference in attitude among teachers: some are very information-minded and update their online learning material every year, others do not even bother to share their lectures and presentations online.

The librarian

Those libraries that have started but not completed library automation have, in general, not moved forward successfully in other areas either (Rosenberg, 2005). The acquisition and implementation of a library information system would appear to be an essential building block in the construction of an IR. Only the Central Library of UEM considered itself fully automated and was thus able to set up an IR. This was due to the successful integration of several faculty catalogues in one system. A full-text archive (repository) is about to be launched, not just for UEM but as a shared repository of higher education facilities in Mozambique. A well-defined information plan for the university will ensure both conservation and accessibility of the institute's intellectual property.

The student

Communication about the availability of information services is insufficient. Digital publication of study and research outputs is not promoted. A lot of information and knowledge could be shared so much more easily once it is stored in an appropriate manner. The internet is okay now and facilities in the central library are great, but still, communication as well as the digital availability of learning material is poor.

4 Conclusions

4.1 Personal data of research population

Internet and social media are most popular with young age groups.

4.2 Access and connectivity

There has been a tremendous growth in laptop use since 2007, especially among students. In the age group below 25, 78% now use WiFi, which implies in most cases the possession of a laptop or mobile phone with internet connection.

4.3 Knowledge

The sharing of scientific information in Mozambique happens predominantly through personal meetings, publications and journals. Using social networks and e-mail is considered important by about a quarter to one third of the users.

4.4 Practices

The younger respondents in particular stated that they access the internet on a daily basis. Nevertheless, when asked for the optimal manner in which to receive information, the most popular answers were textbooks and lectures. The main reason for this is insufficient knowledge about how to publish electronically and lack of institutional policies with respect to electronic publication and publication of grey literature.

4.5 Publication

It was never a common policy for university libraries in Mozambique to ask for electronic copies of newly published papers. Lack of quality of the content was the most stated reason for restricted publication efforts. Lack of knowledge was also mentioned as an important reason. It follows that in order to improve digital access to Mozambican research output, training is necessary on copyright issues and licensing agreements (see also Masango, 2007). It appears that hardly any of the publications produced at the three institutes under study were accessible online. This is probably caused by a lack of (technical) education as well as a lack of policy.

4.6 Institutional repository

Even though the respondents, representing the future users and contributors, often have little knowledge of the niceties of IRs, they can easily see the benefits and potential of such instruments for open access electronic publishing.

4.7 In-depth interviews

The in-depth interviews focused on access to medical information, the improvement of efficiency and effectiveness of the Library, and practices relating to online databases and full-text electronic publications. Technical aspects (connection, webpage accessibility, password access), expertise (computer or search skills) and organizational aspects (password availability, access to computers) were reviewed. The focus group clearly stated the need for further training and education among students, teachers and library staff. Communication, education and awareness-building around available open access sources need to be improved. There is also a need to publicize the university's own intellectual output. This was stated to be predominantly a mind-set issue. However, it is management's responsibility to promote and stimulate this mind-set.

4.8 To conclude

It is concluded that the research gives a useful description of the current knowledge and practices in Mozambican universities with regard to online open access publishing. Most of the respondents were not aware of the phenomenon of institutional repositories. However, they claimed that the survey itself was very educational. In fact the respondents proposed many ideas and suggestions for setting up IRs.

Compared with an earlier assessment (van Dam, 2007), this research showed that the use of the internet, WiFi, computers and laptops has increased strongly. Whereas only two years ago students depended on internet cafés and the scarce availability of computers at the university, most of the current survey population rely on their laptops and WiFi. For the vast majority, searching the internet has become a daily habit.

The research questions can only be answered partially based on this first survey. However, it provides a baseline for a future study, as planned, that will shed more light on unanswered questions. A future study of the experiences of Mozambican authors who have used open access platforms may bring further evidence of the advantage of open access, which could serve as an incentive to other researchers to opt for open access (Fullard, 2007).

IRs create the opportunity to learn and to teach. IRs will not totally eradicate the many knowledge divides that exist in the country, but they will at least continue to provide a narrow bridge that can be used to access knowledge that could change the practices of health professionals, which ultimately will improve the quality of lives.

4.9 Recommendations

- As already stated by Sánchez Tarragó (et al., 2008), it is important to promote the advantages of open access electronic publishing. It will be the task of librarians to educate and train authors (students and lecturers) on how to use and benefit from the IR. Faculty librarians can act as change agents by informing about and advocating open access within the departments they serve, and they could promote the rapid and efficient transition to open access publishing (Fullard, 2007).

- Repositories will not totally eradicate the many knowledge divides that exist in the country. But IRs will at least provide a narrow bridge to access knowledge that could change lives (Van Deventer and Pienaar, 2008). Librarians should be prepared to modify their roles, and acquire new knowledge and skills that enable them to remain relevant to the university library environment and its changing demands.

- Furthermore, library schools need to revisit their curriculum and study programmes to be able to prepare graduates for the user-centred and ICT-driven library environment (Musoke, 2009). Also, the introduction of preservation courses in various training programmes that deal with digital archiving should be encouraged (Papin-Ramcharan and Dawe, 2006).

- Universities are encouraged to develop appropriate policies with respect to open-access publishing.

- Information on intellectual property rights, copyrights and open access publishing should be taken up in the curriculum of first year students.

- Coordination of training across African institutions will ensure that those building institutional repositories follow similar procedures and guidelines. Ideally, these would be agreed upon by networks of institutions across the continent. Standardization will make it easier to share best practices and lessons learned (Wamunyima Kanyengo, 2008).

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Henk van Dam

Also on behalf of Tendayi Madzija, Anifo Martinho and Ranito Waete

15 December 2010
Royal Tropical Institute

Appendix 2: Survey questionnaire (translation)

Knowledge, Attitudes and Practices with respect to Health Information in Mozambique.

Dear Sir/Madam,

Please would you be so kind as to answer the following set of questions. This questionnaire is to help obtain information on the knowledge, attitudes and practices with respect to (online) health information in Mozambique. The research is a first inventory and a benchmark study of the general attitudes towards the phenomenon of Institutional Repositories (IRs) in Mozambique. Results of this current study will be published in a KIT Working Paper.

Filling out this questionnaire will take approximately 15 minutes, but please take your time for the comments in the text boxes.

Many thanks for your help!

Henk van Dam
Royal Tropical Institute (KIT)
The Netherlands

A. Personal Data

1. Full name:

2. Your e-mail:

3. Gender:

❑ Female
❑ Male

3. Age:

❑ under 25
❑ 26 - 35
❑ 36 - 45
❑ 46 - 55
❑ over 55

5. Your Function / Status:

❑ Student
❑ Postgraduate
❑ Researcher
❑ Teacher
❑ Medical Doctor
❑ Nurse
❑ Library / Information Officer
❑ Other (please specify):

6. What is the highest level of education you have completed?

❑ Primary
❑ Secondary
❑ College / Technical Institute
❑ Higher Education (Professional or Post-Graduate)
❑ Religious Schooling Only
❑ Literacy Classes Only
❑ Other, please specify:

7. Affiliation:

❑ Universidade Eduardo Mondlane (UEM)
❑ Universidade Lúrio (Unilúrio)
❑ Universidade Católica de Moçambique (UCM)
❑ Other (please specify)

8. What is your current course, if any?

❑ BA / BSc
❑ MA / MSc
❑ Medical Doctor
❑ Nurse
❑ Midwife
❑ Teacher
❑ Researcher
❑ PhD
❑ Not applicable
❑ Other, please specify:

9. Your current Discipline:

❑ Surgery
❑ Dentistry
❑ Pharmaceuticals
❑ Paediatrics
❑ Biomedical research
❑ Public health / Epidemiology
❑ Information Science / Library services
❑ Teaching
❑ Other, please specify:

10. How would you classify your English language skills?

	listening	reading	writing	speaking
Poor	❑	❑	❑	❑
Reasonable	❑	❑	❑	❑
Good	❑	❑	❑	❑
Excellent	❑	❑	❑	❑

11. Have you ever been abroad/ outside Mozambique?

❑ No
❑ Yes

If yes: which countr(y/ies):

12. For what reason were you abroad?

❑ Job / Work / Business
❑ Conference
❑ Fellowship
❑ Course / Training
❑ Visit
❑ Holiday
❑ Other, please specify:

B. Access and Connectivity

13. How is your access to e-mail and internet?

❑ Excellent
❑ Good / Rapid
❑ A bit slow but it usually works
❑ Unsatisfactory / Too slow and unreliable
❑ Never or rarely a connection

14. Where do you access the internet?

❑ Own account at home
❑ At the office
❑ At University / Library / Faculty
❑ At friend or relative
❑ Internet café
❑ This is actually my first time to access the internet

15. What type of connectivity do you use?

❑ Broadband
❑ Dial up
❑ Mobile phone
❑ Satellite
❑ Wireless
❑ ISDN
❑ I don't know
❑ Other, please specify:

16. If you feel yourself limited in access to books and printed information, what do you consider possible reasons?

❑ High costs
❑ Information is only available at management level
❑ Lack of Library Personnel capability
❑ Lack of hardware (computers, photocopy machine, printer, scanner)
❑ Lack of information literacy skills
❑ Lack of know-how in "information dissemination"
❑ Lack of paper to print / photocopy
❑ Lack of printed information / books in the Library
❑ Lack of cooperation in sharing information
❑ Other, please specify:

C. Knowledge

17. Have you ever been trained in the following skills?

❑ Computer usage
❑ Online cataloguing
❑ Internet searching
❑ Online database searching
❑ Scopus / ScienceDirect
❑ HINARI
❑ PubMed
❑ Other, please specify:

18. How would you rate your computer skills?

❑ Basic
❑ Intermediate
❑ Advanced

19. How would you rate your internet searching skills?

❑ Basic
❑ Intermediate
❑ Advanced

20. What do you think is an appropriate way to exchange information in Mozambique?

❑ Through personal meetings with colleagues/peers
❑ Through professional meetings
❑ Through workshops
❑ Through lectures
❑ Through publications/books
❑ Through e-mail/social networking
❑ Through online journals
❑ Other, please specify:

21. Have you ever heard about the following concepts? (Tick appropriate box.)

	No, never heard about	Yes, vaguely	Yes, I (have) use(d) it	Yes, I use it frequently
Blogs (weblogging)	❑	❑	❑	❑
Bookmarking	❑	❑	❑	❑
Digital libraries	❑	❑	❑	❑
Information literacy	❑	❑	❑	❑
Institutional repositories	❑	❑	❑	❑
Online communities	❑	❑	❑	❑
Online media sharing sites	❑	❑	❑	❑
Open access databases	❑	❑	❑	❑
Open source software	❑	❑	❑	❑
RSS (feeds)	❑	❑	❑	❑
Social networking	❑	❑	❑	❑
Tagging	❑	❑	❑	❑
Web 2.0	❑	❑	❑	❑
Wikis	❑	❑	❑	❑

22. Have you ever heard about . . . ? (Tick appropriate box.)

	No, never heard about	Yes, vaguely	Yes, I (have) use(d) it	Yes, I use it frequently
African Journals Online (AJOL)	❑	❑	❑	❑
Biblioteca Nacional de Lisboa	❑	❑	❑	❑
Biblioteca Virtual em Saúde / Bireme	❑	❑	❑	❑
BioMed Central	❑	❑	❑	❑
BMJ online (British Medical Journal)	❑	❑	❑	❑
CINAHL	❑	❑	❑	❑
Cochrane Library	❑	❑	❑	❑
EBSCO host	❑	❑	❑	❑
EMBASE	❑	❑	❑	❑
HINARI	❑	❑	❑	❑
Medline or PubMed	❑	❑	❑	❑
ScienceDirect, Scopus and / or SwetsWise	❑	❑	❑	❑
Universidade Federal de Minas Gerais	❑	❑	❑	❑

D. Practices

23. How often do you use the internet?

❑ Never
❑ Every day
❑ Few times a week
❑ Few times a month
❑ Few times a year
❑ Never

24. How often do you use the internet to access health or medical information?

❑ Never
❑ Every day
❑ Few times a week
❑ Few times a month
❑ Few times a year
❑ Never

25. How often do you visit the University website or its intranet? [Either www.health.uem.mz or www.unilurio.ac.mz or www.ucm.ac.mz]

❑ Never
❑ Every day
❑ Few times a week
❑ Few times a month
❑ Few times a year
❑ Never

26. How many times do you use the Faculty Library to look for information?

❑ Every day
❑ Few times a week
❑ Few times a month
❑ Few times a year
❑ Never

27. Apart from the Library, where do you get your (scientific) information from?

❑ From fellow students
❑ From colleagues
❑ From supervisors
❑ From personal book collection
❑ From newspapers
❑ From the Radio / Television
❑ From the internet
❑ Other, please specify:

28. Do you share (scientific) information you receive with other people?

❑ Yes, I make photocopies and distribute to colleagues/friends
❑ Yes, I pass books and photocopies on to my peers
❑ Yes by e-mail
❑ Yes through an online community
❑ Yes, I discuss information I find with colleagues/friends
❑ Other, please specify:

29. Do you make use of any of the following online Social Networks/Communities?

	No, I have never used it before	Yes, I (have) use(d) it	Yes, I use it frequently
Facebook	❑	❑	❑
hi5	❑	❑	❑
Netlog	❑	❑	❑
Flixter	❑	❑	❑
LinkedIn	❑	❑	❑
Twitter	❑	❑	❑
Plaxo	❑	❑	❑
Dgroups	❑	❑	❑
UNYK	❑	❑	❑

Other (please specify): …………………………………………………………………………………

30. When using any of the above, how many times you access these social networks?

❑ Every day
❑ Few times a week
❑ Few times a month
❑ Few times a year
❑ Never

31. Currently, what is your source of health and medical information?

❑ Textbooks
❑ Electronic journals
❑ Internet
❑ Obtain from CD ROMs
❑ Printed journals
❑ Colleagues
❑ Find a journal in the library and photocopy article
❑ Request a photocopy from the library or information officer
❑ Other, please specify:

32. Through which means would you like to retrieve medical and health information? (Tick the appropriate ranking.)

	Not at all important	Of minor importance	Important	Very important
(Text) Books	❑	❑	❑	❑
Conference proceedings/papers	❑	❑	❑	❑
Digital media (diskette, CD-ROM, online database, etc)	❑	❑	❑	❑
e-mail discussion lists	❑	❑	❑	❑
Group discussions/ workshops	❑	❑	❑	❑
Journals / Articles	❑	❑	❑	❑
Lectures	❑	❑	❑	❑
Newsletters	❑	❑	❑	❑
Newspapers	❑	❑	❑	❑
Opinions / personal views	❑	❑	❑	❑
Photocopies / printed material	❑	❑	❑	❑
Programme reports/ evaluations	❑	❑	❑	❑
Radio	❑	❑	❑	❑
Reference materials/ abstracts	❑	❑	❑	❑
Research studies	❑	❑	❑	❑
Theses and dissertations	❑	❑	❑	❑
Training manuals and guidelines	❑	❑	❑	❑
Audiovisual material	❑	❑	❑	❑

Other important means, please specify:

E. Publication

33. Have you ever WRITTEN one or more of the following material that was of use to the faculty?

❑ A Book
❑ A Curriculum / Learning module
❑ A Dissertation
❑ A Journal article
❑ A Lecture / Presentation
❑ A Paper
❑ A Report
❑ A Thesis
❑ A Programme of Workshop or Conference
❑ Other, please specify:

34. If you would want to PUBLISH, how and where would you like to publish?

❑ In print / bring it to an official publisher
❑ Online / Internet (no matter how)
❑ In an open access journal / database
❑ In a paid access online Journal
❑ Other, please specify:

35. What would prevent you from PUBLISHING online?

❑ Fear of losing copyrights / ownership of intellectual property
❑ Fear of being plagiarised
❑ Fear of having not enough references
❑ Fear of lack of quality
❑ Fear of impact because it is in Portuguese
❑ Have no knowledge of how to protect ownership of intellectual property
❑ Not applicable
❑ Other, please specify:

36. Did you ever PUBLISH one or more of the following documents officially?

❑ A Book
❑ A Curriculum / Learning module
❑ A Dissertation
❑ A Journal article
❑ A Lecture / Presentation
❑ A Paper
❑ A Report
❑ A Thesis
❑ A Programme of Workshop or Conference
❑ No, I have never published any of the above
❑ Other, please specify:

37. Is there an online version of (one of) your publication(s) available?

❑ No, there is a printed copy in my own archive
❑ No, there is a printed copy in the faculty's archive
❑ Yes, there it is full text available though the library catalogue
❑ Is accessible through:

F. Institutional Repository

An Institutional Repository (IR) can be seen as the faculty's digital library. It is defined as a web-based database for collecting, storing and disseminating scholarly material. The key function of an IR is the long-term preservation of digital material.

38. Please tick what kind of material should an Institutional Repository consist of.

	Not at all important	Of minor importance	Important	Very important
Course (time) schedules	❑	❑	❑	❑
Curriculum information	❑	❑	❑	❑
Drafts	❑	❑	❑	❑
Dissertations	❑	❑	❑	❑
Previous Exams	❑	❑	❑	❑
Full Text journal articles	❑	❑	❑	❑
Lectures	❑	❑	❑	❑
Newsletters	❑	❑	❑	❑
Papers	❑	❑	❑	❑
Photographs	❑	❑	❑	❑
PowerPoint presentations	❑	❑	❑	❑
Theses	❑	❑	❑	❑
Unpublished material students	❑	❑	❑	❑
Unpublished material staff/teachers	❑	❑	❑	❑
Audiovisuals	❑	❑	❑	❑

Other, please specify:

39. What characteristics should an item, e.g. book, report, paper, article in an IR (Institutional Repository) have? (Tick appropriate ranking.)

	Not at all important	Of minor importance	Important	Very important
Comprehensiveness in subject coverage	❑	❑	❑	❑
Current / up to date General / overview material	❑	❑	❑	❑
In English	❑	❑	❑	❑
In Portuguese	❑	❑	❑	❑
Peer reviewed	❑	❑	❑	❑
Practical	❑	❑	❑	❑
Presented with multi media	❑	❑	❑	❑
Scientific / academic with indexes and bibliographies	❑	❑	❑	❑
With summary	❑	❑	❑	❑
With translation in Portuguese	❑	❑	❑	❑

Other important characteristic, please specify:

40. For all material placed in an IR, who should check its contents and quality?

❑ An Editorial Board
❑ Relevant Teacher
❑ Head of Department
❑ Librarian
❑ Head of Library is responsible
❑ No one, it is everyone's own responsibility
❑ Other option, please specify:

41. Should every author publishing in the IR give a written consent transferring his copyrights?

❑ Yes, by all means
❑ Yes, intellectual property is personal
❑ Yes after thorough examination and criteria checks
❑ No, when it is approved by a superior staff member, it's okay
❑ No, intellectual property rights belong to the University or Faculty
❑ No, to upload the document as PDF is enough protection
❑ Other option, please specify:

42. If you have any comments on the subject, please write them down here:

THANK YOU for completing the questionnaire! Your time and effort in contributing to this study are greatly appreciated. As a token of appreciation, you may win a prize drawn by lot if your questionnaire is among the first received.