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Aims and Scope

Access to knowledge at the heart of the profession and a key to sustainable development

SAGE

Steven W. Witt

Open access to scholarly literature, the role of knowledge production in development, and the continued inequality in information access among the world's populations are key areas of focus within the international community. The Paris Agreement of 2015 emphasizes the need for public access to information and the important role of knowledge creation and technology transfer in addressing successfully the astounding economic, social, and political challenges embedded in solutions to global issues such as sustainable development (United Nations, 2016). The Lyon Declaration (2014) and IFLA's key strategic initiatives make clear that the library and information community is keenly aware of these challenges and is working to partner with the academic community, civil society, private sector, governments, and the public as a whole to broaden access to knowledge through more equitable dissemination and broader participation in research. As this issue of IFLA journal makes clear, there is much progress in the field, but we still face many challenges.

The Directory of Open Access Journals (2016) exemplifies in many ways the growth of open-access as a means to both disseminate and access knowledge with articles in over 100 languages and representing 136 countries. As research highlighted in this journal suggests, representation among journals and authors from developing nations is increasing within the open access community. Questions abound, however, concerning the rate of open access growth as it relates to perceptions of quality and value within the academic community. Whether scholars and the academic systems that nurture their development can and will accept this mode of publication is unknown. Systems geared toward evaluating scholarly impact are still bound to traditional modes of dissemination and production. The scholarly production system is built upon a vast infrastructure that enjoys support through entrenched public and private partnerships. The future of open access is also challenged by the advent of predatory publishers who take advantage of increases in scholarly output, the drive to disseminate research globally, and economic imperative to develop research strengths. As reported by Beall (2016), the number of so-called predatory journals has increased in the past three years from 126 to 882. This is a phenomenon that negatively impacts both the independent open access community and traditional publishers through hijacked publications, misleading metrics, and general confusion regarding promising new modes of knowledge creation and dissemination. This uncertainty no doubt reinforces the conservative approach of the scholarly community to moving further towards open-access.

For the library and information community, the creation of new academic systems, such as seen in Kuwait, uncertainty about Open Access in developing countries, and the need to better provide access to communities such as some of those found in rural Africa present opportunities and challenges. This is an opportunity for the profession to contribute its knowledge and expertise toward navigating the growing thicket of the information environment. The challenge, however, is continuing to develop knowledge and practices that contribute to resolving the problems facing the world's populations. These problems include issues around access, which are highlighted in this issue. At the same time, they include questions about preserving our cultural heritage, ensuring free-access to information while advocating for privacy, promoting literacy and education, and partnering with the scientific community to support data-intensive research. At the heart of all of these issues, however, is ensuring the broadest possible access to information and means of knowledge production.

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Announcement

Call for papers: IFLA journal special issue on research data services

Submission deadline: 16 May 2016. Libraries and archives around the world are applying the principles of library and archival sciences to address challenges and provide new services related to research data management. Librarians are helping researchers address needs throughout the research data lifecycle, for example, by conducting assessment and outreach, consulting on data management plans and metadata, incorporating data into information literacy instruction and collection management, and providing data publication and preservation services.

IFLA Journal invites papers for a special issue focused on research data services and libraries across all continents. The issue will be published in October 2016 as Volume 42:3. In particular, the main goal of the special issue is to gather the latest theory, research, and state-of-the-art practices from libraries that are informing and innovating effective data services.

Each issue of IFLA Journal is made available Open Access upon publication on IFLA's website. Authors are also encouraged to make the accepted version of their manuscripts available in their personal or institutional repositories.

Guest Editors

Wolfram Horstmann
Director
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Topics of interest include, but are not limited to:

- Data literacy, reference, and outreach
- Data repository services and collection management
- Preservation of digital data
- Data management plans
- Metadata and data documentation
- Data citation and identifiers
- Data policy, licensing, and privacy
- Libraries, Long Tail, and Big Data
- Training and staffing library data services

Sharing the data: The information policies of NOAA and EUMETSAT

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Abstract

The National Oceanic and Atmospheric Administration (NOAA) and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) work together in three different fields: geostationary satellites, polar-orbiting satellites, and ocean altimetry satellites. These programs each generate different data, and render the two organizations capable of performing global observations that meet the requirements of their respective missions. The paper examines the data policies of the two organizations in the context of the agreements established by the World Meteorological Organization (WMO). The paper analyzes the partnership through their data policies and agreements from agency websites, technical literature, treaties, and reports generated by their respective data centers. The research illustrates how, despite differences in policy, industrial standards, technologies, and national boundaries, resource-pooling initiatives can improve efficiency and benefit user communities. Through the mutual exchange of data, instruments, and grounds operations, NOAA and EUMETSAT have established a long-standing partnership that has strengthened the weather community and overall information infrastructure of meteorology.

As weather, climate and the water cycle know no national boundaries, international cooperation at a global scale is essential for the development of meteorology and operational hydrology as well as to reap the benefits from their application. (World Meteorology Organization, WMO in brief, n.d.)

The Earth's atmosphere, oceans, and biosphere form an integral system that transcends national boundaries. To understand the elements of the system, the way they interact, and how they have changed with time, it is necessary to collect and analyze data from all parts of the world.

(National Research Council Committee on Geophysical and Environmental Data, 1995)

Introduction

The US is in the midst of a crisis in weather data collection, and in 2013 the Government Accountability Office (GAO)[1] put weather satellite data on their High Risk List in a report entitled *Mitigating Gaps in*

Weather Satellite Data. The National Oceanic and Atmospheric Administration (NOAA) has been able to draw on a decades-old partnership with the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) to help reinforce a data stream should aging satellites deteriorate. The NOAA-EUMETSAT partnership has been successful on many fronts. Despite differences in data policies and satellite technologies, NOAA and EUMETSAT have developed programs that have cut costs, increased efficiency and technological innovation, and are mutually beneficial. The success of the partnership is largely due to the data-exchange policies established by the World Meteorological Organization

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(WMO) and the global weather community at large. However, NOAA and EUMETSAT have reached agreements of exchange that extend beyond just data. The two organizations work together in three different fields: geostationary satellites, polar-orbiting (each organization covering a distinct orbit), and ocean altimetry satellites that observe with instruments from both organizations. While the partnership is indeed remarkable, it is important to note that it is based on the mutual exchange of data and distributed efforts. Therefore, the data that each agency collects is not duplicated but is instead complementary (Lahcen, personal communication, 2015). The monumental benefits of collaboration have long been recognized by meteorologists—perhaps due to the inherent globality of climate observations. How one scientific community developed remarkable "open" policies is an example that should be shared with government agencies and information communities alike that work towards similar missions. This paper outlines the data policies as seen on agency websites and in government documents such as treaties, agreements, and reports, and illustrates how partnership can benefit user communities and respective governments. In an increasingly global information community, the NOAA-EUMETSAT alliance can shine a light on our dialogues and interactions: collaboration works despite jurisdictional borders and conflicting policy.

Research questions

NOAA and EUMETSAT developed a strong partnership in the context of the policies laid out by WMO and the member states. Over decades the relationship has proved to be mutually beneficial for both partners, and has greatly strengthened the larger global meteorological community. This paper examines the partnership from several sides: which are the key documents, manuals, guides, and policies that established the information infrastructure of global meteorology? What are the policies behind the joint programs of NOAA and EUMETSAT's polar-orbiting satellites and how do they contribute to the global meteorological community? What are their data-sharing policies and how do they encourage or discourage access, reuse, and preservation?

Method

The paper answers the research questions by analyzing information found in United Nations' resources such as the Treaty Collection and documents from the WMO's website. Much of the reviewed literature includes reports, summaries of programs, and policy outlines. The paper examines the programs of the WMO, NOAA, EUMETSAT and their respective

Data Centers by locating selective technical literature, standards, and agreements that have helped shape the information infrastructure of meteorology.

Of particular relevance are the studies done by the National Research Council which are included in this paper's references. Other invaluable resources include Arne Lahcen's (2013) *EUMETSAT-NOAA Collaboration in Meteorology from Space: Review of Longstanding Trans-Atlantic Partnership*, one of the few reports that evaluates the NOAA-EUMETSAT alliance and whose author kindly answered many questions by email. The paper relied heavily on the guidance of Fred Branski, WMO's Commission for Basic Systems (CBS) President and International Data and Requirements Liaison at NOAA's International Activities Office—who pointed the way to many essential documents.

Because of the density of much of the technical literature, the author has been forced to limit in-depth descriptions of observational instruments and satellite mechanics even when these programs were greatly effective in building the partnership. Furthermore, there are many aspects of the NOAA-EUMETSAT partnership that have been left out such as: the historical origins, workings, and development of the partnership; several satellite observation programs such as the geostationary and ocean surface topography missions; and many of the non-governmental players that have helped define the information environment. Interested readers may find more information on these partnerships and missions on the websites of the WMO, NOAA, and EUMETSAT, and are encouraged to read through the references listed at the end of this paper. Additionally, the Inventory of International Expert Groups' website (listed in references) outlines many of the non-governmental players that have helped shaped meteorological exchange.

The paper defines "information infrastructure" as the laws, policies, and technologies that serve as support systems for information sharing. The partnership of NOAA and EUMETSAT is referred to as NOAA-EUMETSAT throughout the paper.

Literature review

World Meteorological Organization

The World Meteorological Organization (WMO) is a treaty-level international special agency of the United Nations and was established in 1950 as an extension of the International Meteorological Organization—one of the oldest UN agencies. As of 2013, the organization consisted of 191 members and six territories (WMO, 2013d). WMO describes its mission in six parts: (1) to facilitate worldwide networks of

meteorological observation systems; (2) promote and maintain systems of meteorological information exchange; (3) promote standardization of observations to ensure uniform publication of statistics; (4) further the application of meteorology to aviation, shipping, water problems, agriculture, and other human activities; (5) promote cooperation between hydrology and meteorological services; and (6) encourage research and training in meteorology and the international aspects of such (WMO, Vision and Mission, n.d.). One of WMO's main roles is facilitating the free and unrestricted exchange of data and meteorological information between member states that often have conflicting data-sharing policies. Over the past decades, the agency has established agreements and standards that relate to the exchange of meteorological services and products. These arrangements vary greatly between countries, from regulatory to recommendations of best practices. As WMO is not a sovereign state, member states can opt out of agreements even when they are regulatory. Nevertheless, compliance is quite high according to Fred Branski, International Data and Requirements Liaison at the National Weather Service's International Activities Office. Pooling resources and exchanges of meteorological and environmental data have proven to be extremely beneficial (Branski, 2015, personal communication).

In 1963 WMO launched the World Weather Watch (WWW), a program that facilitates the development and operation of global systems for observation and data exchange. The program is founded on the understanding that no single country can be self-sustaining in administering all aspects of meteorological activities. The program works on global and regional levels, mediating the exchanges of services and products between member states. Some of its activities include: designing observing and communications networks; standardization of measurements; data management; and information presentation in multiple languages (WWW Programme, Purpose and Scope, n.d.). The establishment of this program was a milestone for international cooperation and resource pooling in the world of meteorology.

One of the components of the WWW is the Global Observing System (GOS), the most important WMO program for meteorological observation. Operated jointly by the National Meteorological Services and global satellite agencies, the program's emphasis is on "cost-effectiveness, long-term sustainability and new collaborative arrangements among Members" (WMO, About the Global Observing System, n.d.). As with other WMO activities, the best practices, regulations, and agreements are outlined in manuals and guides and can be found on the organization's website. The GOS program has two important documents: *The Manual on the Global Observing System* and *The Guide to the Global Observing System.* The two-volume Manual has been translated into four languages, and was updated most recently in 2013. In essence the Manual details—in a 62-page document—the observational requirements of Members: what is observed, when it is observed, and how it is shared. Volume 1 of the Manual's regulation section (WMO, 2013b) concerns global aspects, and is divided into *standard* practices and *recommended* practices. Volume 2 outlines regional requirements (WMO, 2011). The Guide's main utility is to provide practical information on the GOS program in order to enhance member participation. It aims to assist the technical and administrative staff of National Meteorological Services that are responsible for the networks of observing stations. Like the Manual, it is available in four languages (WMO, 2013a). While both the Manual and the Guide have been recently updated, the foundations for these practices were developed in the 1970s. A third Manual is also important to mention: *The Manual on the Global Telecommunication System* and specifically *Volume I — Global Aspects: Annex III to the WMO Technical Regulations* (WMO, 2013c). This Manual is quite technical and covers satellite data collection and distribution. The Manual is designed to (a) facilitate cooperation of meteorological telecommunications between Members; (b) specify obligations of Members in the implementation of the WWW Global Telecommunication System (GTS); and (c) ensure uniformity and standardization in practices employed in achieving (a) and (b) above. Like the aforementioned Manuals, it divides the regulations into standard and recommended practices and global and regional coverage (WMO, 2013c).

The WMO Space Programs (WSP) is a department within the WMO Secretariat whose objective is to promote availability and utilization of satellite data and meteorological products (WMO Space Programme, n.d.). Through WMO Programmes, it coordinates various activities related to the collection, access, and exchange of weather data. As technology advances, the Department is challenged with ensuring that improved data and products of GOS remain available for use by member states. WSP provides guidance in the form of standards, guides, and portals. These can be viewed on the WSP website and include: formats and standards; from data to products; Product Portal; Data & Product Dissemination; SCOPE-CM; RARS; and IGDDS (WSP, Data Access and Use, n.d.).

The key policy document to understanding the aforementioned Guides and Manuals is WMO Resolution

40. Under its provisions, the WMO defines the necessary data and products that are required from member states to ensure protection of life and property. Similar to US open data policies, Resolution 40 calls for free and open exchange up to a certain extent (WMO, 1996). The remainder of the data—the data deemed "unnecessary"—may be subject to certain commercial restrictions through licensing. Annex I clarifies those data and products to be exchanged without charge and with no conditions (WMO, 1996). The Resolution was created as a middle ground for the conflicting policies of US and European data policies.

National Weather Service's International Activities Office

The International Activities Office (IAO) coordinates all international cooperation for the National Weather Service (NWS) including oversight of US participation in the WMO. The IAO manages all international agreements, and supports the permanent US representative at the WMO (National Weather Service, n.d.). The organizational structure, objectives, and responsibilities of the IAO are outlined in the *International Affairs Council Charter* and define the office as "an advisory, information sharing, and coordinating group for international matters." The Charter makes clear that the role of the IAO is to represent NOAA to the international community, ensuring that the agency's interests are communicated (NOAA International Activities Office, 2011).

The document that best defines the United States' global position is the *Statement of International Goals* produced by the International Affairs Council. One of the key sections to understanding NOAA's support of the WMO—and in particular the GOS programs—is the "Integrating Global Environmental Observations and Data Management" paragraph of the Statement. Here the Agency states its commitment to advancing, supporting, and facilitating information exchanges in the global community (NOAA, 2005). The policy responds to the recommendations from the National Research Council (NRC) and the study *Fair Weather: Effective Partnerships in Weather and Climate Services* (NRC, 2003a) that is addressed several times in this paper. The NRC study primarily called for incorporating up-to-date technologies in NWS policies that would help strengthen the three-sector division of public, private, and academic meteorological partnerships within the US. However, the study also recognized that those policies greatly influenced international partnerships and weather data exchanges (NRC, 2003a).

There are quite a few additional international bodies involved in meteorological satellite data collection and distribution. An excellent list—*The Inventory of International Expert Groups*— can be found on the WMO website (WMO, n.d.). Particularly worth mentioning is the Coordination Group for Meteorological Satellites (CGMS) that helps to coordinate shared access to and use of satellite data products. Their activities are aimed at supporting observers to meet the requirements laid out by the WMO (Coordination Group for Meteorological Satellites, n.d.). Through global membership, the United Nations has cultivated an information-sharing environment that helped strengthen the activities of the WMO and led to the establishment of GOS—the most important observational program based on principles of sharing resources (NRC Committee on Geophysical and Environmental Data, 1995). It is within this framework that the NOAA-EUMETSAT partnership was able to develop.

Information policy and open data

The value of open data is increasingly discussed throughout government and society, but NOAA and other scientific communities have long recognized its importance in advancing research. The World Data System (WDS) is an Interdisciplinary Body of the International Council for Science that began at the 29th General Assembly in Mozambique in 2008 (World Data System, n.d.). Its foundations however are much older, and are rooted in the World Data Centres that grew from the International Geophysical Year in 1957. NOAA's National Geophysical Data Center was created in 1965, and later many more data-exchange centers were set up throughout scientific communities. Many government agencies have a long history of collecting environmental data, but NOAA is tasked with the responsibility of managing, maintaining, and providing long-term access to the data (NRC Committee on Geophysical and Environmental Data, 1995).

NOAA adheres to the regulations set out by the Paperwork Reduction Act (PRA) of 1980. OMB Circular A-130 *Management of Federal Information Resources* issued in 1985 to meet the requirements of the PRA, discusses the application of information technology to improve dissemination. Recognizing that government information is a valuable national resource—and that the Federal Government is the largest producer of information in the US—the Act called for the free flow of information between the Government and the public (OMB Circular, 2000). Section 7(k) declares that the open exchange of scientific and technical information encourages research and effective use of Federal research and development funds.

In 2013 NOAA produced the *Plan for Increasing Public Access to Research Results*, which further proved commitment to information exchange and long-term access. The plan describes four main principles: (1) research funded by taxpayer dollars will be made publicly available; (2) when research is published in closed journals NOAA will require an embargo period of no more than 12 months prior to public access; (3) commitment to minimize administrative barriers for researchers; and (4) utilization of existing systems to minimize duplicative, incompatible, or wasted effort (NOAA Research Council, 2015).

These key policy documents play an integral role in the international exchange of meteorological information and are invaluable in scientific communities and many other sectors of society. In Bastiaan van Loenen's (2003) *Developing Geographic Infrastructures: The Role of Information Policies*, the author concludes that access policies are critical for information infrastructure developments—in that case geographic ones. The study determined that government has an important role as both a provider and user of information, and is critical in the development of data.

National Environmental Satellite, Data, and Information Service

NOAA was established in 1970 when three government agencies—US Coast and Geodetic Survey, the Weather Bureau, and the Bureau of Commercial Fisheries—came together to form America's first science agency under the Department of Commerce (NOAA, 2006). NOAA operates out of six primary offices, the National Environmental Satellite, Data, and Information Service (NESDIS) being the most relevant one concerning the EUMETSAT partnership. NESDIS plays a key role in assisting with NOAA's mission by: providing timely access to global environmental data from satellites and other sources; protecting and enhancing the nation's economy, security, environment, and quality of life; operating NOAA's National Data Centers; and providing data and information services to NOAA and other global user communities (NESDIS, 2014). The meteorological data, products, and services developed, managed and made available by NESDIS through their Data Centers are used by a variety of clients. The US recognizes that not all aspects of meteorological monitoring can be done by one single sector and encourages divisions of operations and services. The NRC in *Fair Weather: Effective Partnerships in Weather and Climate Services* (NRC, 2003a: 13), defines three traditional sectors and their roles. They are (1) the Government (public

sector and specifically NOAA and the NWS that follow the above-mentioned missions and objectives); (2) Academia that advances science and educates future meteorologists; and (3) the Private Sector that develops technologies that cater to their user communities. These three sectors, along with intergovernmental and international organizations, make up the network and information infrastructure of meteorological data flows.

The European Organisation for the Exploitation of Meteorological Satellites

The establishment of EUMETSAT came about in 1986 as a result of the Intergovernmental Conference in Paris. Founded as an intergovernmental organization, EUMETSAT now includes 30 Members States and one Cooperating State. The national meteorological services of Member States have full access to EUMETSAT data and products, and are each represented in the Council (EUMETSAT, Member States, n.d.). EUMETSAT's purpose is to supply weather and climate-related satellite data, images, and products to the National Meteorological Services of its members in Europe and worldwide. EUMETSAT shares a similar mission with NOAA: to help safeguard the daily lives of Europeans by operating a system of meteorological satellites that observe the atmosphere, ocean, and land surfaces. Some of the activities of EUMETSAT include: operating and developing satellites; monitoring weather, oceans and climate; atmospheric composition; and distributing data (EUMETSAT, What we do, n.d.). EUMETSAT currently operates four geostationary satellites—Meteosat-7, -8, -9, and -10—over Europe, Africa, and the Indian Ocean. In partnership with NOAA, the organization operates two Metop polar-orbiting satellites as part of the Initial Joint Polar System (IJPS) called Metop-A and -B. The Jason-2 ocean altimetry satellite is operated jointly by EUMETSAT, NOAA, NASA, and CNES (EUMETSAT and NOAA, 2013).

NOAA and EUMETSAT have established strong partnerships in particular through NESDIS—the operator of US environmental satellites, data centers and information services. The trans-Atlantic partnership has proved beneficial to both parties, but did not come about without challenges. One of the primary challenges has been in the conflicting philosophies of data exchange and access between European and North American nations (Lahcen, 2013: 20). These differences were ultimately resolved within the framework of the WMO's (1996) Resolution 40—that distinguishes the essential data from the unnecessary. While NOAA and EUMETSAT have developed joint

polar-orbiting, geostationary, and ocean surface topography programs this section addresses only the polar-orbiting collaborations. It defines the following for each: (1) the significance of the programs; (2) their impact on the larger meteorological community; (3) the data policies of each; and (4) how the policies encourage or discourage access and reuse of the data.

In the 1970s President Nixon declassified the Defense Meteorological Satellite Program (DMSP) in order to avoid duplication or redundancy. This led to a two-spacecraft operation designed for two distinct orbits—morning and afternoon—and implied NOAA was considering taking over just one of the orbits in the future. Worried that NOAA's contributions to the GOS community would be weakened, the WMO began negotiations for joint programs that would guarantee full and timely coverage (Lahcen, 2013: 23). The negotiations for the IJPS were lengthy and involved discussions on which parties would finance and operate the satellites, ground operations, and data storage of the programs. The decision to partner polar-orbiting programs with EUMETSAT was finally announced in 1994 under the Clinton Administration, and involved a reorganization of US satellite operations into a tri-agency operation (GAO/OCG, 1994). The data policies were eventually laid out in the *Agreement between NOAA and EUMETSAT on Joint Transition Activities Regarding Polar-Orbiting Operational Environmental Satellite Systems* (US Department of State, 2003). NOAA created the NPOESS program and the first contract was awarded in 2002. The tri-agency program met significant challenges, delays, and budget shortcomings and in 2006 the decision was made to restructure the program as outlined in a hearing, the *Future of NPOESS: Results of Nunn-McCurdy Review of NOAA's Weather Satellite Program* (US Congress House of Representatives, 2006). The satellite programs were greatly reduced, and EUMETSAT took over the mid-morning orbit while NOAA continued the afternoon and the Department of Defense (DoD) the early morning orbit. In 2010, the Obama Administration announced a complete restructuring of the NPOESS program and NOAA and the DoD took official responsibility for separate orbits while EUMETSAT continued the mid-morning orbit (eoPortal Directory, 2015).

In 1998 NOAA and EUMETSAT signed the Initial Joint Polar System Agreement (IJPS) that was comprised of two polar-orbiting satellite systems (EUMETSAT, 1998). These satellites helped provide long-term environmental observations and in turn contributed to the WMO Global Observing System (GOS) along with the United Nations Environmental Programme, and the Intergovernmental Oceanic

Table 1. NOAA and EUMETSAT's polar-orbiting partnerships.[2]

NOAA	EUMETSAT
Initial Joint Polar System (IJPS) Constellation	
Afternoon orbit	Mid-morning orbit
NOAA-N and NOAA-N'	Metop-A and Metop-B
Satellites (2005, 2009)	Satellites (2006, 2012)
Joint Transition Activities (JTA) Constellation	
Afternoon orbit	Mid-morning orbit
Suomi/NPP and JPSS-1	Metop-C (2016)
Satellites (2011, 2016)	
Joint Polar System (JPS) Constellation	
Afternoon orbit	Mid-morning orbit
JPSS-2 (2019)	EPS-SG (2020s)

Commission. The primary mission of the IJPS is to collect and exchange polar satellite environmental data between NOAA and EUMETSAT: disseminating, storing, and managing the data for user communities (NOAA Office of Systems Development, n.d.). This collaboration will be continued in the form of the JPS cooperation, which is currently being worked on towards its establishment in 2018. The consensus is that the program will include the following elements: NOAA Joint Polar Satellite System (JPSS) covering the afternoon orbit; EUMETSAT polar-orbiting system to cover the morning orbit; and data access by both agencies (EUMETSAT Bilateral Co-operation, n.d.; Lahcen, 2013). See Table 1 for details.

Another important NOAA-EUMETSAT agreement concerning polar-orbiting satellites took place in 2000 in Darmstadt, Germany. The agreement, *Access to Images and Meteorological Data Distribution Material from the EUMETSAT Geostationary Meteorological Satellites,* was a milestone in enabling future collaboration (EUMETSAT, 2000). As defined in Lahcen's report (2013: 36), the agreement contained six main elements: (1) reconfirmation of present and future willingness to collaborate; (2) establishment of a high level working group; (3) openness of involving other nations; (4) exchange of technical instruments; (5) potential of using small satellites as a future replacement to large satellite systems; and (6) an exchange of staff between NOAA and EUMETSAT. This agreement solidified the willingness of the two organizations to collaborate and the understanding that the partnership was mutually beneficial.

In 2013 NOAA and EUMETSAT strengthened their partnership by signing a long-term cooperative agreement. At a ceremony in Washington, DC, Kathryn Sullivan, NOAA's Under Secretary of Commerce,

communicated the priority of exchange saying, "The need for environmental intelligence has never been stronger. This partnership with our EUMETSAT colleagues allows us to continue collecting and sharing vital space-based observations, resulting in a better understanding of our global environment" (EUMETSAT, 2013). This agreement involved a deal on several levels: (1) the joint operation of the polar-orbiting satellites system and intermutual access to all resulting data that forms the basis of most medium-range forecasting in Europe and the US; (2) NOAA and EUMETSAT's instruments fly on board each other's satellites saving costs and automatically standardizing data; (3) back-up agreement for geostationary data should either party experience trouble; and (4) extends to the Jason-2 ocean surface topography mission proven to be critical for severe storm forecasting (EUMETSAT, 2013).

NOAA's Satellite and Information Service and the National Climate Data Center

NESDIS, informally known as NOAA's Satellite and Information Service, acquires and manages US operational environmental satellites. NESDIS manages three Data Centers out of which the Department provides a variety of freely available data and information services. The National Oceanographic Data Center (NODC) manages all data concerning oceans, including archives of water temperature dating back to the 1700s (NODC, 2013). The National Geophysical Data Center (NGDC), located in Boulder, Colorado, currently maintains more than 400 digital and analog databases concerning geophysical data on the earth, marine, and solar-terrestrial environment (NRC, 2003b). The third Data Center is the National Climate Data Center (NCDC) and is the world's largest climate data archive. Located in Asheville, North Carolina, the Center provides freely available near-time and historic weather data to all sectors of the US economy and worldwide. The Center's mission is to preserve climate data and make them available for the public, business, industry, government, and research (NCDC, n.d.).

Archiving and providing access to meteorological and climate data is challenging and complex as datasets tend to be quite voluminous. NOAA's primary online service is the Comprehensive Large Array-data Stewardship System (CLASS) that is an electronic library run by the NCDC. CLASS distributes DoD polar-orbiting data, NOAA's geostationary data, and derived data for national and international users (NOAA, CLASS, n.d.). NOAA makes satellite datasets available online and provides a variety of helpful materials for access. On NCDC's website the datasets are divided by type and instrument and include: land-based station data, satellite, radar, model, weather balloon, marine and ocean, paleoclimatology, and severe weather. The satellite data FAQ sheets cover questions from format types to reading datasets (NCDC, FAQ, n.d.). In addition to the freely available meteorological data, the instructional information guides, easy-to-read fact sheets, and user-friendly website of the NCDC encourage access to NOAA's services.

NOAA and other cooperating agencies have signed agreements and written policies that guide retention schedules, data exchange, and interoperability. A study done by the NRC (2007) entitled, *Environmental Data Management at NOAA: Archiving, Stewardship, and Access*, is an authoritative resource on the data management practices of NOAA and its Data. The book outlines the guiding principles established by NOAA and other related agencies, departments, and offices, and evaluates the data and metadata preservation, and support services and tools. In addition to external and inter-agency policies, there are a number of key documents that define decisions and actions regarding NOAA's climate data. The *NAO 212-15: Management of Environmental Data and Information* is the most relevant policy document (NAO, 2010). In nine sections it outlines the policy, implementations, responsibilities, and definitions, including reference to the *03 NOAA Administrative Order 205-01 Records Management* and the *E-Government Act of 2002* (44 USC 3602 *et seq.*) that promotes enhanced access to Federal Government information and services in a manner consistent with laws and regulations.

EUMETSAT Data Centre

The EUMETSAT Data Centre, set up in 1995, provides long-term access to archival data, products, and services. The Data Centre is one of Europe's largest and most comprehensive collections of meteorological data. Accessing meteorological data is done through registering in the Earth Observation Portal and ordering through the Online Ordering Application—EUMETSAT's data catalog. The data available includes: over 150 satellite products spanning 30 years; geostationary satellites positioned over Europe and the Indian Ocean; Metop-A and -B since 2007; Jason-2 data since 2008; and data from international partners including NOAA since 2006 (EUMESAT Data Centre, n.d.).

The Data Centre meteorological data is available free of charge after accepting the terms and conditions of the policy. However this does not grant widespread

access to all customers, but instead defines the specifications in EUMETSAT's (2015) *Principles on Data Policy*. The policy bears in mind, "that EUMETSAT's meteorological satellites represent an important contribution to the World Weather Watch of the WMO" and in this light take into account "the Exchange of Meteorological and Related Data and Products including Guidelines on Relationships in Commercial Meteorological Activities, as laid down in WMO Resolution 40 (Cg-XII)" (EUMETSAT, 2015: 3). This is further explained in Section IV as the products and services determined to be "essential" in accordance with the aforementioned Resolution 40. In addition to the "essential" data, section VI grants free and unrestricted use of data products for educational and research purposes (EUMETSAT, 2015: 4) Other data services and products are restricted and fees are charged for commercial use of data deemed "unnecessary" as characterized in the WMO Resolution. Furthermore, EUMETSAT holds full ownership and intellectual property rights to all its Meteosat satellite data—that is, the data collected from their own operations (EUMETSAT, 2015: 13).

In addition to permitting the exchange of "essential" data, there are several other points of allocation, notably when NOAA and EUMETSAT have jointly operated observing instruments such as the JPS programs (EUMETSAT, 2015: 38). Given that NOAA and EUMETSAT share several satellite instruments, there are conditions when one party may deny access to certain types of data. One of the circumstances is in times of crisis or war, at which time only authorized users have access (EUMETSAT, 2015: 40).

Justification

In an increasingly global information community, the NOAA-EUMETSAT partnership is a valuable example of how foreign governments can collaborate to create healthy information infrastructures that better serve their user communities and encourage research and reuse of data. By summarizing the joint programs and data policies of NOAA and EUMETSAT, this case study proves that both parties met their goals through collaborative initiatives. Not only did they ensure high-quality continuity of weather data, but they have also avoided redundant research. This case study is important not just for meteorologists, but also for all government agencies that share common missions.

Conclusion

The joint programs of NOAA and EUMETSAT—including the polar-orbiting, geostationary, and ocean surface topography mission—have strengthened the global meteorological community. The United States, which contributes roughly 25% of WMO funds, has reinforced its data flow through a decades-old partnership with EUMETSAT. As seen in the technical literature, data policies, and joint programs, the partnership is based on compromise and the willingness to co-act in service of common missions. The two parties, by sharing instruments, grounds operations, satellite information, and staff, have fortified the infrastructure of meteorology. The accomplishments of the two organizations did not come about in a vacuum, but were reached through years of negotiations and accord. The most significant challenge has been agreement of data-sharing policies that meet both the US and European requirements—which are traditionally at great odds. The US adheres to a "free and open" policy where data is made freely available without restriction or fee. The European model on the other hand restricts the use of data for commercial purposes—charging clients who wish to reuse information. The two parties came to an agreement in the context of the data policies outlined by the WMO—in particular Resolution 40—that defines the "essential" and "unnecessary" meteorological data requirements. The partnership is further strengthened by the archival and preservation policies of the Data Centers of both NOAA and EUMETSAT. The policies, particularly on NOAA's side, encourage access and reuse by making the data freely available and online to all user communities. While the NOAA-EUMETSAT partnership has had many successes, the US still faces a potential gap in weather satellite data that could last up to one year. Outlined in the GAO High Risk Report of 2013, and updated again in 2015, this gap is due to aging satellites and agency mismanagement. Interested readers should reference the High Risk Report Update (GAO, 2015) for a detailed explanation of what the US Government is doing to prevent such a gap in data. As seen in this paper, NOAA is far from self-sufficient in collecting meteorological data as it works within a larger system of data-sharing and collaboration. The gap in weather data would therefore affect not only the accuracy of forecasting in the US but also the Government's ability to meet its treaty obligations to the larger community. This area requires further research, and brings up important and pressing questions of how much to rely on foreign governments and the private sector in data collection. It is nevertheless undeniable that the alliance has strengthened the global community and should be recognized as a model in information communities.

Appendix 1. Acronyms

Acronyms	Explanation
CBS	Commission for Basic Systems
CGMS	Coordination Group for Meteorological Satellites
CLASS	Comprehensive Large Array-Data Stewardship System
CNES	Centre national d'études spatiales
DMSP	Defense Meteorological Satellite Program
DoD	Department of Defense
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
GAO	Government Accountability Office
GOES	Geostationary Operational Environmental Satellite
GOS	Global Observing System
GTS	Global Telecommunication System
IAO	International Activities Office
IGDDS	Integrated Global Data Dissemination Service
IJPS	Initial Joint Polar System
JPS	Joint Polar System
JPSS	Joint Polar Satellite System
JTA	Joint Transition Activities
NASA	National Aeronautics and Space Administration
NCDC	National Climate Data Center
NESDIS	National Environmental Satellite, Data, and Information Service
NGDC	National Geophysical Data Center
NOAA	National Oceanic and Atmospheric Administration
NPOESS	National Polar-orbiting Environmental Satellite System
NRC	National Research Council
NWS	National Weather Service
OMB	Office of Management and Budget
POES	Polar Operational Environmental Satellite
PRA	Paperwork Reduction Act
RARS	Regional ATOVS Retransmission Services
SCOPE-CM	Sustained, Coordinated Processing of Environmental Satellite Data for Climate Monitoring
WDS	World Data System
WMO	World Meteorological Organization
WSP	WMO Space Programs
WWW	World Weather Watch

Notes

1. For a complete list of acronyms, see Appendix 1.
2. This table was adapted from information found in Table 4 in Arne Lahcen's *EUMETSAT-NOAA Collaboration* (2013: 40).

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Open access repositories in India: Characteristics and future potential

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Abstract

The present study examines the development of open access repositories in India. Institutional repositories development in India dates back to the development of Eprints @IISc by TB Rajasekhar in 2002. Since then considerable development of institutional repositories has occurred. The data for the study were collected from OpenDOAR (Directory of Open Access Repositories) in January 2015. OpenDOAR provides a quality-assured listing of open access repositories around the world. The findings of the study show that the Indian repositories are also represented in the Ranking of Web Repositories. It also indicates that the trends towards the development of open access repositories are increasing among higher education and research institutions. It serves as a means for the dissemination of the intellectual output of the institutions that may be a research organization or university to communities and to the public at large. It is the prime responsibility of public funded organizations to reveal the results of the research to the public.

Introduction

The introduction of the Internet and information communication technologies (ICTs) in the 1990s has totally revolutionized the entire scholarly communication environment. The advancement of Internet technology resulted in the dramatic increase of journals and easy availability of the research outcomes to the wider audience. But the cost associated with the journals had an impact on acquisition budgets. Due to the rise in subscription prices and decreased library budgets the growth of the libraries has been hampered. Chan (2004: 278) describes the scholarly communication situation as a crisis that encompasses two distinct though interrelated problems. On the one hand, serial subscriptions costs, particularly for science and medical journals have been increasing rapidly over the last two decades, often at rates far above the cost of inflation. At the same time, research library budgets have been decreasing or are otherwise unable to keep pace with price increases. The result is that libraries are spending more, but they are in fact getting less in terms of journal titles and new monograph acquisitions, as more of the budget is being consumed by serial subscriptions.

The traditional role of librarians as collectors, organizers, preservers and disseminators of information has changed with the development of Internet technology. The advancement in electronic publishing has completely changed the traditional subscription-based model and provides opportunities for scientists to disseminate their research findings to potential readers with ease and to bypass the long pending delays caused by traditional publishing. Open access journals provide a respite for libraries to overcome the dilemma of subscription prices. The old model of journal subscription is in competition with the open access movement which includes open access journals, open repositories, open source software and open educational resources (Jantz and Wilson, 2008).

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Suber (2012: 4), the leading exponent of the open access movement, describes open access in the following way: "Open access (OA) literature is digital, online, free of charge, and free of most copyright and licensing restrictions." Peter Suber called open access a revolution that embraces the following content:

- peer-reviewed research articles
- unreferred preprints destined to be peer-reviewed research articles
- theses and dissertations
- research data
- government data
- source code
- conference presentations (text, slides, audio, video)
- scholarly monographs
- textbooks
- novels, stories, plays and poetry
- newspapers
- archival records and manuscripts
- images (artworks, photographs, diagrams, maps)
- teaching and learning materials ("open educational resources and "open Courseware")
- digitized print work (some in the public domain, some still under copyright). (Suber, 2012: 98–99)

Open Access was defined by three public statements: the Budapest Open Access Initiative (February 2002), the Bethesda Statement on Open Access Publishing (June 2003), and the Berlin Declaration on Open Access to Knowledge in the Sciences & Humanities (October 2003).

As defined by the Budapest Open Access Initiative (2002: 1) open access has:

> many degrees and kinds of wider and easier access to [research] literature. By "open access" to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.

Open access (OA) is achieved through what are called green and gold routes. Harnad et al. (2004: 310) defines green OA as "publishing your article in a non-OA journal but also self-archiving it in an

Table 1. Various forms of green OA copies.

Stage	Definition	Terms used
Working paper	A working paper uploaded to an e-print repository.	Preprint, authors, unsubmitted draft
Submitted manuscript	The version of the manuscript submitted to the journal.	Preprint, author's original draft
Accepted manuscript	The accepted version, after peer review but prior the final copy-editing and layout.	Postprint, personal version, accepted author manuscript, final author version.
Published article	An exact digital replicate of the published article.	Postprint, version of the record, publisher's version, published journal article.

Source: Bjork et al. (2014: 238).

OA archive." Green (self-archiving) OA is self-archiving of a published article or peer-reviewed manuscript in an online repository before, after or alongside its publication. Table 1 highlights the various forms of Green OA as defined by Bjork et al. (2014).The self-archiving of a paper in the institutional repository (IR) immediately meets three functions that are integral to traditional journals and that constitute the key areas of the scholarly communication process, i.e.

- Registration: The researcher would make a claim for his/her work.
- Awareness: By constructing the repository according to OAI standards, the institutional repository would be found by the search engines and the work made visible to peers.
- Archiving: The institution would adopt a long-term archiving plan so that its output would be available for use by posterity for centuries to come.

Open access repositories adopt these three functions to provide wider dissemination of the author's work (Prosser, 2004).

The gold route of open access is achieved by publishing in open access journals which do not charge for access to the articles but recover the cost through other financial models.

According to Suber (2012: 52–53):

> OA journals and repositories differ in their relationship to peer-review. First OA journals perform their own peer

review, just like conventional journals. Repositories generally don't perform peer-review, although they host and disseminate articles peer-reviewed elsewhere. As a result, gold and green OA differ in their support costs and in the roles they can play in the scholarly communications universe. Second, OA journals obtain the rights or permissions they need directly from the rightsholders, while repositories ask depositors to obtain the needed rights or permissions on their own. Even when the depositors are the author themselves, they may already have transferred key rights to publishers. As a result, OA journals can generate permission for reuse at will, and OA repositories generally cannot.

The proliferation of open access journals and repositories has inspired much research on both the theoretical and practical applications of this dissemination model.

Literature review

The past years haves witnessed enormous growth in the literature of open access repositories. With the awareness and importance of repositories there has been worldwide development aimed at promoting the visibility of the research outcomes of institutions. Academic libraries undergo a complete metamorphosis with the development of the concept of open access, open access journals, open access repositories and open source software. According to Prosser (2004) open access journals have greater dissemination, usage and higher citation rates compared to subscription-based journals. Authors are more willing to deposit their articles in institutional repositories and publish in open access journals for greater impact. Open access provides new opportunities for scholarly communication while maintaining the functions allowed by traditional journals, i.e. registration, certification, awareness and archiving. Ghosh and Das (2007) highlighted India's progress towards the open access movement in a paper that discussed the development of open access repositories, open access journals, metadata harvesting services, open courseware and open source software. Jacobs et al. (2008) described the support offered by JISC to university libraries in UK for the development of IRs. Cullen and Chawner (2011) investigated the awareness of open repositories among the academic staff of eight New Zealand Universities. The results show that 75% of academic staff were aware of the concept of institutional repositories. The academics who do deposit their research are motivated by both extrinsic and intrinsic incentives. Gul and Shah (2012) conducted a study to explore and evaluate the Indian open access repositories which had been set up, taking data from

OpenDOAR. The study asserted that the steady development of repositories in India was worthy of admiration among the developing nations. Bjork (2014) conducted a comprehensive study on open access subject repositories registered in DOAR and ROAR. The findings show that the emergence of a large number of institutional repositories has had an impact on subject-based repositories, subsequently overshadowing the growth of the latter. Pinfield et.al (2014) reviews the worldwide growth of open access repositories for the period 2005–2012 using OpenDOAR as a data collection tool. The data analysis shows that there is tremendous growth in the development of repositories worldwide with Europe in the lead numerically. Institutional, multidisciplinary and English language repositories dominate disciplinary and subject-based repositories. Journal articles and theses and dissertations are the major content reflected in the majority of repositories. The data also show that the large number of small size repositories prevails over the small number of large size repositories. Repositories are set up using open-source OAI compliant repository software but most of them do not adhere to the licensing standards. Mamtora et al. (2015) described the shift from a traditional mode of information dissemination through the development of open access institutional repositories. The article described the case study of three Asia-Oceania region institutions, namely Charles Darwin University (Australia), the University of Hong-Kong (China) and the University of Malaya (Malaysia). Their experiences of the development of IRs were collected through interviews. The authors collated the whole process of the development of IR and open access publishing in these universities and formulated a set of guidelines to be used by other institutions that are embarking on establishing an open access repository.

Open access initiatives in India

The chapter of open access initiatives in India started with the launch of the first open access journal *Pramana* in 1998. India's first institutional repository, Eprints@IISc was set up by TB Rajasekhar in 2002. After that many government institutions and universities took steps to develop repositories to disseminate their intellectual output to wider audiences. Some of the noteworthy institutions are the National Aerospace Laboratory, the Indian Institute of Astrophysics, the Raman Research Institute, the National Institute of Rourkela, the Indian Institute of Delhi and the Indian Institute of Management, Kozhikode. The National Knowledge Commission also recommended the adoption of open access in 2006. The National
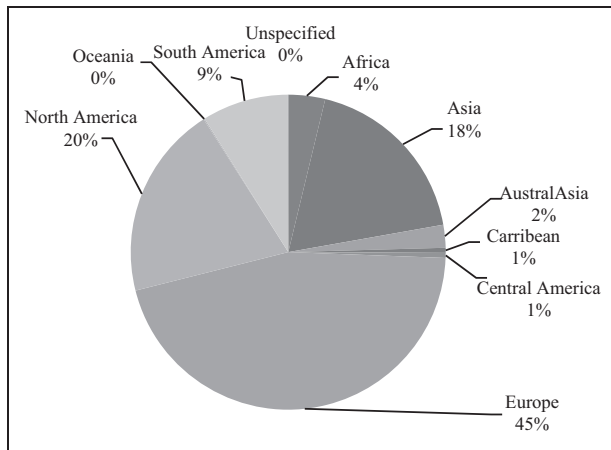
Figure 1. Repositories by continent and their contribution.

Institute of Science Communication and Information Resources (NISCAIR) made all 17 of their journals available in open access. In February of 2009 CSIR headquarters asked 37 laboratories to set up open access repositories (Subbaih and Muthu, 2011).

The Government of India, Ministry of Science and Technology, Department of Biotechnology (DBT) and Department of Science and Technology (DST) (2014) approved an open access policy that aims to provide online access to increase the impact of its research and foster a rich research culture. It is a remarkable initiative in the history of the open access movement. The policy makes it mandatory that the information and knowledge resulting from publicly funded research be made public as soon as possible, subject to Indian law and IP policies of respective funding agencies and institutions. The rapid growth of open access repositories in India in a short period of time creates a need for further study of the phenomenon in the Indian context.

Objectives of the study

The main objectives of the study are as follows:

- to find out the growth of repositories worldwide in general;
- to find out the year-wise development of institutional repositories in India;
- to identify the geographical distribution of repositories in India;
- to identify the characteristics of repositories by type, software used, size, subject content type, language-wise distribution, policy and Open Access Initiative-Protocol for Metadata Harvesting (OAI-PMH);

- to find out the web presence of Indian repositories through Ranking Web of World Repositories (RWWR).

Methodology

The data were collected from OpenDOAR on 12 January 2015. OpenDOAR (Directory of Open Access Repositories) is maintained by SHERPA services, based at the Centre for Research Communications at the University of Nottingham, United Kingdom, carried out initially in partnership with Lund University, Sweden. OpenDOAR provides a quality-assured listing of open access repositories around the world. OpenDOAR staff harvest and assign metadata to allow categorization and analysis to assist the wider use and exploitation of the resources. From the list of repositories mentioned in OpenDOAR, 'repositories of India' was selected and analyzed. According to OpenDOAR data, 68 Indian repositories are represented. The data were processed and analyzed using a Microsoft-Excel spreadsheet.

Findings

From Figure 1 it is clear that Europe is the major contributor of repositories with 1241 (45%) repositories as compared to a total count of 2728, followed by North America's 543 (20%). The Asian continent has 503 repositories and contributes an 18% share to the total repository growth around the world. South America has 242 (9%) followed by Africa with 103 (4%) and Australasia 64 (2%). Central America and the Caribbean have 14 (1%). Oceania has only three repositories. Unspecified and unknown repositories are each one in number.

Figure 2 shows growth trends of repositories on the Asian continent. Within Asia, Japan has the largest number of repositories followed by India, Taiwan, Turkey, China, Republic of Korea, and Indonesia. The minimum development is shown by countries like Afghanistan, Armenia, Azerbaijan, Bangladesh, Georgia, Hong-Kong, Iraq, Israel, Iran, Kazakhstan, Kyrgyzstan, Lebanon, Malaysia, Nepal, Pakistan, Philippines, Qatar, Saudi Arabia, Sri Lanka, Singapore, Thailand, and Vietnam. The growth of repositories in India for the period 2006–2015 is highlighted in Figure 3; from 2008–2014, repositories grew at a steady pace, leveling out in 2014 with 70 repositories. From this increase it is evident that there is an increasing awareness of repositories and their importance.
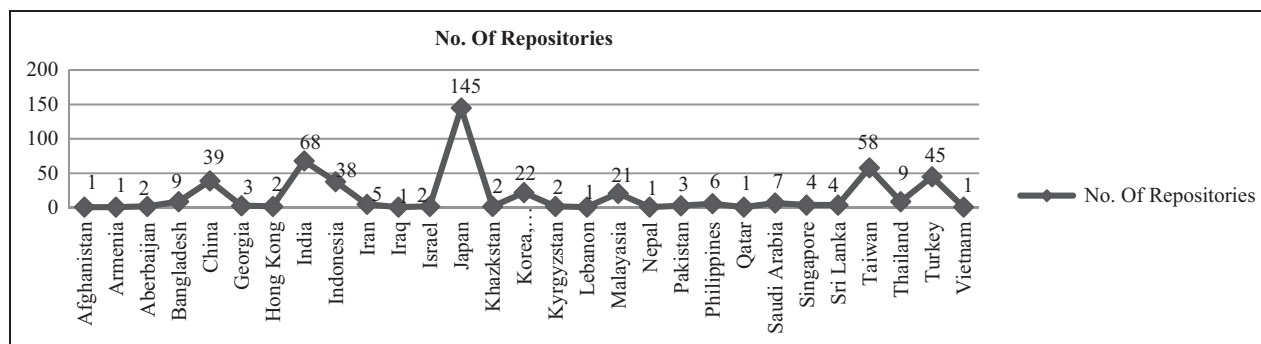
Figure 2. Repositories in the Asian continent.
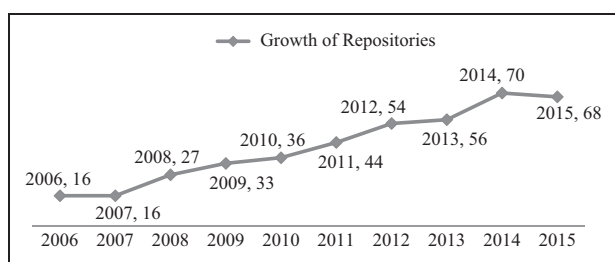
Figure 3. Year-wise growth of repositories in India.

Table 2. Repository types.

Type	No. of repositories	Percentage
Disciplinary-Operational	5	7.35
Disciplinary-Broken	1	1.47
Institutional-Operational	47	69.12
Institutional-Broken	10	14.71
Aggregating-Operational	2	2.94
Institutional-Trial	3	4.41
Total	68	100

Figure 4. Repository software types.

Table 3. Repository size.

Size	No. of repositories	Percentage
>1000	27	39.71
1000–10,000	26	38.24
10001–20,000	5	7.35
20,001–30,000	4	5.88
30,001–40,000	2	2.94
40,001–50,000	1	1.47
50,001–60,000	0	0
60,001–70,000	0	0
70,001–80,000	0	0
80,001–90,000	0	0
90,001–100,000	1	1.47
Data not specified	2	2.94
Total	68	100

Type of repositories

One of the key characteristics for repository included in the OpenDOAR website is type. The types include disciplinary, institutional or aggregating. By analyzing the repositories of the Indian sub-continent, it is found from Table 2 that institutional repositories represent 69.12% of the total. Disciplinary repositories contribute 7.35%, aggregating 2.94% and institutional trial 4.41% to the total. A full 14%, however, fail to update and come under the category of broken.

Repository software types

DSpace is the most widely used software by most of the Indian institutes as shown in Figure 4. DSpace has 62% followed by Eprints 29%. Greenstone, Architexturez, and CALIBRE have 2% while Nitya and HTML represent 1% of repositories. Only 1% of

repositories did not specify the software on which they were built.

Size of the repositories

Size of the repository is also one of the most important characteristics for consideration. The Indian Academy of Sciences has the largest number of items with 92,308 followed by the Indian Institute of Sciences

Table 4. Repositories by subject.

Subject	Frequency	Percentage
Architecture	1	1.47
Social Science General	4	5.88
Physics and Astronomy	8	11.76
Biology and Biochemistry	8	11.76
Health and Medicine	8	11.76
Agriculture	4	5.88
Food and Veterinary	4	5.88
Ecology and Environment	3	4.41
Multidisciplinary	29	42.65
Chemistry and Chemical Technology	9	13.24
Electrical and Electronic Engineering	3	4.41
Earth and Planetary Sciences	2	2.94
Science General	8	11.76
Technology General	10	14.71
Mathematics and Statistics	1	1.47
Computers and IT	4	5.88
Education	1	1.47
Business and Economics	1	1.47
Management and Planning	1	1.47
Psychology	1	1.47
Civil Engineering	2	2.94
Mechanical Engineering and Materials	4	5.88
Library and Information Science	3	4.41
Mathematics and Statistics	4	5.88
Arts and Humanities General	1	1.47
Geography and Regional Studies	1	1.47
History and Archaeology	1	1.47
Law and Politics	1	1.47

Table 5. Repositories by content.

Content	Frequency	Percentage
Journal articles	50	73.53
Conferences	30	44.12
Unpublished	22	32.35
Learning objects	15	22.06
Multimedia	16	23.52
Special	9	13.24
Theses & dissertations	34	50
Patents	03	4.41
Books	18	26.47
References	09	13.24
Unspecified	01	1.47
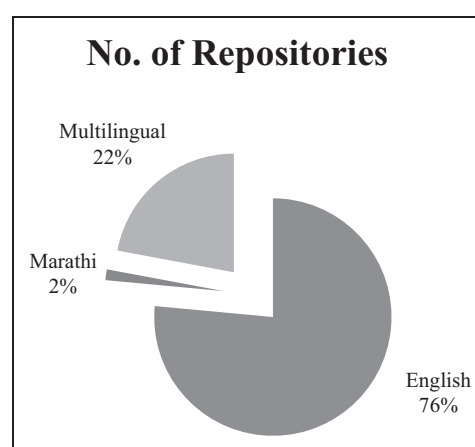
Figure 5. Languages in repositories.

Table 6. Policy.

Policy details	No. of repositories	Percentage
Specified	8	11.76
Not specified	60	88.24
Total	68	100

Table 7. OAI-PMH compliance.

OAI-PMH compliant	No. of repositories	Percentage
Compliant	36	52.94
Not compliant	32	47.06
Total	68	100

with 38,620. The West Bengal Public Library Network has 30,078 items followed by Shodhganga: a reservoir of Indian Theses, a project of INFLIBNET which has 29,057 theses and dissertations and NISCAIR, the National Online Periodical Repository which has 27,208 items. As per the data shown in Table 3, the majority of repositories (27 or 39.71%) have fewer than 1000 items available; 26 (38.24%) have 1000–10,000 items; 5 (7.35%) have 10,000–20,000 items. Only four (5.88%) repositories have 20,001–30,000 items. Two repositories (2.99%) have 30,001–40,000 items while only one (1.49%) has 40,001–50,000 and one 90,001–100,000 items. Only 2 (2.99%) repositories do not mention the number of items available.

Subject

Most of the repositories take a multidisciplinary subject approach. Table 4 shows that the multidisciplinary collections constitute a 42% share followed by Technology (14.71%) and Chemistry and Chemical Technology (13.24%).

Content type

From Table 5, it is clear that the most common content type listed in OpenDOAR is journal articles 50 (73.53%) followed by theses 34 (50%), and then

Table 8. Indian repositories' visibility in RWWR.

Ranking	World rank	Institute	Size	Visibility	Files rich	Scholar
1	238	Open access repository publications of Fellows of the Indian Academy of Sciences	490	346	196	327
2	245	Information and Library Network Centre Institutional Repository	640	338	195	355
3	354	Indian Institute of Science Bangalore Institutional Repository	679	350	473	658
4	376	Inter-University Centre for Astronomy and Astrophysics Repository	445	143	549	1308
5	396	Central Marine Fisheries Research Institute Institutional Repository	802	577	331	293
6	429	National Institute of Technology Rourkela e-Thesis	700	647	488	249
7	463	National Institute of Oceanography India Digital Repository	570	474	669	821
8	509	National Institute of Technology Rourkela Digital Archive	166	594	799	760
9	552	Indian Institute of Astrophysics Institutional Repository	503	497	672	1053
10	560	Dyuthi Digital Repository Cochin University of Science and Technology	392	645	532	841
11	567	International Crops Research institute for the Semi-Arid Tropics Open Access Repository	457	730	579	617
12	649	National Aerospace Laboratories Institutional Repository	880	827	591	655
13	694	Indian Institute of Technology Bombay Digital Repository	422	611	793	1243
14	726	Open Access Repository National Metallurgical Laboratory	964	997	536	580
15	771	Indian Institute of Science Bangalore Electronic Theses and Dissertations	540	1018	976	626
16	806	Openmed National Informatics Centre India	2074	231	1618	1022
17	817	Raman Research Institute Digital Repository	610	675	753	1407
18	979	Indian Institute of Management Kozhikode Institutional Repository	1659	733	1220	1396
19	1006	Mysore University Repository	901	1408	931	563
20	1039	Central Food Technological Research Institute Institutional Repository	888	1271	1273	792
21	1084	Repository Vikram Sarabhai Library Indian Institute of Management	639	1370	820	947
22	1160	Knowledge Repository Open Network KNOOR University of Kashmir	1099	1357	1041	1040
23	1199	National Science Digital Library Council of Scientific and Industrial Research	1428	782	1136	1675
24	1272	Indian Statistical Institute Digital library	927	527	1226	1815
25	1345	Kautilya Digital Repository Indira Gandhi Institute of Development Research	1569	1327	1478	1289
26	1568	Knowledge Repository of Indian Institute of Horticultural Research	1645	1644	1439	1430
27	1677	Indian Institute of Chemical Biology Open Archive	1364	1787	935	1608
28	1706	DSpace Gokhale Institute of Politics and Economics Repository	883	1442	1112	1815
29	1719	International Food Policy Research Institute Repository	757	1145	1698	1815
30	1809	Digital Repository of National Centre for Radio Astrophysics	1693	1529	1698	1761
31	1822	National Institute for Research in Tuberculosis NIRT Institutional Repository	1676	1917	1106	1656
32	1884	Mahatma Gandhi University Online Theses	2087	1219	1779	1815
33	1896	Indian Agricultural Research Institute Institutional Repository	2087	1275	1779	1815
34	1981	Aligarh Muslim University Social Sciences Cybrary	2056	1774	1779	1815
35	2026	Yuj Research Gateway Cochin University of Science and Technology	958	2002	1779	1815

conferences 30 (44.12%). Other content type includes unpublished 22 (32.35%), learning objects 15 (22.06%), multimedia 16 (23.52%), and books 18 (26.47%). References, special and patents constitute very meager contributions but indirectly support the scholarly communication process.

Language divisions

The majority of repositories 52 (76%) have items in English, followed by multilingual in 15 (22%) and only 1 (2%) repository has its documents in the Marathi language. From the analysis it is clear that a

majority of repositories preferred English language documents. See Figure 5.

Policy

Policy information indicated on the OpenDOAR website includes metadata policy, data policy, content policy, submission, and preservation policy. From Table 6, it is clear that majority of repositories (88.24%) do not specify repository policies. Only 8 (11.76%) specified policy rules with regards to metadata, data, content, submission, and preservation.

OAI-PMH compliant

OAI-PMH (Open Archives Initiative-Protocol for Metadata Harvesting) is the protocol used for harvesting the metadata descriptions of the records from the archives. OAI-PMH is based on client-server architecture. Harvesters request information from the repositories for the updated records and repositories provide the data in the form of Dublin core format or other XML format. OAI-PMH compliancy makes the repositories interoperable, i.e. all the repositories work together as a single entity and can be searched all at once. From Table 7, it is clear that 36 out of 68 repositories follow the OAI-PMH protocols.

Ranking of web repositories

The Ranking Web of World Repositories (RWWR) is an initiative of the Cybermetrics Lab, a research group belonging to the Consejo Superior de Investigaciones Cientificos (CSIC), the largest public research body in Spain. By analyzing the RWWR in January 2015 in the Indian context, Table 8 shows that a total of 34 repositories are ranked according to the size, visibility, files rich (files in format like Adobe Acrobat (.pdf), MS Word (doc, docx), MS Powerpoint (ppt and pptx) and postscript (.ps &.eps) extracted from Google), and Scholar. The world representation in the RWWR shows that a total of 2154 repositories are indexed. This shows that only 34 repositories indexed in OpenDOAR are included in the RWWR.

Conclusion

This paper discusses the present scenario of open access repositories in India. It is clear that the trend towards the development of open access repositories is increasing among the higher education and research institutions in India. Open access repositories serve as an effective means for dissemination of research output of the institutions to the wider community. University and research libraries all over the world harness the benefits of institutional repositories in many ways by providing scholarly communication platforms, electronic publishing services, digital preservation support, storage for learning materials and courseware, knowledge management, and a unified platform for users to access the research output in the open access domain irrespective of geographic boundaries. By creating institutional repositories the libraries are also defining their leadership role in the present ICT era (Baron and Walters: 2004). Institutional repositories have the capacity to change the paradigm of traditional library culture and help to advocate for new ways for organizing, managing and disseminating scholarly information. The Indian scenario shows that the libraries are rapidly following the path of open access repositories for providing better services to their users base. Institutional repositories benefit both the universities and research communities by providing visibility to the research profile of the university and disseminating scholarly research material easily to users.

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Author biography

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Open access and the Caribbean academic: An exploratory investigation of the adoption of this medium for publishing among science faculty of The University of the West Indies

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Abstract

The potential which open access offers to Caribbean scholarly communication in general, and science and technology specifically, is an opportunity to shift the focus from one which has been publisher driven to one which is research driven. However, for this to become a reality, both the university and faculty will need to break free of the practices surrounding traditional publishing, tenure and promotion. In an attempt to assess readiness among science faculty at The University of the West Indies to make this transition, this exploratory study analyses their perceptions, knowledge and use of open access. The results revealed significant gaps in knowledge about, and minimal engagement with open access as a publication modality among this cohort.

Keywords

Caribbean, institutional repositories, open access, science faculty, scholarly communication, The University of the West Indies

Introduction

Prior to 2000 commercial publishers were de facto necessities of the paper centric scholarly publishing landscape. Today, as a result of developments in information communication technologies (ICT), digital scholarship has become ubiquitous. In response, commercial publishers, cognizant of the potential effect this development could have on information dissemination, reengineered their companies in an effort to become market leaders in this emerging global information economy. These companies accomplished this through a series of mergers, the acquisition of smaller publishing houses and through assuming responsibility for the publishing of journals of some professional societies. Companies like Elsevier and Springer, two of the major publishers of scientific literature, led this movement to market domination. The net result of this consolidation was a rapid increase in journal

prices which outstripped the rate of inflation. Already impacted by shrinking budgets, academic libraries as the primary access providers to the scholarly literature were left to grapple with how best to continue to provide the level of access required to support academic research, scholarship and teaching.

The ensuing crisis forced the scholarly community to begin to investigate alternative modalities which could facilitate wider dissemination of their output, and this ultimately led to the emergence of the open access (OA) model. But, through their mergers and a strategy commonly referred to as 'bundling', commercial publishers continued to tighten their stranglehold on

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libraries, thereby making it harder for libraries who had subscribed to their packages to drop a title even if an OA title was assessed to be either similar or greater in value to a subscribed title. If institutions in the developed world were struggling under the pressure of these practices, it is not difficult to imagine what the impact would be on the situation in the developing world where financial resources are substantially more limited. For scholars from the English-speaking Caribbean the move to OA offers the opportunity to counter this disadvantage either through the publication of their research papers in OA journals or by self-archiving in an institutional or subject repository. In particular, OA can provide opportunities by virtue of wider availability of information for scholars to advance socioeconomic development within the region and increase the global visibility of their work and their institutions.

Background

The University of the West Indies (UWI) established in 1948 is today the premier research university serving the English-speaking Caribbean. With three physical campuses located in Jamaica, Trinidad and Barbados and one virtual campus, the university's offerings include first degrees, higher degrees and advanced diplomas. The mission of the UWI is to advance education and create knowledge through excellence in teaching, research, innovation, public service, intellectual leadership and outreach in order to support the inclusive (social, economic, political, cultural, environmental) development of the Caribbean region and beyond. Against this background, this study focuses on science academic staff inclusive of the faculties of Science and Technology, Agriculture and Engineering at the three physical campuses at Mona in Jamaica, St Augustine in Trinidad and Tobago and Cave Hill in Barbados. The objective of the study is to analyse the perception, knowledge and use of OA by the academics that make up this cohort.

Literature review

The role of reputation in academia undergirds what research and scholarship is produced, distributed and consumed and it is into this environment that OA journals and archives were catapulted. Since scientists produce this scholarship with the expectation of some 'beneficial impact' on their disciplinary area rather than financial gain, the thinking was that with the advent of digital technologies and the opportunities they afforded, there would no longer be any reason for this body of literature to be available only through a toll access modality (Harnad, 1999). However, the initial reaction from academia to the

research produced and distributed using this platform was that it lacked credibility and therefore could not add any reputational value to an author (Willinsky, 2006). With the introduction of the article processing charges (APC) model there was a further equating of OA with vanity publishing with the view being expressed that publishers could increase their acceptance rates, an approach which would generate more revenue but potentially result in a lowering of the quality of published articles (Fullard, 2007; Walters, 2007).

Advocates like Peter Suber (2009) countered these arguments by affirming that OA has never been '. . . about bypassing peer review. The OA movement focuses on OA for peer review literature. The goal is to remove access barriers, not quality filters'. Kelty (2014: 206) argued further that the continued reliance on publications and publications counts as criteria for rewarding faculty demonstrates a lack of understanding of how value and quality work within academia. According to him, OA presents opportunities for experimentation with publishing different kinds of content as well as other methods of validation for recognizing this content, but like Suber he concludes that OA is no different from traditional publishing in that its ultimate objective is also the preservation of quality and authoritativeness. However, this is where the similarity between the two modalities ends because, as Suber (2008) further advances, while there is an unquestionable relationship between publishers and scholars, the relationship in the reverse is not the same. He posits that toll access publishers cannot generate output unless there are scholars who will be authors, referees and editors whereas scholars' need of publishers is only contingent on the perceived value of the services offered. And, he concludes that scholars have the ability to provide such services for themselves at a lower cost using the digital technologies. In spite of this, however, he acknowledges that it is the dominance of the existing prestigious journals which hinders both researchers and their institutions from severing their relationships with the toll access publishers.

Studies which explore researcher engagement with OA appear to uphold Suber's conclusion and many of these consistently point to the influence of certain factors which impact publication choices. The quality of the outlet as represented by journal reputation, topic relevance, audience and impact factor have emerged as the strongest reasons for researchers not to choose the freely available potential offered by OA journals when compared to their subscription counterparts (Doty, 2013; Harley et al, 2010; Moore, 2011; Rowlands and Nicholas, 2006; Warlick and Vaughn,

2007). Citing possible reasons for this, Park and Qin (2007) advance that because the current academic reward system links journal reputation to career advancement then less weight is likely to be given to articles published in OA journals when compared to non-open access journals, a position supported by the results of the study by Mann et al. (2008). In their study of 481 researchers only one-quarter of the respondents had actually used OA as a publication option, 61% indicating that they feared it would jeopardize their chances for promotion and tenure, and 60% indicating that they felt the impact factors of this medium were insufficient. Underpinning these reputational factors is the critical role of peer review, a criterion which has been a longstanding measure for quality, and a benchmark which researchers in two separate studies unanimously ranked highly. In the early study of international researchers conducted by Rowlands and Nichols (2006) 96% of the respondents ranked peer review as either very or quite important. Five years later in a study of faculty at the University of Toronto, peer review was ranked as very important by 93% of the respondents and, specifically, fewer scientists compared with their counterparts in the humanities and social sciences ranked peer review as 'not important' (5% compared to 10% and 8% respectively) (Moore, 2011).

The current research literature still reveals that there is limited knowledge among scholars about OA (Kochken and Wical, 2013; Mischo and Schlembach, 2011) as well as limited awareness of the existence of institutional repositories at their respective institutions (Creaser, 2010; Cullen and Chawner, 2011; Kim, 2011; Yang and Li, 2015). Even when there was an awareness of the existence of a repository, reasons cited for not depositing included:

- fear of plagiarism
- concerns about the value to career advancement
- long term feasibility of the repository
- ability to publish elsewhere at a later date. (Kim, 2011; Yang and Li, 2015)

Additionally, as a result of the limited knowledge about OA the degree of uptake of OA as an alternative/additional outlet for publishing is not what was expected, given the general support by scholars for it as a modality for providing easier access to scientific literature especially for researchers in developing countries (Mann et al., 2008; Moore, 2011). A closer examination of the literature, however, reveals that limited knowledge, while a contributor, is not the only reason for this low uptake. Even when knowledge about OA is evident there does not appear to be a

positive correlation with the degree of engagement. And, underlying this reluctance are the attitudes and perceptions of many scholars, whose views range from:

- The APC model is an incentive for journals to accept papers of lesser quality in exchange for money;
- OA journals are not properly archived;
- OA journals are of lower reputation and prestige;
- Promotion and tenure committees won't give weight to a journal charging authors fees;
- OA won't lead to an improvement in the quality of articles. (Harley et al., 2010)

These perceptions, in conjunction with the academic reward system, are strong motivators which are seemingly inhibiting many authors from fully embracing OA as a publication option. As readers however, there appears to be a dichotomous relationship between their roles as authors and that of reader with several studies showing that scholars extensively use OA media when conducting their own research, an indication that the evaluative criteria for publishing does not apply to access (Mann et al., 2008). The challenge which remains for OA advocates, librarians and universities is how to expand engagement beyond access to publishing. In this regard, the findings of both the University of California and the University of Toronto studies suggest a potential role for senior faculty in achieving this goal. The University of California study results suggest that innovation is more likely to come from senior faculty than from their junior counterparts because the former are not constrained by concerns of tenure and therefore may be more willing to experiment (Harley et al., 2010). And, similarly the University of Toronto study concludes that professors and assistant professors were more likely to be more positive in their response to change associated with OA (Moore, 2011).

The research literature on OA from the developing regions of the global South, specifically Africa, Latin America and the Caribbean has centred more on how OA has changed the research landscape. However, there are some studies which speak to knowledge, attitudes and perceptions among the research communities. Fullard (2007) in her study on the South African response to OA publishing revealed a 61% awareness of OA the concept, and registered positive results of the respondents' perceptions about the benefits of OA relative to providing increased access to scholarly literature (62%), advancing scientific

knowledge (56%) and promoting engagement with global science (54%). But, like their counterparts from the global North, these respondents had reservations about the peer review process and concerns about the relationship/correlation between APC and the rate of article uptake by publishers. In Eastern Africa, a study of Tanzanian public universities conducted between 2007 and 2010 revealed a 72% awareness of OA among the 544 researchers but a significantly low uptake of this method for disseminating their research (<20%). However, there was evidence of the use of OA content for research purposes, (62%), and positive opinions on the standards of quality and academic merit of OA publications, (82%) (Dulle et al., 2010).

Four years later, Lwoga and Questier's (2014) study of Tanzanian health sciences universities also revealed similar levels of awareness (94%) on OA issues, and a satisfactory response (64%) to the use of OA for research dissemination. These high ratings for awareness, uptake and the quality of OA publications are reflective of a regional scenario which is being driven by a need to redefine the research landscape through the growth of indigenous OA journals. And this is evident from the existence of portals like AJOL which facilitates access to 464 African journals, 150 of which are OA, and SCIELO-SA which was launched with 26 South African OA titles and is expected to eventually host 180 of South Africa's 300 titles (Poynder, 2013a). Michelle Wilmers in an interview on the state of OA opines that it is the challenges caused by massification and global competition and the imperative to respond to the educational needs of the continent which have influenced the nature of OA (Poynder, 2013a). Regardless of the underlying reasons and the many challenges however, the significant research output emanating from South African scholars 'has become a beacon of hope' for advancing development in OA in Africa (Raju et al., 2012: 2).

Research studies on OA from the Latin American and Caribbean (LAC) region have also centred more on how it has changed the research landscape and less on faculty perceptions and attitudes. Delgado-Troncoso (2012) opines that in the LAC region there has been an increase in growth both qualitatively and quantitatively of referred journals over a 20-year period. This he attributes primarily to the development of OA repositories like SCIELO and RedALyC, which began as local initiatives and have since expanded to become regional OA portals. As evidence of this growth, a survey to identify institutions from the LAC region 'with the largest volume of scientific output and most exposure of their output

on the web', revealed that universities from Brazil, Mexico, Colombia, Argentina, Chile and Venezuela were leaders in this regard, with universities from Ecuador, Peru, Costa Rica and Uruguay having a limited presence (Babini, 2012). And, by 2013, the number of Latin American OA journals hosted on the SCIELO platform accounted for 1033 titles (Poynder, 2013b).

What is significant about the two aforementioned studies is the use of the phrase 'Latin America and the Caribbean' in both the titles and text of these papers, because what is being privileged in the discourse are developments that have taken place in Latin America. The Caribbean is an area represented by four geo-linguistic sub-regions – English, Spanish, French and Dutch – and, as it relates to the literature on OA from the LAC region, compared to Latin America there is a paucity of research which exists on OA. Consequently, what the research literature is highlighting is the growth of OA and portals like SCIELO in the Latin American countries of the LAC region. Alperin et al (2011) credit this success to the 'overriding objective of providing visibility to the research produced regionally', rather than to the advocacy surrounding OA. And, as the authors opine, the SCIELO initiative was not just a response to provide a portal to enable full text access. In addition, it exposed citations to Latin American publications and in so doing extended the reach to a research audience beyond the boundaries of the region. In a sub-region in which two-thirds of the investment in research and development is funded by state resources (Unesco, 2010) and in which there are over 1000 Latin American OA journal titles, there can be little doubt as to the attitudes, perceptions and knowledge about OA of scholars in the Spanish/Portuguese areas of the LAC region.

To date there have only been a limited number of studies addressing OA issues from an English-speaking Caribbean perspective. Two of these studies focus on researchers at the St Augustine campus of the UWI, one specific to engineering faculty and the other across all disciplines (Papin-Ramcharan and Dawe, 2006; Winter and Sandy, 2012). The earlier study conducted among 112 engineering researchers revealed a 22% awareness of OA but only two researchers had published in an OA journal. The later study with a 32% response rate from a population of 358 revealed that 66% were aware of the OA concept and 21% of that population had published in an OA journal. Not unlike other studies, impact factor, peer review and audience emerged as important factors influencing publication choice, ranking well over the 70 percentile as compared to journal reputation which

ranked the lowest at 7%. And some of the reasons for not choosing OA as a publication outlet included concerns about copyright, perceived low prestige of OA journals, inability to identify OA journals in which to publish, lack of knowledge on OA and APC.

The six-year interval between the two studies conducted at the St Augustine campus has not shown there to be any substantive progress made in terms of a real transitioning to an OA modality. In its 2012–2017 strategic plan the UWI articulated a vision of a 'university acknowledged by its peers in the global higher education community as a leading contributor in research, teaching and learning and knowledge creation on Caribbean, small states and developing country issues' (UWI, 2013: 21). Many of these issues are impacted by the ability of Caribbean states to adequately address social and economic problems and many have their foundation in the need to advance research in science and technology. OA as a means of increasing access to a wider body of research and enhancing exposure to Caribbean research offers scientists an ideal platform to 'jumpstart' the university's journey towards becoming recognized as a centre of excellence.

Research problems

The research problems which will be addressed in this paper are:

1. To assess the level of usage of OA by the science academic staff for the publication of research findings;
2. To identify the perceived benefits of OA by the science academic staff;
3. To assess the level of importance given to peer review in the scholarly publishing process by the science academic staff;
4. To identify the critical factors in the decision of science academic staff of where to publish.

Analytical approach and data

To investigate the use and perception of OA by the science academic staff a questionnaire was developed and pretested in January 2013. The questionnaire sought to identify the respondents that used OA to publish their research findings, the factors critical in the decision of where to publish, the benefits of using OA and some demographics of the respondents. The respondents were also asked to rank the importance of peer review to the scholarly publishing process on a scale of 1 to 5, where 1 was not important and 5 extremely important.

A convenience sample was drawn from the science faculty email directories of the three campuses. A total of 250 persons were non-randomly selected from the three campuses. Questionnaires were administered to prospective respondents via the Internet using Survey Monkey. A total of 72 usable questionnaires were obtained when the survey was closed in December 2013 giving a response rate of 29%. The relevant data was analysed using SPSS version 20.

Results

The majority of the respondents (81%) were from the Faculty of Science and Technology. For purposes of this study the faculty was placed into two broad categories:

1. Junior academic staff – assistant lecturers and lecturers.
2. Senior academic staff – senior lecturers and professors.

The junior academic staff category accounted for 63% of the respondents. With the majority of the sample belonging to this category the number of respondents who had 10 or fewer years of service not unexpectedly were also in the majority, accounting for the same 63%.

As a publication choice OA was not used by a large percentage of the respondents to disseminate their research findings, with only 25% of the respondents indicating that they had published in an OA journal (Figure 1).

Based on the following statements: 'articles easier to obtain, libraries have more money to spend, authors will publish more and quality of articles will improve' the respondents were asked to provide their opinions on the benefits of OA. The primary benefit of OA identified by the respondents (Table 1) was that articles will be easier to obtain. None of the other benefits was identified by 50% of the respondents, which suggests that they might not be perceived as a benefit of OA.

Using a Likert scale of 1 to 5 where 1 was not important and 5 extremely important, respondents were asked to rank the importance of peer review to scholarly publishing (Figure 2). None of the respondents selected the 'of little importance' category. Further, 89% of the respondents considered peer review very important and extremely important.

Table 2 illustrates the percentage responses from a list of factors which were the most important in the respondents' decision on where to publish. Only two factors, reputation and topic were selected by more than 50% of the respondents, with reputation of the
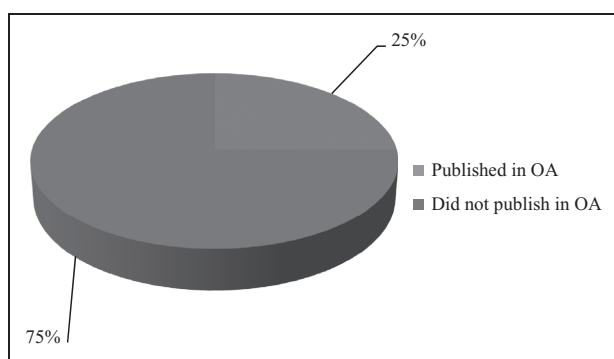
Figure 1. Usage of OA to publish by the respondents.

Table 1. Respondents' views of the benefits of OA.

Benefits of OA	Percentage of respondents
Articles easier to obtain	94
Libraries have more money to spend	39
Authors will publish more often	28
Quality of articles will improve	8
Other	4
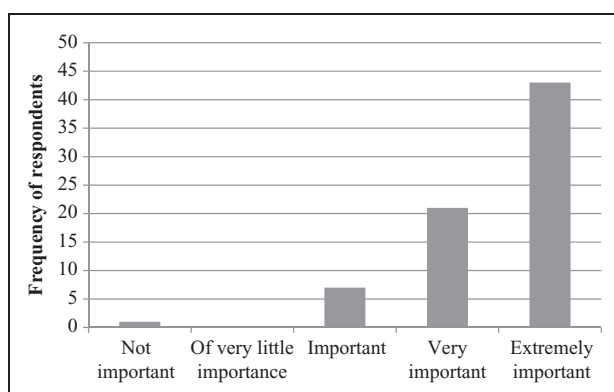
Figure 2. Frequency rankings of importance of peer review to the scholarly publishing process.

Table 2. Factors influencing decisions of where to publish.

Factors	Percentage of respondents
Reputation of journal	75
Topic	68
Impact factor	49
Speed of publication	43
Target audience	42
Visibility	29
On-line manuscript submission	24
Free access	15
Print and electronic versions	13
Permission to post post-print	3
Permission to retain copyright	3
Permission to post pre-print	0
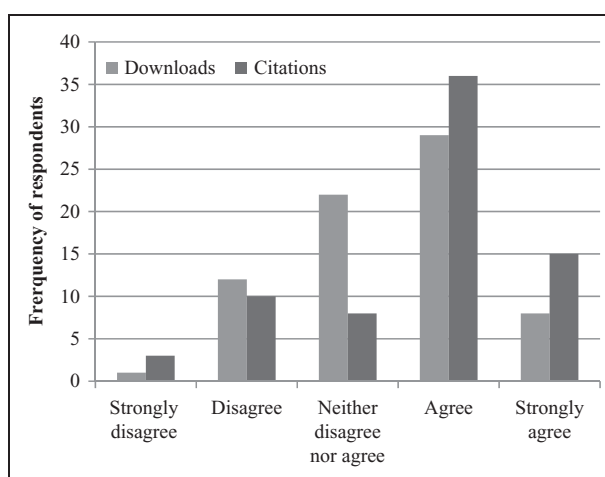
Figure 3. Ranking for downloads and citations as a good measure of the usefulness to research.

journal being ranked as important by 75% of the respondents. All of the pertinent OA factors – permission to post pre-print, post-print and retain copyright – received the lowest ranking, 0%, 3% and 3% respectively.

The investigation into article metrics used a five point Likert Scale, where 1 was strongly disagree, and 5 strongly agree, to garner perceptions about downloads and citations as indicators of usefulness to research. Figure 3 provides a combined chart of the results. In relation to downloads, a large percentage of the respondents were unsure (30.6%), while 17% disagreed and 1% strongly disagreed that they were a good measure of usefulness in the research process. In total, 49% of the respondents were not

in the agreement categories, while 51% thought that downloads were a good measure of the usefulness to research. As was expected, a larger proportion of the respondents were in the agreement categories (71%), that is, agree and strongly agree, for citations compared to downloads. These results provide an interesting insight into the respondents' perceived credibility of the newer metric of article downloads for usefulness when juxtaposed to the traditional metric of article citations.

While traditional metrics ranked highest in decisions among the respondents of where to publish, the principal mechanisms used for discovery when conducting research were OA journals and Google Scholar, each receiving a 97% rating (Table 3). General search engines, electronic databases and following up cited references accounted for 96%, 94% and 93% respectively.

To determine the respondents' knowledge of OA, they were asked to rank their knowledge of institutional

Table 3. Percentage of respondents utilizing different modes of information discovery when conducting research.

Modes of information discovery	Percentage of respondents utilizing
Open access journals	97
Google Scholar	97
General search engines	96
Electronic databases available in library	94
Following up references	93
Publishers' websites	93
Subject specific search engines	92
Electronic table of contents	92
Physical library	92
Recommendations from colleagues	90
Personal subscriptions	89

repositories. Figure 4 displays the respondents' rankings on a scale from 1 to 5, where 1 is none at all and 5 is very knowledgeable. The results revealed that 78% of the respondents had very little or no knowledge of institutional repositories.

Similarly, fewer than half of the respondents, 46% (Table 4) acknowledged that they were aware of the university's institutional repository, UWISpace, and only 4% had actually deposited in the repository. In addition respondents were asked about their awareness of the option to negotiate author rights, and whether or not they had ever done so. Of the 31% who indicated their awareness of this option, only 6% had done so.

Discussion

A limitation of this study is the low response rate obtained, which does not permit generalizations. Also noticeable is the poor response representation by some science faculties, Engineering 11% and Agriculture 8% compared to Science and Technology 81%. In the two previous studies on the UWI the response rates were also very low, suggesting that responding to questionnaires is not high on the agenda of academic staff and this is a major challenge for Caribbean researchers undertaking evidenced-based research. The results of this study do not reveal any significant increase (4%) in the use of OA among UWI academics since the Winter and Sandy study (2012) and similarly, the 25% result obtained for usage was significantly below that of a similar study among biomedical researchers where 79% of the respondents had published in an OA journal (Warlick and Vaughn, 2007). In spite of this, however, the study does offer some insight into the perception,

knowledge and use of OA among the specialized population of science academics. And, given the potential of science and technology for development in the region, the importance of having a sense of the practice of this sub-population as a precursor to transitioning into an OA modality cannot be underestimated.

In order for there to have been evidence of an OA culture, factors such as free access, permission to retain copyright and to post post-print should have received a higher ranking by the respondents. Instead, the low ranking accorded these factors juxtaposed to the 97% who use OA media for discovery in support of research gives credence to the contention made in other studies that while behaviours reflect an increasing use of OA literature, attitudes to the use of OA for publishing research have not undergone a similar change. The high ranking of factors such as journal reputation, (75%), reinforces the continued privileging of the traditional metrics as benchmarks for achieving and maintaining academic reputation, a situation which is still very evident from the behaviour of scientific researchers from the global North. In this regard, the results of this study align with those of Warlick and Vaughn (2007) where biomedical researchers identified impact factor as a primary element influencing decisions of where to publish, the authors concluding that OA journals will need to establish similar levels of credibility in order to be considered viable publication options. And, in another study of physical scientists over half of the respondents had published more than 10 articles over a five-year period in traditional peer reviewed journals (Moore, 2011). For the UWI a recent directive from the university Appointments Committee (UWI Office of University Registrar, 2013) advising that applications for promotion to the level of professor must include impact factors for journals and citation indices represents a further solidification of this culture in the psyche of faculty. And that decision has the potential to place the UWI on the periphery of the scientific research landscape as well as impact efforts to create the kind of environment necessary for fostering the development of OA within the academy.

Christopher Kelty (2014: 215) argues that OA 'is best seen not as a solution to a problem' but rather as a means of reshaping the scholarly environment, an approach which has contributed to OA development in countries like India, where the existence of a number of institutional repositories and indigenous journals, particularly in the sciences, has enabled that country to increase its scientific research output (Ghosh and Das, 2007). While the evidence from other developing regions like Latin America and Africa (Alperin, 2011; Babini, 2012; Raju et al.,
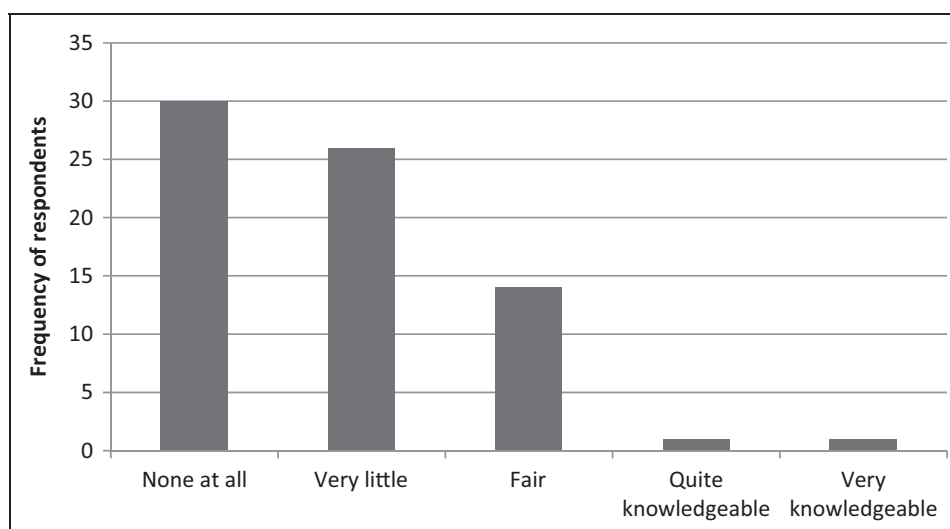
Figure 4. Rankings of knowledge of institutional repositories by the number of respondents.

Table 4. Knowledge and utilization of UWISpace.

UWISpace	Percentage of respondents
Have heard about UWISpace	46
Have deposited an article in UWI Space	4

2012) also demonstrates that this is possible, from the English-speaking Caribbean perspective the lack of awareness on such critical aspects of OA as the ability to negotiate author rights as evidenced by the 69% response is testimony to the fact that the sub-region is still at the 'solution to a problem' phase. It is therefore not surprising that the attention to access among the UWI faculty appears to be one sided, highlighting the dichotomous relationship between their roles as authors and readers. As readers, the belief that one of the major benefits of OA is its ability to provide easier access to articles is very evident in practice, as indicated by 94% of the respondents, in the choice of resources for discovering material to support their own research. And while some of the research findings from the developed world reflects a similar relationship among researchers (Mann et al., 2008) the underlying reason(s) are not the same. For the English-speaking Caribbean what these results underscore is the importance of the interrelationship between costs and access, a situation that will continue to prevail as long as OA continues to be viewed against an economic background of spiraling journal costs and shrinking financial resources.

In spite of the fact that the university's institutional repository (UWISpace), has been in operation since 2008, only 46% of the respondents indicated they were aware of its existence and only 4% had

deposited research output. The latter result mirrors that of a recent study conducted at Texas A&M university where deposits were 7% and the level of awareness of the existence of the institution's repository was 27% despite the fact that it had been established since 2004 (Yang and Li, 2015). But while there may be some correlation between unawareness of the institutional repository's existence and the low level of deposits at Texas A&M, at the UWI, lack of knowledge about the concept, 78% indicating very little or no knowledge, may be also a reason for the low participation, despite the fact that just under half of the respondents knew about the existence of UWISpace. Creaser (2010) posits that in general academics possess limited knowledge on the concept institutional repository, but with the recognition that science and technology are critical drivers for advancing all aspects of development in developing countries, this evidence highlights the urgent need for education on all aspects of OA. And from a strategic perspective the success of the OA repository SCIELO provides an opportunity for the UWI to leverage its achievements to help foster greater understanding about institutional repositories and OA among UWI stakeholders. SCIELO's achievements are testimony to the fact that within the developing regions of the global South, OA has the potential to impact both the presence and quality of the research output generated by researchers from within this region, as well as facilitate South to South flows of information. Further, the fact that SCIELO has been able to achieve this without the need to adopt the APC model will be a factor that has the greatest appeal to UWI academics who often cite APC as one of the mitigating factors affecting their decision to publish OA.

Having been given the mandate to formulate an institutional OA policy, UWI librarians will be tasked to initiate and lead the discussion on such issues as modifying tenure and promotion practices, faculty copyrights, funding for OA publishing, new forms of publications, publishing contracts negotiation and the creation of a suite of local OA titles. And this will require the recruitment of advocates for OA. One of the suggestions, based on the findings of the University of California study was that senior faculty may be more open to innovation because they were already on tenure and therefore under less pressure compared to their junior colleagues (Harley et al., 2010). Unfortunately, the results of this survey do not appear to support such a probability as only 15% of this cohort had published in an OA journal. In contrast, 41% of their junior counterparts had published in an OA journal making them a more likely prospect for fulfilling the role of advocacy. However, while an advocacy programme is an imperative for building OA awareness it is also important for creating an awareness of the interrelated issues which underpin access to information for the English-speaking Caribbean scholar, student and the public. A critical component of that awareness has to be dialogue on information relevance especially as it impacts teaching and research. Access to the research findings of scholars from the global North do not always mirror English-speaking Caribbean realities and the continued privileging of the toll access international journals by UWI scholars potentially excludes a large portion of the university's own student population from having the ability to interrogate relevant scholarship.

Conclusion

In spite of the fact that it is now two decades since the emergence of the first OA journal, that concerns about quality have lessened, that many OA titles are now being indexed by major citation indexes like Web of Science and Scopus, OA in the English-speaking Caribbean is still at infancy level. Irrespective of the similarities in findings on some of the issues between UWI researchers and some of their counterparts from the global North, there is clearly a difference in the infrastructure which exists to support research and development in the global North as compared to the global South. The existence of two OA models, one in the global North where the gold APC approach dominates, the other in the global South where, at least within Latin America the approach is one of free to publish free to access underscores a financial reality that transcends any similarities in attitudes, perceptions and knowledge

on OA between the scholars from each of these geographical regions.

The global South's free to publish free to access purer form of OA did not develop solely because of the serials crisis. Equally important was the need to raise the visibility of research from within the region, a need which grew out of the perception among developing country scholars that their research was considered of lesser quality and value by the commercial publishers of the global North. In Latin America these were the circumstances that led to the creation of a platform to index the content of local journals which later evolved into a number of successful OA platforms which functioned as repositories and publishing portals. But what are the factor(s) which have enabled OA in Latin American to gain traction but that have eluded the English-speaking Caribbean? OA could not have gained traction in Latin America without the presence of a body of literature which could be made available, an outcome that was possible as a result of Latin America's response to the expansion of ICT and a strategic focus among universities supported by national policies to make research and entrepreneurship central to the academy. That strategic focus also resulted in an increase in post-graduate degrees being granted, the result of which was the development of a cadre of researchers who were capable of growing the body of research literature (Alperin et al, 2011). These are critical drivers absent from the English-speaking Caribbean landscape. The UWI is also a research-focused institution as are other universities within this sub-region, but in addition to an enabling infrastructure, Latin American universities also outnumber those in the sub-region. Consequently the English-speaking Caribbean cannot match Latin America's capacity for research output, a situation which provided their catalyst for finding a solution to the problem of access.

The inability of the English-speaking Caribbean to achieve a critical mass is also a consequence of the unavailability of adequate pubic funding at the national level, the absence of a regional funding mechanism for science and technology and the non-existence of national and regional systems based on private/public sector collaboration (Carrington et al., 2012). It is the convergence of these factors which has enabled the status quo to prevail, and which, if allowed to remain the dominant modality, will result in the exclusion of the English-speaking Caribbean from the mainstream of scientific research of the global South. This will impact this sub-region's ability to be part of the scientific community that contributes to providing solutions to the many developmental problems facing the wider region. The

UWI, as the primary regional research university in the English-speaking Caribbean, must therefore seek to extend its engagement beyond publishing in the international arena and aggressively focus its efforts on the creation of a sustainable indigenous OA journal regime in tandem with support for OA publishing among its researchers. This is critical in order to facilitate greater access to, and increase output of, scholarship from the English-speaking Caribbean. This study represents an important input for understanding the nature and extent of the challenges the UWI will have to address as it seeks to formulate the institutional OA policy required to support the transformation.

Declaration of Conflicting Interests

Funding

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Faculty members' perceptions and use of open access journals: Bangladesh perspective

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Abstract

Open access is a humanitarian movement to ensure equal access to knowledge for each and every member of our society. It aims to reduce the access and knowledge divide and allow researchers from around the world to contribute to enriching human knowledge. Using online surveys, this study attempts to understand Bangladeshi faculty members' awareness, perceptions, and use of open access journals. It also explores the motivational factors that influence the faculty members to choose open access journals for publication. The study briefly discusses some issues of predatory open access journals in the context of the open access movement. Finally, the paper suggests that libraries work as centres for open access publications and help faculty members and researchers choose the right journals for their research.

Introduction

Open access (OA) is a humanitarian movement that aims to ensure equal access to knowledge for each and every member of our society (Chan et al., 2005; Poynder, 2015). It attempts to reduce the access and knowledge divide (Ahemd, 2007; Eloff et al., 2013; Fernandez, 2006; Ghosh and Das, 2007; Herb, 2010). In addition, open access has the potential to allow researchers from around the world to contribute to enriching human knowledge (Chan et al., 2005; Eloff et al., 2013). Although it is possible to list hundreds of the potential benefits of open access to society, there are debates about the quality of OA publications and the danger of making erroneous scientific publications 'open access'. For example, the emergence of predatory journal publishers that charge authors for their publication without giving quality peer-review, copy-editing, and indexing services is one phenomenon

that clouds the reputation of OA publications (Beall, 2012, 2015; Berger and Cirasella, 2015; Butler, 2013; and Vincent and Wickham, 2013). Despite concerns regarding OA publishing, the number of these journals and their global distributions continues to increase.[1]

As of 4 January 2016, there were 10,967 OA journals registered in the Directory of Open Access Journals (DOAJ), representing 136 countries. Of 10,755 journals, 31 OA journals from Bangladesh were registered at DOAJ. The International Network for the Availability of Scientific Publications (INASP), an

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international development charity registered in the UK, brought journals published from Bangladesh, Latin America, Mongolia, Nepal, Sri Lanka, Africa, Philippines and Vietnam online. The majority of these journals were print-only. As of 4 January 2016, there were 136 journals registered in the Bangladesh Journals Online (BanglaJOL) platform of INASP, offering access to 15,541 full-text articles.[2] There are other OA journals that are not registered under DOAJ or the Journals Online project of INASP, but operate under different publishing houses.

This study attempts to understand the faculty members' awareness, perceptions, and use of OAjournals. It also explores the motivational factors that influence faculty members to choose to publish in OA journals. The study briefly discusses some issues of predatory OA journals as a factor within the OA movement. Finally, it suggests that libraries work as centres for OA publications and help faculty members and researchers choose the right journals for their research.

Problem statement

There have been a number of studies, such as Antelmen, 2004; Björk et al., 2009; Harnad and Brody, 2004; Willinsky, 2003, that focus on open access, open access journals, the open access movement, and other related areas of open access. However, there are comparatively few studies that report the perceptions of faculty members about OA journals, their usage and motivational factors for considering OA journals as a platform for their research. Faculty members are the major contributors to academic journals. There have been several critiques (such as Bartholomew, 2014; Bohannon, 2013; Rice, 2013) about the quality of the predatory OA journals and their peer-review process. Many universities including universities in developing countries do not yet accept articles published solely in OA journals. Lack of peer review, questions of quality of the editorial board, and recognition of journals among university administrators are some of the concerns about OA journals. Moreover, due to the voluminous rise of predatory OA journals, it is hard for many authors across the globe to identify quality OA journals in their field of research.

In Bangladesh, among some senior academics, OA journals have not yet been accepted as an alternative to traditional print journals. Moreover, senior administrators (e.g. pro-vice chancellors) and policy makers in public universities in Bangladesh do not always encourage OA journal articles as an alternative to print journal articles for faculty promotion and tenure. Faculty promotion and tenure in Bangladesh are handled by respective universities. Therefore, faculty promotion and tenure committees decide which journals to accept. There is no centrally coordinated database of recognized academic journals in Bangladesh. Hence, a journal not well accepted for promotion and tenure at the University of Dhaka may be accepted in other universities in Bangladesh and vice versa. However, an initiative has been taken by the current university administration to determine the recognized, quality journals in different disciplines. A committee, consisting of deans of different faculties, has been formed by the current administration at the University of Dhaka to list recognized online journals. This effort has been well acclaimed by faculty members as they believe that this would help identify predatory journals and faculty members would face fewer barriers to publishing articles in OA journals recognized by the university administration.

A random analysis of annual reports of the University of Dhaka (2012, 2013, 2015b) reveals that very few faculty members have published their research with pure OA journals. A large number of the faculty members at University of Dhaka published their research in journals published by various faculties and departments of the University of Dhaka and other public (e.g. Jahangirnagar University) and private (e.g. State University of Bangladesh) universities as well as various research and development organizations, such as the Asiatic Society of Bangladesh. A number of journals published by the University of Dhaka, such as the *Dhaka University Journal of Science* and the *Dhaka University Journal of Linguistics*, as well as those published by other universities and research organizations are made open access by virtue of the project BanglaJOL by INASP. Senior administrators and policy makers are not sceptical of the quality of papers in the journals published by various universities and research organizations in Bangladesh. However, they are very sceptical about the quality of the papers published solely in OA journals (unless it is published by a renowned publisher like Elsevier, Sage, etc.). Research is needed to know the attitudes to OA journals among the senior administrators and policy makers in various public and private universities in Bangladesh. A large portion of research in Bangladesh is contributed by the faculty members of the University of Dhaka. They also contribute greatly to the international research arena. No effort so far has been made to understand the perceptions, understandings, and motivations of faculty members about OA journals. What perceptions do they hold about OA journals? Do faculty use OA journal articles in teaching and in their research? Do they prefer print-only journals or OA journals? What

are the motivational factors for publishing articles in OA journals? Are they aware of the author-pay model? Are they aware of predatory OA journals? These are some of the questions this paper attempts to address.

Literature review

Considering the huge volume of research on OA and its related areas, the literature review of this study is intentionally confined to literature that discusses perceptions and use of OA journals mostly by faculty members and authors.

A study by Swan and Brown (2004) examines why authors choose OA venues for publication. Free access (92%), speed (87%), and wide audience (71%) were reported as the most important reasons for choosing open access. Anderson (2004) thinks that author charges, a relative lack of prestige, and the required abdication of copyright are three characteristics of many currently emerging OA models that may pose significant barriers to author acceptance. He suggests that these issues have to be addressed if OA providers wish to be competitive with non-OA providers.

Nicholas et al. (2005) report the views and experiences of nearly 4000 senior authors in regard to OA publishing. The biggest finding of their study was 'the general ignorance of OA publishing on the part of relatively senior scholarly authors' (p. 515). This finding highlights the importance of the knowledge gap between authors and OA publishers. On the other hand, Masango (2006) taking a South African perspective, reports the reasons for the possible failure of OA sources and proposes measures that should be implemented to allow these sources to excel in the digital environment. In their study, Schroter and Tite (2006) assess journal authors' current knowledge and perceptions of OA and author-pays publishing. Half (54%) of the respondents thought OA had 'no impact' or had 'low priority' in their submission decisions. Two-thirds of the respondents indicated that they would prefer to submit articles to non-OA subscription journals than author-pay OA journals.

Fullard (2007) assesses the current awareness, concerns, and depth of support for OA amongst local researchers, research managers, and policy makers in South Africa. The author concludes that there is little prospect that academics would choose to publish within OA journals. Warlick and Vaughan (2007) interviewed 14 authors of OA journals mainly to identify the factors influencing OA publications and their attitudes towards OA publishing models. The authors report that impact factors, target audience, and prestige were the major factors influencing decisions for choosing journals among the participants of the study. Almost all the respondents possessed positive attitudes towards OA publishing. They also report that OA status of a journal influenced participants' decision to publish. Cost and lack of recognition of their OA publication were mentioned by some of the respondents as a disincentive to publish with OA journals.

A study by Gul et al. (2010) identifies the experience, attitudes, and perceptions about the OA movement of the researchers at the University of Kashmir. The authors report that about 84% of their respondents used OA journals and the majority of them learned about these journals from their colleagues. The majority of the respondents (about 55%) considered OA journals as useful to publish their work quickly, increase productivity, and increase the citation of a paper. Dulle (2010) investigates the factors affecting the adoption of OA in research activities within Tanzanian public universities. The study reports that majority of the policy makers (90.5%) and researchers (72.1%) were aware of open access. Poor research conditions and researchers' low Internet self-efficacy, such as inadequate information search and online publishing skills, were cited as the main hindrances to researchers using OA in scholarly communication as reported in Dulle's study. The author concludes that researchers' and policy makers' general perceptions about OA were very positive.

A study by Dallmeier-Tiessen et al. (2011) reports that content being made freely available, quality/prestige, impact factor, no fees, speed of publishing, and publishers' reputations were factors considered by the respondents in their study before choosing OA journals, while Davis and Walters (2011) highlight that authors considered the journal reputation and the absence of publication charges when deciding where to submit their work. For scientists, free access was not a significant factor in their submission decisions.

Frass et al.'s (2013) study on Taylor Francis and Routledge journals' authors, report the views of the authors regarding the author-pay model and related OA journal issues. Of their respondents 52% indicated that they would submit papers to the best journals in their field even if they charged while 39% of respondent indicated that they would choose a journal which did not charge for authors. A similar study by the same authors in 2014 indicates that 41% of their respondents thought that 'many research outputs will still be published in subscription journals, where there is no need to pay publication charge' (Frass et al., 2014: 20).

A study by Lwoga (2013) investigates the faculty's awareness, attitudes, and use of open scholarly communication in Tanzanian health sciences universities. The study reports that the majority of respondents were aware of OA issues. Major barriers to OA usage as reported by Lwoga (2013) were related to ICT infrastructure, awareness, skills, journal author-pay model, and copyright and plagiarism concerns. On the other hand, a study by Hahn and Wyatt (2014) examines the business faculty's attitudes toward OA journals and institutional repositories. The authors report a lack of awareness about OA journals among the participants in the study. The authors contend that OA journals have not been well accepted in the business field due to lack of renowned publishers and qualified editorial boards. Many participants in their study possessed negative attitudes toward OA journals. Rodriguez (2014) examines the awareness and perceptions of OA publishing. The majority of the respondents in Rodriguez's (2014) study were familiar with OA publishing. However, when asked a question to indicate the issues impeding adoption of OA journals, the majority of the respondents indicated credibility of OA journals as the main issue.

A recent study by Kaba and Said (2015) examines and describes Al Ain University of Science and Technology (AAU) faculty members' awareness, use, and perceptions of OA resources. The study reports faculty members' positive perceptions and frequent use of OA resources.

So far no study has been conducted in Bangladesh that examines the faculty members' perceptions and use of OA journals. There are a few studies, e.g. Chowdhury et al. (2011) and Shoeb (2010) that discuss institutional repositories in Bangladesh. A study by Islam and Akter (2013) examines the OA institutional repositories and OA initiatives in developing countries with a special focus on Bangladesh. The authors highlight the importance of the creation of OA institutional repositories in disseminating the findings of the research conducted in Bangladesh. A recent study by Uddin et al. (2014) emphasizes the importance of libraries in embracing OA policies, building OA repositories to disseminate research outcomes, and creating awareness about the OA movement. The authors also highlight the problems that impede the growth of OA initiatives, in particular OA journals and OA repositories in Bangladesh. A number of studies, such as Chan et al., 2005, 2011; Das, 2008; Fernandez, 2006; Ghosh and Das, 2007; Suber and Arunachalam, 2005; Sutradhar, 2006, discuss the OA initiatives, institutional repositories, OA journals, and related areas in India.[3]

A lack of literature on OA journals' perceptions and usage among faculty members across the globe is evident in the literature review. Quite a few studies mentioned here are a decade old and do not necessarily reflect the current awareness, perceptions, and understanding of OA journals among faculty members. Research is needed to understand the perceptions and usage of OA journals among academics working in different universities across the globe. This study is an attempt to fill a gap in OA journal research.

Methodology

This study mainly employed a quantitative methodology. The main purpose of conducting online surveys was to gather more responses with a minimum of time, money, and labour. The authors considered 200 samples sufficient for understanding the awareness, perceptions, and use of the OA journals at the University of Dhaka. A structured online questionnaire, with one open box for comments and suggestions on any aspects of OA journals, was prepared and hosted using Google Drive. It is to be noted here that the study asked questions related to gold OA journals. Therefore, the perceptions of the faculty members are solely related to gold OA journals, not to blue, yellow or white.

As it is not feasible for individual researchers to conduct this type of study in different public and private universities in Bangladesh due to the limitation of funds and logistics support, the oldest and largest public university in Bangladesh was selected for this study. It is worth mentioning that a substantial number of faculty members (part-time) of the private universities and the majority of the heads of the various departments and institutes of private universities in Bangladesh are from the University of Dhaka. Heads of many private universities are either retired faculty members of the University of Dhaka or alumni of the University of Dhaka.

The University of Dhaka was established in 1921. The University started its activities with three faculties, 12 departments, 60 teachers, 877 students and three dormitories for the students (University of Dhaka, 2015a). At present, the University consists of 13 faculties, 77 departments, 11 institutes, 20 residential halls, three hostels and more than 30 research centres. The number of students and teachers has risen to about 37,064 and 1885 respectively (University of Dhaka, 2015c).

The authors gathered about 1500 email addresses of faculty members from the Directory of the University of Dhaka for 2014. Participation in this survey

was anonymous and the participants were allowed to quit the survey at any time. Moreover, participants were allowed to leave any question unanswered. Information about the nature of the study and expected outcome was given to all the respondents on email and appended to the online questionnaire. To demystify the concept of OA journals, the definition of OA journals provided by the Directory of Open Access Journals (DOAJ) and a list of electronic resources subscribed to by the University of Dhaka were provided at the beginning of the online questionnaire.

On 18 July 2014 a common email with online questionnaire link was sent to all the faculty members listed in the directory with email addresses. About 350 emails bounced. Therefore, it is assumed that about 1150 faculty members received the email. At the time of the study, about 300 faculty members were abroad pursuing their higher studies, and may not have participated in this study due to the nature of the questions. Three reminders were sent to the same email addresses. The authors received a total of 208 responses for this study. Of them, 201 responses were completed. The remaining seven responses were blank submissions.

Two weeks after the submission deadline, the authors closed the online questionnaire submission system. The raw data file on Google Drive was downloaded and processed using SPSS 22.

This study is not without limitations. First, the study was not able to reach the majority of the faculty members at the University of Dhaka. Second, the study did not include faculty members from other universities. Third, as the study considered only the faculty members with email addresses listed in the directory, those senior faculty members who do not use the Internet and some faculty members whose email addresses were not listed in the directory, were automatically excluded from the sample of this study. Moreover, the study does not consider the perceptions of faculty members who are not regular users of the Internet. Despite its limitations, this study contributes to a better understanding of the perceptions and use of OA journals by faculty members.

Findings of the study

Background of the respondents

The study received responses from all the faculties at the University of Dhaka. Of 77 departments, faculty members from 59 departments responded, and out of 11 institutes, faculty members from six institutes responded to this survey. Table 1 represents the backgrounds of the respondents.

Table 1. Backgrounds of the respondents.

Characteristics	Number of respondents (*n*)	%
Designation		
Lecturer	51	25.4
Assistant Professor	62	30.8
Associate Professor	28	13.9
Professor	60	29.9
Total	201	100.0

Table 2. Usage of online journals.

Usage of Online Journals		
Subscription-based journals only	15	7.5
Open access journals only	42	21.0
Both	133	66.5
No response	11	5.0
Total	201	100.0

As evident in Table 1, 51 (25.4%) lecturers, 62 (30.8%) assistant professors, 28 (13.9%) associate professors, and 60 (29.9%) professors from the University of Dhaka responded to this study.

Usage of online journals

It is important to know the usage of online journals, i.e. subscription-based and OA journals among the faculty members at the University of Dhaka. Are they aware of subscription-based online journals? Do they use OA journals? Answers to these questions are illustrated in Table 2.

As evident in Table 2, the majority of the faculty members who participated in this study, i.e. 133 (66.5%), use both subscription-based journals and OA journals for their research and lecture preparation. Of 201 respondents, 42 (21%) indicated that they only used OA journals and 15 (7.5%) respondents used subscription-based journals only. The reasons why some faculty members only used OA journals might be due to lack of awareness of the university subscribed resources and the complexity of the access mechanism of subscription-based resources. Overall, 5% of faculty members did not respond to this part of the questionnaire.

The result of the usage of online journals indicates a positive trend among the faculty members of the University of Dhaka. Nearly 70% of the faculty members used both subscription-based and OA journals for their research and teaching, which indicates trust of OA publications and high use of electronic resources among them. However, 21% of faculty members only used OA journals, raising a question about whether
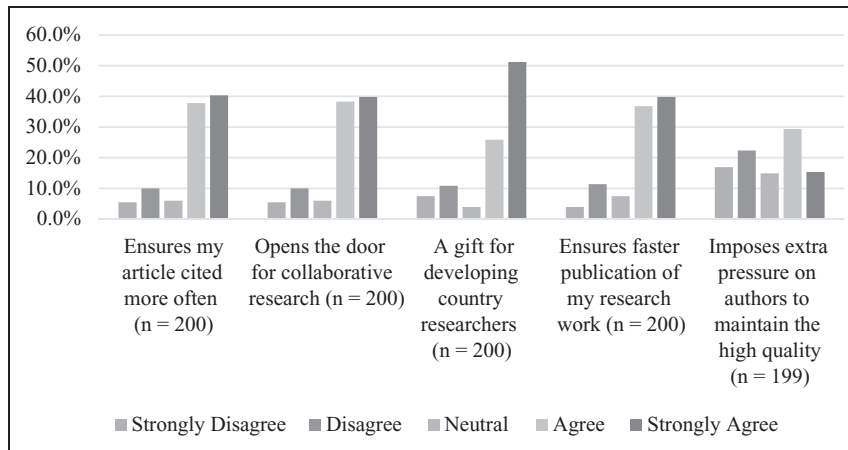
Figure 1A. Positive perceptions about open access journals.
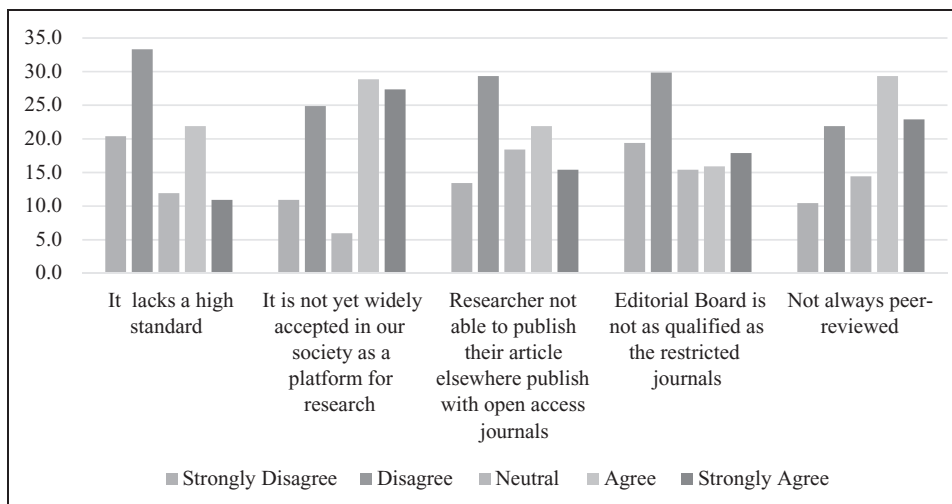
Figure 1B. Negative perceptions about open access journals.

they had knowledge of the university subscription-based resources and whether they had a clear understanding of OA journals and subscription-based online journals. Fifteen respondents indicated that they used subscription-based journals only which might be due to distrust of OA resources.

Perceptions of open access journals

To know whether the faculty members at the University of Dhaka possessed positive or negative perceptions about OA journals, they were given 10 statements (five positive and five negative). Respondents were asked to rate these 10 statements ranging from 'strongly disagree' to 'strongly agree', using a 5-point Likert scale (1 strongly disagree to 5 strongly agree). The perceptions of the respondents in this study regarding OA journals are divided into two figures. Figure 1A illustrates the positive perceptions and Figure 1B illustrates the negative perceptions.

It is evident in Figure 1A that the majority of the respondents strongly agreed with four positive statements about OA journals. These are: 'it ensures my article is cited more often' (157, 78.1%), 'it opens the door for collaborative research' (157, 78.1%), 'it is a gift for developing country researchers' (155, 77.1%) and 'it ensures faster publication of my research' (154, 76.6%). On the other hand, as evident in Figure 1B, over half of the respondents (113, 56.3%) strongly agreed with the fact that OA journals are not widely accepted in our society as a platform for research. Moreover, 105 (52.3%) respondents strongly agreed that OA journals are not always peer reviewed. This means that more than half of the respondents questioned the quality of the OA journals.

It is also evident in Figure 1B that more than half of the respondents (53.7%) strongly disagreed with the fact that OA lacks a high standard. About 50% respondents strongly disagreed with the statement that the editorial boards of OA journals are not as qualified

Table 3. ANOVA on open access journals perceptions and designation of the faculty members.

Perception type	Items	Lecturer	Assistant Professor	Associate Professor	Professor	
		n = 51	*n* = 62	*n* = 28	*n* = 60	
		Mean score				*p*-value
Positive perceptions	Ensures my article is cited more often	3.90	3.87	4.32	4.00	**0.067***
	Opens the door for collaborative research	3.90	3.87	4.29	4.00	**0.081***
	A gift for developing country researchers	4.08	3.98	4.14	3.98	**0.093***
	Ensures faster publication of research work	3.84	4.07	4.04	3.97	**0.068***
	Imposes extra pressure on authors to maintain the high quality	3.04	3.03	3.04	3.05	0.987
	Overall mean score (SD)	**3.78**	**3.76**	**3.96**	**3.80**	**0.613**
Negative perceptions	It lacks a high standard	3.28	3.44	3.50	3.10	0.446
	Editorial board is not as qualified as the printed one	3.00	3.28	3.44	3.08	**0.050***
	Not yet widely accepted	2.62	2.55	2.75	2.65	0.937
	Not always peer-reviewed	2.55	2.73	2.71	2.71	0.897
	Unable to publish article elsewhere	3.00	3.05	3.15	3.00	0.963
	Overall mean score (SD)	**2.89**	**3.02**	**3.22**	**2.86**	**0.423**

*Significant at 10% level of significance.

as those of restricted journals. Also, 43% of respondents strongly disagreed with the fact that researchers not able to publish their articles elsewhere publish with OA journals. Analysing the results of Figures 1A and 1B, it can be said that the faculty members at the University of Dhaka who participated in this study possessed mixed perceptions about OA journals.

To explore whether there exists any difference of perception about OA journals among the faculty members in terms of their designations, an ANOVA (Analysis of Variance) was conducted using SPSS to compare the mean scores of OA journal perception statements.

The results of the ANOVA test are presented in Table 3.

Table 3 illustrates the mean score of the positive and negative perceptions among different categories of faculty members. A closer look at Table 3 would clarify that all the different faculty members had the same level of perceptions about OA journals. Perceptions of OA journals did not significantly differ in terms of designation. As the mean score indicates, senior faculty members (professors and associate professors) strongly agreed with the statements 'open access ensures my article is cited more often' and 'it opens the door for collaborative research' compared to the two other groups of faculty members. Lecturers and associate professors had a stronger agreement/agreement with the statement 'it is a gift for developing countries' compared to the two other groups. The agreement with the statements 'open access lacks a

high standard' and 'editorial board is not as qualified as the printed one' were more visible in the assistant professor and associate professor categories. For all other perceptions, the authors did not find any significant differences among different categories of faculty members.

Print vs. open access journals

The respondents of this study were asked to choose either print-only journal or OA journal for submitting their manuscripts. Figure 2 illustrates the publishing preferences of the faculty members of the University of Dhaka.

As evident in Figure 2, if the respondents were given the option to select either print-only journals or OA journals for submitting their manuscripts, 55.5% respondents would have chosen print-only journals. The choice over print-only journals may have been influenced by several factors. First, there is a common perception among the faculty members and researchers in Bangladesh that print journals have minimum publishing standards. Second, there is a fear that the university authority may not accept OA journals for tenure and promotions. Third, article processing charges of OA journals is an important factor which might have influenced faculty members choosing print-only journals (print journals publishers in Bangladesh do not charge authors). Fourth, due to the lack of awareness of the OA/online journal publishing systems, some faculty members prefer print-only
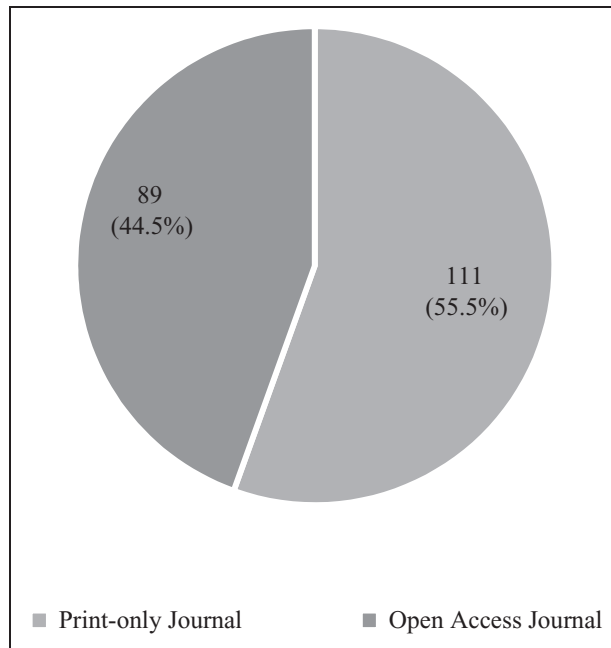
Figure 2. Print-only vs. open access journal.

journals (some faculty members do not know how to submit a paper to an online journal). Similarly, the choice over OA journals may have been influenced by a number of factors including speed of publication, wide circulation, lack of awareness of predatory publishing.

Motivational factors for open access journal selection for publication

In this part of the questionnaire, the study asked the respondents what would motivate them to submit publications to OA journals. The answers to these questions are presented in Figure 3.

Figure 3 depicts that over half of the respondents indicated peer-review process (133, 66.2%), impact factor (106, 52.7%), speed of publication (104, 51.7%) and qualified editorial board (103, 51.2%) as the major motivational factors to consider publishing with OA journals once the decision to publish in OA journals had been made. Out of 201 faculty members, 94 (46.8%) favoured no charge for publication, 82 (40.8%) recognition of their publication, 76 (37.8%) publisher, and 75 (37.3%) indexing as the important factors before considering OA journals for submission of their research. The motivational factors for the OA journals indicated by the respondents of the current study can also be considered as the motivational factors for choosing non-OA journals.

Author-pay model vs. who should pay?

The study asked the respondents whether they had heard of the author-pay model and whether they

supported the idea of author pay for maintenance and other charges for OA publishers. The study also asked them who should pay for maintenance of the OA journals. The answers to these questions are illustrated in Table 4.

Table 4 depicts that over half of the respondents, i.e. 105 (52.2%) had heard of the author-pay model for OA journals. Out of 201 respondents, 93 (46.3%) had not heard of this model. Despite the fact that the majority of the faculty members use OA journals in their research and teaching, the question may arise why they are unaware of the author-pay model. The answer is that using OA journals or publishing with university journals in Bangladesh that are available both in print and online does not necessarily guarantee that the authors are aware of the author-pay model as the journals published by the University of Dhaka or other universities in Bangladesh do not charge authors. In some cases, a number of journals, such as *Philosophy and Progress*, offer an honorarium to authors. A large number of faculty members at the University of Dhaka publish their research papers with journals published by various universities and research organizations in Bangladesh. Therefore, they may not have encountered the author-pay model system. The culture of charging authors to process their papers for publication has not been developed in Bangladesh.

As evident in Table 4, nearly 50% of faculty members at the University of Dhaka were unaware of the author-pay model of OA journals and consequently they were unaware of the predatory OA journals. This raises several questions. Are the positive perceptions of OA journals possessed by the faculty members of the University of Dhaka due to lack of information about predatory journals, in other words, the dark side of OA publishing? Would the information about the existence of predatory journals change their perceptions? Would they agree to pay article processing charges if the journal was published by a recognized publisher (such as Elsevier, Emerald, and Sage)? What are the perceptions about OA journals of those faculty members who regularly publish their papers in green OA journals published by recognized publishers? Further research is needed to answer these questions.

While answering the question of whether respondents supported authors paying for maintenance and other charges for OA publishers, the majority (160, 79.6%) answered 'No'. Only 36 (17.9%) respondents thought that authors should pay for maintenance and other charges for OA journal publications. While answering the question of who should pay the publishing charge of the OA publishers, the majority of
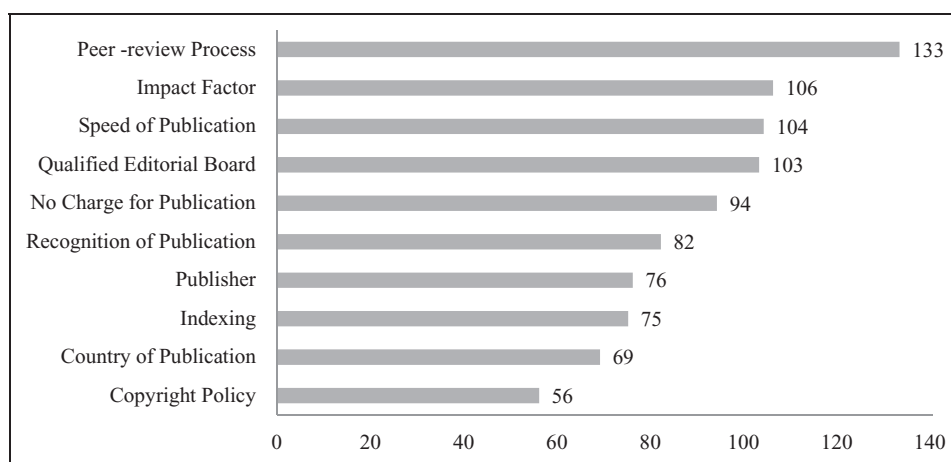
Figure 3. Motivational factors for open access journal selection for publication.

Table 4. Author-pay model vs. who should pay?

Have you heard of author-pay model?	n	%
Yes	105	52.2
No	93	46.3
No response	3	1.5
Total	201	100
Do you support the idea of author-pay for the maintenance and other charges for open access publishers?		
Yes	36	17.9
No	160	79.6
No response	5	2.5
Total	201	100
Who should pay the maintenance and other charges of open access publishing?		
University	58	28.9
University Grants Commission	34	16.9
Open access journal publishers should manage funds from donor agencies and relieve authors from developing countries	102	50.7
Others	7	3.5
Total	201	100

the respondents, 102 (50.7%), thought that OA journal publishers should manage funds from other sources and relieve authors from developing countries.

Out of 201 respondents, 58 (28.9%) thought the university should pay the article processing charges and 34 (16.9%) thought that university grants commissions should pay. Only seven respondents indicated others should pay the publication fees. Analysing individual data sheets, the study found five respondents who indicated that universities and university grants commissions should pay the article processing charges of faculty members. One respondent thought that authors should pay the charge while another respondent complained about the lack of

author processing fee payment provisions at the University of Dhaka.

Discussion

The faculty members of the University of Dhaka who participated in this study possessed a mixed perception about OA journals. The majority of the respondents thought OA journals increased both the possibility of getting more citations and the chance of collaborative research. They also indicated that OA was a gift for developing country researchers, and OA journals ensured faster publication of research works. Studies such as Gul et al. (2010), Kaba and Said (2015), and Warlick and Vaughan (2007) report the possession of positive perceptions about OA journals. Some negative perceptions about OA journals among half of the respondents of this study include the notion that such journals are not widely accepted in our society as a platform for research and are not always peer reviewed. The study also reported the choice of print journals over OA journals for submitting manuscripts as dominant among the respondents in the current study.

The motivational factors reported by the respondents in the current study are quite similar to those reported in the Dallmeier-Tiessen et al. (2011) study. In the current study, the top four factors that impact faculty members' choice when submitting manuscripts include peer review, impact factor, the speed of publication, and a qualified editorial board. If we look carefully at these factors, then we can easily contend that OA journals which possess these attributes are apt to be internationally recognized. Though it is not possible for all renowned journals to ensure speed of publication for reasons such as review time, copyediting, number of submissions, the majority of high impact internationally recognized journals have qualified editorial boards and a rigid peer-review

process. The motivational factors indicated by the majority of the faculty members who participated in this study indicate preferences towards standard, internationally recognized OA journals.

The top motivational factors indicated by the participants in the study may also help authors and librarians around the world select and support higher quality OA journals when seeking to publish their work. For example, authors in any discipline before submitting their work should ask the following questions: does the journal offer a blind peer-review process? What is the impact factor of the journal? Does the journal ensure reasonable speed of publication after acceptance? Is the editorial board comprised of figures internationally recognized in their respective subject fields? Is the information about the editorial board clear (university affiliation, institutional email addresses of the editorial board members, the online presence of the editorial board members, etc.)? If answering these questions still does not help authors find out whether the journal is predatory or not, it is better to search Google or any other search engines with the name of the journal and see whether there is any critique of it. Other important factors to consider before submission of a research paper include reputation of the publisher, indexing of the journal articles, archiving, and copyright policy.

Similar to the studies of Anderson (2004), Davis and Walters (2011), Lwoga (2013) and Schroter and Tite (2006), the issue of the article processing charges made by several OA journals has been highlighted in this study. The reason the majority of the faculty members do not support the idea of the author-pay model is that faculty members in developing countries receive modest salaries, so they are not in a position to pay the high cost of article processing charges. It is difficult for authors in developing countries to manage funds to publish their work with OA journals and ensure their work is widely circulated. Efforts should be made by the universities and university grants commissions in developing countries to help authors publish their work with recognized publishers and to negotiate with world renowned publishers to receive a discounted price for making faculty members' publications open access as soon as these are published by the world's renowned publishers like ACM, Elsevier, Emerald, Sage, and Springer. It is worth mentioning here that well respected publishers, such as BioMed Central, Sage, and Wiley, started offering OA waivers and discounts on article publication charges for authors from developing countries.

Based on the motivational factors for publishing indicated by the participants of the study, the authors assert that developing country scholars do not want 'garbage' OA publishing, but instead seek high quality, timely publication from OA publishers. A journal which has a rigorous peer-review process, high impact factors, and a qualified editorial board, and is published by a renowned publisher, and indexed in recognized indexing systems promotes knowledge creation and is accepted widely. However, very few OA journals have all these characteristics. For example, a large number of those published by predatory publishers use deceptive advertisements and journal names to attract authors, yet provide few of the benefits sought by scholars.

Analysing the annual reports of the University of Dhaka and CVs of some young faculty members (lecturers) at the University of Dhaka websites (http://www.du.ac.bd/), the authors found that some recently recruited faculty members published with predatory OA journal publishers. The authors do not know whether they published papers after knowing the backgrounds of the journals or were tempted by the journals' advertisements and the quick acceptance of their papers for publication. The authors also do not know whether they have faced problems getting tenure or promotion. Research is needed to find out why some authors publish with these journals and how their experiences rate despite this study's results that demonstrate preferences for high journal impact and editorial quality.

Academic libraries have a vital role to play in supporting authors as they seek high quality OA journals for publication. Universities around the world must exploit the potential of libraries to work as centres for OA publications of faculty members and other researchers as well as centres for helping researchers find the right journals for publication. Creation of an OA publication centre at university libraries would help respective universities make their printed journals available online and would act as a guide for researchers in selecting the right journals for their research.

This study reports that the faculty members of the oldest and largest public university in Bangladesh possess mixed perceptions about OA journals. The authors do not know whether the faculty members working at various public and private universities in Bangladesh hold the same perceptions. Research is needed to understand the perceptions of OA journals among the faculty members of public and private universities in Bangladesh. A separate study on the perceptions of OA journals among senior administrators of universities in order to understand their perceptions about OA journals and to identify the factors that influence their choice of OA journals would be worth conducting. A web-based study on the perceptions of

the faculty members at various universities in developed and developing countries would help to identify whether there exist any differences in the perceptions of OA journals among the faculty members of the universities in developed and developing countries.

Conclusion

Based on the results, this study suggests that faculty members and researchers prefer to publish in OA journals that possess qualities of prestige and editorial practice associated with traditional international journals. This suggests that the reputation of OA journals and OA resources could become negative unless proper measures are taken to inhibit the growth of lower quality or predatory publishers. Open access proponents, library professionals, and national and international research and development organizations should work together to educate researchers in various disciplines about the existence of quality OA publishers and help researchers select journals that achieve high editorial and access quality. This may spare researchers from negative experiences related to predatory OA publications.

This study has attempted to fill some gaps in research on OA journals, in particular faculty members' awareness, perceptions, understanding, and use of OA journals in developing countries. It is expected that this study will help to guide future research on this specific area. This study may also help to create awareness of predatory journals and help authors to pursue publication in recognized journals.

Notes

1. The open access (OA) initiatives seek to increase the public availability of works of scholarship. Much other research also discusses the manner by which OA is defined and implemented. In this paper, due to limitations of the research paper length and as there are quite a few research studies already in place that discuss the various definitions of OA, the authors intentionally limit the discussion on OA definition to a minimum. Readers interested in definitions of OA may read papers by Suber (2015) and Bailey (2006).
2. See Shuva, 2012, 2014 for other INASP projects in Bangladesh.
3. Due to the limitation of the research paper length, this literature review is confined to attitudes, understanding, and use of OA journals among faculty members and/or researchers. Readers interested in OA initiatives in India and related areas can check Open Access India page at: https://scholar.google.co.in/citations?user=vsgjnxMAAAAJ&hl=en

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Effective information service delivery to rural dwellers in Sub-Saharan Africa: Whose job?

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Abstract

This paper is deliberately designed to be thought-provoking. It reiterates the importance of effective information service delivery to rural communities. Adopting the desk research method, available literature on rural information sources and services to rural dwellers in various countries in the Sub-Saharan region of Africa was extensively reviewed and descriptively analysed to showcase the effectiveness of various information delivery channels to the rural dwellers. This led to the identification of six major channels through which rural information delivery is generally anchored. These channels are made up of the mass media, information service systems, education and training programmes, change agents, personal contacts and miscellaneous channels. The strength and weaknesses of each of these channels in terms of delivering information services to rural dwellers were analysed in the light of contemporary realities in Sub-Saharan Africa. Although libraries, especially public libraries, are expected to be at the centre of rural/community-based information services, these libraries and their staff contend with several challenges which, inevitably, undermine their effectiveness. Worried about the situation, the researcher calls for field experiment studies towards designing rural-oriented, practical and replicable models that will be effective for rural information delivery across Sub-Saharan Africa.

Introduction

The importance of information to rural dwellers is commonplace. It has been clearly observed that rural dwellers need to be provided with relevant information for several reasons cutting across vocation, right decision-making and general improvement of their daily life (Aguolu, 1989; Alegbeleye and Aina, 1985; Camble, 1994; Diso, 2005; Etebu, 2009; Harande, 2009; Ibrahimah, 1986; Issa, 1998; Kamba, 2009a; Momodu, 2002, 2012; Munyua, 2000; Sturges and Neill, 1998; Ukachi, 2007). Imperatively, the postulation that information is indispensable to every man in today's knowledge society is undisputable (Balit et al., 1996; Nyerere cited in Aguolu, 1989; Sturges and Neill, 1998). But rural dwellers in Sub-Saharan Africa seem to be excluded in this knowledge society, based on the fact that there is no available literature to show how appropriate information – i.e. relevant, timely, complete, reliable and accurate information that rural dwellers will understand, use and benefit from – is effectively delivered to them. Although Mtega (2012) and Riesenberg and Gor (1999) have published some conceptual models proposed for effective information service delivery to rural dwellers, there is no experimented evidence to prove that their models are practicable and effective.

The situation therefore has left rural dwellers in Sub-Saharan Africa to live mainly on their ignorance

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rather than on knowledge-based information. Yet, information is fast transforming societies, changing mind-sets, families, schools, workplaces, institutions, production, sales, employment, politics, business, education and generally remoulding the global society at large. And regrettably, the United Nations Environment Programme (UNEP) submits that more than 60% of Africa's population is short-changed as a result of living in rural areas, where there is little or no access to and use of appropriate information needed to make day-to-day decisions, progress in vocations and general wellbeing (http://www.na. unep.net/AfricaAtlas/). And the question is: whose job is it to consistently collect, organize, repackage and communicate appropriate information to people living in rural communities and villages in Sub-Saharan Africa? This is the bedrock of effective information service delivery, which this paper conceptualized as constant collecting, organizing, repackaging and communicating of relevant, timely, complete, reliable and accurate information. Hence, the objective of this paper is to review and analyse the effectiveness of various information delivery channels available to rural dwellers in Sub-Saharan Africa.

Defining rural community, describing the rural dweller

It is generally believed that a rural community is any geographic area that is located outside cities and towns. But this is not an adequate definition. Researchers have listed diverse features that inform on the rurality of a community in general and in Sub-Saharan Africa in particular (Apthorpe, 1970; Blair and Conyers, 1986; Diso, 1994; Unagha and Ibenne, 2011). A recent study by Uzuegbu (2014) has harmonized and summarized the diverse features – traversing economic, social, political, religious and secular components – and concludes that a community is regarded as rural when it possess the followings features:

1. its population is relatively small, with a higher number of children, older people and youth respectively;
2. it has a common ethno-linguistic feature such as race, tribe, language, etc.;
3. its members loyally answer to one leader;
4. its members are predominantly farmers who largely depend on farming for their livelihood rather than on non-farming occupations;
5. the inheritance system of ownership determines who acquires what among the dwellers;
6. its members usually adhere to one religion, belief and practice;

7. its members live a communal style of life and approach their general affairs collectively rather than individually;
8. its members depend directly or indirectly on the natural resources (land and forest, stream, market, road, etc.) in their area for their livelihood;
9. its members usually share institutional structures such as market, bank, school, health centre, etc.;
10. its members do not see the various components of life (economic, social, political, religious and secular) as distinct from each other. Rather, to them, each component affects the other and reaching them on one of the components means approaching them on all of them. (Uzuegbu, 2014: 256)

Consequently, a rural dweller is one who lives and makes his livelihood in the rural community. This is the situation of about 47% of the world's population (United Nations, 2003; United Nations, Department of Economic and Social Affairs, Population Division, 2012), which is not bad if they are not socially excluded from the global society. In fact, the concern of the World Summit on the Information Society as at July 2014 (www.itu.int/wsis/) is how this percentage of the world's population, which is mainly comprised of the Sub-Saharan Africa Region, can be served daily with knowledge-based information to enable them participate in today's knowledge society.

Library and information services to rural dwellers: An overview

In the library and information science profession there is a scarcity of literature that conveys a practical demonstration of information service delivery to rural dwellers. Virtually all available literature has focused on rural information needs and preferred sources of information, which no doubt is also important if relevant information must be communicated eventually (Cheunwattanna, 1998).

Information sources such as TV, radio, newspapers, friends, family members, agricultural extension workers and so on are common sources of information for rural dwellers (Talbot, 1998). The use of libraries or access to library services by rural dwellers has always been comparatively poor. Yet, the recommendations of librarians to overhaul library services in order to carry rural dwellers along have yielded no significant result to date. Thus, there has not been any clearly designed approach to ensure that rural dwellers in Sub-Saharan Africa effectively access

library-assisted information services. Worried about the situation, some researchers opine that public libraries are responsible for the lapse (Adimorah, 1986, 1996; Kantumoya, 1992; Okiy, 2003; Olarongbe and Ademolake, 2013; Onwubiko, 1999). Yet, others argue that the assignment requires the concerted effort of all types of libraries to reach out to their rural localities (Banjo, 1998; Chester and Neelameghan, 2006; Nweke, as cited in Kamba, 2009a; Mchombu, 1991, 1993; Sturges and Neill 1998). However, Uzuegbu and Uzuegbu (2013) have suggested the formation of a new type of library to be called Community Information Centres as the only way to effectively meet the information needs of rural dwellers. In their paper, they maintain that the nature, context and aptitude required to provide people living in rural communities with appropriate information is more rugged and informal compared to the ethos in existing types of libraries and as such requires the formation of a new system that will be exclusively devoted to rural information services. While this explanation coincides with the view of Alemna (1995), Ochogwu (1998) and Rosenberg (1993), Kamba (2009b) has raised a similar interpretation, suggesting the establishment of Innovative Community Information Centres (ICIC) as a way of providing rural dwellers with appropriate information that can allow them to participate in today's knowledge society. However, the realities of these suggestions still remain distant as there are no strong supports for the concepts, coupled with lack of field experiments to ascertain their workability.

Broad spectrum of information delivery channels and their suitability for rural dwellers

Generally, available literature on information services to rural dwellers has identified various information channels and sources to include newspapers, farm manuals and monographs, TV, radio, the Internet, libraries, community information centres and their collections, audio-visual aids, agricultural extension workers, friends, colleagues and relatives, drinking bars, workshops, community-based seminars and conferences, among many others (Bachhav, 2012; Bello and Obinne, 2012; Ekoja, 2003; Elly and Silayo, 2013; Ifukor, 2013; Jones, 1990; Kamba, 2009b; Meyer, 2004; Ojiambo, 1990; Talbot, 1998). But, there is a need to harmonize the list, grouping the various channels and sources according to their similarities. On this basis therefore, the various information channels and sources can be categorized into six broad groups, namely the mass media, information

service systems, education and training programmes, change agents, personal contacts and miscellaneous channels. Hence, each group of information delivery channel is examined and analysed vis-à-vis its effectiveness in information service delivery to rural dwellers in Sub-Saharan Africa.

Mass media

The mass media offer a method of disseminating information to reach the mass of the people (McLeod et al., 1999). Mass media as an information delivery channel can be divided into two: electronic and print media. Electronic media include radio, television, teletext, videotext, satellite telecommunications/internet, video cassettes and discs. Print media comprise books, newspapers, journals/magazines, newsletters and comics.

The radio as one type of electronic medium is comparatively cheap, flexible and adaptable. It has been adjudged a good channel for broadcasting information conveniently at workplaces, homes, in cars while on transit, etc. (Kellow and Steeves, 1998). But despite these, it appeals to the hearing organ alone and may not be appropriate where the language of communication is not understood by the listener (Hu et al., 1989). Moreover, the radio allows individuals to tune to frequency bands and/or stations of their choice, and thus cannot guarantee uniformity of information received by rural dwellers (Ekoja, 2003). Again, as people tend to listen to radio while doing other things, they are most likely to be distracted from what is being communicated on the radio at one time or another. In addition, it seems that most of the radio programmes revolve around music, news and entertainment which are not the main things needed by rural dwellers. Regrettably, there is no playback function in radio to allow the listener to pause, rewind or tune to earlier programmes. To sum up, even though radio is a good channel for information delivery, cheap and flexible to use, it may not be depended upon to effectively deliver those information services expected to be applied advantageously by rural dwellers in Sub-Saharan Africa.

Television (TV) also belongs to the electronic media. Although it is comparatively costlier than radio, it has more advantages in that it appeals to the senses of sight and hearing (Koumi, 1994). TVs are audio-visual information resources. They enhance creativity and leave emotional feelings with the audience. Likewise, they allow flexibility as users can watch any TV channel of their choice. Yet, TV contents revolve around music, drama, news, announcements and advertisements. Besides, TV requires one's attention to watch it and therefore may not be utilized more by busy people such as rural dwellers

in Sub-Saharan Africa. Moreover, where there is no electricity or power supply the use of TV as a channel of information service delivery is largely defeated. And this is exactly the situation in many rural communities in Sub-Saharan Africa. Remarkably therefore, TV is not likely to be a very effective information delivery channel to rural dwellers, especially because its programmes would not effectively address the peculiar information needs of rural dwellers in Sub-Saharan Africa.

Teletext is another electronic medium. It presents graphics and text usually transmitted to televisions with the aid of the space capacity of already existing television channels and their corresponding receivers. It still revolves around the television context and is also not effective for delivering knowledge-based information to rural dwellers. This is also the situation with videotext, i.e. some textual and image information stored and transmitted through a television.

Satellite telecommunications are electronic media: a modern system of communication over space and/or Internet (Maral and Bousquet, 2009). Its derivatives include the Internet and its services, digital telephony, mobile handsets, online computing, email services, web publishing, modern radio broadcasting, television and other information signal transmission services (Maral and Bousquet, 2009: 7). Rural dwellers in Sub-Saharan Africa are most likely not to access these channels of information delivery because they are complex and more sophisticated than imagined. For instance, it is believed that most rural dwellers that have phones can only send and receive calls with them, and thus may not know how to explore other technological features in hand phones.

As for video cassettes and discs, they are electronic information storage devices that can store and relay information both in audio and visual formats using video cassette recorders (VCRs), TVs and radio. In recent times, VCRs have become integral to home entertainment (Lin, 1993). This confirms an anecdotal observation in Nigeria that many families nowadays prefer to connect their VCR machine to their TVs to watch entertainment films than to hook-up to local TV channels. So, video cassettes and discs, nowadays known as digital versatile discs (DVDs), are seemingly effective channels of disseminating information but, however, require expertise in packaging the content taking cognizance of factors such as language, age and literacy level of the end users. By implication, where video cassettes and discs (also DVDs) are managed properly, they can be comparably effective channels of information delivery to rural dwellers in Sub-Saharan Africa. But this has not been proved experimentally in available researches.

On the other hand, the other type of mass medium known as the print media – books, newspapers, magazines, newsletters, and comics – refers to publications (letters printed on papers with the aid of printing technology) that hold informative and entertaining contents for both general and special interest groups. It requires literacy, basically the ability to read and write, in order to understand information published in print media. Besides, patience, time and concentration are indispensable factors in the use of print media. In fact, researchers have clearly suggested that this type of medium is not relevant to rural dwellers in general and in Sub-Saharan Africa in particular because the majority of the rural dwellers have little or no formal education (Aderibigbe, 1990; Aina, 2007; Dosa, 1985; FAO, 2005; Saracevic, 1986).

In general therefore, it can be said that the mass media are not an effective channel to deliver appropriate information to rural dwellers in Sub-Saharan Africa. This is mainly because information contents of mass media do not guarantee the communication of relevant, timely, complete, reliable and accurate information that rural dwellers will understand, use and benefit from.

Information service systems

Information service systems refer to institutions established for the sole purpose of information collection, storage, retrieval and dissemination (Culnan, 1985). Examples of such systems include libraries, information and referral service centres, online databases, and other forms of information clearinghouses. These channels of information delivery, especially libraries and online databases, have been significant players in information service delivery across the globe. Several online databases such as AJOL, DOAB, DOAJ, institutional repositories, etc. are freely available over the Internet and allow access to and download of their specialized and/or wide-ranging collections. Unfortunately, while poor reading habits are strengthening the idea of information search services, repackaging and delivery to the busy and/or lazy literates of today (Aina, 2014), illiterates by implication will have no need for libraries and online databases. Although researchers have noted that libraries are indispensable in information service delivery to rural dwellers (Aina, 2006; Chijioke, 1995; Dahwa and Makinta, 1993; Issa et al., 2012; Kibat, 1991; Mchombu, 1995), there has not been any available research to show how the same libraries have effectively delivered appropriate information needed by rural dwellers in Sub-Saharan Africa.

Apparently, mobile book services and other rural outreach programmes of the present day public libraries in Sub-Saharan Africa do not offer the effective information service delivery required by rural dwellers. This is also the situation with information and referral service centres, such as Agricultural Information Systems (AIS). Whereas information and referral service centres are mainly established for the management and dissemination of specific information to end users (Aboyade, 1987), the kind of information they deliver is generally too complex for rural dwellers in Sub-Saharan Africa to understand and use.

Education and training programmes

Over the years, education and training programmes have been channels for knowledge communication and information delivery. They take the form of pre-service or in-service exercise (Loewenstein and Spletzer, 2000). Pre-service exercise refers to the professional education programmes in academic institutions while in-service exercise denotes the training provided to working people. Thus, pre-service training includes all class lectures, laboratory experiments, field practicals and other forms associated with formal education. The in-service programme takes the form of workshops, seminars, conferences, short course, etc. Generally, education and training programmes are delivered via face-to-face discussion or electronic communication methods such as video conferencing, online discussion forums and networking. The face-to-face discussion method has been regarded as an effective information delivery method when dealing with shy, illiterate or timid people (Herod, 2001; Marsapa and Narinb, 2009; Talbot, 1998). This group of people hardly express themselves correctly, especially in official settings and in formal language. As this is the case of most rural dwellers in Sub-Saharan Africa, serving them with information effectively requires the ability to understand their expression and consequently communicate and discuss the feedback with them to ensure clarity of understanding. So, while educational institutions are important to rural dwellers, especially to rural children, they are largely not designed for rural working men and women in Sub-Saharan Africa whose information needs are distinct and specialized.

Change agents

Change agents are those institutions and workers who link communities and people to research findings and knowledge. They are like catalysts for change, often taking the form of facilitators, consultants, organization developers, research application specialists and development integrators. Any group that is saddled with the task of facilitating and communicating research results to people in relation to the identified needs of those people can also be imperatively regarded as a change agent. In the rural context, a change agent is required to be broad in knowledge, sensitive, resilient, mature in understanding and prepared to serve the community.

In Africa one popular change agent is the Agricultural Extension Officer (AEO) or Worker. In Nigeria, they are attached to government-owned agricultural institutions, ministries and parastatals. The agrarian nature of rural communities in Sub-Saharan Africa has made agricultural extension workers indispensable in rural development. Citing Nigeria's situation since 1974 when the Agricultural Development Project (ADP) was launched in some parts of the country, agricultural extension workers have been given the task of moving into villages to teach farmers new farming methods and systems (Ayoola, 2001; Iwuchukwu and Igbokwe, 2005). But the impact of their mission has not been significantly felt over these years. Regrettably, it is observed that one crucial factor that has affected the mission of agricultural extension workers is the ratio of their deployment to rural communities. As at the year 2014 in Nigeria, extension worker to farmer ratio is 1:10,000 except in Bauchi State where the State Government has a special arrangement that put the ratio at 1:1000 lpar;http://leadership.ng/news/371394/adp-manager-calls-recruitment-deployment-agric-extension-workers). Meanwhile, in Ghana as at January 2014, there is one extension worker to 1500 farmers (http://www.modernghana.com/news/46819/1/extension-officer-farmer-ratio-to-be-improved.html). These situations in Nigeria and Ghana give a clear picture of what is attainable in Sub-Saharan Africa at large. It must be noted therefore that extension worker to farmer ratio in Sub-Saharan Africa is presently poor for attaining and sustaining effective agricultural information service delivery to rural farmers. Besides, anecdotal enquiry has shown that most of the agricultural extension workers are not core staff of the agricultural institutions deploying them. They are usually on ad hoc employment, trained by the agricultural departments and deployed to villages with a mission to multiply the knowledge chain. This scenario has left them working more for their pockets rather than according to the government blueprint. This is a pathetic situation that questions the effectiveness of information service delivery to rural dwellers in Sub-Saharan Africa through the present day change agents.

Table 1. Broad grouping of information delivery channels deployed for rural dwellers.

s/n	Grouping	Individual channels and sources
1	Mass media	Electronic media (radio, TV, Internet and all its services, such as phone calls, email, etc.) and the print media (newspapers, monographs, books, magazines, newsletters, etc.)
2	Information service systems	Library and information centres (community information centres, public libraries and others), online information archives and databases, agricultural information systems, and other agro information retrieval houses.
3	Education and training programmes	Short courses, farm demonstrations, conferences, workshops, seminars, field trip experiments and practical, etc. delivered electronically or physically.
4	Change agents	Agricultural extension officers/workers, rural information workers, and other government- and non-governmental-sponsored rural service providers and workers.
5	Personal contacts	Friends, community leaders, vocational colleagues, family members, church, mosque, markets and all other informal self-contacts and relationships with people.
6	Miscellaneous channels	Signs, symbols, billboards, posters and other forms of still drawings and images.

Note: The phrase 'interpersonal communication' is avoided in this grouping because of its multi-faceted channels of information delivery to recipient (which includes electronic or face-to-face platforms).

Personal contacts

This is the individual effort of a person to get information. In this channel of information delivery, people recognize their need for information and try to source it from others such as family members, friends and so on. In practice, personal contacts are made through interpersonal communication. By implication, this kind of communication is usually influenced by the ability of the information seeker to interact with other people and develop a relationship with them (interpersonal communication). So, personal contact involves a discussion between two or more persons. Thus, the communal lifestyle in rural areas in Sub-Saharan Africa has made rural dwellers effective participants in interpersonal communication within their environment.

There are different forms of interpersonal communication; it can occur over the phone, Internet, email, letter writing or through face-to-face interaction. A doctor-patient survey on personal communication has shown that face-to-face interaction is a more effective information communication channel when compared with other personal communication methods such as emailing, text messaging and others, even though it consumes time and resources (Shannon, 2012; Shannon and Myers, 2012). However, there is no available literature to show how successful any of the personal communication methods has been in providing effective information service delivery to any group of rural dwellers anywhere.

Miscellaneous channels

Other channels of communication not listed in mass media, information service systems, education and training programmes, change agents and personal contacts are hereby regarded as miscellaneous channels. They seem to be trivial and thus include signs and symbols (oral or visual), emblems, diagrams, pictures and posters, handbills, billboards and all other forms of indoor and outdoor communication platforms. The majority of these communication platforms are covert in nature (Belch and Belch, 2004; Bhatia, 2000), meaning that they are indirect or disguised forms of information communication. Hence, they are likely less important for delivering procedural-based information often needed by rural dwellers in Sub-Saharan Africa.

Synopsis of the information delivery channels for rural dwellers in Sub-Saharan Africa

A summary of information delivery channels can be seen in Table 1. The mass media, both in print and electronic formats, have played significant roles in informing people over the years. But their impact on rural dwellers is contextually perceived to be poor, given their appropriateness for literate and developed societies rather than for illiterate and rural communities. Information service systems revolve basically around library and information centres. The public library which is expected by many to pilot the mission of delivering appropriate information to rural dwellers has lacked the ethos to successfully execute the task. In education and training programmes, the peculiar information needs of illiterate rural dwellers are not met. Meanwhile, change agents generally regarded as the most appropriate information delivery channel to rural dwellers regrettably have not sufficiently proved to be an effective information service delivery to rural dwellers in Sub-Saharan Africa. Personal

contact can be on a one-on-one or group design. The face-to-face method is most likely to be suitable in rural information service delivery, given research evidence showing that it is a more effective method of communicating appropriate information when compared with online delivery methods, despite the fact that it consumes time and resources. Lastly, miscellaneous channels are, no doubt, information broadcasting platforms, but they are less important for delivering procedural-based information that is often needed by rural dwellers in Sub-Saharan Africa.

In the context of *effective information service delivery* – constant collecting, organizing, repackaging and communicating of relevant, timely, complete, reliable and accurate information – the term *communication* will be more effective than *dissemination*. Whereas *communicating* involves a two-way interactive process which allows feedback and follow-up, *disseminating* has to do with distributing or broadcasting information without follow-up and feedback. Apparently, since most rural dwellers in Sub-Saharan Africa are illiterate, only communication-oriented information delivery channels can be effective for delivering appropriate information to them. But unfortunately, the mass media, information service systems, education and training programmes, change agents, personal contacts and miscellaneous channels are fundamentally dissemination oriented. In short, the face-to-face discussion method noticeable in education and training programmes and also in personal contacts is communication oriented but needs to be modelled in line with the concept of *effective information service delivery*.

Conclusion and recommendation

This paper has raised a very important question, drawing inferences from available literature. While it is true that access to and use of knowledge-based information is vital in the development of rural dwellers in Sub-Saharan Africa, effective information service delivery to them is so far not practicable. Library and information professionals are comparatively the most promising personnel in terms of finding appropriate information that will be suitable for different categories of information needs. But their success here is definitely not in the mere provision of library buildings in rural areas and in the distribution of reading materials to rural dwellers. Instead, the ability to communicate verbally the content of various information materials using the dialect of the rural dwellers, discuss the feedback to strengthen the understanding of what is communicated and provide guidance on the use or application of the knowledge communicated

is the basics of effectiveness in rural information service delivery. However, all the information delivery channels discussed in this paper evidently lack the ethos required to fully take up the job. And, as this is the case, who is the person and where is the system that can effectively deliver information services to rural dwellers in Sub-Saharan Africa? This is a challenge that apparently calls for field experiment studies towards designing rural-oriented, practical and replicable models that will be effective for rural information service delivery to rural dwellers in Sub-Saharan Africa.

Declaration of Conflicting Interests

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Kuwait's higher education libraries: A descriptive analysis

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Abstract

The article covers the history of the development of academic libraries in the State of Kuwait, a member of the Gulf Cooperation Council. The establishment of a private higher education system only began in the second millennium, and therefore new private academic libraries were established only a decade ago. Prior to that, academic librarianship in Kuwait was represented by the state-owned Kuwait University libraries. The evolution of new academic libraries in Kuwait has enriched the research sphere, created new opportunities, and fostered a competitive environment for academic librarians, each working in his/her respective institution. This article examines the development of new private university libraries and their progress in comparison with public institutional libraries. It reviews key studies on academic librarianship in Kuwait and sheds light on new libraries in the private sector, their services, facilities, and their level of involvement with the Kuwaiti community. It also identifies common constraints faced by those institutions' libraries and possible solutions.

Keywords

Academic libraries, higher education, Kuwait

Public institutions

The Kuwaiti higher education system was established in 1966 with the opening of Kuwait University offering free education to all Kuwaiti citizens. It began as a collection of four colleges and has grown to 16 colleges offering undergraduate and graduate programs on five campuses (Kuwait University, 2009).

The Kuwait University Libraries Administration (KULA) (n.d.) administers the central library and seven branch libraries. The College of Medical and Allied Health Sciences functions independently from the main library (Zehery, 1997). It is now managed by the Health Sciences Center Library Administration (HSCLA) and supports the academic programs of four colleges including Medicine, Dentistry, Pharmacy and Allied Health (Health Sciences Center Library Administration, 2014).

In 1982 the Public Authority for Applied Education and Training (PAAET) was established, initially in response to the technical and vocational needs of the country, and awarded the status of a higher education institution. It includes five colleges: the College of Basic Education, the College of Business Studies, the College of Health Sciences, the College of Technological Studies and the Nursing College. The five colleges, training institutes, and special training programs offer diploma and bachelor degrees in selected areas including Library Science (Public Authority for Applied Education and Training, 2013).

PAAET has a library in each of its colleges and all libraries are managed by the Deanship of Libraries and Techniques. Therefore, it also has a decentralized library system which consists of 17 branch libraries (Al-Ansari and Al-Enezi, 2001). At PAAET the libraries collections emphasize Arabic language materials since all programs are taught in Arabic.

Libraries of public institutions continued to grow their collections, services and staffing until the Iraqi invasion which had an effect on all libraries in the country, academic, school and public.

Since its establishment and until 1990, Kuwait University Libraries has developed a collection of 320,000 non-Arabic titles, 135,000 Arabic titles, and 5575 periodicals through direct purchases from local and international publishers, booksellers and subscription agents, in addition to materials received as gifts from

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various institutions. The Iraqi occupation of Kuwait in 1990 caused a loss estimated at $20m (US). During the years following the occupation the university had to rebuild their collection which included books, periodicals, multimedia items as well as out-of-print and irreplaceable rare materials (Abdel-Motey and Al Hmood, 1992). "Collections in Kuwait suffered from the looting and destruction of the Iraqi occupation; collections in some universities after ten years of rebuilding were less than half of their pre-invasion size" (Lesher and Abdel-Motey, 2009: 441).

Today, KU Libraries house a collection which represents over 80% of all materials owned by academic institutions combined in Kuwait. According to the KULA website, information resources consist of 526,464 titles, 651,042 volumes of Arabic and non-Arabic monographs, reference collections, dissertations and other reports and documents. Items looted during the Iraqi invasion were either replaced or remain lost and unrecovered. There are now 76 online database subscriptions, 1645 print journals, 783 online journals, 20,000 multimedia items and 22,750 original and copy manuscripts. The Health Sciences Center Library at KU possesses a collection of 15,836 volumes and 1320 journal subscriptions and represents the largest Health Sciences library in the country in terms of resources, staff and facilities (Al-Ansari and Al-Enizi, 2001).

As the institution which offers the most varied degree programs in the country, its collection is the most diverse with a wide coverage of different areas of knowledge. Though each branch library offers resources pertaining to its affiliated school's degree courses, the central library houses the widest collections.

As for PAAET, Abdel-Motey and Al Hmood (1992) said that almost all the collections were moved to Iraq during the invasion. It was a wholesale looting and destruction of Kuwait's treasures by the occupying Iraqi forces. This included ministries, authorities, facilities and residences which were emptied from their content and transported to Iraq, perhaps to be used as leverage in any eventual settlement. Al Fadhli and Johnson (2006) mentioned that collections of PAAET libraries formerly included 143,000 books and 185 periodicals whereas it now comprises 95,000 books and 170 periodicals, most of which are in the Arabic language. According to Rehman and Al-Huraiti (2010), PAAET libraries had the largest number of print journals subscriptions.

Private institutions

Prior to 2002, the Kuwaiti Government had not yet allowed the establishment of a private education system. Lesher and Abdel-Motey (2009: 440) suggested that:

> several factors justified the evolution of private universities in the Arab world including the inability of state universities to accommodate the students desiring higher education, the resultant higher grades demanded for admissions, the limited number of non-national students accepted into state universities, and other social, cultural and economic factors.

In 2003, five licenses were granted to private institutions. The main requirement for a private institution to obtain a license is an international affiliation with qualified universities or colleges. Currently there are 17 licenses, with eight of them operational (Private Universities Council, 2014).These include:

- American University of Kuwait (AUK)
- American University of the Middle East (AUM)
- Arab Open University (AOU)
- Australian College in Kuwait (ACK)
- Box Hill College Kuwait (BHKC)
- Gulf University for Science and Technology (GUST)
- Kuwait International Law School (KILAW)
- Kuwait Maastricht Business School (KMBS)

Table 1 provides comparative data on the size of collections, population, staff and programs of the eight institutions. Collections, staffing, services, technologies and conduct vary from one library to another depending on the level of population served, taught programs, teaching format, library policies, etc.

As private institutions are relatively new compared to their public counterparts, the total size of their collections does not exceed a maximum of 20% of KU Libraries holdings. Given the fact that they appeared four decades after the establishment of public higher education, their smaller size is to be expected. More recently established libraries tend to invest more in electronic resources and so most of their content is available online and can be accessed through university portals. Most of these institutions have one library, with the exception of the AOU which maintains two facilities, one for male and another for female students.

All private university libraries combined hold a total collection of 90,000 book titles. However, Table 1 shows that the American University of Kuwait owns the largest collection of print resources. Next is the Gulf University for Science and Technology which houses a collection of 16,733 print titles and 75 online databases — the largest number of online subscriptions of all. The AUK Library has a total of 42,236 print titles and 42 online database

Table 1. General profiles of academic libraries associated with private institutions.

Aspect	GUST	AUK	KMBS	BHKC	ACK	AUM	AOU	KILAW
Founding year	2002	2003	2005	2008	2009	2008	2002	2008
Print collection	16,733	42,236	1,300	7,059	6,500	6000	2536	9,500
Databases	75	42	4	70	–	12	6	4
Number of students	3,400	2,446	400	534	2,557	–	8062	–
Number of faculty	150	112	10	36	131	–	123	–
Undergraduate programs	11	14	0	6	6	9	3	1
Graduate degree programs	1	0	1	0	0	1	0	1
Full-time library staff	6	6	1	2	6	–	6	2-3

Note. A dash (–) indicates that figures were not available.

subscriptions. At BHCK, ACK and AOU online databases are offered through the parent/partner institution.

These university libraries vary in their subject coverage based on the academic programs offered by each. Their main objective is to support the academic programs taught at their institutions, therefore most of the materials are relevant to course levels and content. The majority offer degrees in Arts, Science and Business studies at the undergraduate level. The Box Hill College, however, "offers six diploma programs in the fields of Management, Marketing, Banking Services Management, Graphic Design, Interior Design and Decoration and Website Development" (Box Hill College Kuwait, 2013).

The number of postgraduate programs offered by private institutions in Kuwait is small and is represented by one at each of GUST, AUM, KMBS and KILAW. As specialized schools, KILAW develops a collection that supports the undergraduate and graduate law degrees, whereas KMBS invests in business subjects to support the curriculum of the MBA program offered. ACK is a technical college and it offers vocational educational programs in Business, Engineering, Aviation and Maritime.

Almost all Kuwait academic libraries arrange their English-language collections (non-Arabic resources) according to the Library of Congress Classification Scheme (LCCS), since most of them focus their acquisitions on English-language materials. KU and PAAET use the Dewey system for Arabic materials as they acquire large collections of Arabic materials. In addition to that, they use Library of Congress Subject Headings (LCSH). But as LCSH coverage of Arabic and Islamic subjects is limited, Arab librarians have worked to come up with an Arabic list of subject headings represented by the Al-Khazindar list, which was developed by Ibrahim Al-Khazindar and is used widely in the Gulf region (Zehery, 1997). HSCL uses WHO Medical Subject Headings in Arabic. AUK uses the Arabic Union Catalog for the cataloging of Arabic Records.

Automation and electronic services

Library automated systems appeared in Europe and North America in the early 1970s. However, the inability to support the Arabic character set and the lack of Arabic capabilities made it difficult for libraries with Arabic collections to benefit from or work with those early systems. Libraries in the Middle East evolved their systems in the 1980s with the University of Yarmouk in Jordan being the first to use an automated system (Lesher and Abdel-Motey, 2009). Of the Gulf Cooperation Council (GCC) institutions, the King Fahd University of Petroleum and Minerals (KFUPM) was the first to implement an automated system for its libraries (Rehman and Al-Huraiti, 2010). Alqudsi-ghabra (1999) indicated that although Kuwait suffered destruction of its information infrastructure by the Iraqi invasion, it has made efforts to rebuild it and also was the first Middle Eastern country to afford Internet access to its institutions and citizens.

Kuwait University libraries installed the Virginia Tech Library System (VTLS) in the late 1990s (Alqudsi-ghabra, 1999). PAAET, the second largest educational institution automated its libraries in 1998 with the implementation of the Horizon Integrated Library System by SirsiDynix (Rehman and Al-Huraiti, 2010). Most newly founded private universities had automated systems on opening day. There was no agreement between major libraries in Kuwait at the time of selection to choose one library automation system which would have supported resource sharing and cooperation among the three libraries (Aman, 1992).

By visiting Kuwait's institutions websites, it was found that most public and private libraries have implemented an Integrated Library System (ILS). Six libraries use the SirsiDynix products and two libraries use an open source to handle library operations. Two others do not use an automated system, possibly due to budget constraints or to the nature and size of their

Table 2. Integrated library systems implemented in academic libraries.

Institution	ILS
KU	Horizon
PAAET	Horizon
GUST	Symphony
AUK	Symphony
KMBS	OpenBiblio
BHKC	ARMS
ACK	Symphony
AUM	Koha
AOU	X
KILAW	X

Note. X indicates that no system has been implemented.

collections. Table 2 shows ILS associated with each academic library.

All libraries that implemented an ILS provide an Online Public Access Catalog (OPAC) for their users. Of those using SirsiDynix systems, three use Horizon including KU, PAAET and HSCL, while the other three have migrated to the Symphony system, a newer version of the Horizon; these are AUK, ACK and GUST. The AUK Library was the first to migrate from the Horizon, which was used since its establishment in 2004, to Symphony in 2011. The availability of support for the SirsiDynix solutions could be the main factor why most libraries acquired the Symphony or the Horizon system.

The provider for SirsiDynix solutions in the region is Naseej, previously called Arabian Advanced Systems, which was established in the GCC region with headquarters in Saudi Arabia and branches in Kuwait, Lebanon, UAE, Qatar, Egypt and Syria (Naseej, 2014).

Generally, Kuwaiti academic libraries started developing their system with cataloging, OPAC and circulation functions. The other applications such as acquisition and serials control were automated at a later stage (Rehman and Al-Huraiti, 2010).

The main and most important service offered by public and private academic libraries in Kuwait is either circulation or access to information resources. This depends on whether the institution puts emphasis on print or electronic resources and also on the learning system adopted by each institution. An institution that provides a face-to-face learning environment such as KU, PAAET, GUST or AUK houses larger print collections and provides circulation, reference and reserve services on a daily basis.

AOU is partnered with the Open University (UK) and provides a blended learning system of face-to-face tutoring and distance learning via electronic learning applications. At this institution where only 25% of instruction is conducted in classrooms, students at all branches of the AOU have access to the e-Library collectively (Arab Open University, 2014). Libraries at ACK, BHCK, KMBS and AOU are in the form of Learning Resource Centers. Some of them have a fair number of print collections but more of e-resources.

Almost all academic libraries in Kuwait provide off-campus access to online resources. KU, GUST and AUK show an emphasis on information literacy and the provision of library instruction sessions and workshops as presented on their websites. The emergence of different new tools has made it necessary for librarians to provide instruction, not only on general research, but also on how to use the different new tools available online or through their libraries. While most of these sessions are based upon faculty/student requests, the AUK library offers mandatory sessions for the First Year Experience course called "Essentials of Learning." All new students are required to attend.

Web-based services

Among web-based services seen at Kuwaiti academic libraries are web-scale discovery service, mobile applications, online subject guides and tutorials. Current awareness services are offered at a very low level, mainly by Kuwait University, HSCL and PAAET. It is worth noting that the Library at the American University of Kuwait is the first to introduce a self-check kiosk and provide self-service for the circulation of materials.

Most libraries offer an online public access catalog (OPAC) through their websites, except those which have not automated their libraries or are relying on online subscriptions such as the AOU and KILAW. It is worth noting that KU still uses a card catalog in addition to the online. A visit to those universities' websites shows that web-based reference services are offered in the form of email and web-form reference rather than web chats. Web-based information literacy services have not been offered as webcast or synchronous online sessions. This area has yet to be developed. Interlibrary loan (ILL) and document delivery (DD) requests are mainly received via email or web-forms. Thus enhanced and fully interactive library websites have to cover the various set of services offered. Presently, KU and GUST maintain standalone library websites. Others tend to provide library webpages within the main university website.

Cooperation and resource sharing

Cooperation among libraries could come in various forms including the establishment of a region/country-level consortium, resource sharing, committees and

discussion forums, cooperative training programs, union catalogs and linking of library catalogs. In fact, cooperative activities bring a lot of benefits to participating institutions once explored and implemented effectively, from increased access and services to budget savings and professional development opportunities.

Lesher and Abdel-Motey (2009) mentioned the Saudi consortium for academic libraries which was launched in 2003 as one example of cooperation on the country level. There were hopes to expand the consortium to include other GCC academic libraries. However, it has grown only within the Saudi borders. It is now known as the Saudi Digital Library (SDL) and consists of over 30 academic institutions (Saudi Digital Library, 2015).

There is no mention in the literature of any cooperative projects among academic libraries in the form of resource sharing. No information has been found in the news or on universities websites to indicate that this has existed. There were some attempts and aspirations but none have been realized. This could be due to the lack of communication or formal networking among such institutions. Generally, Zehery (1997) noted that all academic libraries in the Gulf region are interested in cooperative programs in the area of interlibrary loan and document delivery. However, there are no such agreements in an official form.

KU libraries have been involved in resource-sharing activities with the GCC academic libraries since the 1990s. During this period, KU was rebuilding its collection after liberation and therefore depended on ILL services to obtain materials from the Gulf libraries and the British Library Document Supply Centre (BLDSC). When compared with GGC countries, Kuwait provided the lowest number of ILL transactions to libraries in the region although it maintained the largest serials collection (Zehery, 1997).

Al Fadhli and Johnson (2006) mentioned that PAAET also provided ILL services mainly through KU and the British Library Document Supply Center (BLDSC). None of these activities were based on formal agreements and such activity was suspended in 2004.

There were some factors which could contribute to the creation of possible collaborative projects in the area of resource sharing. For example, Kuwait was the first country in the Arab world to connect to the Internet in 1994 as indicated by Al Fadhli and Johnson (2006). Improvements in telecommunications could facilitate cooperation between academic institutions. In the late 1990s, KU libraries were merged as a result of automation at the same time PAAET and other libraries automated their functions, thus creating opportunities for cooperation.

Another early example of resource sharing among Kuwait libraries is that of KU, PAAET and the National Scientific & Technical Information Center at Kuwait Institute for Scientific Research (NISTIC) through the Union Catalog of Periodicals which consists of English-Language periodicals of the three institutions (Alqudsi-ghabra, 1999).

GUST, PAAET and AUK linked their catalogs without any commitment or agreement to share resources between the three institutions. There is nothing in the literature about any type of cooperation among libraries associated with private institutions in Kuwait except that of catalogs linking between AUK, GUST and PAAET. However, after AUK and GUST migrated their systems to Symphony, the linkage was dissolved automatically for all and has not been re-established or restored.

There seems to be lack of communication and cooperative programs between academic libraries in Kuwait. Older institutions with the larger collections do not seem interested in initiating cooperative projects with smaller and newly founded private institutions. Private institutions, on the other hand, are operating in a competitive environment in which each institution offers collections and services exclusively to its own community.

The only formal agreement to date is that between the American University of Kuwait and Mubarak Al-Abdullah Joint Command and Staff College (MAJCSC) whereby AUK Library grants access and borrowing privileges to 130 students and staff at MAJCSC (Kuwait Times, 2013).

Anwar and Al-Jasem (2001) recommended the establishment of a National Task Force by the National Council for Cultures, Arts and Letters (NCCAL) to develop a plan for a national resource-sharing network. However, the formation of such a network was hindered by a lack of a practical plan and the attitudes of some library managers.

LIS professionals/education

Zehery (1975) noted that with the absence of a library school in Kuwait, libraries in their early stages depended mainly on graduates from the library science department at Cairo University. Library education was introduced for the first time by the PAAET in 1977 with the establishment of a two-year program to provide the manpower for all type of libraries in the country. The program was expanded to a Bachelor's degree program in 1986 (Abdel-Motey and Al Hmood, 1992). In 1996, Kuwait University established a Master's degree program in librarianship. Since then LIS education in Kuwait has been offered

at both undergraduate and graduate levels (Qari, 1998). It was noted that LIS graduates from both PAAET and KU do not meet the increasing need for professional librarians in Kuwait.

In their study, Alqudsi-ghabra and Al-Muomen (2012a) revealed that a total of 167 students graduated from the Kuwait University's Master's degree program. Of these, 41 were men and 126 were women. In a later study, they pointed out that enrollment has been increasing especially since the Department of Library and Information Science (DLIS) started an undergraduate minor program in Information Studies (Alqudsi-ghabra and Al-Muomen, 2012b).

Kuwait MLIS graduates did not exhibit great interest in the field in terms of career, as their main purpose of the degree was to gain a Master's degree or develop professionally. They were concerned with the underestimated status of the profession in Kuwait and had negative views of the image and the title of the degree. In his study, Alansari (2011) suggests that the negative image of librarians has never been an Arab phenomenon but rather a concern for librarians worldwide. The study identified the major factors affecting the image of librarians. These include: the public ignorance of the work of librarians, the poor quality of service in some libraries, lack of appreciation of the useful services provided by librarians, the low level of funding libraries receive and the lower salaries compared to other professions. Lesher and Abdel-Motey (2009) suggested that unless academic libraries provide teaching status and salary to professional staff, librarianship will continue to be regarded as a low status career in the region, especially when compared to other highly visible professions such as medicine, law and engineering

Zehery (1997) indicated that Kuwait University libraries had the highest number of staff (131) among all university libraries in the GCC. A year later library staff had increased to 181 (Qari, 1998). While most of the staff hold graduate and undergraduate professional degrees, 40% do not hold a college degree. Table 1 shows that the number of staff is much smaller in private academic institutions in Kuwait due to their smaller populations and collections. A number of private institutions are maintaining a one-man show such as KMBS and KILAW; others are functioning with a maximum of six full-time employees. This creates fewer but more competitive career opportunities in libraries in the private sector.

The reluctance of Kuwaiti professionals to enter the field resulted in more expatriate staff, mostly Arabs and Indians residing in Kuwait. By visiting private institutions of higher education, one can notice that 85–90% of librarians in those institutions are expats. Expatriate professionals are also less motivated to enter the profession due to the gap in salaries between indigenous and expatriate staff, especially in the public sector. The emergence of new colleges and universities creates chances for growth and diversity of professionals in the country and especially because those institutions offer competitive compensation to both indigenous and expatriate staff.

Continuing professional development (CPD) activities for librarians are very limited in the country. There is no systematic program for CPD offered at any of the academic/research institutions, the national library or the local library association which are all considered as key potential providers for professional development. Therefore, most of the LIS professionals seek out opportunities in neighbor countries, Europe or America.

Conclusion and recommendations

Academic libraries in Kuwait face several obstacles to development such as shortage in staffing, lasting effects from the looting of resources during the 1990 invasion, lack of cooperative initiatives and reluctance of local professionals to work in the field.

The establishment of the first library association in the country in 2005 could facilitate conversation among libraries and create chances for networking. It is worth noting that the Library Information Association of Kuwait (LIAK) is the second library association in the Gulf region after the Saudi association (Aman, 2005).

The lack of professional librarians remains a critical problem facing libraries in Kuwait. If the need is not met locally, Kuwait will continue to look for professionals from other countries. LIAK again can play a vital role in raising the status of librarians in the country and attracting more professionals to the field.

While access could be an alternative to ownership for some small and limited resource centers, ILL and DD are still not very well developed and used between academic libraries in Kuwait. It is important to maximize resource sharing among Kuwaiti institutions to reduce costs and minimize reliance on outside suppliers.

Some libraries are benefiting from international consortiums to cut costs and expand in resources and services, such as the AUK Library which is a member of the American International Consortium of Academic Libraries (AMICAL). However, a country-level consortium would boost collections and services and bring savings which would benefit the academic and research communities. An agency to coordinate and govern cooperation seems to be a must.

Candidates include the National Library of Kuwait (NLK) and the Library and Information Association of Kuwait (LIAK).

Now that LIAK has been in existence for almost 10 years, a branch or committee for academic libraries could be formed to bring academic professionals together. Listservs, blogs, online forums and social networking sites must be used to bridge the distance and foster discussion and new collaborative ideas.

Declaration of conflicting interests

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Author biography

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Abstracts

موقع OpenDOAR (دليل المستودعات المفتوحة) في يناير 2015، والذي يُقدم قوائم موثوق فيها بالمستودعات المفتوحة حول العالم، كما تُشير إلى زيادة الاتجاه إلى تطوير المستودعات المفتوحة في مؤسسات التعليم العالي والمؤسسات البحثية. تعمل هذه المستودعات وسيلةً لنشر المحتوى الفكري الذي تُنتجه المؤسسات البحثية أو الجامعات في المُجتمعات وبين عموم الجمهور.

قتطفات

Sharing the data: The information policies of NOAA and EUMETSAT

مُشاركة البيانات: سياسات NOAA وEUMETSAT للمعلومات

Freya Ridgway Yost

العدد رقم 42،1 من مجلة الإفلا:

المُلخص:

تعمل الإدارة الوطنية لدراسة المحيطات والغلاف الجوي (NOAA) والمُنظمة الأوروبية لاستغلال السواتل المُخصصة للأرصاد الجوية (EUMETSAT) في ثلاثة مجالات مُختلفة: السائل الثابت بالنسبة للأرض، والسائل في مدار قطبي، سائل قياس ارتفاع المُحيطات. يولد كل من هذه البرامج بيانات مُختلفة وتجعل المؤسستين قادرتين على عمل مُلاحظات عالمية تُحقق مُتطلبات مهامهما المُتتابعة، تبحث الورقة البحثية سياسات البيانات الخاصة بالمؤسستين في سياق الاتفاقات التي أقرتها المنظمة العالمية للأرصاد الجوية (WMO)، يُحلل البحث الشراكة من خلال سياسات البيانات والاتفاقات الموجودة على مواقع الوكالة الإلكترونية، والأبحاث التقنية، والمعاهدات، والتقارير الصادرة عن مراكز البيانات التابعة للمؤسستين. ويوضح البحث أنه بالرغم من اختلاف سياسات المؤسستين، ومعاييرهما الصناعية، وتكنولوجياتهما، والحدود الوطنية، ومُبادرات تجميع المصادر يُمكن أن ترفع الكفاءة وتعود بالنفع على مُجتمعات المُستخدمين. لقد أسست NOAA وEUMETSAT شراكة طويلة الأمد زادت من قوة المُجتمع الجوي وعموم البنية التحتية المعلوماتية للأرصاد الجوية.

Open access repositories in India: Characteristics and future potential

المستودعات المفتوحة في الهند: سمات وإمكانيات مُستقبلية

Prerna Singh

العدد رقم 42،1 من مجلة الإفلا:

المُلخص:

تفحص الدراسة الحالية تطور المستودعات المفتوحة في الهند، يرجع تطور المستودعات المؤسسية إلى تطور أول مستودع IR Eprints @IISc على يد T.B Rajasekhar في 2002، ومنذ ذلك شهدت المستودعات المؤسسية تطورًا كبيرًا، تم جمع البيانات لهذه الدراسة من

Open access and the Caribbean academic: An exploratory investigation of the adoption of this medium for publishing among Science Faculty of The University of the West Indies

التداول الحر في منطقة الكاريبي: استقصاء يستكشف تبني هذه الطريقة للنشر في كليات جامعة ويست إنديز العلمية

Ingrid Iton; Ardon Iton

العدد رقم 42،1 من مجلة الإفلا:

المُلخص:

يُقدم التداول الحر للتواصل الدراسي في منطقة البحر الكاريبي عامةً والمُجتمع العلمي والتكنولوجي خاصةً، فرصة لتنقل التركيز ليكون مبني على أساس بحثي وليس وفقًا لرغبة الناشر فحسب، ولكن وليُصبح ذلك حقيقة ستحتاج الجامعة والمكتبة إلى التحرر من مُمارسات النشر والترويج التقليدية، وفي محاولة لمعرفة مدى استعداد الكليات العلمية في جامعة ويست إنديز للانتقال لذلك، تُحلل هذه الدراسة مفاهيم، ومفاهيم، واستخدام الإتاحة المفتوحة. كشفت نتائج البحث عن فجوات كبيرة في المعرفة بالإتاحة المفتوحة وانخفاض مستوى التعامل معها.

Faculty Members' Perceptions and Use of OA Journals: Bangladesh Perspective

مفاهيم أعضاء الكليات واستخدام المجلات مفتوحة الإتاحة: بنجلاديش

Nafiz Shuva; Radia Taisir

العدد رقم 42،1 من مجلة الإفلا:

المُلخص:

إن التداول الحر حركة إنسانية تضمن مساواة جميع أفراد المُجتمع في الوصول إلى المعرفة، ويهدف إلى رأب الفجوة بين الإتاحة والمعرفة،

الشخصية والقنوات المتنوعة، وتم تحليل نقاط ضعف وقوة كل من هذه القنوات في تقديم الخدمات. يدعو صاحب البحث إلى عمل دراسات ميدانية حول تصميم نماذج عملية تُناسب الريف وتكون مُلائمة لتقديم المعلومات الريفية في جنوب الصحراء الأفريقية.

Kuwait's higher education libraries: A descriptive analysis

مكتبات التعليم العالي في الكويت: تحليل وصفي

Asma J. Alkanan

العدد رقم 42،1 من مجلة الإفلا:

المُلخص:

يُغطي هذا المقال تاريخ تطور المكتبات الأكاديمية في الكويت، العضو في مجلس التعاون الخليجي. لقد بدأ نظام التعليم العالي الخاص في الألفية الثانية وبذلك نشأت المكتبات الأكاديمية الخاصة الجديدة من عقدٍ واحد، قبل ذلك كانت المكتبات الأكاديمية مُمثلة في المكتبات الأكاديمية لجامعة الكويت. لقد أثرى تطور المكتبات الأكاديمية في الكويت المجال البحثي، وخلق فرصًا جديدة، ورسخ بيئة لتنافس المكتبيين الأكاديميين، الذين يعمل كل منهم في مؤسسته. يبحث هذا المقال تطور المكتبات الجديدة التي نشأت في الجامعات الخاصة وتطورها في مقارنةٍ مع مكتبات المؤسسات العامة. يستعرض المقال دراسات أساسية حول المكتبات الأكاديمية في الكويت وتُلقي الضوء على المكتبات الجديدة في القطاع الخاص، وخدماتها، ومرافقها، ومستوى مُشاركتها في المُجتمع الكويتي. يُحدد المقال أيضًا المعوقات التي تواجه هذه المكتبات والحلول المُمكنة.

وتمكين الباحثين حول العالم إلى الإسهام في إثراء المعارف الإنسانية. تُحاول هذه الدراسة وباستخدام استطلاعات الرأي الإلكترونية، فهم أعضاء كلية بنجلاديش ومفاهيمهم، واستخدامهم للمجلات المُتخصصة حرة التداول. يستكشف البحث أيضًا العوامل المُحفزة التي تؤثر على أعضاء الكلية في اختيارهم لما يُنشر. تُناقش الدراسة باختصار بعض الأمور، المُتعلقة بالتداول الحر القائم على السرقات. في النهاية، تقترح الورقة البحثية أن تعمل المكتبات كمراكز للتداول الحر وتُساعد أعضاء الكليات والباحثين في اختيار المجلات المُناسبة لأبحاثهم.

Effective information service delivery to rural dwellers in Sub-Saharan Africa: Whose job?

تقديم خدمات المعلومات بكفاءة للريفيين في جنوب الصحراء الأفريقية: عمل من؟

Chimezie Patrick Uzuegbu

العدد رقم 42،1 من مجلة الإفلا:

المُلخص:

إن هذا البحث مُصمم بعناية كي يُثير التساؤلات ويدفعنا للتفكير، ويؤكد على أهمية تقديم خدمات معلوماتية فعالة للمجتمعات الريفية. اتبع البحث منهج البحث المكتبي باستخدام الأبحاث المُتاحة حول مصادر وخدمات المعلومات الريفية المُقدمة لسكان الريف في مُختلف دول جنوب الصحراء الأفريقية، وهي الأبحاث التي تم التوسع في الاطلاع عليها وتحليلها وصفيًا لعرض أمثلة لمدى كفاءة تقديم الخدمات لقاطني الريف، وتوصل البحث إلى ست قنوات أساسية تعتمد عليها عملية تقديم المعلومات في الريف، وهي: وسائل الإعلام، نُظم خدمات المعلومات، البرامج التعليمية والتدريبية، عناصر التغيير، المعارف

摘要

Sharing the data: The information policies of NOAA and EUMETSAT

共享数据：NOAA 和 EUMETSAT的信息政策

Freya Ridgway Yost

摘要：

美国国家海洋和大气管理局 (NOAA) 与欧洲气象卫星应用组织 (EUMETSAT) 在三个不同的领域进行合作：地球同步卫星、极轨卫星和海洋测高卫星。这些项目各自生成不同的数据，这些数据为两家机构执行全球观测提供了保障。本文以世界气象组织 (WMO) 制定的协议为背景，调研了两家机构的数据政策。通过两家机构网站上的数据政策和协议、技术文献、条约，以及各自数据中心生成的报告，文章分析了两家机构的合作关系。排除双方在政策、行业标准、技术和国界方面存在的差异，本研究阐释了资源聚集项目如何提高效率，使用户群体受益。NOAA 和 EUMETSAT建立了长期的合作关系，这强化了气象界的科研能力，改善了气象学整体信息框架。

Open access repositories in India: Characteristics and future potential

印度的开放存取仓储：特点和发展潜力

Prerna Singh

摘要：

本研究考察了印度开放存取仓储的发展。印度机构仓储的发展可以追溯到 2002 年由T.B Rajase-khar 创立的首个机构仓储IR Eprints @IISc，此后众多机构仓储随之产生。本研究的数据来源于OpenDOAR (开放存取仓储名录)，数据收集于2015 年1月。OpenDOAR为全世界提供了质量可靠的开放存取仓储目录。本研究结果表明印度仓储库也位列"网络仓储排行榜 (RWWR)"之中，还表明在高等教育和研究机构中，开放存取仓储的发展趋势正在增强。开放存取仓储是机构散播知识成果的一种方式。公众资助机构的首要职责是向大众揭示研究结果。

Open access and the Caribbean academic: An exploratory investigation of the adoption of this medium for publishing among Science Faculty of The University of the West Indies

开放存取与加勒比地区的学术：对西印度群岛大学科学学院采用该媒介从事出版的探究性研究

Ingrid Iton; Ardon Iton

摘要：

开放存取给加勒比地区的整体学术交流——特别是科技，带来了机遇，使得重心从出版商驱动转向研究驱动。然而，要让这成为现实，还需要高校和教员打破围绕传统出版、任期和晋升的惯例。为了评估西印度群岛大学的科学教员是否对实现这一转型做好了准备，本研究分析了他们对开放存取的观念、知识和使用。结果显示这一群体对开放存取作为出版形态的知悉和最低参与度上存在着巨大差距。

Faculty members' perceptions and use of OA journals: Bangladesh perspective

教员对开放存取期刊的认知和使用：以孟加拉国为例

Nafiz Shuva; Radia Taisir

摘要：

开放存取是一项确保每一社会成员平等获取知识的人道主义运动，旨在减少存取鸿沟和知识鸿沟，让世界各地的研究人员为丰富人类知识做出贡献。本研究采用在线调查，试图了解孟加拉国教员对开放存取期刊的了解和使用情况。同时探究影响教员选择开放存取期刊出版物的动机因素。本研究还在开放存取运动的背景下，简要讨论了掠夺性开放存取期刊的一些问题。最后，本文建议图书馆充当开放存取出版物中心，帮助教员和研究人员选择用于他们研究的合适期刊。

Effective information service delivery to rural dwellers in Sub-Saharan Africa: Whose job?

针对撒哈拉以南非洲农村居民的有效信息服务传递：谁之工作？

Chimezie Patrick Uzuegbu

摘要：

本文意在发人深省，重申了农村社区有效信息服务传递的重要性。采用案头研究方法，本研究广泛查阅、描述分析了有关农村信息资源以及撒哈拉以南非洲地区各国农村居民服务的现有文献，以展示各种农村居民信息传递渠道的有效性。由此，我们辨识出 6大通常用于农村信息传递的渠道。这些渠道由大众媒体、信息服务系统、教育和培训计划、变革推动者、个人接触及其它渠道组成。文章分析了每一种渠道在向农村居民传递信息服务时的优势与不足。作者呼吁实地试验研究，以设计出面向农村、切实可行且可以复制的模式，有效的改善信息传递服务。

Kuwait's higher education libraries: A descriptive analysis

科威特高等教育系统图书馆：描述性分析

Asma J. Alkanan

摘要：

本文介绍了海湾合作委员会 (GCC) 成员——科威特的高校图书馆发展历史。私立高等教育系统在 2000 年之后才刚刚开始创设，因此新的私立高校图书馆仅建立于十年前。在此之前，科威特高校图书馆事业的代表是国立科威特大学图书馆。科威特新高校图书馆的发展丰富了研究领域，创造了新的机遇，为在各自机构工作的高校图书馆员培育了竞争环境。本文考察了私立高校图书馆的发展，及其与公共机构图书馆相比取得的进展。文章综述了有关科威特高校图书馆事业的主要研究现状，阐明了私立领域的图书馆的服务现状、基础设施建设以及图书馆对科威特社区生活的参与情况；文章还列出了了这些机构图书馆共同面临的制约，并提出了可能的解决方案。

Sommaires

Sharing the data: The information policies of NOAA and EUMETSAT

[Partage des données : les politiques de l'information de NOAA et EUMETSAT]

Freya Ridgway Yost

Résumé :

L'Agence américaine d'observation océanique et atmosphérique (NOAA) et l'Organisation européenne pour l'exploitation des satellites météorologiques (EUMETSAT) collaborent dans trois domaines différents : satellites géostationnaires, satellites en orbite polaire et altimétrie satellitaire pour l'observation des océans. Chacun de ces programmes génère des données différentes, permettant aux deux organisations d'effectuer des observations au niveau mondial qui correspondent aux exigences de leurs missions respectives. Cet article examine les politiques de données de ces deux organisations dans le contexte des accords mis au point par l'Organisation météorologique mondiale (OMN). Il analyse ce partenariat à la lueur des politiques et contrats relatifs aux données en se basant sur les sites web de ces organismes, la documentation technique, les traités et les rapports générés par leurs centres de données respectifs. La recherche illustre comment, en dépit des différences de politique, normes industrielles, technologies et frontières nationales, des initiatives de mise en commun des ressources peuvent améliorer l'efficacité et profiter aux communautés d'utilisateurs. Grâce à l'échange mutuel de données et d'instruments ainsi qu'à des opérations sur le terrain, NOAA et EUMETSAT ont mis en place un partenariat durable qui a renforcé la communauté météorologique et l'infrastructure globale d'informations météorologiques.

Open access repositories in India: Characteristics and future potential

[Archives ouvertes en Inde : caractéristiques et potentiel futur]

Prerna Singh

Résumé :

La présente étude examine l'évolution des archives ouvertes en Inde. Le développement des dépôts institutionnels en Inde remonte à la création du premier dépôt institutionnel Eprints @IISc par T.B Rajasekhar en 2002. Depuis, les dépôts institutionnels se sont considérablement développés. Les données de l'étude ont été obtenues de l'OpenDOAR (Registre des archives ouvertes) en janvier 2015. Le registre OpenDOAR fournit une liste fiable des archives ouvertes dans le monde. Les conclusions de l'étude montrent que les dépôts indiens sont également bien présents dans le classement des archives numériques (Ranking of Web Repositories ou RWWR). Elles montrent également qu'il y a une tendance croissante au développement d'archives ouvertes au sein des institutions d'enseignement supérieur et de recherche. Elles sont un moyen de faire connaître aux communautés et au public en général la production intellectuelle des institutions – qu'il s'agisse d'un organisme de recherche ou d'une université. Communiquer les résultats de la recherche au public est la responsabilité fondamentale des organismes financés par des fonds publics.

Open access and the Caribbean academic: An exploratory investigation of the adoption of this medium for publishing among Science Faculty of The University of the West Indies

[Le libre accès et le secteur universitaire aux Caraïbes : une étude préliminaire de l'adoption de ce support de publication par la faculté des sciences de l'université des Indes occidentales]

Ingrid Iton; Ardon Iton

Résumé :

Le potentiel offert par le libre accès aux Caraïbes à la communication savante en général et aux sciences et technologies en particulier, est l'occasion de mettre maintenant l'accent sur la recherche plutôt que sur la publication comme auparavant. Cependant, pour que cela devienne une réalité, l'université et le corps enseignant doivent se libérer des pratiques traditionnelles en matière de publication, de titularisation et de promotion. Dans une tentative pour déterminer si la faculté des sciences de l'université des Indes occidentales est disposée à effectuer une telle transition, cette étude préliminaire analyse la façon dont le libre accès y est perçu, connu et utilisé. Les résultats révèlent des lacunes importantes en ce qui concerne la connaissance du libre accès ainsi qu'une utilisation minimale comme mode de publication par ce groupe.

Faculty members' perceptions and use of OA journals: Bangladesh perspective

[La perception et l'utilisation des revues en livre accès par les membres de la faculté : la perspective du Bangladesh]

Nafiz Shuva; Radia Taisir

Résumé :

Le libre accès est un mouvement humanitaire visant à assurer l'égalité d'accès au savoir à chaque membre de notre société. Il a pour but de réduire l'écart en matière d'accès et de savoir et de permettre aux chercheurs du monde entier de contribuer à l'enrichissement des connaissances humaines. À l'aide d'enquêtes en ligne, cette étude s'efforce de comprendre dans quelle mesure les membres du corps professoral au Bangladesh connaissent les revues en libre accès et comment ils les perçoivent et les utilisent. L'étude explore également quels sont les facteurs qui incitent les membres de la faculté à choisir des revues en libre accès pour leurs publications. Elle aborde brièvement les problèmes relatifs aux pseudo-revues scientifiques en libre accès dans ce contexte. Enfin, l'article suggère que les bibliothèques opèrent comme des centres de publications en libre accès et aident les membres des facultés et les chercheurs à choisir les revues qui correspondent à leurs recherches.

Effective information service delivery to rural dwellers in Sub-Saharan Africa: Whose job?

[Fournir des services d'informations efficaces aux populations rurales en Afrique subsaharienne : de qui est-ce le travail ?]

Chimezie Patrick Uzuegbu

Résumé :

Ce document a été délibérément rédigé pour susciter la réflexion. Il réaffirme l'importance de la fourniture de services d'informations efficaces aux populations rurales. Par le biais d'une méthode de recherche documentaire, les documents disponibles concernant les sources et services ruraux d'informations à la disposition des populations rurales dans divers pays d'Afrique subsaharienne ont été étudiés en détails et analysés de façon descriptive pour déterminer l'efficacité des différents canaux de communication d'informations aux populations rurales. Cela a permis d'identifier six (6) canaux principaux dans lesquels est ancrée la communication d'informations au niveau rural. Ces canaux sont les médias, les systèmes de services d'information, les programmes d'éducation et de formation, les agents de changement, les contacts personnels et les divers canaux. Les forces et faiblesses de chacun de ces canaux en termes de communication de services d'information aux populations rurales ont été analysées. L'auteur appelle à la réalisation d'études expérimentales sur le terrain afin de concevoir des modèles ruraux pratiques et reproductibles qui soient efficaces pour communiquer des informations au niveau rural en Afrique subsaharienne.

Kuwait's higher education libraries: A descriptive analysis

[Bibliothèques d'enseignement supérieur au Koweït : une analyse descriptive]

Asma J. Alkanan

Résumé :

Cet article est consacré à l'histoire du développement des bibliothèques universitaires dans l'État du Koweït, qui est membre du Conseil de Coopération du Golfe. La mise en place d'un système d'enseignement supérieur privé n'a commencé qu'au second millénaire, et par conséquent, de nouvelles bibliothèques universitaires privées ont été fondées il y a seulement une dizaine d'années. Auparavant, la bibliothéconomie universitaire au Koweït était représentée par les bibliothèques universitaires appartenant à l'État du Koweït. Le développement de nouvelles bibliothèques universitaires au Koweït a enrichi le domaine de la recherche, créant de nouvelles opportunités et encourageant un climat compétitif pour les bibliothécaires universitaires, chacun travaillant dans sa propre institution. Cet article examine le développement de nouvelles bibliothèques universitaires privées et leurs progrès en comparaison avec les bibliothèques publiques institutionnelles. Il passe en revue des études essentielles sur la bibliothéconomie universitaire au Koweït et s'intéresse aux nouvelles bibliothèques du secteur privé ainsi qu'à leurs services, leurs équipements et leur niveau d'implication à l'égard de la communauté koweitienne. Il identifie également les contraintes communes auxquelles sont confrontées les bibliothèques de ces institutions et les solutions possibles.

Zusammenfassungen

Sharing the data: The information policies of NOAA and EUMETSAT

[Datenaustausch: Die Informationspolitik von NOAA und EUMETSAT]

Freya Ridgway Yost

Zusammenfassung:

Die US-amerikanische Meeresbehörde National Oceanic and Atmospheric Administration (NOAA) und die Europäische Organisation für die Nutzung meteorologischer Satelliten (EUMETSAT) arbeiten in drei unterschiedlichen Bereichen zusammen, und zwar im Bereich von geostationären Satelliten, polarumlaufenden Satelliten und Meeresspiegel-Altimeter-Satelliten. Diese Programme liefern unterschiedliche Daten und versetzen die beiden Organisationen in die Lage, weltweite Beobachtungen durchzuführen, die den Anforderungen ihrer jeweiligen Aufgaben entsprechen. Diese Arbeit befasst sich mit der Datenpolitik der beiden Organisation im Kontext zu den Vereinbarungen, die von der Weltorganisation für Meteorologie (WMO) getroffen wurden. In dem Papier wird die Partnerschaft anhand ihrer Datenpolitik und den Vereinbarungen von Agentur-Websites, technischer Literatur, Verträgen und Berichten, die von ihren jeweiligen Datenzentren erstellt wurden, analysiert. Die Arbeit zeigt, dass die Ressourcenbündelung trotz aller Unterschiede bei Datenpolitik, industriellen Standards, Technologien und Landesgrenzen die Effizienz verbessern und den Nutzern Vorteile bringen kann. Durch den gegenseitigen Austausch von Daten, Instrumenten und Arbeiten am Boden haben NOAA und EUMETSAT eine dauerhafte Partnerschaft etabliert, die die Wetter-Community und die Informationsinfrastruktur der Meteorologie insgesamt gestärkt hat.

Open access repositories in India: Characteristics and future potential

[Open-Access-Dokumentenserver in Indien: Merkmale und Zukunftspotenzial]

Prerna Singh

Zusammenfassung:

Diese Studie prüft die Entwicklung von öffentlich zugänglichen Dokumentenservern (Repositorien) in Indien. Die Entwicklung institutioneller Repositorien in Indien reicht bis zur Entwicklung der ersten IR-E-Drucke @IISc durch T.B Rajasekhar im Jahr 2002 zurück. Seither haben sich die IR umfassend weiterentwickelt. Die Studiendaten stammen aus dem Verzeichnis OpenDOAR (Directory of Open-Access Repositories) vom Januar 2015. OpenDOAR bietet eine zuverlässige und hochwertige Auflistung von Open-Access-Repositorien in aller Welt. Die Studienergebnisse zeigen, dass die indischen Repositorien auch im „Ranking of Web Repositories (RWWR)" vertreten sind. Dies ist ein weiterer Hinweis darauf, dass die Entwicklung von Open-Access-Repositorien unter den höheren Bildungseinrichtungen und Forschungsinstituten zunimmt. Sie fungieren als ein Mittel, wissenschaftliche Arbeiten dieser Einrichtungen, beispielsweise eines Forschungsinstituts oder einer Universität, der Forschungsgemeinschaft und der breiten

Öffentlichkeit zugänglich zu machen. Mit öffentlichen Mitteln finanzierten Einrichtungen stehen in der Pflicht, die Ergebnisse ihrer Forschungsarbeit dem Publikum allgemein zugänglich zu machen.

Open access and the Caribbean academic: An exploratory investigation of the adoption of this medium for publishing among Science Faculty of The University of the West Indies

[Open Access und die akademische Welt der Karibik: Eine Erkundung der Annahme dieses Mediums zur Veröffentlichung an der Fakultät „Science" der University of the West Indies]

Ingrid Iton; Ardon Iton

IFLA-Journal, 42-1, 25-35

Zusammenfassung:

Das Potenzial, das Open Access für die akademische Kommunikation insgesamt und die Bereiche „Science" und „Technology" im Besonderen bietet, ist ein gutes Argument für die Verschiebung vom verlagsorientierten Fokus auf den forschungsorientierten Fokus. Damit dies jedoch Wirklichkeit werden kann, müssen sich Universität und Fakultät von der herkömmlichen Praxis der Veröffentlichung, Dauereinstellung und Promotion lösen. In einem Versuch, die Bereitschaft der Fakultät „Science" an der University of the West Indies für diesen Paradigmenwechsel zu prüfen, analysiert diese Arbeit die dort herrschenden Auffassungen, die vorhandenen Kenntnisse und die Anwendung von Open Access. Die Ergebnisse weisen auf signifikante Lücken bei den Kenntnissen über Open Access und auf einen minimalen Einsatz von Open Access als Veröffentlichungsmedium unter dieser Kohorte hin.

Faculty members' perceptions and use of OA journals: Bangladesh perspective

[Auffassung und Verwendung von OA-Zeitschriften von Fakultätsangehörigen aus der Perspektive von Bangladesh]

Nafiz Shuva; Radia Taisir

IFLA-Journal, 42-1, 36-48

Zusammenfassung:

Open Access ist eine humanitäre Bewegung mit dem Ziel, jedem Mitglied unserer Gesellschaft uneingeschränkten Zugang zu wissenschaftlichen Erkenntnissen zu verschaffen. Der Autor plädiert dafür, dass die Kluft in Bezug auf Zugang und Wissen reduziert wird und dass Forscher aus der ganzen Welt die Möglichkeit haben, einen Beitrag zur Bereicherung des menschlichen Wissens zu leisten. Diese Arbeit versucht mittels Online-Befragungen, das Bewusstsein, die Auffassung und die Verwendung von Open-Access-Zeitschriften unter Fakultätsangehörigen in Bangladesch zu verstehen. Außerdem werden die Motive untersucht, welche die Entscheidung der Fakultätsangehörigen, Open-Access-Zeitschriften für ihre Veröffentlichungen zu nutzen oder nicht, beeinflussen. Die Studie enthält eine kurze Diskussion über einige Fragen zu „räuberischen" (predatory) Open-Access-Zeitschriften im Kontext der Open-Access-Bewegung. Abschließend wird in der Arbeit vorgeschlagen, dass Bibliotheken als Zentren für Open-Access-Veröffentlichungen arbeiten und Fakultätsangehörige und Forscher dabei unterstützen sollten, die für ihren Forschungsbereich richtige Zeitschrift zu wählen.

Effective information service delivery to rural dwellers in Sub-Saharan Africa: Whose job?

[Effektive Informationsdienstleistungen für Bewohner ländlicher Gebiete in Schwarzafrika: Wessen Aufgabe ist dies?]

Chimezie Patrick Uzuegbu

IFLA-Journal, 42-1, 49-58

Zusammenfassung:

Dieser Artikel möchte neue Denkweisen provozieren. Sie bekräftigt die Bedeutung effektiver Informationsdienstleistungen in ländlichen Gebieten. Anhand von Sekundärforschung wurde die verfügbare Literatur zu Informationsquellen in ländlichen Gebieten und Dienstleistungen für Bewohner zahlreicher Länder Schwarzafrikas eingehend geprüft und beschreibend analysiert, um die Effektivität der einzelnen Informationsverbreitungskanäle für Bewohner ländlicher Gebiete darzulegen. Das Ergebnis ist die Definition von sechs (6) Hauptkanälen, über die die Informationsverbreitung in ländlichen Gegenden generell erfolgt. Diese Kanäle sind unter anderem Massenmedien, Informationsservicesysteme, Schulungs- und Ausbildungsprogramme, Bedarfsberater (Change Agents) und sonstige Kanäle. Die Stärken und Schwächen jedes dieser Kanäle in Bezug auf die Bereitstellung von Informationsdiensten an die ländliche Bevölkerung wurden analysiert. Der Autor regt die Durchführung von Feldversuchen an, um ländlich orientierte, praktische und wiederholbare Modelle zu erstellen, die für eine zuverlässige

Informationsversorgung der ländlichen Bevölkerung in Ländern Schwarzafrikas sorgen.

Kuwait's higher education libraries: A descriptive analysis

[Hochschulbibliotheken in Kuwait, eine deskriptive Analyse]

Asma J. Alkanan

IFLA-Journal, 42-1, 59-65

Zusammenfassung:

Dieser Artikel befasst sich mit der Geschichte der Entwicklung akademischer Bibliotheken im Staat Kuwait, einem Mitgliedsstaat des Golfkooperationsrats (GCC). Die Einrichtung des privaten Hochschulsystems erfolgte erst nach 2000, deshalb sind neue private Hochschulbibliotheken gerade mal rund zehn Jahre alt. Zuvor waren akademische Bibliotheken in Kuwait in Händen der staatlichen Universitätsbibliotheken Kuwaits. Die Entwicklung neuer akademischer Bibliotheken in Kuwait hat die wissenschaftliche Welt dort bereichert, neue Möglichkeiten geschaffen und ein Wettbewerbsklima unter Universitätsbibliothekaren entstehen lassen, die jeweils ausschließlich auf ihr eigenes Institut ausgerichtet waren. Der Artikel untersucht die Entwicklung neuer privater Universitätsbibliotheken und ihre Fortschritte im Vergleich zu den öffentlichen Einrichtungen. Dazu wurden wichtige Studien zum akademischen Bibliothekswesen in Kuwait analysiert. Der Artikel wirft ein Licht auf neue Bibliotheken im privaten Sektor, ihre Dienstleistungen, Einrichtungen und ihre Verbindung mit der kuwaitischen Gemeinschaft. Außerdem werden die wichtigsten Hindernisse dargestellt, denen diese Einrichtungen ausgesetzt sind, sowie mögliche Lösungen dafür.

Рефераты статеи

Sharing the data: The information policies of NOAA and EUMETSAT

Совместное использование данных: Информационная политика организаций NOAA и EUMETSAT

Фрейя Риджуэй Йост

IFLA Journal, 42-1, 5-15

Аннотация:

Национальное управление океанических и атмосферных исследований США (NOAA) и Европейская организация спутниковой метеорологии (EUMETSAT) осуществляют сотрудничество в трех различных областях: геостационарные спутники, спутники на полярной орбите, а также океанические альтиметрические спутники. В рамках каждой из указанных программ формируются различные данные, и эти программы позволяют обеим организациям осуществлять глобальные наблюдения, отвечающие требованиям конкретных задач каждой из организаций. В настоящей работе проводится анализ информационной политики обеих организаций в контексте соглашений, утвержденных Всемирной метеорологической организацией (WMO). Материалом для проведения анализа в рамках настоящей работы являются информационная политика организаций и соглашения, размещенные на интернет-сайтах агентств, техническая литература, договоры и отчеты, созданные соответствующими центрами регистрации и обработки данных указанных организаций. Данное исследование показывает, каким образом, несмотря на различия в политике, промышленных стандартах, технологии, а также невзирая на государственные границы, проекты, направленные на объединение ресурсов, могут повысить эффективность и приносить пользу сообществу пользователей. Посредством взаимного обмена данными, приборами, а также наземными операциями NOAA и EUMETSAT установили долговременное сотрудничество, результатом которого является усиление метеорологического сообщества, а также общей информационной инфраструктуры метеорологии.

Open access repositories in India: Characteristics and future potential

Хранилища с открытым доступом в Индии: Характеристики и потенциал на будущее

Прерна Сингх

IFLA Journal, 42-1, 16-24

Аннотация:

В настоящей работе проводится анализ развития хранилищ с открытым доступом в Индии. Развитие хранилищ научных учреждений в Индии началось в

2002 г. с первого хранилища IR Eprints @IISc, которое создал Т.Б. Раджасекхар. С той поры имело место существенное развитие хранилищ научных учреждений. Материалы для данного исследования были получены из каталога OpenDOAR (Каталог хранилищ с открытым доступом) в январе 2015 г. В каталоге OpenDOAR представлен проверенный перечень хранилищ с открытым доступом со всего мира. Исследование показало, что индийские хранилища также представлены в "Рейтинге Web-хранилищ" (RWWR). Оно также свидетельствует о том, что тенденции развития хранилищ с открытым доступом растут в среде высших учебных заведений и научно-исследовательских учреждений. Они выступают в роли средства донесения результатов интеллектуальной деятельности учреждений, будь то научно-исследовательский институт или университет, до различных сообществ или до широкой общественности. Главной обязанностью учреждений, финансируемых за счет государства, является сообщение общественности результатов своей исследовательской деятельности.

Open access and the Caribbean academic: An exploratory investigation of the adoption of this medium for publishing among Science Faculty of The University of the West Indies

Открытый доступ и научные сотрудники высшего учебного заведения островов Карибского бассейна: Ознакомительное исследование по теме использования данного инструмента как средства публикации на кафедре естественных наук Университета Вест-Индии

Ингрид Айтон; Ардон Айтон

Аннотация:

Потенциал, который, благодаря открытому доступу, представляется академическому сообществу стран Карибского бассейна, как в общих областях, так и непосредственно в сфере науки и техники, являет собой возможность сместить фокус с материалов, интересных публицистам, к работам, представляющим интерес для исследователей. Тем не менее, для того, чтобы воплотить эту идею в жизнь, как студентам, так и преподавателям необходимо распрощаться с приемами, тесно связанными с обычной публицистикой, постоянными должностями профессорского состава и рекламными мероприятиями. В попытке оценить готовность преподавательского состава Университета Вест-Индии к данному переходу в настоящем ознакомительном исследовании проводится анализ восприятия, знания и использования открытого доступа преподавательским составом. Результаты указали на наличие в данной группе существенных пробелов в осведомленности и минимального уровня использования открытого доступа как средства публикации.

Faculty members' perceptions and use of OA journals: Bangladesh perspective

Оценка и использование журналов открытого доступа преподавательским составом: Перспективы для Бангладеш

Нафиз Шува; Радиа Тайсир

Аннотация:

Открытый доступ представляет собой движение гуманитариев, направленное на представление каждому члену нашего общества равного доступа к знаниям. Оно ставит своей целью уменьшить разделение знаний и доступа к ним и позволяет исследователям со всего мира вносить свой вклад в обогащение человеческих знаний. В рамках настоящего исследования, основанного на результатах интернет-опросов, осуществляется попытка оценить уровень осведомленности преподавателей в Бангладеш о журналах открытого доступа, восприятия и использования ими данных журналов. В нем также рассматриваются мотивирующие факторы, определяющие выбор преподавательским составом журналов открытого доступа в качестве средства публикации. В работе представлено сжатое обсуждение некоторых вопросов, касающихся темы "хищных" журналов открытого доступа в контексте движения за открытый доступ. В заключение высказывается предложение, согласно которому библиотеки могли бы выступать в роли центров публикации материалов в открытом доступе и оказывать помощь преподавателям и исследователям в выборе подходящего журнала для своих исследований.

Effective information service delivery to rural dwellers in Sub-Saharan Africa: Whose job?

Эффективное оказание информационных услуг сельским жителям стран Африки, расположенных к югу от Сахары: Чья работа?

Чимези Патрик Узуегбу

IFLA Journal, 42-1, 49-58

Аннотация:

Данная работа задумана как намеренное подстрекательство к размышлению. Она снова подчеркивает важность оказания эффективных информационных услуг в сельских общинах. При помощи "кабинетного" метода были выполнены масштабное исследование и описательный анализ имеющихся литературных материалов, касающихся источников информации и соответствующих услуг, доступных сельским жителям различных стран Африки, расположенных к югу от Сахары, с целью продемонстрировать эффективность различных каналов представления информации сельским жителям. В результате были определены 6 (шесть) основных каналов обычного поступления информации в сельские районы. К указанным каналам относятся: средства массовой информации, системы информационного обслуживания, программы обучения и подготовки, источники перемен, личные контакты, а также прочие источники. Были проанализированы сильные и слабые стороны каждого из названных каналов с точки зрения оказания информационных услуг сельскому населению. Автор призывает к проведению практических исследований с целью создания моделей, которые были бы ориентированы на сельских жителей, практичны и повторимы, и были бы эффективны для обеспечения доставки информации в сельские районы стран Африки, расположенных к югу от Сахары.

Kuwait's higher education libraries: A descriptive analysis

Библиотеки высших учебных заведений Кувейта: Описательный анализ

Асма Дж. Алканан

IFLA Journal, 42-1, 59-65

Аннотация:

В данной статье описывается история развития академических библиотек Государства Кувейт, члена Совета сотрудничества стран Персидского залива (GCC). Формирование системы частного высшего образования началось лишь во втором тысячелетии, и поэтому новые частные академические библиотеки были заложены всего десятилетие назад. До этого момента академические библиотеки в Кувейте были представлены государственными библиотеками Университета Кувейта. Развитие новых академических библиотек в Кувейте обогатило исследовательскую сферу, создало новые возможности, а также содействовало формированию конкурентной среды для работников академических библиотек, каждый/каждая из которых работает в своем учреждении. В настоящей статье рассматривается процесс развития новых библиотек частных университетов и их прогресс в сравнении с библиотеками государственных учреждений. Анализируются ключевые исследования в области академического библиотековедения в Кувейте и проливается свет на новые библиотеки в частной сфере, их услуги, технические средства и их уровень взаимодействия с сообществом Кувейта. В ней также называются общие сдерживающие факторы, с которыми сталкиваются библиотеки указанных учреждений, и предлагаются возможные решения.

Resúmenes

Sharing the data: The information policies of NOAA and EUMETSAT

[Compartir los datos: las políticas de información de NOAA y EUMETSAT]

Freya Ridgway Yost

IFLA Journal, 42-1, 5-15

Resumen:

La Administración Nacional Oceánica y Atmosférica estadounidense (National Oceanic and Atmospheric Administration, NOAA) y la Organización Europea para la Explotación de Satélites Meteorológicos (EUMETSAT) colaboran en tres campos diferentes: satélites geoestacionarios, satélites en órbita polar y satélites de altimetría oceánica. Cada uno de estos programas genera datos diferentes y hace que ambas organizaciones puedan llevar a cabo observaciones globales conformes con los requisitos de sus misiones respectivas. En este artículo se examinan las políticas de datos de las dos organizaciones en el contexto de los acuerdos dispuestos por la Organización Meteorológica Mundial (OMM). Asimismo, se analiza la colaboración a nivel de políticas de datos y acuerdos entre sitios web de las agencias, documentación técnica, tratados e informes elaborados por cada uno de sus

centros de datos. La investigación muestra como, a pesar de las diferencias en cuanto a políticas, estándares industriales, tecnologías y fronteras nacionales, las iniciativas dirigidas al agrupamiento de recursos pueden mejorar la eficiencia y beneficiar a las comunidades de usuarios. Por medio del intercambio de datos, instrumentos, y operaciones terrestres, NOAA y EUMETSAT han forjado una colaboración duradera que ha reforzado a la comunidad de meteorólogos y la infraestructura general de información sobre meteorología.

Open access repositories in India: Characteristics and future potential

[Repositorios de acceso abierto en la India: características y potencial de future]

Prerna Singh

IFLA Journal, 42-1, 16-24

Resumen:

En este estudio se analiza el desarrollo de los repositorios de acceso abierto en la India. El desarrollo de repositorios institucionales (RI) en la India se remonta al desarrollo de los primeros RI Eprints @IISc por parte de T.B Rajasekhar en 2002. Desde entonces, el desarrollo experimentado por los RI ha sido considerable. Los datos del estudio se recopilaron a partir de Open-DOAR (Directorio de repositorios de acceso abierto) en enero de 2015. OpenDOAR ofrece un listado de calidad asegurada donde figuran repositorios de acceso abierto de todo el mundo. Los resultados del estudio muestran que los repositorios indios también están presentes en el "Ranking of Web Repositories (RWWR)" (Ranking de repositorios web). Asimismo, indican que las tendencias de desarrollo de repositorios de acceso abierto van en aumento entre los centros de educación superior e investigación. Suponen una forma de diseminar la producción intelectual de los centros, que pueden ser organizaciones de investigación o universidades, entre las comunidades y el público en general. Las organizaciones que reciben fondos públicos tienen la responsabilidad principal de divulgar los resultados de la investigación a la sociedad.

Open access and the Caribbean academic: An exploratory investigation of the adoption of this medium for publishing among Science Faculty of The University of the West Indies

[Acceso abierto en la universidad caribeña: investigación exploratoria de la adopción de este medio para la publicación entre el profesorado de ciencias de la Universidad de las Indias Occidentales]

Ingrid Iton; Ardon Iton

IFLA Journal, 42-1, 25-35

Resumen:

El potencial que ofrece el acceso abierto para la comunicación académica en general, y para la ciencia y la tecnología en particular, en la región del Caribe supone una oportunidad para desviar el foco de atención del editor a la investigación. Sin embargo, para que sea una realidad, tanto la universidad como el profesorado tienen que desprenderse de las prácticas asociadas a los métodos tradicionales de publicación, titularidad de plaza y promoción. En un intento por evaluar la disposición del profesorado de ciencias de la Universidad de las Indias Occidentales a emprender esta transición, este estudio exploratorio analiza sus impresiones, conocimientos y el uso del acceso abierto. Los resultados revelaron importantes carencias de conocimiento y una implicación mínima en el acceso abierto como modalidad de publicación en esta cohorte.

Faculty members' perceptions and use of OA journals: Bangladesh perspective

[Impresiones y uso de diarios de AA de los miembros del profesorado universitario: la perspectiva de Bangladés]

Nafiz Shuva; Radia Taisir

IFLA Journal, 42-1, 36-48

Resumen:

El acceso abierto es un movimiento humanitario que pretende asegurar un acceso equitativo al conocimiento para todos y cada uno de los miembros de la sociedad. Su objetivo es reducir los obstáculos al acceso y el conocimiento y permitir a investigadores de todo el mundo contribuir a enriquecer el conocimiento humano. Por medio de encuestas realizadas a través de Internet, este estudio trata de comprender el grado de concienciación, las impresiones y el uso de los diarios de acceso abierto entre los miembros del profesorado universitario de Bangladés. Se abordan también los factores motivacionales que influyen en los miembros del profesorado universitario a la hora de elegir diarios de acceso abierto para las publicaciones. En el estudio se analizan brevemente algunos aspectos de los diarios de acceso abierto predatorios en el contexto del movimiento de acceso abierto. Por último, este artículo sugiere que las bibliotecas actúen

como centros de publicaciones de acceso abierto y ayuden a los miembros del profesorado universitario y a los investigadores a escoger los diarios adecuados para sus investigaciones.

Effective information service delivery to rural dwellers in Sub-Saharan Africa: Whose job?

[Prestación de servicios de información eficaces a los habitantes de las zonas rurales del África subsahariana: ¿a quién le corresponde?]

Chimezie Patrick Uzuegbu

IFLA Journal, 42-1, 49-58

Resumen:

Este artículo se ha diseñado a propósito para obligar a la reflexión. En él se reitera la importancia de prestar un servicio de información eficaz a las comunidades de las zonas rurales. Mediante la adopción del método de investigación documental, se revisó ampliamente y se analizó de forma descriptiva la literatura existente sobre fuentes y servicios de información rurales para habitantes de zonas rurales en varios países de la región subsahariana de África con el fin de demostrar la efectividad de los diversos canales de distribución de información entre los habitantes de las zonas rurales. De este modo, se identificaron seis (6) canales principales a través de los cuales suele producirse la distribución de información en las zonas rurales. Estos canales son los medios de masas, los sistemas de servicios de información, los programas de educación y formación, los agentes de cambio, los contactos personales y canales diversos. Se analizaron los puntos fuertes y débiles de cada uno de estos canales en relación con la prestación de servicios de información a los habitantes de las áreas rurales. El autor reclama que se lleven a cabo estudios de experimentos de campo para diseñar modelos orientados a los entornos rurales, prácticos y replicables que resulten eficaces para la distribución de información en las zonas rurales del África subsahariana.

Kuwait's higher education libraries: A descriptive analysis

[Bibliotecas de educación superior en Kuwait: un análisis descriptive]

Asma J. Alkanan

IFLA Journal, 42-1, 59-65

Resumen:

En este artículo se recoge la historia del desarrollo de las bibliotecas académicas en el Estado de Kuwait, miembro del Consejo de Cooperación del Golfo (CCG). El sistema de educación superior privada ha comenzado a desarrollarse en el segundo milenio, por lo que las nuevas bibliotecas académicas privadas apenas tienen una década de antigüedad. Anteriormente, la biblioteconomía académica de Kuwait estaba representada por las bibliotecas de la Universidad de Kuwait, de propiedad estatal. La evolución de las nuevas bibliotecas académicas en Kuwait ha enriquecido el ámbito investigador, ha creado nuevas oportunidades y ha propiciado un entorno competitivo para los bibliotecarios académicos, en el que cada uno de ellos trabaja desde su centro respectivo. En este artículo se examina el desarrollo de nuevas bibliotecas universitarias privadas y su avance en comparación con las bibliotecas de centros públicos. Se revisan los principales estudios sobre biblioteconomía académica en Kuwait y se arroja luz acerca de las nuevas bibliotecas en el sector privado, sus servicios, instalaciones y su nivel de participación en la comunidad kuwaití. Además, se identifican las limitaciones habituales a las que se enfrentan las bibliotecas de dichos centros, así como las soluciones posibles.