Institutional Repositories, Content Management, and Presentation: The Librarians' and Administrators' Perspectives

Ngozi Odili
Library Department, Baze University Abuja
ngozi.odili@bazeuniversity.edu.ng

Abstract

Purpose: The study was carried out to explore the needs of research administrators and librarians for the effective management of an Institutional Repository (IR) in order to achieve maximum use of its contents.

Methodology/Approach: A qualitative approach was applied in order to gain insight into the practical experiences of carrying out mediated deposit for Institutional Repositories. The research instruments used include: semi-structured interviews, review of relevant literatures and analysis of related documentations generated by a steering group committee for the Institutional Repository.

Findings: Findings reveal that research administrators provide mediated services for the IRs, while the library is remotely involved. Findings also show name entries identifying an academic as the author of an article in the repository are entered inconsistently, thus, compromising the metadata quality of the Institutional Repository.

Implication: Suggested solutions that can be applied to improve the integrity of an Institutional Repository, particularly its metadata quality is to create a leadership structure that will coordinate the work of all the staff involved and monitor the progress and success of the repository. Studies show that to develop the IR collections, Information professionals must make it a top priority to ensure that staff with different skills from all parts of the library are involved with the development of the repository.

Originality/Value: It was recommended that, there is the need for a content recruitment policy for the IR that will provide guide lines for: uploading materials, metadata, copyright, staff structure and responsibilities.

Keywords: Institutional Repositories, Open access, Metadata, Mediated Deposit.

Paper type: Empirical /Qualitative research

Introduction

An Institutional Repository (IR) is defined as a mechanism for capturing digital collections and "preserving the intellectual output of a single or multi-university community" (Crow 2002, p. 4). IRs provide Higher education institutions (HEIs) with a single location for storing, managing, preserving and providing access to academic research outputs, datasets, student theses and dissertations. (Foster and Gibbons, 2005; and JISC, 2011a) The growth of institutional repositories (IRs) began in the earliest part of the 21st century and they emerged as a result of the Budapest Open Access Initiative (BOAI), which demanded that online scholarly publications should be offered free and openly accessible to the public (Swan 2010, cited in Wickham, 2011). The BOAI is the result of a meeting held in Budapest under the auspices of the Open

Society Institute (OSI). The aim of the meeting was to gather academics from different disciplines and nations together, to create a strategy that would allow scholarly materials to be freely accessible on the internet (BOAI, 2002). The main essence of this was to balance the accessibility of academic research articles worldwide (Mark and Shearer, 2006). According to the BOAI (2002), Open access is the system whereby, readers are given unrestricted and free access to online electronic literatures. The BOAI recommends two routes to achieving Open access; they are the self-archiving or 'green route', and the open-access journals or 'gold route'. However, without the internet as well as new technological advancements neither of the two types of Open access would have been possible (Fry et al., 2009).

The IR was developed to function within the context of the self-archiving or green route. Self-archiving is described as the process whereby authors themselves deposit their research articles into a repository (Xia and Sun, 2007). Offering free and unrestricted access to scholarly materials through an IR according to Crow (2002,) will help to transform the scholarly communication system, 'reduce the monopoly power of journals', and provide financial relief and increase the value of the institutions and libraries that support repositories.

The study was set within the context of the University of Brighton Repository (UBR), to gain an insight into the practical experience of carrying out mediated deposit on behalf of the academics for the Institutional Repository (IR). Despite the success of employing mediated deposit to populate the IR, the overall quality of the metadata remain poor, therefore the study focused on identifying the issues that cause inconsistency in the data presentation of the repository.

The Aim and Objectives of the study

The aim of this study was to explore the needs of research administrators and libraries for the effective management of an Institutional Repository in order to maximize the use of its content at the University of Brighton. The following objectives were formulated to successfully achieve this aim:

- To identify the roles of the research administrators and librarians in populating the Institutional Repository at the University of Brighton.

- To identify barriers to the consistent organization and presentation of the Institutional Repository collections.

- To explore the potential of alternative methods that can be applied to improve the metadata and management of the collections in an Institutional Repository at the University of Brighton.

Research questions

- How have Librarians responded to the new initiatives presented by the emergence of the Institutional Repository in Higher Academic Institutions?

- To what extent are the Librarians involved in the content management of the Institutional Repository?

- What are the barriers to achieving successful presentation of the Institutional Repository collections?

Literature Review

Scholarly Communication

"Scholarly communication is described as the creation, transformation, dissemination, and preservation of knowledge related to research" (JISC, 2011a).The essence of the scholarly communication process is to provide a system whereby, a specific research output can undergo the following: be attributed to a particular scholar(s); peer-reviewed to validate its findings; disseminated in order to make it accessible to the wider academic community and preserved for future references (Prosser, 2005; Crow, 2002). Traditionally, Scholarly communication occurs through the process of publishing a research article, monograph, or report in an academic journal, book, or conference paper (Fry et al., 2009; JISC, 2011b). However, the fundamental structure of the scholarly communication process has evolved due to the emergence of certain factors such as, the continuous rise in the volume of research publications; coupled with, increase in the price of academic journals particularly in the field of science, technology and medicine leading to the situation called the serial crisis (Crow, 2002). This is the situation whereby, decline in the size of libraries' budget as well as inflation increasingly makes it difficult for libraries to keep up with the escalating cost of journal subscriptions.

Another situation that led to changes in the traditional scholarly publishing model is the emergence of new technological innovations such as the internet and networking. This has made research outputs universally accessible, which previously was not possible through the print publishing method (Crow, 2002; Oppenheim, 2008; Prosser, 2005). Furthermore, the introduction of these new technological developments also brought about high demand for information in which the traditional print system cannot meet (Anderson, 2006 in Brown 2011). A third reason that can be attributed to the change in the scholarly communication system according to Oppenheim (2008) is the rise of an ethical argument which claims that the research discoveries funded by ''taxpayers expenditures should be made available free of charge to those taxpayers''. The UK government in particular succumbed to this argument, and as a result a large percentage of the government

information is accessible electronically through the internet. However, not every research that is funded directly or indirectly by the taxpayers is exposed free to the public. Thus, the financial strains, together with, the emergence of technological advancements and the ethical argument explained above, ushered in different scholarly communication models with interests focused mainly on the demands for open access by academic libraries, governments, research funders, institutions, and researchers, because of its ability to offer a wider and unlimited access to current research outputs, and the possibility it offers institutions and academic libraries the ability to potentially satisfy their clienteles' academic information needs (Prosser, 2005;IFLA, 2004; Smith, 2002).

Open Access

The call for open access was made in 2001 at the Budapest Open Access Initiatives (BOAI), and it was strongly endorsed by large group of individuals and organizations; consequently, it has continued to gain momentum since then. This call was due to the fact that, academics worldwide lacked access to current research publications in their field. Moreover, the situations are much worse in developing countries where library budgets are usually very low. This caused teaching and research to be conducted poorly, because of the lack of input from other research that were published internationally (Mark and Shearer, 2006). BOAI (2002) referrers Open access as the system whereby, readers are given unrestricted and free access to online electronic literatures. Open access is also described as an electronic website where the content creators or intermediaries acting on the author(s) behalf deposit academic publications for the benefit of the world to read, copy, reprint or distribute. It means the content of the scholarly publication is exposed and freely available with no subscription, legal or technical barriers, with the exception that the authors must be acknowledged for their literary works or research discoveries (Mark and Shearer, 2006; JISC, 2011b ; Wickham, 2010). Materials commonly available in Open access repositories are, "peer-reviewed journal articles, conference papers, thesis, technical reports and working papers" (CASLIN 2009, p5). According to Brown (2011), Open access is important because it creates an opportunity for upcoming young scientists and scholars to gain access to research results in their field which would not have been possible due to the high subscription costs.

Libraries also are in favour of the open access movement, because they are a potential avenue to freedom from tight acquisition budgets. The Gold route or the Open-access journals conforms to the traditional model of publishing academic journals, which basically means the article submitted by an author is peer-reviewed and edited before it is published; the only difference is that, the published journal article is made freely available for readers to access. Although, Open-access journals are mostly available in electronic format, they are also available in print, and the most common methods of funding articles published through this model is through 'research grant' or by the institution that has employed the author(s) to carry out a research (Wickham, 2010;Fry et.al., 2009 ; RCUK, 2008). According to Oppenheim (2008), Open access journals might reduce cost especially for organizations that are reluctant about paying for subscriptions they cannot afford, however, the price of creating, publishing and distributing information free to the public is usually absorbed by someone other than the users. Oppenheim goes further in stating that, although there are reviews to show there is increase in the citation of Open access journals; however, several commercial publishers and few authors critic the golden Open access journals, as less peered-reviewed than the 'toll –access journals'. The Green or Self-Archiving route to Open access, on the other hand, is the process specifically designed for authors, or their designated intermediary to deposit the full-text of their peer-reviewed articles into a subject or institutional repositories (Wickham, 2010; Fry et al., 2009). The purpose of this study is based on the Self-Archiving Open access publishing; therefore it is discussed in detail in the subsequent sections of this review.

Open Source Software

As earlier indicated, the emergence of new technological developments is partly responsible for the Open access movement. However, the "convergence of technology developments and other initiatives are also being attributed to the development of institutional repositories (IRs)'' (Ware 2004, p.7). Open source software coincides with the objectives of IRs, and they are one of the technological platforms from which they operate (Nabe, 2010). Although, Open source platforms have some technical restrictions they permit "local customization and re-purposing" of the repository (Nabe 2010, p.32). The two types of Open source platforms

are called DSpace and E-prints, both can be downloaded free under the open source license (Ware, 2004; Beazley, 2010). Dspace is the product from the joint effort of Massachusetts Institute of Technologies (MIT) Libraries and the Hewlett Packard Laboratories, and it was created in a bid to construct an IR that would hold all the research outputs of the MIT faculty in electronic formats (Smith, 2002; Chapman et. al., 2009; Nabe, 2010). The Eprint software on the other hand, was developed at the School of Electronics and Computer Science University of Southampton in response to the serial crisis and the move towards the Open access movement (Day, 2003; Zuccala & Oppenheim, 2008).

E-prints

The E-print software first appeared in the year 2000 and it was "the first software designed to create IRs" (Crow 2004, p.8; JISC 2007, p.4).

After the E-prints became free open source software, it went on to become the most commonly adopted IR software in Europe and across the world (JISC, 2007; Nabe, 2010).According to the E-print Institutional Repository software report prepared by Beazley (2010), there are over 200 institutions in the world using the E-print, and the University of Twente in the Netherlands is known to have the largest E-prints repository, with a collection of over 60,000.

Furthermore, E-print is the most popular choice of IR software, because it is easy and quick to install and to get it operational (Beazley, 2010; Crow, 2004; Nabe, 2010). Also, the software depends on other softwares to run and they include: UNIX machine; Mac-OS-X, Windows XP and Vista. In addition to this, the "E-print software is written in Perl, uses MYSQL for database and Apache as the web server"; the software is compliant with the Open Access Initiative- Protocol Metadata Harvesting (OAI-PMH). This allow, the contents of the IR to be captured by the Google Scholar index, interoperate with other IRs and databases, thus, allowing a wider dissemination of the records uploaded into the repository (Beazley,2010; Nabe, 2010). With Eprints, contents are organized by subjects or groups which can be further broken down in to sub-groups; moreover, with the software "it is possible to export data in various metadata standards and these include: Dublin Core, Metadata Encoding and Transmission Standards (METS) and Metadata Object Description Schema (MODS). Exporting

metadata to RSS, XML and bibliographic management programs such as End Note is also supported" (Nabe, 2010). Other features of E-print is that, it functions with various file types including HTML, PDF, JPEG, MP3, among many others; it works with SHERPA and RoMEO to determine and verify copyright ownership (Beazley, 2010).

Repositories

Digital repositories are described by JISC (2011b) as devices employed to manage and store digital contents. "Repositories support the mechanisms to import, export, store, preserve and retrieve digital assets" (JISC 2011a). They are the products of modern technological developments, and they were introduced to address the limitations of the traditional scholarly communication systems (Fry et.al. 2009). However, since its inception the use and application of repositories have and continues to evolve, such that the contents in a repository determines its purpose and consequently the way it will be "designed, managed and used"(JISC 2011a).

Basically, Open access repositories are of two types, the Subject-based (disciplinary) repositories and Institutional Repositories (IRs); the content recruitment model for these two types of repositories is based on the principles of Self-archiving (Fry et.al. 2009). In 1991, at the Los Alamos National Research Laboratory, Paul Ginsparg created the first Subject-based repositories to collect "pre-print articles in the subject area of high energy physics"; the collection of this repository also known as the arXiv is presently being maintained by the Cornel University and have since grown to include collections in different subjects areas (Simpson and Hey 2006, p. 224). The success of the arXiv led to the development of other subject-based repositories such as, the RePec for the subject area of economics and the PubMed Central for the biomedical and life sciences. The development of Subject-based repositories evolved to include Institutional-based repositories and in less than ten years, the concept of building Institutional Repositories was embraced by countries around the world (Fry et al., 2009).

Institutional Repository

An IR on the other hand, is an Open access 'searchable digital archive' containing scholarly literatures (which are usually, but not always

available in full-text), video and images produced predominantly in an academic institution; also, the materials in an IR are not often peer-reviewed articles (Rumsey, 2006). Within the context of this study, an IR can be defined as "digital collections capturing and preserving the intellectual output of a single or multi-university community" (Crow 2002, p.4). Also, according to Lynch, (2003) an institutional repository provides the mechanism that enables universities to manage and disseminate in digital formats the research outputs produced by their academic community. Most essentially, it is a device that enhances the institution's ability to exercise stewardship over its digital research materials, including preserving, and making them available to a wider academic community.

IRs, fundamentally enable the storage, access, and retrieval of digital information which can also be done by computers; consequently, they can be applied and used in various ways to serve different purposes, and as a result, they provide a range of benefits to institutions (Fry, 2009; Nabe, 2010). The benefit of IRs is that, they provide Higher education institutions (HEIs) the opportunity to capture all their "intellectual assets" which includes: audiovisuals, images, objects, datasets, presentations, research articles and learning materials in a co-ordinated and coherent manner into a single location rather than in different faculty, academic or departmental databases (JISC 2011; Nabe, 2010; Wickham, 2010). This integration makes it easier to store, manage, assess and search across all the literary and scholarly materials generated by an institutions academic community (Rumsey, 2006). IRs also enhances the visibility of universities. Rumsey (2006, p. 184) states that "an institution's website is probably the single most popular means by which external people find out about it''. Based on this, the IR of an academic institution can be used for marketing purposes to showcase its research activities, qualities and academic standards, in order to attract funders, students, and highly qualified staff (Rumsey, 2006; Nabe, 2010; JISC 2011b). With the repository, an institution is able to provide long term preservation of all its intellectual assets for future consultations; disseminate data more widely; and allow research findings to be shared freely within an organization's and other external academic communities; thus, encouraging collaboration and communication among researchers of same

field around the world (JISC, 2011a, Nabe, 2010; Lynch, 2003).

In addition, IRs are a convenient place for institutions to deposit all their intellectual assets, in order to comply with the demands and guidelines for research funding applications to organizations such as the Research Councils UK (RCUK). The RCUK was founded in 2002 to create an environment whereby, UK Research Councils can work together in partnership so as to "enhance the overall impact and effectiveness of their research ..." (RCUK). Generally, the UK government, agencies or charities provide large sums of money to fund scholarly research, consequently they have the authority to influence policy that would affect Open access and electronic scholarly publishing (Oppenheim, 2008).

For the academics the IRs offers them several benefits as well. By submitting their articles in IRs, they have all their research outputs stored in one place; increase in the citation of their works; and the IR functions in way that allows the work of academics to appear on their personal web pages, thereby, removing the need for them to constantly update their web profiles whenever they have a new publication (Swan, 2010 cited in Wickham, 2010). Furthermore, with their publications in the IR according to JISC (2011a), academics are able manage the requirement of research funders; a record of their CVs which includes all their published articles; and a personalized publication lists.

However, the controversies surrounding IRs involves the issues of copyright. According to Brown (2011) and Oppenheim (2008), researchers give up the copyright ownership of their work to the publisher in order to gain a global recognition and respect for their research. Thus, in most cases the publishers own the final published version of the authors' publications. By retaining the copyright, publishers are able to make their profit by restricting access and preventing the illegal distribution of the authors' articles. Consequentially, publishers see the open access institutional repositories as a threat to the business model of the traditional publishing system. Although, most publishers voice their concerns about open access journals and repositories as issues regarding loss of "reputation, piracy and plagiarism", but the supporters of Open access have reasons to believe that the primary concerns of the

publishers has only to do with losing their source of income (Oppenheim, 2008).

Metadata and the Repository

According to the National Information Standards Organization (NISO) (2004), the term metadata is used in variety of ways depending on the environment, but essentially it is attributed as "key to ensuring that resources will survive and continue to be accessible into the future"(NISO 2004, p.1). However, within the context of this study metadata is that which facilitates the discovery of the records uploaded into the IR. It is a vital component of repositories, and every item deposited in IRs always has its own metadata records (JISC 2011a). Furthermore, according JISC (Joint Information System Committee), metadata performs primarily six different functions in repositories and they include the following: "helps users identify resources; helps repository managers organize content; brings similar resources together; distinguishes similar resources; gives location information; is essential to facilitate harvesting of repository content by external systems; and supports archiving and preservation". Metadata can be generated at different stages while depositing a document into the repository and these include: "added by the author during the submission process; derived from the deposited content using automated tools; added or edited by the repository manager or a cataloguer; or by the user of the content" (JISC 2011b). Also, there are three types of metadata that falls within the context of how they are used in repositories, and they include: "the descriptive metadata, administrative metadata and the structural metadata". Descriptive metadata is described as that which contains the basic information about a document, such as the author, title, year of publication and the subject area. Administrative metadata involves the aspect of managing and preserving the data of the document itself; it involves the authoritative access to uploading, removing or editing the bibliographic details of a material. While the structural metadata is that which determines how separate aspects of individual items are grouped together (JISC 2011b; Nabe 2010, p. 94). It is worth mentioning here that, manually created metadata consist basically of the administrative and the descriptive metadata mentioned above (JISC 2011a).

Metadata Standard and Subject Classification

Although, there are various metadata standards available; the Dublin Core is the first and still the most common metadata schema used in IRs for describing the contents of information resources; this is because "it is specified by the OAI-PHM as the lowest common denominator format well suited to support harvesting into commonly structured repository, and, therefore, supporting discovery interoperability" (Jones et.al. 2006, p.22). According to NISO (2004) the Dublin core is the product of a workshop held in 1995 at Dublin Ohio. The workshop was sponsored by OCLC and the National Centre for Supercomputing Applications (NCSA). A simple Dublin core consists of 15 elements, which can be used repeatedly and in no particular order of arrangement to describe an information resource (JISC 2011a). Metadata standards on the other hand, are defined as "sets of elements designed for specific purposes, such as describing a particular type of information resource" (NISO 2004, p. 2). There are other metadata standard that comply with IR softwares besides the Dublin Core, they are those "commonly referred to as complex object formats" and they include: METS, MODS, Digital Item Declaration Language (DIDL), and among many others (Jones et al. 2006, p.22; JISC 2011a).

However, in order to classify IRs contents into subject areas, JISC (2011a) states that this can be done using either of the following standards: "Subject classification schemes predominantly used in libraries, such as the Dewey Decimal Classification (DDC) or the Library of Congress Classification scheme (LCC); Course classification such as, the Joint Academic Coding System (JACS); Departmental classification, this involves classifying materials in the repository according to departments or research groups of the institution; and the Informal classification, this involves allowing users of the IR to tag items, using uncontrolled vocabularies".

The use of "defined subject classification schemes" for IR contents according to JISC (2011a), is surrounded by controversies. Certain factions argue its time consuming and items can easily be indexed by using automated indexing mechanism. Others claim that using a standardized subject classification scheme would enhance subject discovery of the materials in the IR, especially by offering better options of browsing items within the repository. It is also

argued that the use of standard subject schemes is the best options for classifying digital items such as: "videos, images and sound files, as full-text searching are not useful for these formats" (Nabe 2010, p.96).

Primarily, for an organization to achieve maximum and enduring use of its IR, it needs to ensure that the contents are properly indexed, by providing good metadata; therefore, "the richer the metadata, the higher the use of the repository content" (Nabe 2010, p. 13). In addition, the OAI-PMH which allows the IR to be interoperable depends on standardized description for it to create proper indexing (Jones et al., 2010; Nabe, 2010). However, the amount of metadata invested and the decision of whether or not to use standardized subject schemes for the IR, are determined by the decision of the institution; the nature of the resource in the repository and the number of staff available to manage the IR (Nabe, 2010; JISC, 2011a).

Self-archiving Practices in Institutional Repositories

Self-archiving was first practiced in the field of computer sciences and it has been around for years in the computer science community where researchers deposit the results of their work first in archives, then later on websites (Swan, 2005). Self-archiving can be described as the process whereby, an author(s) deposits a copy of his or her article in an open access archive repository. The article deposited could be a pre-print (that is, before publication) or a post-print (after publication). Self-archiving is denoted as the fastest approach to achieving open access in the short term (JISC, 2011c; Swan, 2005).

However, despite the rapid adoption of IRs in the academic sector, authors have shown very little enthusiasm towards self-archiving, thus, the growth of IRs' content have been very low (Ferreira et al. 2008; Foster and Gibbons, 2005; Mark and Shearer, 2006). According to Ferreira et al. (2008, p.2) "... the general idea that if you build it, they will come, does not really reflect the reality of what happens when an academic institution establishes an institutional repository" In other words, establishing an IR is beyond the installation of the repository software and making it accessible to its potential users.

Studies show that authors' reluctance towards self-archiving are predominantly based on the following issues: publishers' rights; technological knowhow; lack of awareness of the benefit of open access, and the burden of adding more work to their already busy schedule (Ferreira et al., 2008 ;Fry et al.,2009; Jantz and Wilson, 2008; Swan, 2005; Xia, 2007). As the success of an IR is not only tied to establishing and implementing the repository, but also to filling it with content, institutions saw the need to adopt alternative means, in other words, to increase the growth of their repositories (Foster and Gibbons, 2005). Common alternative content recruitment strategies being adopted by academic institutions includes: promotion or advocacy; developing a self- archiving policy; and offering mediated deposit services (Ferreira et al., 2008; Mark and Shearer, 2006). Universities in the UK and internationally have employed faculty administrators and academic librarians to perform the tasks of submitting academics research out puts, in order to populate their IRs. (Chang, 2003; Mark and Shearer, 2006; Xia and Sun, 2007)

A New Role Emerges for Librarians

In academic institutions, librarians are identified as the most qualified to populate the IR than other staff members. As a result, they have been found to be well suited for the role in developing IRs (Nabe, 2010; Jenkins et al., 2005). Oppenheim (2008) states that the administration of IRs and advising users about the resources they contain is primarily libraries responsibility. In addition, Xia (2007) suggests that the task of self-archiving could be assigned to a librarian who would liaison with specific departments or individuals working specifically to contribute to the research projects of faculty members. For instance, subject librarians can easily handle the task of promoting the IR, because the nature of their job requires them to constantly communicate with students, academic staff, and researchers, in order to "seek their input and gather feedback; and share information with them" (Nabe 2010, p.11; Jenkins et al. 2005, p.317). In addition to this, librarians' constant dealings with the issues of intellectual property rights and copy right law; metadata schemas; different file formats; content acquisition and dissemination makes them suitable candidates for carrying out mediated-deposit services (Nabe, 2010; Mark and Shearer, 2006). Mediated deposit, according to JISC, (2011a) occurs when the item deposited into an IR is carried out by a designated intermediary on behalf of the author. The items supplied by the author are usually in their native form and

accompanied by the relevant metadata. The 'repository administrator' is then responsible for converting the data "into an appropriate submission format; append the correct metadata; and complete the deposit", thereby, saving the time of the academic staff (JISC 2011a).

However, despite the claims that librarians play leading roles in populating IRs, there are large numbers of other departmental staff involved with managing the repository collections such as: faculty administrators; technical staff; academics and among many others(Lynch 2003; Xia and Sun 2007). Lynch (2003, p.3) advices that, with IRs it should be understood that the issue of "organizational roles, responsibilities, resources, and strategies" imposes various difficult questions. Nevertheless, the decision concerning who will coordinate and manage it is the most important factor that will determine the success of an IR (Nabe 2010). Furthermore, because of the need to expose the collections of the IR to the world sits within the objectives of the IR, part of, which include allowing users to examine the contents in an intelligent way, in order to discover relevant and interesting academic resources (Jones et al. 2006). Therefore, employing mediators to deposit items on behalf of authors can have significant staffing implications with respect to content size, content management and the metadata presentation of the repository, especially where there is a large influx of materials to deposit, but the number staff administering to them are few. With few numbers of staff, it may be difficult to manage such huge collections, and this "may damage the internal reputation of the repository" (JISC 2011a). Furthermore, because the submission process of an institutional repository revolves around managing metadata there is the tendency for errors to occur; affecting the overall presentation of the content, therefore, a metadata review by a qualified librarian will be a great asset to the repository (Jones et al., 2006). Given the amount of information and the number of distributed individuals involved in running the services, Jones at al. (2006, p.85) suggests, it is important to understand the issues that would enable the providers and receivers of an IR service to experience a 'smooth and rationale interaction with the system'.

Libraries Response to Change

Jones et al. (2006, p.9) states that the development of digital libraries in the past two decades has lead to the introduction of "genuinely new important services", consequently, academic libraries are increasingly hiring staff with IT knowledge and qualifications. This implies that, academic librarians have strongly been involved in the scholarly communication process, and have witnessed the changes that the system has gone through as a result of new technological advancements and shifts in the "social, philosophical and educational paradigms". However, due to the emergence of IRs, which also brings with it further shifts in the concept of scholarly communication process, there has been an increase in the need for librarians to adapt to another new technology,[and new roles] (Chawner and Cullen 2009). Schmidt et al. (2005, p.415) also acknowledges that managing electronic publications and online resources are not new to libraries, but the arrival of open access movement have intensified issues such as "archiving, data stability, cost containment", among many others. In order not to get out played by other strong proponents actively engaged with digital resources, libraries need to ensure that they are at the forefront in running the IR on behalf of their institution (Jones et al. 2006). According to Fourie (2004, p. 63), librarians will always encounter changes in the environment that will influence their "roles, job opportunities, staff image, motivation, and survival.'' On a reflection of how librarians have responded to new technologies in the past, Fourie (2004) shows that despite having the idea of what they can offer, libraries have been slow to implement new initiatives. Jones et al. (2006) also states that despite being presented with new technologies at early stages, libraries have not been able to use them to stimulate new practices or introduce new systems of operations in their host organizations. For example, although it has been known for a while that librarians are best qualified to 'organize' the World Wide Web and make information findable on the internet, rather than improve their knowledge of web indexing and the application of metadata, they wait until others help them discover how important those skills are required (Fourie 2004, p.5). Hyams (1996 cited in Fourie 2004, p. 64) blames librarians' slow adaptive nature on "sloth and in-activity, failing to be entrepreneurial and proactive and failing to seize opportunities and change".

Although, in the bid to gain the lead role for managing the IR, Walters (2007) states that, librarians have recognized that they need to be

assertive in developing strategies that would help populate the repository; facilitate the academics' interest in the IR; and generate new services and technological support for the repository. In addition it is obvious that IRs does present opportunities for libraries to deploy their skills and extend the vocation beyond its present level of practice within the academic sector (Brown, 2011). However, this requires various skills, such as the "ability to create metadata and integrate information systems, and the ability to promote the IR as an indispensable information management tool". Furthermore, studies show that the problem libraries encounters with IRs, surprisingly involves the issue of metadata and this is because it is difficult to describe digital resources existing in an environment that is not static; as a result, they need to be organized in a way that will make them findable both in the present and in the future (Jones et al. 2006).

Methodology

The research methods used fundamentally lend themselves to small scale research seeking to gain an insight into the practical experiences of carrying out mediated deposit for IRs. Consequently, the qualitative approach was considered suitable because the research was carried on a small scale and it creates an avenue for the subject of the research to be studied in much detail (Denscombe 2003). In addition, the research was carried out using multiple sources of data, making it possible for the researcher to validate the results of his findings through a process called triangulation. The research tools used to collect data in this study were semi-structured interviews and documentations. In total, 8 interviews were conducted with key repository staff, they comprised of: 2 Electronic Librarians, 5 Research Administrators of the University of Brighton and 1 library staff from the University of Sussex. The type of documents that were consulted for the purpose of this research included: books, journal articles, private correspondence and minutes of minutes generated from the Instructional Repository steering group committee for the University of Brighton Repository (UBR). Ethical issues were being considered when these instruments were being administered in the study, and the information gathered by these tools were organized using a thematic method to analyze them. However, despite the prevalence of the issue of irregularity of authors' name entries in repositories, it is difficult to generalize base on the findings of this study because the research

was conducted within the context of a single institutional repository.

Findings

Analysis from the interview data as well as findings from other research tools used in the study highlights the depth at which the repository staff at the University of Brighton engages with the repository, as well as the cause and the effect of the inconsistencies in the UBR metadata. Most Schools within the University assigned their Research Administrators, the *role* of submitting and editing the research outputs of academics into the UBR. The Research Administrators interviewed indicated that, although there is the option for academics to upload their publications into the repository, this rarely happens. The University librarians whose roles are connected to the UBR are the Electronic Librarians. Information gathered from the Electronic Librarians interviews, reveals that they are not involved in depositing items into the UBR, rather they provide technical and advisory support to the Research Administrators who submit items into the repository.

The Research Administrators and the Electronic Librarians acknowledged that the metadata of the items in the UBR, particularly the name entries that identifies each academic as the author of an article in the repository are entered inconsistently. The name of an academic or author is entered into the IR in different citation formats, sometimes their names appears as: surname plus initials, or both surname and first name are entered in full. Similarly the respondent from the University of Sussex acknowledged the issue of the academics' names appearing in variations is a problem suffered by all IRs. Based on their individual experiences and perceptions the Research Administrators acknowledged that the inconsistent entering of authors' names into the UBR affect searching and retrieval of items from the IR.

Findings in the literature shows that in situations whereby several staff are involved with the IR and the repository role is an add-on to the other tasks that they are responsible for, then an alternative strategy that can be applied to improve the metadata quality and manage the IR collections, would be to create a leadership structure and have a leader that would coordinate the work of all the staff involved and monitor the progress and success of the repository. Studies also show that to develop the IR collections, information professionals must make it a top

priority to ensure that staff with different skills from all parts of the library are involved with the repository.

Conclusion

This study set out to explore the needs of Research Administrators and Librarians for the effective management of an Institutional Repository (IR), in order to maximize its use at the University of Brighton. To achieve this aim, the following objectives were formulated: to identify the role and needs of the research administrators with regards to developing and maintaining the IR; to identify barriers to the consistent organization and presentation of the IR collections; and to explore the potentials of alternative methods that can be applied to improve the metadata quality and the management of the IR collections. Findings correspond with previous studies carried out in the area of this research: the University of Brighton relies heavily on mediated services for the success of its IR.

Various issues were identified as barriers to the successful organization and presentation of the UBR contents. However, at the time of this research, there were no technical solutions that can be used to resolve the problem of authors' name variations that occurs in IRs. Therefore, the Electronic Librarians plus other Librarians with specialist kills such as, cataloguing and classification need to become more active in initiating different strategies that will improve the quality of the IR metadata.

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