Open Access Initiatives in Academic Libraries:
Challenge to the User

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Abstract:

In developing countries, academic librarians are experimenting with open source software in the establishment of institutional repository (IR) systems in local libraries, using either Greenstone, Fedora, DSpace or EPrints. These libraries are vouching on the successful implementation in the local library set up, so that it can then be up-scaled to institution-wide application through campus networks or intranet. A healthy uptake of the institution-wide set up may then open up to wider audiences with the availability of dedicated information infrastructure combined with broadband connectivity and national educational policies.

In Malaysia the pioneers to open access initiatives are the academic libraries, specifically the university libraries. These libraries have initiated innovative services to their researchers by creating open access institutional repositories for wide dissemination of scholarly literature by their own community members..

This study explores an extremely valuable electronic service in the academic library, i.e. the open access initiatives by Malaysian university libraries. Specifically it aims to investigate the extent of open access adoption; the types of initiatives taken and the efficiency of these initiatives based on user perspectives. A system, no matter how technically sophisticated, is only as good as the users of the system judges it to be. Therefore, this study also attempted to investigate the perception of users of open access initiatives towards the usability and efficiency of these systems

to help users search and access useful resources with minimal effort. The investigation is extended to all public and private universities in Malaysia with open access institutional repositories (IR). An initial framework for investigation was built based on the literature and this was tested using the data collected from reviewing the various open access journal and IR. User perception about the open access initiatives is based on survey and interviews with selective users from each university.

The results of this study can be used to improve user services, especially in electronic medium for wider dissemination of open access initiatives and increase participation of user communities. Some of the major challenges faced by the users are ease of access, ease of searching the relevant content, updated content and online help support. Users deem these issues to be pertinent when providing access to institutional repositories. There is also much demand on help from information professionals via electronic communication channels. As a developing country, Malaysia has a long way to go, but the beginning is promising and it is hoped by studies such as this the user perspective may be a contributing factor to the establishment of open access initiatives.

Introduction

The revolution of Open Access since early 1990s has liberated libraries and information centers all over the world. More than ever librarians are experiencing a rise in prestige because of their ability to contribute to the digital management of information, which somewhat was being threatened by commercial information providers of the Internet era. In the academia world, the traditional means of disseminating research materials and scholarly published journals was found to be inadequate in terms of speed and accessibility, compared to what information seekers were getting from the Internet and World Wide Web. Not only access to a myriad of information sources from all over the world was being made possible, it was in a faster, easier and cheaper mode. The gap between availability of 'scholarly' and 'unscholarly' information somewhat initiated the necessity to facilitate wider access to scholarly scientific communication, thus providing impetus towards the concept of open access.

Open access archives help disseminate and enhance awareness among researchers of the availability of research-based literature (Zainab 2006) and increases the research impact (Foster & Gibbons, 2005) by making articles available, free of charge, to all those interested (Tonta, 2008). In developing countries, academic librarians have begun experimenting with open source software in the creation of institutional repository (IR) systems in local libraries, using mainly Greenstone, Fedora, DSpace, or Eprints. These are some of the available open access repository software which have stabilized over the past years. (Aschenbrenner et al., 2008). The Directory of Open Access

Repositories (DOAR, http://www.opendoar.org) and Registry of Open Access Repositories (ROAR, http://roar.eprints.org/) lists 21 Asian countries that have initiated open access in their countries. Among these the most active is Japan with 68 open access repositories, followed by India (43), Taiwan (16) and Malaysia (13).

A simple definition of IR is a Web-based archive Johnson (2002) or digital collection (Crow, 2002) of scholarly materials produced by members of the institution. Since the repository relies on input from members of the institution, the commitment and participation of contributors, users and managers is crucial. In recent years there have been many studies that show that uptake of IR in universities is slower then it was hoped for (Zuber, 2009; McKay, 2007; Kim, 2006; Whitehead, 2005; Callan, 2004). Most authors are still unfamiliar with open access and making their works available on IR (Suber in Dillon, 2008; Foster & Gibbons, 2005), some are not even aware that their institution has an IR (Kim, 2006). Besides the authors, there are also the *information seekers* or *end-users* of IR who access the system to search for information for their teaching, learning and research needs. These users are particularly important as they can be the spokesperson for the IR. Satisfied users who successfully use the IR, will value the service and help promote it to others within the institution or his own research community. However these end-users of IR are particularly under-studied (McKay, 2007). A study of end-user needs and perception of the IR can provide important insight to system design, content and functionalities.

This study attempts to provide an overview of IR initiatives in Malaysian university libraries and investigate how users perceive the efficiency and performance of the IR. The following section of the paper will give a brief overview of open access concept and types of institutional repositories. The next section provides the research design and presents the findings. Finally the paper concludes with a discussion of the challenges faced by users and the importance of user support for successful IR implementation.

Open Access Institutional Repositories

The concept of open access is clearly defined and understood in the literature. It emerged in response to the restrictive access to knowledge in scholarly and scientific journals imposed by commercial publishing houses via subscription fees, license fees or pay-per-view fees (Gideon, 2008). The many definitions revolve around the fundamental concept that open access is all about public access without financial, legal or technical barriers (Budapest Open Access Initiative, 2002), to information materials including original scientific research results, raw data, metadata and

scholarly multimedia (Berlin Declaration on OA Knowledge, 2003), in a cost effective way (ARL, 2004).

There are two perspectives to open access:

i. Open access publishing - a model of publishing which makes journals available to the public immediately on publication

ii. Open access self-archiving - researchers and academics to make digital copies of their research work or publications available in open access repositories or archives

Zainab (2006) describes that there are basically three types of electronic archives; the preprint archives (holds article drafts before being peer-reviewed), e-print archives (hold published refereed articles) and open access institutional repositories (holds various documents usually generated by staff and students within the institutions themselves). Simply put a university-based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its members (Lynch, 2003). Though OA applies to any kinds of digital content, the most popular uptake is by scholars with a need to disseminate their work as widely as possible (increased impact) to contribute to knowledge building within their field (Chan, 2004), without the constraints of access and costs. Open access in the form of e-prints archives has now expanded to include courseware, backfiles of journals articles, subject specific repositories, conference papers, technical reports, theses and dissertations, and many more institution specific materials.

Importance of IR

The capture and preservation of a university's intellectual output can serve as a tangible indicator of the institution's quality (Crow, 2002), which in turn contributes to its visibility (Harnad, 2003) prestige and public value (Crow, 2002). Chan (2004) states that as research becomes more data intensive, a scholar's ability to store, access and share primary data will be crucial to the advancement of scholarship.

Universities all over the world have established institutional repositories of intellectual materials 'born' within the institution. These IRs not only act as a repository to published materials but are much more valuable as an access to digital content of local materials. In developing countries mainly, financial resources are a barrier to wider access to published scholarly information (Gideon, 2008). Local intellectual content on the other hand are often found only in

printed journals and conference proceedings, that are available only at that particular institution where it originates from, either with the author or in the library's collection. This lack of accessibility has somewhat become a barrier to access, use and cite local research. IR has made the often limited dissemination and access of information extremely possible now in developing countries (Ghosh and Anup, 2007).

Peter Suber, the pioneer of OA expresses his views on open access movement in an interview with Dillon(2008) cites some of OA benefits as: i) it removes price as an access barrier; ii) it connects authors to readers and iii) for readers, it enlarges the library.

IR Success Factors

One would have expected the adoption of OA to be radical because it reduces physical copies, can be widely read and cited with minimal costing. However, the reality of it is quite different. In reality, academic libraries that embark upon an open access initiative do not have much to worry about system design and functionality as they have the opportunity to use customizable free open access software. Shearer (2003) suggests that the success of IRs will be determined eventually by their uptake and use by researchers. She argues that one of the measures for IR usefulness is contribution of content. Suber (in Dillon, 2008) believes that the authors control the rate of open access growth because they decide whether to submit to OA journals; whether to deposit in OA repository and whether to transfer rights to publisher. Though he does caution that widespread ignorance among researchers about copyright issues may restrict adoption of open access. So the success factors rely heavily on the ability to develop, expand and build the content of the repository on a continuity.

To contribute, authors must first be convinced about the benefit of IR. What makes authors want to contribute to an IR? Research has shown that some of the factors are:
  i.   professional and personal recognition
  ii.   easy accessibility to their work and work of others in the field
  iii.   promotional rewards
  iv.   increase in citation of their materials

Researchers who have had experience depositing scholarly content in web sites, personal home pages, or disciplinary repositories are also more likely to contribute to IRs. (Kim, 2006).

Another factor that may influence IR success is the experience of the user. A user who has had a good experience obtaining useful information from the IR in an efficient way is likely to return and tell others about it. This will also further encourage users to become contributors to IR. When Kim (2005) examined the usability of the interfaces of two of the most commonly used institutional repository systems: DSpace and Eprints, she suggested implementing guidelines to improve the user's experiences when using digital institutional repositories. Later in 2006, Kim again examined faculty awareness of IR and found that it was very low. Researchers mainly preferred to submit manuscripts to faculty pages or research group web sites. They feel this gives them larger readership, personal recognition and positive impact on tenure and promotion. This behavior or attitude of researchers was examined by Gandel, Katz & Metros (2004) and again by Foster & Gibbons (2005). Both parties supported the idea of personal repositories rather than institutional repositories. Their study revealed that factors that contribute to faculty members reluctance to contribute are similar to those in other studies, therefore it would be possible to encourage personal open access repositories, though how these may differ from personal web pages is not clear. The main purpose of IR is also to enhance institution prestige and value and how will this be possible if each researcher rather promote his or her own intellectual output independently?

Success of IR in university libraries also depends on the developers, the librarians. There has to be clear commitment towards the initiative and not an attempt to try something 'in trend'. Firstly the system maintainers must fully understand the purpose of the IR and then they need to impart this knowledge to the potential users and contributors. Band (in Dillon, 2008) talks about his concern that to date there are no set of guidelines for librarians to follow to avoid breaking copyright statutes. He argues that this can hinder librarians to actively embrace OA and further promote it within the university.

Issues in IR research

Research in IR is abundant. Browsing through the LIS literature one is surely to find many papers on use of ePrints and Dspace. McKay (2007) reviewed the literature on the usability of IRs and made some interesting findings. Among her highlights pertaining to IR research are :

i.   IR authors are well studied

ii.   information seekers and data creators/maintainers of IR system are under-studied

iii. infers (from studies on online research) that IR users will visit infrequently, download a few articles at a time, perform simple searchers an use results from the top of the hit list.

iv. Suggest including browsing functionality and allow interleave searching and browsing

Universities adopt open access initiatives as a means of providing better access to research materials to not only its own researchers but also to a world wide audience. These IRs are also means to improve university prestige among its peers and contribute to research globally. However, in reality, IR is not so easily implemented and developed within the university. There is a serious lack of visibility (McKay, 2007, Davis & Conolly, 2007) and usage among authors and information seekers (Kim, 2006; Woodland & Ng, 2006). According to Kim (2006) the success of an IR should be determined by its use, and one of the measures for the usefulness of IR is contribution of content. Faculty members are considered as crucial contributors of scholarly content. However, several studies note that it has been difficult to get faculty members to contribute (Chan 2004, Foster & Gibbons, 2005; Pelizarri , 2005; Bjork, 2004). A more recent study in Malaysia by Abrizah (2009) on faculty awareness and contribution to IR, however, revealed that as users, the academics wanted more types of material in the repository and as authors, they were willing to deposit.

Also, very little is known about the usability of IR from the users or information seekers point of view (McKay 2007). There have been no actual reports on IR usage, including the type of information users are looking for and their preferences and opinion about the systems and functionalities.

Research Objective

Knowing the perspective of IR users is required to address the strength and limitations of the system. This study explores an extremely valuable electronic service in the academic library, i.e. the open access institutional repository. Specifically it aims to investigate the extent of open access adoption; the types of initiatives taken and the efficiency of these initiatives based on user perspectives towards the usability and efficiency of these systems to help users search and access useful resources with minimal effort. Mainly there are two approaches:

i. Investigate the extent of open access institutional repository adoption in Malaysian universities

ii.   From the information seekers (users) point of view - it examines content manipulation, inclusion of reading tools, user communication and online help support.

Methodology

This study used a two phase qualitative research design. The data relating to institutional repositories were collected from the respective websites, institutions' websites and other secondary sources. This information was based on certain parameters such as the document types, search options, subject content and user support.

User perspective on IR efficiency was explored using a web survey and interview techniques. In this pilot study, the nine IRs identified in the initial phase were searched for authors whose records appeared in the system. A total of 20 e-mails were sent out to each institution to participate in the web survey. The survey consisted of 10 open ended questions. The purpose was to gather data on:

–   IR contribution status and level of awareness

–   perception of the performance and efficiency of the IR

–   future suggestions for the IR

Respondents who participated in the web survey and offered their contact information were then invited to be interviewed for an in-depth investigation about their use and perception of IR. Only nine respondents agreed to be interviewed and they were from three different universities, of which two had established IR since 2007 and the other was less than a year old.

Findings

i.) Open Access IR Adoption in Malaysia

In Malaysia the pioneers to open access initiatives are the academic libraries, specifically the university libraries. These libraries, especially the research universities in Malaysia have established, or are in the midst of establishing IR services to enhance the visibility and the impact of the research of that university (Abrizah et al., 2007). They have initiated an innovative service to their research community by creating open access institutional repositories for wide dissemination of all kinds of scholarly materials such as research papers, conference papers, teaching materials, technical reports, photographs, news clippings, and e-theses and dissertations in particular disciplines.

The Registry of Open Access (ROAR) lists 21 countries in Asia that have initiated OA, of which Malaysia is the fourth largest OA user. Table 1 lists IR initiatives in Malaysia as found in DOAR and ROAR (April, 2009)

Table 1 Institutional repositories in Malaysia

Name	Host Institution	OA software	Date registered with ROAR
UTM IR (5897 records) http://eprints.utm.my/	Universiti Teknologi Malaysia Library	Eprints	26-01-2007
PTSL UKM Repository (112 records) http://eprints.ukm.my/	National University of Malaysia Library	Eprints	06-09-2007
*Malaysian Abstracting and Indexing System, MyAIS (4431 records) http://myais.fsktm.um.edu.my/	Faculty of Comp. Sc. & Inf. Tech. University of Malaya	Fedora,	12-09-2007
UM Digital repository (56 records) http://eprints.um.edu.my/	University of Malaya Library	Eprints	02-05-2008
UUM repository (1815 records) http://eprints.uum.edu.my/	Universiti Utara Malaysia Library	Eprints	22-08-2008
*MyManuskrip OAI interface not registered http://mymanuskrip.fsktm.um.edu.my/Greenstone/cgi-bin/library.exe	Faculty of Comp. Sc. & Inf. Tech. University of Malaya	Greenstone	08-10-2008
ePrints@USM (7628) http://eprints.usm.edu.my/	Universiti Sains Malaysia Library	Eprints	02-11-2008
iRepository UniMAP (4519 records) http://mylib.unimap.edu.my/~library/index.php/unimap-library-digital-repository	Universiti Malaysia Perlis Library	Dspace	02-11-2008
UNITEN Digital Repository(507 records) http://dspace.uniten.edu.my/xmlui/	University Tenaga National Library	Dspace	11-11-2008
UiTM Digital Repository (42) OAI interface not registered http://eprints.ptar.uitm.edu.my	Universiti Technologi MARA Library	Eprints	11-03-2009
*Dspace@UM (ETheses) OAI interface not registered http://dspace.fsktm.um.edu.my/	Faculty of Comp. Sc. & Inf. Tech. University of Malaya	Dspace	29-03-2009
PSAS IR OAI interface not registered http://psasir.upm.edu.my/	Universiti Putra Malaysia Library	Eprints	02-04-2009

Source : Registry of Open Access (ROAR) http://roar.eprints.org/, 30 April 2009.
* Not university library managed IR – not included in this study

From the twelve IR initiatives listed above, nine are hosted by university libraries and the other three (MyAIS, MyManuscript, Dspace@UM) are products of research projects carried out by the Faculty of Computer Science & Information Technology, University Malaya. All 20 public universities and selected 5 private university library web sites were examined to determine the availability of

open access IR. Six IRs were evident from the library's home page and another three were found using a search engine.

A summary of the general characteristics of these IRs are presented in Table 2.

Table 2 Characteristics of IRs

Direct link from library home page	Three libraries do not have a direct link to the IR. Upon investigation, it is found that two of the libraries have not yet gone public.
Heading used for IR	Eight libraries used the term 'repository' in the heading and one used the term ePrints.
OA software	ePrints – is used by eight IRs Dspace – is used by one IR (UNITEN)
Documents Types	- Theses and dissertations - Teaching materials - Journal articles - Conference papers - Newspaper articles - Chapter of books, monographs, exam questions, patents, dataset, speeches, library publications, etc.
Search and Browse options	Generally it is browse by type and subject. Only 4 IRs have included a search by Author and Faculty/School
Subject Content	Three IRs have a large collection in 'Technology' and 'Science'. Another two focus on 'Engineering' and 'Social Science' respectively. Others have a more fair distribution across subjects.

The search began with an investigation of the library homepage for a direct link to IR. A clear direct link is the first step towards visibility of a service. These IRs have placed links on the library page, mainly below the *Electronic Resources* heading. However the term 'repository' and 'eprints' may not clearly depict the content of the service. UKM, UPM and UiTM have no direct link from the library's web site to its IR, probably because it has not been made public yet.

IR adoption in Malaysia is in its infancy. Only two repositories, namely UTM and UKM, registered with ROAR in 2007, however the actual date of making the IR open to public is not evident on the page. UTM has managed to upload 5897 records to date, whereas UKM as only about 300 records and is yet to make its IR public. UM, UUM, UniMAP, USM and UNITEN registered in 2008. From the five, USM seem to managed well above the others with a total of 7628 records in its repository.

Document Types

Document types in these IRs range from published literature to teaching materials as depicted in Table 3. The largest collection in most of the repositories is *Theses and Dissertations*. UUM and UPM have a majority of digital theses in its collection, 75% and 58% respectively. UTM has a more averaged out collection of theses, articles and conference papers. USM being the largest in content actually has teaching resources as 87% of its content. UM has a total of only 311 records so far, of which 89% are conference papers and 7% of journal articles. Others materials housed by these repositories include past year exam papers, chapter of books, monographs, audio and video files. By using Dspace, UniMAP caters for communities of which a large percent of its repository contains newspaper articles on the university, information from the Vice Chansellor's office, and library related information, including user education, document delivery, library statistics, reference bank, articles, conference papers and exam questions. The data for UKM, UNITEN and UiTM is not available from the site as the IR does not categorize by content type.

Table 3 IR Collection By Document Type

IR	Type of resources (percentage)						
	Total records	Theses & Diss.	Articles	Conference papers	Teaching Resources	Newspaper articles	Others
ePrints@USM	8339	3	2	3.2	87	-	4.8
UTM IR	6454	20	37	31	1	-	11
iRepository UniMAP	5526	0.2	1.4	0.6	-	59	38.8
UUM repository	1792	75	15	10	-	-	-
PSAS IR	955	58	28	1	-	0.2	12.8
UM digital repository	311	0.3	7	89	-	-	3.7

Search and Browse Options

All seven IRs using ePrint have the specified simple search and advanced search. Only four (UNITEN, UNIMAP, UM, UPM) have included an author search in the Browse option. Browse by year and subject seem to be the preferred method. USM, UTM, UM and UPM have also included search by faculty/school.

Subject content

It is evident that libraries are building collection according to the research needs of the university. Um, USM and UTM have a large collection in 'Technology', and 'Science'. Whereas UKM's collection is stronger in 'Social Science' and 'Education'. UPM's content focuses more on 'Engineering' and 'Science'. Many of the collection are empty or meagrely populated. There is little evidence to suggest that individual members are making significant contributions of regular scholarly output to the repository.

User Support

User support in this context refers to any effort by the IR system to assist users use the IR system more efficiently and effectively. In this study users refer mainly to information seekers who access the repository in search for information. They may or not be authors also. User support includes the availability of online help (technical or otherwise); submission policy/guidelines; information on copyright and user feedback. The first thing a new user would like to know is about the repository. Only six IRs had an introductory note or a welcome message, briefly describing the purpose and content of the repository. The other three had no information on the first page and only a link to *ePrints* and contact information on the "About" page, of which only one library provided a name and telephone number too. Within the IR web site, only two libraries provided help in searching the IR and submitting items to the repository. All other seven IRs did not provide any help on what can be submitted, information about copyright and submission guidelines. UNITEN provided a web form for customer feedback and UUM provided a link to the library's web page for feedback form.

A new user of the IR system could also be a potential contributor. USM, UUM and UniMAP provide step-by-step instruction on how to submit to the IR. The library has also given information on what materials can be submitted, by whom and how. There is also information on copyright issues. UniMAP has used the heading 'Help' to assist the users and also provides a help page on 'Searching and Browsing'.

Overall it can be said that Malaysian university libraries have adopted the open access repository concept and are experimenting with the software with existing digital content. Since 2007 to now, seven libraries have launched the IR with content mainly input by the library staff

and researchers of the institute. Content is gradually increasing, but user support is clearly lacking within the system.

ii)   Challenge to the IR User

A total of 23 responses were received via the web survey (16.4% response rate) and nine respondents from the survey agreed to be interviewed. Interviews were carried out with IR users from UM, USM and UTM. Only one of the nine had never used an IR. The results are presented as overall feedback from IR users and will not be discussed based on university. The purpose was to know how users perceive the efficiency and performance of their university library's IR.

Awareness and Contribution

From the web survey it is found that 6 users were not even aware the library had a IR and the other 7 had heard of the IR but were not aware their papers had been deposited in the IR. Ten users had uploaded documents to the IR, of which 7 had e-mailed the documents to the system administrator and the other 3 managed to upload their documents themselves. Five respondents report that they came to know about the IR because they received a directive from the faculty to upload research materials into the IR, whereas 6 discovered it from the library's home page. The others report they found out from friends and while searching the web.

Those who uploaded material to the IR them self described the process as 'a little tedious'. or as 'extremely tedious'. During the interview one of the contributor said that he deposited an article once but would not bother to do it again because –"*so many things to fill...very tedious and time consuming*". Indicating that most of the content is from the librarians and awareness of IR is not widespread, especially for UM because the IR is less than a year old.

An interesting comment made by the users during the interview was about the naming of the IR. Six of them mentioned that they had not known about ePrints before accessing the IR. They also suggested that libraries use terms that describe the service better and not using technical terms. One lecturer from the Education faculty commented : *I was a little confused at first when you said institutional repository...why not use easier terms ..like 'electronic journal articles' or 'digital theses'...*

As for future plans to contribute to the IR, most respondents, even those who were not initially aware of the service, said they would do so if the task of uploading can be handled by the

system administrator. During the interview, all nine respondents were not eager to contribute if they had to do it themselves, even when some of them agreed that it would be very beneficial to do so. Three of them said that they would get their research assistant to do so.

Us*e, Performance And Efficiency*

The survey also collected data on how often the respondents used the IR and their experiences in using the IR. The web survey results indicated that out of the 17 respondents who were aware of the IR, 12 use it 'once or twice a month', whereas the other 5 use it only 'a few times a year'. Frequency of use is very low for all three universities.

As for the efficiency of the IR system the respondents were all agreeable that it was easy and simple to use. The interface "is straight forward" ; 'not clustered'; 'direct'; simple and nice' and quick to access. There were four interviewees that said the IR subject display is very helpful in searching for materials in their field and another three said that the "browse by type" is very good. Some of the comments made are:

" it's good that I can go straight to the conference papers and search...no long lists of unnecessary information"
" I usually search by author because I know the people in my field and I can get all their articles in one place...very useful"
" ...not bad...the system runs faster than ...and it's easier to look through a shorter list and get to the exact information you are looking for..."
" I would say it is easy to use...the search is not complicated...I use simple search...finally you get local articles online.."

In terms of performance, users agree that it is generally easy to access and download in PDF format and save for reading later. They are happy that universities have begun to share content and there are no restriction on users from other universities to access the IR. One user from the Science faculty commented that ""*I have registered with four different universities' open access. I'm happy to share my publication with others*", while another was grateful for the easy of use *: "Even if I don't login, I can download articles from the other university:*

Respondents seem to find the IR simple and easy to use. There is a great appreciation for the availability of local content, theses, dissertations, conference papers, which otherwise are difficult to access due to lack of shared digitised resources.

User Support

Responses from the 9 participant during the interview revealed some serious shortcomings regarding user support in IRs – copyright, online help, submission guidelines and user feedback..

Copyright

Out of the 10 respondents who had deposited materials in the IR, only one was confident about the copyright issues when submitting his previously published journal article to the library's IR. The other 9 reported as 'have a slight idea'. Further discussion during the interview revealed that what three of knew was that 'the library would not initiate this if there was copyright infringement'. Seven respondents expressed the need for the IR to clearly state information about copyright of materials in the repository. They belief that the library is responsible as it owns the repository and wants to encourage contribution from the users. Some responses were:

" too risky to publish in open access first...I don't think you can send to a journal if you have already published it..."

" my student once asked me about uploading his dissertation in an open access repository but I discouraged it because it could be a problem for him to publish journal articles from it later..."

Investigation from the first phase had revealed that only two of the IR had provided information on copyright of materials submitted to the repository. Librarians should take this into consideration if they want to increase the growth of their IR.

Online help

Respondents who are IR users have also requested for some online help in how to search for information. They are used to help screens in many of the software applications and would like to be guided on searching the repository in the fastest and most efficient way. Some respondents also express concern about not knowing who to contact when they need help:

" I tried a few times by cannot find what I am looking for...maybe it is not in the system..."

" ..what frustrates me is there is no contact number. How am I suppose to know who to call if I want to send in my article? ...I saw an e-mail but you know how it is ..they take forever to answer.."

It is very important that librarians extend user education within the repository as well. The user community still needs help in searching and making the right choices for relevant information accessed and downloaded for use.

Submission Guidelines

Earlier investigation revealed that only 3 IRs provided step-by-step instructions on how to submit materials to the IR, including what type of materials and who may submit. Although all the repositories have a link to the ePrints or Dspace web site which contain these help and submission information, the user is not directed to this clearly. Discussion with users reveal that there is a need for clear instructions and policies at the point of use:

" …I don't get many relevant articles in my research area…the subject shows 0 records!..yes, I would put up mine but how?"
" I have downloaded some useful papers..but not sent any in…can't find any information on how to do it…"
" …why not have some guidelines to tell you what to do…I didn't even know what metadata is…
" .. I think you can submit things like journal articles and conference papers – not sure about others. …no, I don't know if there is any guideline…I would definitely like a step-by-step instruction…I'm not so good in IT…"

IR users have used the IR to locate materials but do not know that they are able to submit. The impression is that the librarians are in charge of the system and its their responsibility. Eight of the respondents said that they have received no information from the library or the faculty about contributing to the system. Some were a little unsure about which system to submit too –*"In this university we have so many systems…first the faculty asks you to update your publication information, then the university comes up with another system for you…now the library is asking for the same information…can't they just get it from one place…"*

Discussion

The first part of the study revealed that generally IR in Malaysia is still in its infancy. In the past two years 9 universities have embarked on creating institutional repository to support the parent institution's need for collating and centralizing its research output. As expected, the library has been entrusted to create and manage the IR. Eprints is the preferred open access tool.

Institutional repositories have made access to local content possible in a much easier and convenient mode. The ability to gather all research output and other institutional information in one common system allows libraries not only to gain some autonomy but increase its value in the eyes of the university community.

There is no one trend evident in the type of content deposited in the IR. Since libraries had begun the digitization of theses and dissertation because of increased demand, the collections have been easily deposited into the IR. Another trend in Malaysian university libraries is to create a repository to house university related documents than solely scholarly information. One university library (USM) has developed an IR to support teaching by having a large collection of teaching resources and another (UniMAP) has a large collection of newspaper articles about the university. Malaysian IRs house a diverse collection of materials and are not confined to peer reviewed scholarly materials. The availability of local content from locally published journals and conference proceedings has added value to the repositories holdings. Abrizah (2009) found that faculty members want to find many types of materials in the IR, including theses and dissertations.

Overall the quantity of content deposited remain quite moderate. Many of the collection are empty or meagrely populated. There is little evidence to suggest that individual members are making significant contributions of regular scholarly output to the repository.

Though librarians have realized the benefit of an IR to the research community and also to the library's value to the parent institution, the adoption is in its infancy and probably not well planned. Some of the concerns are:

- *Not much has been done for the interface*. Though respondents in this study were satisfied with the simple interface, libraries have not customized the interface to represent the host institution. The only identity given is a university logo. Only two IR provided a link back to the library's main page. This is very important to ensure that users realize the repository is part of the library. This will help gain user trust towards the service. Vise versa, there must be a clear link from the library home page to the IR with clear headings that don't assume that users know about *ePrints* and *Dspace*. More descriptive terms should be used. Customization of open source software beyond the "out of the box" model requires time and maintenance from people who have the skills to create the desired modifications. This will require some commitment of the institution's resources, such as staff time (Amaral, 2008) but it is needed for IR success.

- *Lack of user support.* It is common knowledge that the IR growth is heavily dependent on its content and use. A growing content of collections and increasing usage will bring about the benefits of the IR : wider access, increased visibility and increased citation. However the IRs in this study have failed to provide adequate support to the users and potential contributors of IR. Lack of submission guidelines, copyright information, IR policy and help in searching and submitting are factors that may have contributed to the lack of content in most of these Malaysia IRs. As Suber (in Dillon, 2008) says 'do not err on the side of nonuse', have documentations on author rights and uses for users- including issues of plagiarism, commercial use, how to search. Ignorance among researchers about copyright and plagiarism issues may restrict adoption of open access repositories (Suber, 2008; Abrizah, 2009)

- *Lack of marketing.* University libraries must be cautioned not to develop IR just because it is 'fashionable' to do so (Lynch, 2003). There has to be a long lasting continual commitment without too many irrelevant policies and boundaries that totally go against the 'open access' concept. The repository will need to be effectively marketed to members of the university community in order to acquire content (Amaral, 2008). The foundation to acquire content is by voluntary participation. Zainab (2006) gives a very practical suggestion on increasing user support for open access IR. She suggests librarians could begin with informing faculty members about electronic journals and e-print archives that exist in their respective fields and also information on refereeing status, impact factor and open access status. Increase awareness among potential users and not only will they use the system but support its growth by diligently contributing to it.

The results from this study help to illustrate both an overall development of Institutional repositories in Malaysian universities, as well as user perception of these effort. Institutional repositories provide the university an opportunity to centralize its huge collection of its research. When university management is decides to make its information output accessible to the world, then it must be done in full commitment and vigour. Though open access software are sufficient to fulfill this purpose, like all other library services, libraries need to take initiatives that support users of the system, let them be contributors or merely information seekers. Collaboration is key to IR success. Librarians, information technologists, records managers, faculty members and policy

makers need to move closer together and develop a collaborative agenda (Aschenbrenner, et al. 2008; Lynch, 2003).

One effort of collaboration towards resource sharing was via the establishment of MyUniNet (http://portal.perpun.net.my/portal/index.php). However the 'Malaysian Universities Repository Collection' hold only bibliographic records of about 4283 materials, with the host university, Multimedia University contributing about 60% of the content. This clearly indicates that getting other institutions to contribute needs persistence and only successful usage statistics and user feedback can encourage libraries to vigorously contribute.

Conclusion

The present study examined various institutional repositories developed by Malaysian university libraries and how users of this repositories perceived the performance and efficiency. The analysis of IR showed that there is a need for raising awareness within the community about the IR and encourage wider contribution of content to the IRs. The development is still in early stages, evident by many empty collections, and use of these IRs have not proliferated among the wider audience of the scholarly community of the university. User perception reported here is only based on a small sample from the pilot study. Follow-up web survey and interviews with a larger sample of university faculty members will be collected to provide results with generalizability and deeper insight to expectations of users and barriers faced by them. There is much demand on help from information professionals via electronic communication channels in the use of these IRs. As a developing country, Malaysia has a long way to go, but the beginning is promising and it is hoped by studies such as this the user perspective may be a contributing factor to the establishment of open access initiatives.

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