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Convergence of libraries, archives and museums

Stephen Parker

We begin this issue with a selection of papers presented at the ICLAM 2011 International Conference on the Convergence of Libraries, Archives and Museums, held in New Delhi, India, from 15–17 February 2011 on the theme, 'User empowerment through digital technologies'. The conference was organized by the National Institute of Fashion Technology (NIFT) in collaboration with the Art Libraries Section of IFLA, and the four papers presented here have been revised for publication in IFLA Journal. We are grateful for the assistance of Ms Nandini Dutta, Head of the NIFT National Resource Centre in New Delhi, in organizing this selection of papers.

The first ICLAM paper included here, 'Painted lines – Preservation connections', is by Heather Brown, Assistant Director, Artlab Australia. Starting from the premise that preservation management is essentially a 'way of seeing,' providing the framework that underpins and guides different strategies for safeguarding collections, the paper uses the metaphor of connected 'painted lines' to explore how an interconnected 'way of seeing' can potentially shape practical and effective preservation strategies for both the digital and physical worlds.

The next two papers continue with a focus on the convergence of libraries, archives and museums. In his paper, 'Digital preservation: Converging and diverging factors of libraries, archives and museums – An Indian perspective', Dr Dinesh Katre of the Human-Centred Design & Computing Group at the Centre for Development of Advanced Computing in Pune, emphasizes the need to expand the scope of convergence beyond integrated access. It is important to protect the role, focus, scope and identities of the three disciplines, rather than adopting the mixed approach manifested in many generalized software solutions which claim to manage archives, museums, libraries and repositories together. A gap analysis of digitalization in libraries, archives and museums from the Indian perspective provides the basis for and a set of actions proposed to bridge this gap.

The next ICLAM paper, 'Synergizing the collections of libraries archives and museums for better user services', by Dr Neelam Prasad, Head of the Institute Archives at the Indian Institute of Technology Kanpur, attempts to introduce a model of building a consortium involving libraries, archives and museums in India such that users can find information at a click of their mouse or mobile phone. Consortium building among Indian cultural heritage institutions would help to organize the digitization efforts made by many agencies all over India.

The fourth ICLAM paper deals with a different aspect of the digital environment. In 'The digital divide among the college students of Kashmir, India', Fayaz Ahmad Loan of the Centre of Central Asian Studies at the University of Kashmir aims to identify the nature and extent of the digital divide among college students in the Kashmir Valley and suggest possible solutions to bridge the gap. The results of a survey revealed that there is a wide digital divide among the students; male students use the Internet more than females, and urban students more than their rural counterparts. Students of computer science make most use of the Internet and social sciences and humanities students the least. The students who do not use the Internet cite the lack of Internet facilities, lack of access, lack of training, lack of awareness, lack of interest, no need, external threats and many others. Suggestions are made as to how bridge the gap.

The next paper returns us to the theme of digital preservation, but in another country, Nigeria. The paper, 'Digital preservation strategies: A case study of Nigerian national information centres', by Dr Ezra Shiloba Gbaje, a lecturer in the Department of Library and Information Science at Ahmadu Bello University, examines digital preservation strategies in the National Library of Nigeria, the National Archives

of Nigeria and the National Bureau of Statistics. The study discovered that migration is the most popular digital preservation strategy adopted and that no structure to assess digital objects for preservation action is in place. The author recommends that a National Centre for Digital Preservation, responsible for monitoring and conducting research in digital preservation activities, should be established.

We remain in Nigeria, with a complete change of topic, for the next paper. 'Quality library and information science education in Nigeria: The place of public-private collaboration', by Dr Augonus Nnamdi Uhegbu, an Associate Professor in the Department of Library and Information Science at Abia State University Uturu, identifies ways in which the private sector could participate in ensuring quality library and information science education in Nigeria. The token presence of the private sector in librarianship is considered to be one of the factors leading to infrastructural decay, inadequate or near absence of teaching and learning aids, low social perception of the profession and poor remuneration of librarians in the country. The paper outlines ways that could be used to attract private sector support to acquire new facilities, maintain existing ones, develop infrastructure and equip libraries and resource centres, which will ultimately lead to the production of sound and knowledgeable professionals.

With the final paper in this issue we move back to Asia, and again a completely different topic. In 'Investigating the information needs of nomadic students in Iran: Presenting a library service model', Hajar Salehi Dehpadekani and Masoud Pourhamidi of the University of Isfahan report on a study designed to find out the information needs of nomadic students of the Qashqa'i tribe in Iran in order to present a library service model able to meet their needs. The results show that most of the students preferred information in print format, and were particularly in need of cultural and medical non-educational books. The paper presents a model for providing library services for nomadic students which brings together convergent views on what nomadic students currently need.

This issue concludes with the usual News and International Calendar sections, and a report by IFLA Journal Editorial Committee member Sanjay Bihani on the London Book Fair 2011.

Article

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Painted lines: Preservation connections

Heather Brown
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Abstract
Preservation, the safeguarding of collections for the future, is a key area of convergence for libraries, archives, museums and other memory institutions. This applies to the preservation of 'traditional' physical collections as well as to preservation in the new digital world. Preservation management is essentially a 'way of seeing,' providing the framework that underpins and guides the different strategies for safeguarding collections. Using the metaphor of connected 'painted lines', this paper explores how the principle of an interconnected 'way of seeing' can potentially shape practical and effective preservation strategies that traverse the digital and physical worlds.

Keywords
digital preservation, traditional preservation, preservation management, knowledge continuity, life cycle

Setting the scene: interconnectedness and painted lines

The new digital world is a paradigm of interconnectedness. In this world, the traditional boundaries between libraries, museums and archives are increasingly dissolving. New technologies enable users to make connections between previously disparate collections in a dynamic, virtual environment of 'born digital' and 'turned digital' information.

While the digital world enables us to make the connections more readily, at another deeper level, the connections have always been there in the physical world.

Across time various cultures have developed different 'ways of seeing' things and ways of making connections. In India for example, the principle of interconnectedness has its roots in ancient philosophical traditions that acknowledge the interconnectedness of all things[2]. These traditions help to ensure that the knowledge, skills and techniques of one generation are connected with the next. The connections are like the painted lines in the following poem:

Painted Lines
The earth is painted with lines
that have been sung, danced
and written into existence.
They move within themselves
like a current of water.
Their timeless colours
stand to be observed
by the initiate who seeks their
knowledge and experience.
These painted lines never speak of age
but are vibrant in their ageless sayings.
They connect individuals, places and countries
with each other
and speak the many faces
of a single bond
where a smile, a tear, a love
can be held in the hands of all
who walk the earth.

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When the connections between the painted lines are lost, we lose our heritage. A palpable example comes from the Philippines. At an international conference on the preservation and management of cultural heritage, Ambeth Ocampo, Director of the

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National Historical Institute, told a poignant story of locals who had unearthed some ancient pots and were ignorantly smashing them in games of skittles (Ocampo 2005). While the locals knew that Chinese Ming vases were valuable, they had lost their connections with the traditions of their own indigenous crafts. These culturally significant pots were lost forever as they were smashed into thousands of tiny pieces.

When we reconnect the painted lines, the results can inspire and open up new opportunities. One such example comes from Thailand where tertiary students studying Thai traditional dances performed at a cultural heritage forum organized by the Thai Fine Arts Department[3]. With the guidance of their professors and academic colleagues across a range of disciplines, these young students had painstakingly researched and recreated the stylized dance steps that appeared on the sculptures of an ancient Thai temple. In one of those timeless moments, the audience was inspired as it watched these young students reconnecting the painted lines of their ancient heritage as they danced it into existence, transforming it from stone to the new dimension of a living performance.

Ultimately as we connect with the painted lines of our cultural heritage, physical and digital, we can take the essence with us into the future, where it will also inspire new ideas, new applications and opportunities. The key to sustaining the painted lines lies with preservation.

Preservation and connections

Like the metaphor of the painted lines in the poem, preservation interconnects libraries, archives and museums as collections–physical and digital–are safeguarded for the future. Preservation is a key area of convergence for memory institutions, as the various strategies for preserving in both the physical and digital worlds are largely applicable across their spectra.

Preservation management provides the principles and critical framework that underpins and guides the different strategies for safeguarding physical and digital collections. The essence of preservation management has aptly been described by Cloonan as "a way of seeing," as opposed to a series of disparate actions (Cloonan 2001:232).

With a similar perspective, the International Federation of Library Associations (IFLA) has broadly defined preservation management as:

> "... all the managerial and financial considerations ... including storage and accommodation provisions, staffing levels, policies, techniques and methods involved in preserving library and archival material and the information contained in them" (IFLA 1998).

This framework provides a connected 'way of seeing' preservation that is not limited by format; it can traverse the physical and digital worlds and the range of memory institutions.

Ultimately, as a high level principle of preservation management, an interconnected 'way of seeing' can profoundly affect the practical preservation outcomes in the digital and traditional worlds. The following sections explore the potential for applying the high level principle of interconnectedness to preservation strategies *within* and *across* the physical and digital worlds to align and maximize the practical benefits.

Connecting digital preservation management

For all the dynamics of its multi-dimensional connections, the new digital world contains a paradox. On one hand it is beguilingly simple to globally connect with individuals and organizations, yet on the other hand, ensuring the longer-term sustainability of these connections is complex.

The complexity of digital preservation management is largely due to the overwhelming scale and variety of the digital world, together with format and software obsolescence, and the dynamic nature of the web. Furthermore, with digital preservation there is a comparatively short time frame within which preservation actions need to occur, and hence decisions about what to preserve need to happen early in the life cycle (UNESCO 2003).

The principle of interconnectedness can be readily discerned within the field of digital preservation management. The various technological strategies that sustain the painted lines of the digital world such as refreshing, migrating, emulating, and replication (Reich and Rosenthal 2009) are entrenched in interconnected systems and quality assurance frameworks. At another level the effectiveness of these strategies has been augmented by connecting them with techniques and systems such as persistent identifiers and encapsulation, along with the development of digital preservation planning tools such as PLATO (2010) and emerging new preservation systems such as ROSETTA (Ex Libris 2010).

Likewise the Open Archival Information System (OAIS) Reference model that is now an ISO standard (Consultative Committee for Space Data Systems 2009) is pivotal to digital preservation management. It is complemented by the Digital Curation Centre's (DCC) *Curation Lifecycle Model* (Digital Curation

Centre 2008). Seeing them both as interconnected frameworks enables us to better understand how all the key curation and preservation functions are dynamically interlinked and hence can help inform the various strategies. As above, quality assurance and risk management frameworks are embedded in the principle of interconnectedness that permeates auditing systems. Foremost among these are the Trustworthy Repositories Audit and Certification (TRAC) checklist (Online Computer Library Center, Council for Research Libraries and National Archives and Records Administration 2007) and the Digital Repository Audit Method Based on Risk Assessment (DRAMBORA) self check framework (2008). Along with these international frameworks, Cornell University's well-known symbol of a three-legged stool graphically represents the dynamic interconnectedness of the technological, resourcing and organizational aspects of digital preservation management (Cornell University (2003–). Collectively, these models and frameworks demonstrate the inteconnectedness of digital preservation management.

Similarly, recent research such as the Blue Ribbon Task Force on Sustainable Digital Preservation and Access (2010) highlights that the economic model of digital sustainability needs to be connected with –and indeed integrated into–an organization's culture. Likewise the area of policy connects all areas of digital preservation management and aligns all strategies. Relevant examples of digital preservation policy development can be found in Charles Beagrie's Joint Information Systems Committee (JISC) report (2008) and the international examples on the archived Preserving Access to Digital Information (PADI) website[4].

Connections are also the essence of collaboration. Collaborations are a way of sustaining the painted lines through sharing expertise, development costs, harnessing and focusing effort, and attracting resourcing and support for programs. A host of digital preservation collaborations range from the Open Planets Foundation (2011), to the International Internet Preservation Consortium (2011), Digital Preservation Europe (2011), to PORTICO (2011), MetaArchive (2011) and Controlled Lots of Copies Keep Stuff Safe (CLOCKSS) (2011).

However while such collaborations and alliances are beneficial, they also cost and need ongoing commitment and nurturing to avoid disconnection.

In summary, like the painted lines themselves, the high level principle of interconnectedness permeates the systems and frameworks of digital preservation management. An interconnected 'way of seeing' enables us to better understand, align and apply the complex dynamic frameworks that link technological, resourcing and organizational issues. Conversely, failure to recognize the interconnections–for example viewing digital preservation management merely as a storage problem requiring a technological solution–will result in major risks to the long-term sustainability of the painted lines of digital heritage.

Connecting physical preservation management

As with digital preservation, the preservation management of physical collections also involves the principle of interconnectedness that in turn shapes the alignment of strategies. Again, like digital preservation, there are quality assurance and risk management frameworks that embed the principle of interconnectedness in preservation management systems and programs (Clifton 2005).

At one part of the traditional preservation management framework there is an emphasis on strategies that conserve the physical artefact. At the most complex level, this involves conservators undertaking various physical and chemical conservation treatments to stabilize and repair the original items. This is the equivalent of preservation's 'intensive care'. The early stages of treatment are like first aid–a basic maintenance that involves cleaning and minor repairs of collection items.

Another suite of interconnected strategies focus on the area of prevention and risk mitigation. Here storage is a key element, and enclosures made of inert materials help to protect whole collections and individual items over time. Environmental control is another major preventive strategy; a long-term stable environment will effectively slow the rate of deterioration. Integrated Pest Management (IPM) is closely linked with environmental control. IPM aims to make the collection environment unattractive to insects and pests. India's National Mission for Manuscripts has previously showcased how traditional techniques such as the use of neem leaves can be effective pest repellents (Sah 2006). Connecting traditional techniques with the more modern approach of IPM has the potential to augment the effectiveness of both strategies.

Disaster preparedness is another risk mitigation strategy that reduces the likelihood and impact of damage to the painted lines of cultural heritage. From a risk management perspective, all the best preservation strategies in the world will simply disconnect without a disaster plan and trained staff.

Reformatting–simply copying information from one form to another–is another important preservation management strategy that is more focused on the knowledge or content, rather than the artefact[5].

Copying and quality assurance protocols have been a key part of preservation since the dawn of time, embedded in those early traditions of passing on knowledge and techniques from one generation to the next. Currently the key international strategies for copying documentary heritage materials are digitizing and preservation microfilm. Digitizing has become the major access strategy, while preservation microfilm remains a long-term storage option, with a life expectancy of 500 years[6]. By interconnecting digitization with microfilm, it is possible to get the best of both worlds, with the digitizing providing the access, and microfilm a long-term preservation strategy.

Too often copying projects are managed in isolation from other preservation strategies. However there are practical benefits in connecting copying with other preservation strategies such as conservation treatments when the original artefacts may have intrinsic value. This is particularly relevant for a country like India, with its vast ancient heritage contained within an estimated five million original manuscripts (Gaur 2009). As a practical outcome of an interconnected approach in action, manuscripts can be fumigated, cleaned, copied, conserved and the re-housed in a stable environment as an efficient integrated process. Such integrated workflows can be seen at the University of Mumbai (Fort) Library (2011) and the Reserve Bank of India Archives (2011) in Pune.

In Australia, Artlab Australia follows the same connected approach, linking conservation treatments with digitizing and related preservation strategies as part of an integrated workflow. An example on the Artlab website showcases the connected approach to preservation of an opaltype photograph including cleaning and stabilizing, protective housing and digitizing (Artlab Australia 2011).

(At this point it is worth noting that the creation of digital copies creates digital preservation issues, which will be explored further below in relation to the Waldseemuller Map).

In summary, as with digital preservation, an interconnected 'way of seeing' the preservation management of physical materials can be at once strategic and holistic, attuned to aligning the various strategies to maximize the practical benefits.

Connecting preservation management across both worlds

On another level, it is possible to make connections *across* the worlds of digital and traditional preservation management.

This adds another dimension to a 'way of seeing' as it opens up an opportunity to connect at a higher level. The time is ripe for further research to explore the potential benefits of connecting preservation management between both the physical and digital worlds.

As an example, the Library of Congress has recently showcased the potential advantages of such an interconnected approach with the Waldseemuller Map (Library of Congress 2010). The map has been traditionally conserved and placed in a controlled environment. A high quality digital copy has been created, and as a further integrated step, this copy will also be preserved as part of the Library's digital preservation program, ensuring that it will be migrated over time to ensure long-term accessibility. In this example, preserving the painted lines takes on another dimension as a new level of interconnection bridges and strategically aligns the worlds of physical and digital preservation management.

Similarly, in the field of disaster preparedness, a disaster plan that just focuses on the digital or physical world is limited in perspective. There is scope for further research to explore the development of models for integrated disaster plans that address both physical and digital materials and hence allow for better informed decisions about priorities and actions.

A more specific example in the reformatting area relates to connections between digital preservation and traditional (analogue) microfilm technologies. Recent developments with microfilm technologies have made it possible to write digital files to microfilm, as well as digitize from the microfilm copy – enabling a 'digital to microfilm and back again' cycle. The role of microfilm as a strategy in digital preservation is increasingly attracting international recognition and is an area that is ripe for further research and development (Brown et al. 2011).

Likewise, in the challenging area of resourcing, an understanding of the interconnections across both physical and digital preservation worlds will better inform strategic decisions, particularly when cost cutting options are proposed. The aim must be to secure ongoing sustainable funding for the preservation of both traditional and digital materials. Again, from an interconnected perspective, Colin Webb from the National Library of Australia argues that the real key to embedding ongoing resourcing lies with connecting and aligning with organizational policies and strategies (Webb 2004:45).

It follows that in the area of policy it makes sense to strategically connect and align digital preservation policies with those of traditional preservation and to link them with core institutional business drivers and strategies. A recent JISC study sums this up succinctly: "...an institutional [digital] preservation

policy . . . cannot be effective in splendid isolation." (Charles Beagrie Ltd. 2008)

The National Library of Australia's digital preservation policy exemplifies an interconnected 'way of seeing' that aligns preservation policies in the physical and digital worlds, recognizing that: "the Library's digital preservation program forms part of its overarching Preservation Program." (National Library of Australia 2008).

Likewise, in the educational arena, recent literature has identified the need for more integrated curricula and training courses that connect both physical and digital worlds so that the new generations of preservation managers have the skills to effectively traverse both worlds (Harvey 2010; Meyer 2009:11).

Summary

The same painted lines that connect traditional and digital heritage are a metaphor for a 'way of seeing' that can help to integrate the preservation management of this heritage – digital and traditional.

Ultimately, as a high level principle of preservation management, an interconnected 'way of seeing' can potentially play a significant role in shaping practical preservation outcomes in the digital and traditional worlds.

On one level, a connected approach can be identified and applied *within* each of the worlds of digital and physical preservation with practical outcomes that are strategic and integrated.

At a second and higher level, there is an opportunity to connect and align the preservation management strategies *across* the physical and digital worlds. In turn, this has the potential to maximize the opportunities to sustain the painted lines of both worlds. Both levels are ripe for the application of further research and development.

As we explore the potentials of an holistic understanding of preservation management that connects within and across both worlds, so this will better enable us to sustain the painted lines of cultural heritage that ultimately connect "in a single bond . . . all who walk the earth."

Notes

1. The views expressed in this paper are my own professional views and do not constitute the views of my employing organizations.
2. Connections are likewise reflected in the Indian *guru-shishya parampara* traditions and the master student traditions across all fields of knowledge.
3. Thailand. Fine Arts Department. FAD Forum *Cultural Heritage Management: a collection of globally diverse concepts.* Bangkok: Fine Arts Department, August 6–8, 2008.
4. The PADI website has ceased to be updated from July 2010 http://www.nla.gov.au/padi/topics/172.html
5. In this respect, it is similar to digital preservation where it is the emphasis is on rendering the content accessible for the future rather than preserving the carrier.
6. BS ISO 18901:2010 Imaging *materials – Processed silver-gelatin type black-and-white films – Specifications for stability*. BSI, London /ISO, Geneva. See Section 8.2 Accelerated ageing test. Extrapolation of high-temperature data down to a room temperature of 23 °C indicated that the time for a 0,1 density change in conservative conditions at 60 % relative humidity exceeded 500 years.

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Digital preservation: Converging and diverging factors of libraries, archives and museums – an Indian perspective

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Abstract

This article emphasizes the need to address the converging as well as diverging factors of Libraries, Archives and Museums (LAMs) for expanding the scope of proposed convergence beyond integrated access. While thinking about this convergence we must protect the role, focus, scope and identities of these disciplines rather than treating them as the same thing referred to by different terminologies. Such a mixed approach has been manifested in many generalized software solutions which loosely claim to manage archives, museums, libraries and repositories together. The courses on museology, archives, library and information science offered in India and elsewhere are found to be at different phases of evolution in terms of integration of digital preservation methods. We have performed gap analysis of digitalization in libraries, archives and museums from the Indian perspective and a set of actions are proposed to bridge this gap.

Keywords

digital preservation, libraries, archives, museums, India

Introduction

Collection management, conservation, preservation, information science and access are the most common topics in library, archive and museum disciplines. Though the adaptation of these topics in each discipline is quite different and has its own flavor, libraries, archives and museums (LAMs) began to converge more evidently with the proliferation of information technology and in the encompassing field now identified as digital preservation. As museums started to digitize their artefacts, libraries started to collect e-books and archives started to preserve born digital records; all of them became part of digital preservation. Any digital content exists as a bitstream (Giaretta 2011) irrespective of its manifestation in diverse forms such digital multimedia, e-books, e-records, financial or scientific data. The heterogeneous characteristics of collections (e.g. materials, physical form, associated knowledge and users) separated the libraries from archives and archives from museums and vice versa. The digital or bitstream conversion of such collections made them homogenous at one level and therefore this possibility of convergence has captured everyone's imagination. An obvious example of such convergence could be Amazon.com, the online shop where you can purchase books, movies, songs, computer games, software and what not. During such deliberations, we are usually overwhelmed by the hype of convergence and as a result we tend to merge and mix things rather indiscriminately. We tend to oversimplify and become blind to the diverging factors instead of resolving them. We should be mindful of the three different cultures of LAMs (Allen 2002). Therefore, in this article, we would like to dwell upon the following research questions:

- Which are the converging and diverging factors of the LAMs paradigm?
- What is the Indian scenario with respect to this convergence?

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Table 1. Digitally extended practices related to LAMs.

Traditional activity	Digital extensions	The distinguishing aspects
Library	Digital library	Information systems to *manage* and *access* the collection of digitized *published* books, born digital e-books, *published* documents and e-media
Archive	Digital archive	Information systems to manage the digitized *official* documents, electronic *official* records, digitized or e-media of *historical interest*
Museum	Virtual museum	Information systems to manage and access the *collection* of digital surrogates, replicas and digital documentation of artifacts pertaining to *human heritage*
Record keeping	Electronic record management	*Manage / maintain* the digital surrogates and *electronic official records, the electronic data of official transactions*
Archeology	Digital archeology	*Discovery, reading and interpretation* of data on *obsolete or damaged storage device* or media or technology and in *obsolete, unknown file formats*
Curation	Digital curation	*Restoration* or *recovery* of lossy digital data or the *reconstruction* of digital replicas of broken physical artifacts *#1*
Restoration	Digital restoration	Similar as curation.
Collection management	Digital collection management	*No clear definition could be found on the Internet #2*
Preservation	Digital preservation	*Archival, management, curation* of both digital surrogates and born digital data for *access over time.*
Repository	Trusted digital repository	*Reliable, long-term access* to managed *digital resources* to its *Designated Community, now and into the future.*

Notes: 1. The definition of curation in Table 1 is epistemological in nature (cure – curation – meaning restoration, recovery or healing). It avoids the synonymous or overlapping use of 'digital curation' and 'digital preservation' as commonly practiced internationally. The Internet is already flooded with debates about the difference between curation, preservation and conservation.
2. Although almost all software solutions pertaining to digital libraries. digital archives or digital repositories claim to do 'digital collection management', we could not locate a clear definition of this term which categorically lists the distinct steps or activities involved in 'digital collection management'. We did come across casual references to 'collection management means things that a librarian does', which is not adequate for measuring the effectiveness of performance in this activity.

Background and related work

In 1995, the Encoded Archival Description standard was developed and tested for museums, libraries, and manuscript repositories to list and describe their holdings in a manner that would be machine-readable and therefore easy to search, maintain and exchange (Rinehart 2003). Since then, collaboration between LAMs has been a popular topic for panel debates and conferences (Zorich et al. 2008) from the perspective of technical research. In this context, according to the OCLC website (http://www.oclc.org), RLG Partners are conducting an investigation into library, archive and museum collaboration. They are trying to identify the intersecting aspects of LAMs. The RLG Partners Social Metadata Working Group is exploring how the metadata described by users in social networks could be used to benefit LAMs convergence (Smith-Yoshimura 2010). The proposed integration of LAMs is seen as a continuum of activities identified as contact, cooperation, coordination, collaboration and convergence (Waibel and Erway 2009). The deliberations on this topic appear to be driven more by those interested in advancing the technology for such collaboration. Our intention is to appreciate the points of view of librarians, archivists, museologists and the vast majority of potential users about how they would like to advance this possibility. Efforts of this kind so far have raised theoretical issues and produced some experimental results in relation with interoperability at the metadata level (to provide integrated access to information). Convergence has been experimented with only at the level of integrated access to LAMs.

Digital convergence and the metaphorical concepts

There is a growing tendency to prefix traditional concepts with the terms like 'digital' or 'electronic', which can sometimes lead to confusion. Table 1 provides clearer understanding of the digitally extended practices related to LAMs. Our objective is not to define these terms but to know the distinguishing aspects of the underlying activities for our better understanding. Some of the digitally extended procedures facilitate the traditional procedures in physical world and some are totally different with only conceptual and metaphorical similarity.

As shown in Figure 1, digital libraries, digital archives and digital museums are beginning to converge into the larger field of digital preservation,

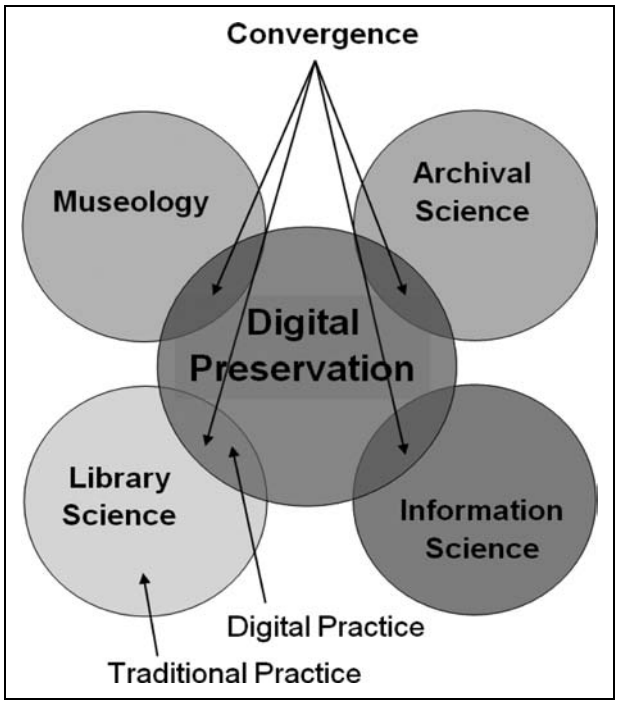

Figure 1. Converging and diverging factors of LAMs in the field of digital preservation.

while keeping separate the traditional physical aspects of these fields. As far as the Indian scene is concerned, we need to investigate how far the LAMs are ready to converge. Presently, convergence is explored mainly at the level of access, but in our opinion it should be explored at all possible levels, which are broadly classified as:

- education and professional practice
- collection development and management
- preservation
- administration
- sustenance

The diverging aspects of the LAMs paradigm

Archival practice defines a collection as the unself-conscious byproduct of the activities of a person or an organization, whereas museum objects are treated as the 'thingness of the thing', including their physical properties such as material, dimension, and object or genre classification (Rinehart 2003). Libraries are more transaction oriented and mainly gather published materials. The difference between the roles defined for the National Archives and Records Administration (NARA) and the Library of Congress (LoC) in the USA are notable. NARA's primary purpose is to acquire, preserve, and make available for research the most valuable records of the federal government, whereas LoC collects research materials in many media and in most subjects from throughout the world. According to the International Council of Museums (ICOM), museums are meant to acquire and conserve the heritage of humanity, including human cultural artifacts and specimens of plants and animals. In considering the characteristic differences among libraries, archives and museums, the following diverging factors need to be considered:

- acquisition methods
- administrative systems and procedures
- classification systems
- copyright
- course syllabus
- data sharing / distribution rules
- digital preservation strategies
- institutional / government policies
- languages
- legal sensitivities associated with the materials
- methods of content creation
- methods of object description (metadata)
- privacy and confidentiality
- revenue sharing models
- standards and practices
- sustainability models
- type of data and file formats
- user expectations (type of knowledge, user experience, usability, human-computer interaction design)

The explorations so far seem to consider unified metadata schema as the only factor of convergence for integrated access. Other than the technical aspects, mutually beneficial revenue sharing, knowledge sharing models and motivational incentives must be evolved for LAMs to converge.

All-inclusive versus domain-specific software solutions

There are many software solutions available which make mixed claims to simultaneously address the needs of libraries, museums and archives (Table 1).

Omeka claims to web-publish libraries, museums and archives. The Canadian Digital Collection Builder (DCB) is an open-source software tool for libraries, archives, and other heritage organizations. CollectiveAccess is also meant to integrate and web-publish museums, archives and digital collections. These are primarily Dublin Core compliant cataloging systems for digital files. People are using terms such as archive, collection management, repository, curation and preservation interchangeably, loosely or simultaneously without fully catering to the underlying expectations.

Table 2. URLs for key organizations and software.

Digital Collection Builder. Available at: http://dcb-gcn.canadiana.ca/ (accessed on 22 February 2011).
CollectiveAccess. Available at: http://www.collectiveaccess.org/ (accessed on 22 February 2011).
CONTENTdm Digital Collection Management Software. Available at: http://www.contentdm.org/ (accessed on 22 February 2011).
Greenstone Digital Library System. Available at: http://www.greenstone.org/ (accessed on 22 February 2011).
JATAN: Virtual Museum Builder. Available at: http://pune.cdac.in/html/hcdc/jatan.aspx (accessed on 22 February 2011).
Library of Congress, USA. Available at: http://www.loc.gov/index.html (accessed on 22 February 2011).
National Archives and Records Administration (NARA), USA. Available at: http://www.archives.gov/ (accessed on 22 February 2011).
New definition of museums (2002) Museums Australia. Available at: http://home.vicnet.net.au/~museaust/insite/ncmuseum.pdf Accessed on 25 February 2011.
Omeka. Available at: http://omeka.org/ (accessed on 22 February 2011).
Society of Archivists, United Kingdom. Available at: http://www.archives.org.uk/careerdevelopment/archivesandrecordsmanagementqualifications.html (accessed 28 February 2011).

Table 3. Training courses and course guidelines.

Banaras Hindu University, Master of Arts and History Course Guidelines. Available at: www.bhu.ac.in/syllabus/MAHistoryArt.doc (accessed on 23 February 2011).
Centre for Heritage Studies, Post Graduate Diploma in Archival Studies. Available at: http://www.centreforheritagestudies.com/heritage/html/course.htm (accessed on 24 February 2011).
Delhi Institute of Heritage Research and Management, Master of Preservation and Heritage Management Course. Available at: http://dihrm.delhigovt.nic.in/courses.htm (accessed on 24 February 2011).
Dr. Bhimrao Ambedkar Vishva Vidyalaya, Post Graduate Diploma in Archival Studies and Museology. Available at: http://www.dbrau.ac.in/ (accessed on 24 February 2011).
International Council of Museums (ICOM), Curricula guidelines for the museum professional development. Available at: http://icom.museum/what-we-do/professional-standards/professions.html (accessed 8 March 2011).
National Archives of India, Diploma Course in Archives and Records Management. Available at: http://nationalarchives.nic.in/WebContent.aspx?id=14&type=homemore (accessed 23 February 2011)
National Museum Institute, Master of Arts in Museology course. Available at: http://nmi.gov.in/ (accessed on 23 February 2011).
Society of American Archivists (SAA), Guidelines for a Graduate Program in Archival Studies. Available at: http://www2.archivists.org/gpas/curriculum/information-technology (accessed 1 March 2011).
University of Kolkata, Post Graduate Study in Museology. Available at: http://www.caluniv.ac.in/academic/Museology_Regulation.pdf (accessed on 24 February 2011).

On the other hand, there are software solutions which make specific claims; e.g. Greenstone is meant to build digital library collections only, while CONTENTdm claims to be a collection management system. In Indian context, JATAN: Virtual Museum Builder developed by the Human-Centred Design & Computing Group of C-DAC is specially designed for Indian museums. It is based on an understanding of socio-economic and local organizational needs. This is a more reasonable approach for addressing the user expectations with proper focus. We must do proper justice to the requirements and finer nuances of LAMs. While thinking about convergence we must protect the role, focus, scope and identities of these different disciplines.

So far we have considered the technological scenario of convergence between LAMs. Now let us observe the current status of education in LAMs and the possibility of convergence at the educational level. See Table 2 for a select list of available courses, with URLs.

Overview of museology, archival, library and information science education

Museology education

The Indian scenario. Banaras Hindu University (BHU) offers a Master of Arts course which unfolds over a period of 2 years. This course gives greater emphasis to the regular topics of museology, which includes the history of museums and collections, documentation, presentation, interpretation, management and administration. Most notably, it also includes a topic in the 1st semester entitled 'Computer Applications in Museums'. This comprises an introduction to computers, email, websites, multimedia, search and retrieval

of information about museums around the world. The National Museum Institute, New Delhi, offers a 2-year Master of Arts in Museology course, which gives basic introduction to the application of computers in museums. They also offer a PhD programme in Museology. The MA/MSc degree course in museology at the University of Kolkata mentions museum technology or the use of information technology in museums apart from the regular topics. The one-year postgraduate course in Museology and Conservation offered by Chhatrapati Shivaji Maharaj Vastu Sangrahalaya in Mumbai offers exposure to computerized and digital methods of documentation in museums using the JATAN: Virtual Museum Builder developed by C-DAC, Pune. The Delhi Institute of Heritage Research and Management offers two master's courses in 'Archaeology and Heritage Management' and 'Conservation, Preservation and Heritage Management'. Both courses include some coverage of digital collection management and use of information technology. Apart from these, the Maharaja Sayajirao University, Baroda; Aligarh Muslim University, Uttar Pradesh; Jiwaji University, Gwalior, Madhya Pradesh and several other universities in various Indian states offer different variations of courses in museology.

The international scenario. The International Council of Museums (ICOM) offers curricula guidelines for museum professional development. Apart from the standard museology topics, it includes a section that covers the use of information technology, with subtopics like email, websites, multimedia formats and database management.

Archival education

The Indian scenario. A one-year diploma course in Archives and Records Management is offered by the School of Archival Studies, National Archives of India, New Delhi. They also offer many short-term courses separately focusing on archives management, records management, reprography and conservation. Dr. Bhimrao Ambedkar Vishva Vidyalaya, Agra offers a 2-year postgraduate diploma in Archival Studies and Museology in which the first two semesters focus on archival studies and the later two semesters cover museology. This course does not mention anything about the use of computers. The Centre for Heritage Studies, Kochi, in Kerala state offers a one year postgraduate diploma in Archival Studies. Apart from these courses, a postgraduate certificate in archives is offered by Gujarat Vidyapith, a postgraduate diploma in Archives Keeping by Annamalai University, and a postgraduate diploma in Archival Science and Manuscriptology by Osmania University; and many other courses of a similar nature are available in India.

International scenario. The Society of American Archivists (SAA) provides guidelines for a Graduate Program in Archival Studies which emphasizes digital records and access systems and the use of information technology for the management of archives along with core archival knowledge. The curriculum recommended by SAA also includes a major section on interdisciplinary knowledge which offers exposure to technical topics like human-computer interaction, database management, information architecture, website design and creation, metadata encoding, markup languages and programming for archivists. The Society of Archivists in the United Kingdom provides information and linkages to various courses and continuing education programmes for professional development in archives administration and records management offered by universities in the UK. For example, the Centre for Archival Studies, LUCAS, at the University of Liverpool has several courses related to archives and records management which offer some coverage of the nature, use and preservation of digital records in the information society. The Society of Archivists, along with the Digital Preservation Coalition (DPC), has been organizing numerous road shows across the UK to create awareness of the importance of digital preservation.

Library & information science education

Indian scenario. Unlike the museology and archival courses, which mostly start at postgraduate diploma level, library and information science studies are well evolved in India, with programmes at undergraduate, postgraduate and PhD level. Approximately 125 universities and research institutions are offering PhD programmes in library and information science (Chandrashekhara and Ramasesh 2009). Several of the master's programmes already claim to give proper coverage to topics like library automation, networking, information technology applications and digital libraries. However, many debates and discussions are ongoing about overhauling the curricula to incorporate the advanced topics emerging from the information explosion due to Internet. The library professionals need to prepare themselves to face various paradigm shifts due to the transition from paper to electronic media as the dominant form of information, dissemination, storage and retrieval (Dasgupta 2009).

International scenario. Library and information science courses are available at various levels in terms of undergraduate, post-graduate, PhD and certified professional courses focusing on various specializations. The information science courses are giving coverage to advanced topics like digital collection management, knowledge organization and representation, information architecture, search and retrieval, digital rights, human-computer interaction, usability, social media, data / digital curation, digital preservation and access, etc.

Virtual museums, digital libraries and digital archives in India

Rinehart (2003) mentions that, as recently as in 1995, most museums in the US did not have their own websites. India continues to have this situation in 2010, as there are very few museums which have their own websites. In this context, C-DAC's pioneering contribution in developing and deploying the JATAN: Virtual Museum Builder at four leading museums is most notable. This system is running in the following museums: Chhatrapati Shivaji Maharaj Museum, Mumbai; Raja Dinkar Kelkar Museum, Pune; Salar Jung Museum, Hyderabad; and Victoria Memorial Museum, Kolkata (upcoming). C-DAC has also developed the Heritage Information System for the Heritage Conservation Society (HCS) of the Mumbai Metropolitan Region Development Authority, which archives information on heritage monuments.

The Human-Centred Design and Computing Group at C-DAC, Pune, presented its vision of cross-museum collaboration for collective metadata enrichment (Figure 2) and distributed search across homogeneous virtual museums (Figure 3) during the Grid Garuda Partner's Meet organized by C-DAC Bangalore (Katre 2005). Since then, during the past 5 years, C-DAC has developed four virtual museums in India for actualizing this vision. However, these museums are still reluctant to publish their collections on the Internet due to lack of funds and copyright fears.

According to the National Study Report on Digital Preservation Requirements of India, prepared by C-DAC (Katre 2010), most of the audio, video, film and government archives in India are in the process of digitization of their collections. Digital catalogues with proper descriptive metadata are being prepared. However, in contrast to museums and archives, many digital libraries, such as the Digital Library of India and library networks such as DELNET and INFLIBNET have already come into existence.

The Centre of Excellence for Digital Preservation at the Human-Centred Design and Computing Group at C-DAC, Pune, is planning to join hands with the National Archives of India (NAI) and the Indira Gandhi National Centre for Arts (IGNCA) for digital preservation of government records and cultural digital data.

Conclusion

Most museology courses in India and elsewhere do not provide sufficient coverage – or any coverage – to digital collection management and modern digital preservation methods. The pre-digital syllabus in museology must incorporate post-digital tools and technologies.

There are many fewer archives and record-keeping courses as compared to museology courses. This is surprising, as all government offices in the country are supposed to have a dedicated post for Departmental Record Officer (DRO). These courses are still not providing coverage of the use of information technology, digital archiving and digital preservation methods, while international archival organizations like NARA and SAA are leading the digital preservation scenario.

It is clear from the above that museology, archival and library science courses are at different phases of evolution in terms of integration of digital methods. This trend is common in India and at the international level barring minor exceptions. The LAMs courses in India either need to incorporate digital methodologies as applicable in their respective domains, or there could be a common course focusing on digital preservation methods which could fuse the requirements of LAMs together.

Indian libraries, archives and museums are still not ready for digital convergence. Just as some digital libraries have been created, so virtual museums and digital archives must be developed as a priority. We need to consider the converging as well as diverging factors of LAMs for expanding the scope of digital convergence. The gaps identified from the Indian perspective need to be bridged.

Bridging the gap from the Indian perspective

The following actions are suggested for progressing towards digital convergence:

- incorporate a module on digital preservation in the course curriculums of libraries, archives and museums
- evolve a separate integrated course on digital preservation for LAMs professionals and practitioners

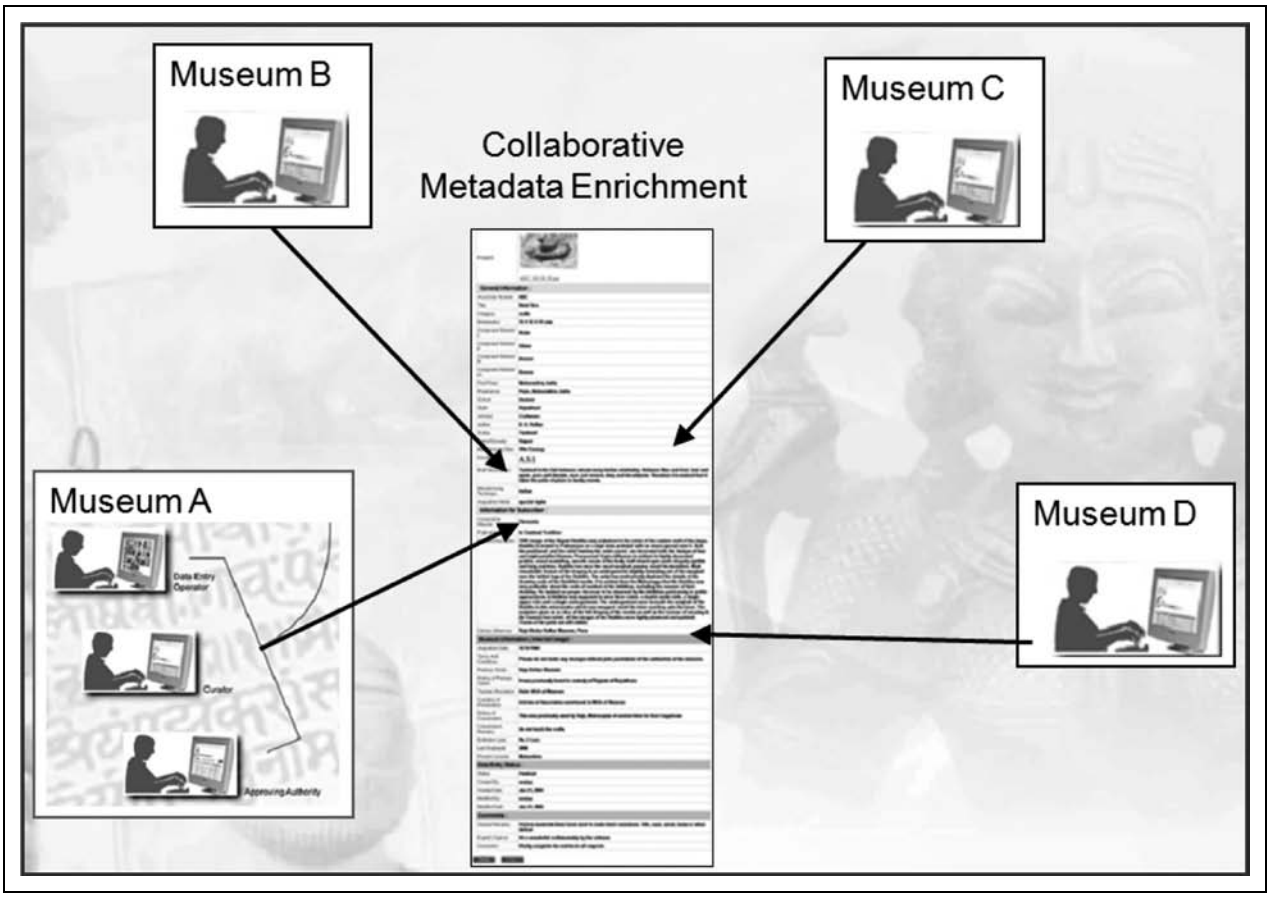

Figure 2. Cross-museum collaboration for metadata enrichment.

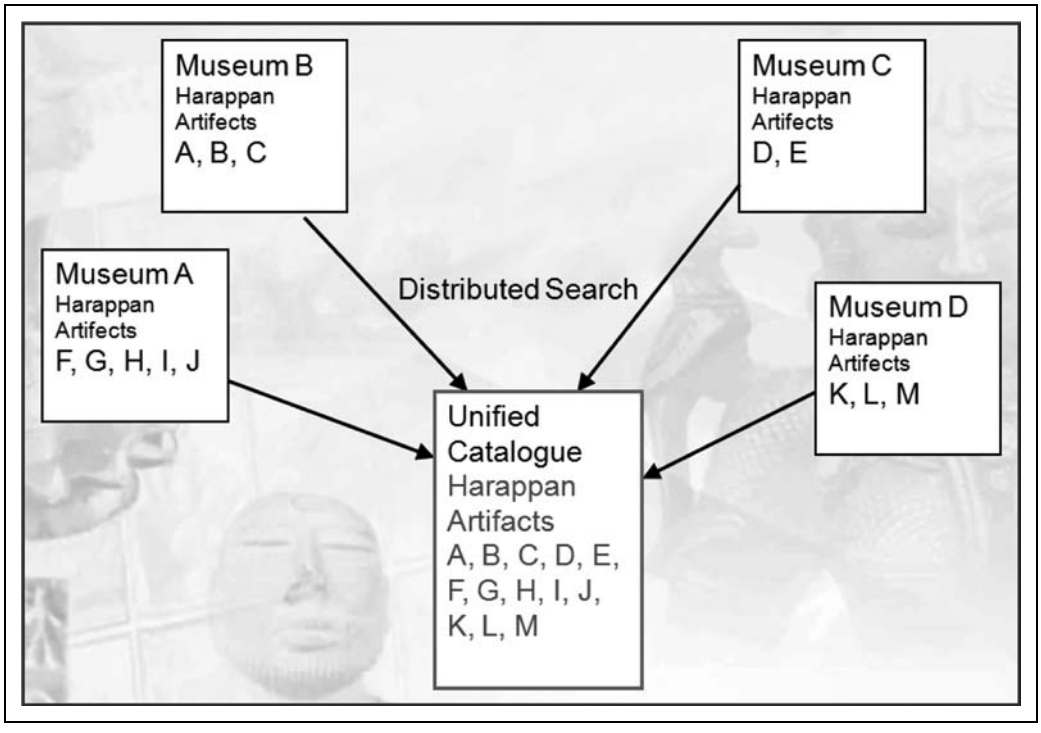

Figure 3. Distributed search across homogeneous virtual museums.

- establish a network of institutions or channels through which the integrated course on digital preservation for LAMs could be made available for the practitioners across India
- develop common interoperability standards (with both local adaptations and international alignment)
- develop specialized software solutions for building digital museums, digital archives, digital libraries and digital repositories to address local user requirements in the Indian socio-economic context
- our first priority should be to develop and sustain the digital museums, digital archives and digital libraries with shared objectives and interests; a proper ecosystem for nurturing and sustaining the digital preservation life cycle is essential (Katre 2009)
- achieve convergence first between homogenous entities and then between heterogeneous entities as the next logical step (e.g. converge museums with museums or archives with archives first and then the convergence between LAMs)
- the Department of Culture and the Department of Information Technology of the Government of India together must encourage and proactively support the modernization of museums, archives and libraries with digital convergence as its long-term objective
- a professional society or a forum needs to be created for bringing the LAMs professionals in India together.

Note

Revised version of a paper presented at ICLAM 2011: International Conference on the Convergence of Libraries, Archive and Museums. Theme: User empowerment through digital technologies. India International Centre, New Delhi, India, 15–17 February 2011.

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Synergizing the collections of libraries archives and museums for better user services

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Abstract
The digital age has brought about new ways of information storage and information and communication technology has brought the stored information closer to its seekers. This has changed user behaviour in accessing information. This paper attempts to introduce a model of building a consortium involving libraries, archives and museums in India so that users can find information at a click of their mouse or mobile phone.

Keywords
libraries, archives, museums, consortia, user services, India

Introduction

Information is the source of knowledge, which is held in different cultural institutions, namely libraries, archives and museums (LAMs). Technological development and their application to LAMs have changed several parameters worldwide for both information holders and seekers. The 'digital age' has come to libraries, archives and museums individually and has opened new avenues for them to coexist in networks. To further strengthen their existence, it is imperative that they form a consortium on a model which is most suitable for the collaborating institutions. Collaboration and cooperation is critical for any centre of excellence to be vibrant and society will benefit from their synergy (Ramchandran 2001).

A literature survey shows that cultural institutions across India, both public and private, are engaged in digitizing their records, and some have even given access to these records on intranets and the Internet. These efforts are, however, isolated. To consolidate information stored in different institutions and provide better services to the information seekers it is now imperative that LAMs cooperate and collaborate with each other. In the absence of coordination and collaboration among these cultural institutions, their contents are divided into small puddles of information and on scattered websites, diluting the compelling nature of their offerings. They have, however, created an orderly world within their respective domains. If LAMs are to achieve a more unified online presence they should become less fragmented and more interconnected (Waibel and Erway 2009). This vision can only be achieved if they come together in a consortium. India has a rich collection of cultural and literary heritage held in LAMs which is referred to worldwide; therefore, if their resources are made collectively available through a single window it will benefit the information seekers.

Digitization efforts made by LAMs in India

Many digitization projects by different government and private agencies are successfully running in different libraries, archives and museums of India. These efforts are, however, in pockets and there is no collaboration or cooperation among them. The National Archives of India (http://nationalarchives.gov.in/landing.html) and the National Museum of India (http://nmi.gov.in) have also digitized material and

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given access to it from their own websites. Similar efforts have been made by many other institutions. Some of the major efforts are presented in Table 1.

Need for collaboration and cooperation among libraries, archives and museums

Collaboration and cooperation between and among libraries for the purpose of sharing resources is age-old; these arrangements are often set up through formal agreements which aim at improving services for mutual benefits through resource sharing among the members (Xu 2010). Academic libraries are the front runners in grouping themselves in consortia, since the mid-1970s in the developed world and the mid-1990s in India (Bhattacharya 2004). Electronic resources such as e-journals and e-books and large databases which are much in demand have now become primary purchases of libraries. Library consortia have been instrumental in the following areas:

- acquisition of electronic resources emphasizing on price and pricing models
- negotiating skills for librarians especially with regard to acquisition of library resources
- acceptable licensing terms and conditions as in practice in the higher education environment
- methods or sources of preservation and archiving of electronic journals and other information available as e-resource
- evaluating acquired information on the basis of usage statistics
- development of collaborative models for print resource sharing
- creating a centralized catalogue to streamline and consolidate technical services
- professional development and training
- collaborative digitization projects, wherein standards for best practices are set and trainings are also provided
- providing advocacy for library funding (Burke 2010).

Libraries, archives and museums are established to serve the society and their users. To evaluate their importance they may be measured against their importance to public and influence on society. These institutions are fundamental to the information infrastructure of society and facilitate research for diverse purposes (Ostby 2006).

Collaboration with museums and archives is imperative for librarians if they want to lead in creating a 'digital future'. The digital collection can be vibrant and sustainable only if the three work together. Libraries, archives and museums are built on the tradition of gathering, organizing, preserving and presenting their holdings. Often small units with important collections may not digitize them by themselves but may take part in a collaborative project. Digitization initiatives are agreed by librarians to attract new users, increase access to collections, support distance learning, etc. But by collaborating with archives and museums, new users come to search the collection as a whole. Users do not categorize institutions in searching for information; they just would like the item of information (Bishoff 2004). Fast growing information is also being accessed at a fast rate. Users are no more bound by personal computers, be it desktop or laptop; their mobile phones are now capable of giving or getting information on the move (Blumenstein 2009). By working together, a wide range of material from many institutions can be gathered into one magnificent collection which can be accessed through a single window.

The professional expertise of each institution can come together and capitalize on collaboration; for example, participants in the Colorado Digitization Program (CDP) found that digitization is the same regardless of the type of institution. It was, therefore, easy to consider and employ common digital imaging standards, metadata practices and legal concerns and this led to additional networking and mentoring opportunities. For a sustainable economic model collaboration is indispensable, as working together is cost-effective. Eventually, collaboration develops best practices to support and manage the resources over time (Bishoff 2004).

Collaboration in any project presents many challenges. There should be serious commitments to establishing, sustaining and developing cooperation, commitment and motivation of all parties involved. Problems foreseen in such projects may include:

- leadership – who will lead?
- problems in ICT development and digitization
- technology for collaboration may not get the required expertise and infrastructure
- government may give the cultural institutions a low priority
- stakeholders may not give the required support and interest
- inadequate funding
- departmental priorities
- professional orientation and processes may differ
- cultural institutions may be governed under different authorities
- professional rivalry

Table 1. Major digital library initiatives and digitization programmes in India

Name of digital library initiative	Host institution	Funding body	URL	Subjects	Types of documents digitized
Digital Library of India (DLI)	Indian Institute of Science (IISc)	Ministry of Communication and Information Technology (MCIT)	www.dli.ernet.in	all subjects	books, manuscripts, etc.
Kalasampada: Digital Library-Resources for Indian Cultural Heritage (DL-RICH)	Indira Gandhi National Centre for Arts (IGNCA)	Ministry of Communication and Information Technology (MCIT)	www.ignca.gov.in/dlrich/	Oriental studies, literature, culture and heritage	slides, books, microfilms, manuscripts, audios, videos, journals, newsletters, etc.
Traditional Knowledge Digital Library (TKDL)	National Institute for Science Communication And Information Resources (NISCAIR)	Department of Indian Systems of Medicine and Homeopathy (ISMandH)	www.tkdl.res.in	traditional knowledge, Indian systems of medicine, health and hygiene	monographs, patents, excerpts/slokas from ancient literature, etc.
Mobile e-Library	C_DAC Noida	MCIT	http://mobilelibrary.cdacnoida.in	all subjects	books
Nalanda Digital Library	NIT Calicut	All India Council of Technical Education (AICTE)	www.nalanda.nitc.ac.in	science and technology, management	monographs, articles, etc.
Archives of Indian Labour: Integrated Labour History Research Programme	V.V. Giri National Labour Institute and Association of Indian Labour Historians	–	www.indialabourarchives.org	history, Indian labour, industrial relations	monographs, reports, archival records, photographs, etc.
National science Digital Library (NSDL)	NISCAIR	–	www.niscair.res.in	science and technology, history of science	monographs, articles, etc.
Learning Objects Repository	Consortium for Educational Communication	University Grants Commission (UGC)	www.ccc-vhc.ac.in	all subjects	monographs, articles, etc.
Digital Library in Business and Management	CDDL, IIMK	Ministry of Human Resource Development (MHRD)	http://intranet.iimk.ac.in/gsdl/cgi-bin/library	management, business, industries	books, reports, articles, etc.

(continued)

Table 1 (continued)

Name of digital library initiative	Host institution	Funding body	URL	Subjects	Types of documents digitized
Down the Memory Lane	National Library	Ministry of Culture	www.nlindia.org	all subjects	books, manuscripts, etc.
[No name]	Central Secretariat Library	Ministry of Culture	http://csl.ic.in	all subjects	Gazette of India, commission/committee reports, annual reports, etc.
Digitization of Manuscripts	National Mission for Manuscripts	Ministry of Culture	http://namami.nic.in	Oriental studies, literature, culture and heritage	manuscripts
[No name]	Technology Information Forecasting and Assessment Council (TIFAC)	Department of Science and Technology (DST)	www.indianpatents.org.in	science and technology	patents, designs
Digitization of Patents Designs and Trademarks	Patent Office	Ministry of Commerce and Industry	www.patentoffice.nic	intellectual properties, science and technology	patents designs and trademarks
Digitization, electronic archiving, indexing and retrieval system of the *Indian Journal of Medicinal Research* (IJMR)	Indian Council of Medicinal Research (ICMR)	Indian Council of Medicinal Research (ICMR)	www.icmr.nic.in	medicinal sciences, biological sciences	journal articles, monographs, reports

Source: Das et al. (2005) Digitization of scholarly materials in India for distance and open learners. Presented in: ICDE International Conference on Open and Distance Education, New Delhi, India, 18–23 November. Available at: https://drtc.isibang.ac.in/handle/1849/204 Accessed on November 11, 2010.

- perceived threat of diminished status or merger of cultural institutions (Baba 2005).

Clear policies and strong leadership can counter the above-mentioned issues. Measures must be taken to counter them from the beginning so that collaboration is accomplished.

The need for a LAM consortium in India

India is rich in its cultural heritage, and evidences of its past glory are available in cultural heritage institutions, libraries, archives and museums. The World Wide Web, the Internet and digitization efforts have changed the way information is searched for. To meet the changing information needs and expectations of the visitors to these institutions and to enhance their presence among information seekers, cooperation and collaboration need immediate attention. Their goals, practices and services need to converge to give the broadest possible access to the cultural heritage in a legitimate way.

Major efforts of consortium building in India have only been among libraries of similar kind. Cooperation among libraries is age-old, but with the advent of technological applications in information access things took a new turn. Libraries in India have built consortia for mutual benefit, which are also cost effective. Their main function is to collectively subscribe to online journals and digital databases for access by their members. Apart from subscriptions to digital content they also help in setting up a library for online access and training personnel in the area. They also have systems for interlibrary facilities. Some of the major prevailing library consortia of India are:

- Indian National Digital Library in Science and Technology (INDEST), funded by the Ministry of Human Resource Development, which is for technical institutes but is an 'open ended proposition' meaning that others may join it
- Information and Library Network (INFLIBNET), funded by the University Grants Commission for academic and research institutions
- Council of Scientific and Industrial Research has 40 laboratories all over India and they have formed a consortium for access to e-journals and digital databases
- FORSA (Forum for Resource Sharing in Astronomy and Astrophysics) is a similar consortium but consists of journals on astrophysics (Sreekumar and Sunitha 2005).

Cooperative efforts among libraries, archives and museums are prevalent worldwide, but seem to be more in the United Kingdom, Europe and the USA and to some extent in Australia and a few Asian countries (Baba 2005). Such efforts are yet a far cry in the Indian subcontinent in spite of the available technology. The physical boundaries for the three types of institution are becoming vague and nebulous with the application of technology. With collaborative effort they may converge to create distinctive services, which will have to become the focus of their survival (Ramchandran 2010).

A study of the formation and functioning of these consortia will set the ball rolling for consortia involving libraries archives and museums. Since these institutions are each unique in their own way they need to cooperate upon the following points so that there is smooth interoperability of data among them:

- information representation (IR); to create information surrogates or aggregates which may be manipulated easily
- information organization and access (IO); there should be standard methods of information organization, metadata schemas, classification systems, standardized terminology, standards for data sharing, etc.
- information management (IM); developing a system where information is supported in all its stages in a standardized way
- computer technologies (CT); the electronic systems for data storage, retrieval and manipulation of digital information resources
- digitization technologies (DT); developing digital surrogates for physical objects and documents
- interactive technologies (IT); creating an information system designed to mediate between digital resources and users of the resources, e.g. online exhibits, online collections, virtual museums, etc.
- information policy (IP); to develop objectives and procedures that govern the creation and use of information in organizations, e.g. intellectual property, copyright, digital rights management, etc.
- evaluation methods (EM); to assess the ability of information systems or resources so that they meet the users' needs, e.g. visitor study, usability analysis, etc.
- collaboration initiatives (CI); to manage the relationship between different organizations working towards common goals, e.g. inter-museum consortia, resource sharing, outreach programs for community and educational institutions (Marty 2007).

The National Library and National Museum of India are institutions by themselves at the national level, but the National Archives of India also has

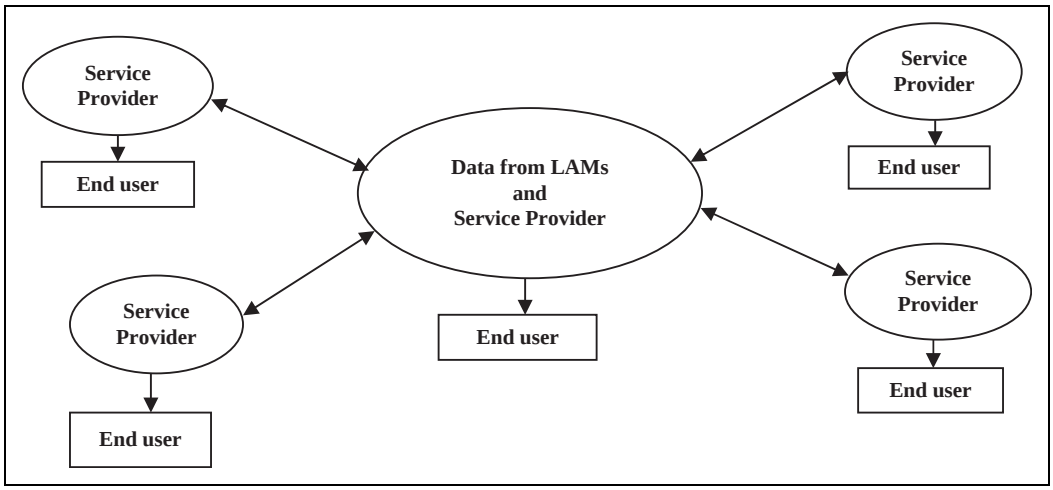

Figure 1. Proposed model

regional centres. Each state of India has a library, archive and museum for the state, which are run by the state government. National level institutions are engaged in digitization programmes without any collaboration among them. The National Library of India (www.nlindia.org) has initiated its own digitization programme, while the National Archives is doing it with the help of the National Institute of Advanced Studies (www.nias.res.in) and the National Museum is doing it with the Indira Gandhi National Centre for Arts (http://ignca.nic.in). These efforts are not coordinated and do not follow a single standard in their digitization programmes.

It is a universal practice and also in India for museums to have a library and an archive and for archives to have a museum and a library (see: http://nmi.gov.in and http://nationalarchives.gov.in/landing.html), but lack of collaboration in the wider sphere has not made much impact on user services although there is a compelling requirement. All national level public institutions of cultural heritage are covered by the Ministry of Tourism and Culture, therefore major issues of leadership, funding and central policies can easily be mentored.

Proposed model

A consortium for LAMs in India is proposed. If the institutions from the public sector form a consortium their common umbrella may be created by Ministry of Tourism and Culture. The central hub may be created by the Ministry in one of the existing cultural heritage institutions, which will set the norms for the consortium on maintaining standards in data and data interoperability, etc. Libraries have set the norms for consortium formation in India and to sustain the 'digital future' the National Library may become the centre for the LAM consortium initiative. It will set standards, monitor working, take care of funding, etc. Standards are a must for digitization and metadata, these are essential for interoperability of data from the three cultural institutions. One of the main efforts of the national centre will be staff training for smooth functioning of the consortium. Since three different professional groups need to work in collaboration they have to be trained to bring in uniformity. The central hub will create and consolidate data from all over as well as provide services to the users. This 'global effort' needs 'local developments'; therefore, regional centres should be established. Regional centres should also be created within each kind of institution, in the existing centres; they will provide data (service providers) to the central hub and also provide services to end users. The development of any network can only be successful when the base is strong. These efforts will give even distribution of information throughout the consortium, which is the aim of this exercise. The model proposed on the basis of the points stated above is shown in Figure 1.

The central hub along with the regional centres needs to coordinate with the institutions run by private management. This will broaden the information collection spectrum.

Conclusion

Today's age is of a knowledge based economy and as the whole becomes greater than the sum of its parts, let there be a 'whole' by collaborating among libraries, archives and museums. It is important to be stewards of the intellectual and cultural heritage for scholarship, teaching and learning. The digital collections of different institutions need to come alive so that they are accessed in a useful way. This idea of

consortium building among the cultural heritage institutions should be embarked upon in the Indian scenario. It will organize the digitization efforts collectively made by many agencies all over the country. These efforts will become useful for the learners and researchers and will open a wide door for many information seekers.

Note

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The digital divide among the college students of Kashmir, India

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Abstract

The present study aims to identify the digital divide among the college students of Kashmir Valley and suggest possible solutions to bridge the gap. The survey method was applied to conduct the research and questionnaire was used as a data collection tool. The results reveal that there is a wide digital divide among the college students of Kashmir. The data shows that male students use the Internet more than females, and urban more than their rural counterparts. Among the different faculties, the students of computer science make use of the Internet most of all and social sciences and humanities students the least. The students who do not use the Internet state many reasons like the lack of Internet facilities in colleges, homes and localities, lack of access, lack of training, lack of awareness, lack of interest, no need, external threat and many others. The possible suggestions are recommended to bridge the gap.

Keywords

digital divide, Internet use, college students, Kashmir

Introduction

A slogan of the information society – 'Information is for Use' – is still a dream, not a reality. In the present networked society, information is a click away for some and miles away for others. This unequal access to the digital information creates a 'digital divide'. This has become a popular phrase to describe the perceived disadvantages of those who are either unable, or do not choose, to use the appropriate information communication technology (ICT) in their day-to-day activities, decision making, learning and pleasure (Cullen 2001). The term 'digital divide' refers to the gap between the people with effective access to information technology and those with very limited or no access at all. It includes the imbalance in both the physical access to technology and the resources and skills needed to effectively participate as a digital citizen (Wikipedia 2010). In simple terms, the digital divide means unequal access to the information technology like computers and the Internet among the different sections of society. The various studies conducted worldwide on the Internet usage confirm the existence of a digital divide all over the world. According to Internet World Stats (2010a), the population of Internet users worldwide is 1,733,993,741, almost covering 25.6 percent of the total world population; the rest are non-users, thus there is a huge digital divide in the world. Kineston and Kumar (2003) identified the economic, educational, linguistic, cultural and regional factors responsible for the digital divide. Gardner and Oswald (2001) reported that the digital divide is visible on the basis of financial conditions, educational qualifications, sex, age and region. Dickerson and Gentry (1983) observed that demographic traits such as education, age and income are significantly associated with the usage rates of technological innovations. Blaiso (2008) and Crosby and Johnson (2002) found that a digital divide existed on the basis of regions. Gebremichael and Jackson (2006) also observed a wide gap in Internet access between the rural and urban people of Sub-Saharan Africa. Bimber (2000) and Mishra, Yadav and Bisht (2005) identified the digital divide between genders and showed that males are associated with

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Table 1. Community information centres in Kashmir.

Districts	Blocks	Phase I	Phase II
Anantnag	12	5	7
Baramulla	16	7	9
Budgam	8	4	4
Kupwara	11	4	7
Pulwama	6	3	3
Srinagar	4	2	2
Total	57	25	32

Source: eGovernance in India (2006).

technology more than females. Lazinger, Bar-llan and Peritz (1997) revealed a digital divide on the basis of subject background and showed that general science students use the Internet more than students of the social sciences and humanities. Akbar (2001) cited many reasons for the digital divide; prominent are the lack of awareness, lack of access, economic barriers, literacy barriers and conventional attitude. However, in the developed countries, the digital divide gap has narrowed due to developments in the information technology sector. In developing countries like India, there is still a wide gap between Internet users and non-users. Up to 2001, Internet users in India comprised less than one percent of the population; presently it stands third in terms of the number of Internet users (100 million) after United States and China, although these users comprise only 8.4 percent of the population (Internet World Stats, 2010b). There are many problems associated with the low level of Internet penetration in India, like unbalanced growth in the information technology sector, infrastructural problems, literacy barriers, awareness reasons, economic obstacles, language differences, etc.

The Internet in Kashmir

Internet services were introduced in the Kashmir Valley during 1994–95 by Bharat Sanchar Nigam Limited (BSNL) (Chawla 2003; cited Loan 2010). Presently, six internet service providers (ISPs) – BSNL, Airtel, Aircel, Tata Indicom, Reliance and Vodafone are operational in the Valley (Loan, 2010). Commercial cyber cafes (CCC) are also available in all the major towns of the Valley. There are more than 100 cybercafés in Srinagar city alone (Loan 2009). In addition, 57 community information centres (CIC) are available in Kashmir to access online information (Department of Information Technology 2010). The distribution of both types of centre in the Kashmir Valley is shown in Table 1.

Internet facilities in colleges

Internet service is not available to the whole academic community in the Kashmir Valley. Most of the higher institutions, like the University of Kashmir, started to provide these facilities to the academic community in the last decade. The University of Kashmir has played a leading role in initiating the process. It established Internet access centres in library premises separately for students, scholars and teachers in 2002, and on 4 December 2008 opened two more browsing centres known as 'E-resource Centre' and '24 x 7'. Now more than 200 computers are available in the central library for use by the academic community for browsing online. Besides the Internet facilities in the central library of the university, there are Internet access centres in almost all the departments and the Wi-Fi system covers the whole campus.

Following the example of the universities, some of the degree colleges also established browsing centres for their academic communities to enhance their academic performance. Among all the colleges, the Islamia College of Science and Commerce is the only one having browsing centres in all the faculties, including the library. In this college almost 200 computers are connected to the Internet through broadband and VSAT technology, and the Wi-Fi system covers the whole campus. Table 2 provides an overview of the Internet facilities available in the degree colleges of Kashmir Valley.

Scope of the study

The scope of the study is limited to rural and urban degree college students of the Kashmir Valley studying in the faculties of general science, computer science, social science, humanities, business and commerce, and belonging to the age group of 18–25 years. The total number of such colleges in Kashmir valley is 20, of which 11 are in rural areas and 9 in urban areas.

Research design

Purpose of the study

The main aim of the study is to identify the extent of the digital divide among the college students of Kashmir Valley and provide possible solutions to bridge the divide.

Methodology

The population of the universe was large and heterogeneous. Therefore, to obtain the appropriate sample size, the following statistical sampling formula was used to obtain the sample.

Table 2. Internet facilities in the Degree Colleges of Kashmir (information collected from College Authorities).

Name of college	Internet facility	Mode of connection	Location	Users
Amar Singh College, Srinagar	Yes	Broadband	Library	All
Gandhi Memorial College, Srinagar	Yes	Broadband	Separate Room	Officials
Govt. Degree College, Bemina Srinagar	Yes	Broadband	Library	All
Govt. College for Women, M A Road Srinagar	Yes	Broadband	Computer Science	CSTS*
Govt. College for Women, Nowakadal Srinagar	Yes	Broadband	Separate Room	Teachers, Officials
Islamia College of Science and Commerce, Srinagar	Yes	Broadband, VSAT	All faculties/ Library	All
Sri Pratab College, M A Road Srinagar	Yes	Broadband	Office	Officials
Vishu Bharti Womens College, Srinagar	Yes	Dial up	Separate Room	Officials
Govt. Degree College for Boys, Anantnag	Yes	Broadband	Library	All
Govt. Degree College for Women, Anantnag	Yes	Dial up	Office	Officials
Govt. Degree College for Boys, Baramulla	Yes	Broadband	Computer Science	CSTS*
Govt. Degree College for Women, Baramulla	Yes	Broadband	Office	Officials
Govt. Degree College, Ganderbal	Yes	Dial up	Office	Officials
Govt. Degree College, Handwara	No	_	_	_
Govt. Degree College, Kulgam	Yes	Broadband	Library	All
Govt. Degree College, Kupwara	Yes	Broadband	Computer Science	CSTS*
Govt. Degree College, Pulwama	Yes	Broadband	Computer Science	CSTS*
Govt. Degree College, Shopian	Yes	Broadband	Office	Teachers, Officials
Govt. Degree College, Sopore	Yes	Broadband	Office	Officials
Govt. Degree College, Tral	Yes	Dial up	Office	Officials

Note: *CSTS= Computer Science Teachers and Students.

$$n = \frac{Z^2 Npq}{Ne^2 + Z^2 pq}$$

Where,

1. Z = probability given under 96.5 percent reliability
2. N = population or universe
3. E = sampling error
4. pq = proportion of the total population

The population of students in the academic colleges of Kashmir Valley was 54,191. The value of the proportion of the total population (pq) was obtained from the rural and urban ratio. Further, to ensure an optimal sample size, the 96.5 percent confidence level was pre-assigned and a small sampling error (0.04) was fixed.

$$n = \frac{Z^2 Npq}{Ne^2 + Z^2 pq} = \frac{(2.1)^2(54191)(0.54)(0.46)}{(54191)(0.04)^2 + (2.1)^2(0.54)(0.46)}$$

$$n == 676.11 = 676$$

The data was collected with respect to three demographics of the students i.e. gender, region and faculty, using the population allocation method as:

$$n_i = n\frac{N_i}{N}$$

1. i = 1, 2, 3, 4
2. n = 676 (total Sample size)
3. Ni = total number of students in the Category
4. N = Total population from which sample is taken.

Category	No. of Students (Ni)	Proportion (Ni/N)	Sample Size ni=n(Ni/N)
Urban	25,353	25353/54191=0.4678	676(0.4678)=316
Rural	28,838	28838/54191=0.5322	676(0.5322)=360
Total	54191	(100%)	676

Category	No. of Students (Ni)	Proportion (Ni/N)	Sample Size ni=n(Ni/N)
Male	31,825	31825/54191=0.5873	676(0.5873) = 397
Female	22,366	22366/54191=0.4127	676(0.4127)=279
Total	54191	(100%)	676

Subject	No. of Students (Ni)	Proportion (Ni/N)	Sample Size ni=n(Ni/N)
General Sciences	15313	15313/54191=0.2826	676(0.2826)=191
Social Sciences and Humanities	23087	23087/54191=0.4260	676(0.4260)=288
Business and Commerce	8577	8577/54191=0.1583	676(0.1583)=107
Computer Sciences	7214	7214/54191=0.1331	676(0.1331)=90
Total	54191	(100%)	676

The survey method was applied to conduct the research, stratified random sampling was used for selection of students and a questionnaire was used as a data collection tool. The questionnaire was administered personally to ensure the excellent response rate. The data was analysed using quantitative techniques and presented in tabular form. The findings were correlated with earlier studies to reveal similarities and differences in the results. Finally, suggestions were provided for bridging the digital divide.

Results

Digital divide among the students

As inferred by Table 3, 44.67 percent of students (302 out of 676) use the Internet and more than half of the students (55.33 percent: 374 out of 676) do not use it at all. Breaking down the responses on the basis of gender, the data reveals that more than half (52.39 percent) of male students make use of the Internet compared to almost one-third of female students (33.69 percent). Earlier studies (Bimber, 2000; Mishra, et al. 2005) also confirmed the existence of a digital divide across genders.

The region-wise data shows a wide difference in use of the Internet between students in rural areas (33.06 percent) and those in urban areas (57.91 percent). These findings are supported by earlier studies conducted by Blaiso (2008) and Crosby and Johnson (2002), who also found a digital divide on the basis of regions.

The classification of data on the basis of faculties shows that computer science students (91.11 percent) use the Internet most, followed by business and commerce students (50.47 percent), general science students (37.17 percent) and social sciences and humanities students (32.99 percent) respectively (Table 4). Earlier studies showed the same trend and identified a digital divide on the basis of education (Kineston and Kumar 2003), educational qualifications (Gardner and Oswald 2001), and subject background (Lazinger et al. 1997).

Reasons for not using the Internet

Table 5 shows that the students in the Kashmir Valley who do not use the Internet cite many reasons like the lack of facilities in college/home/locality (68.18 percent), lack of access (66.04 percent), lack of training (54.81 percent), lack of awareness (44.92 percent), and many others such as lack of interest, fear or anxiety or techno stress, external threat and so on. The reasons for the digital divide are similar to those identified by Akbar (2001) in Bangladesh, namely lack of awareness, lack of access, literacy barriers, economic barriers, and conventional attitudes. The female students report lack of awareness (48.11 percent versus 41. 80 percent) and training (59.46 percent versus 50.26 percent) more than males and the rural students cite all reasons more than their urban counterparts.

The faculty-wise data shows that the majority of the students of the faculties of general science, social sciences and humanities, and business and commerce cite lack of facilities, access, awareness and training as the major reasons (Table 6).

Discussion

The results reveal that there is a wide digital divide among the college students of Kashmir Valley, as less than half of the students are Internet users and the rest are non-users. The prominent reasons responsible for the digital divide are lack of facilities, lack of access, lack of training and lack of awareness. The gender-wise information shows that males outnumbered females as Internet users and lack of training and lack of awareness are more common problems in females than in males. These problems need to be tackled to bridge the digital divide.

The urban students use Internet more than their rural counterparts; the rural population has limited access to the Internet and as a result the digital divide between the rural and urban students is highly visible. The need is to devise strategies for balanced and sustainable development to shrink the gaps.

Among the different faculties, the students of computer science make use of the Internet most of all and social sciences and humanities students the least. Lack of access, lack of awareness and lack of training are the major issues in Internet access found in all

Table 3. Do students use the Internet? (By gender and region).

Do students use Internet?	Total	Male	Female	Rural	Urban
Yes	302/676 (44.67)	208/397 (52.39)	94/279 (33.69)	119/360 (33.06)	183/316 (57.91)
No	374/676 (55.33)	189/397 (47.61)	185/279 (66.31)	241/360 (66.94)	133/316 (42.09)

Note: Figures in parenthesis indicate percentages.

Table 4. Do students use the Internet? (By faculty).

Do students use Internet?	General Science	Social Sciences and Humanities	Business and Commerce	Computer Science
Yes	71/191 (37.17)	95/288 (32.99)	54/107 (50.47)	82/90 (91.11)
No	120/191 (62.83)	193/288 (67.01)	53/107 (49.53)	8/90 (8.89)

Note: Figures in parenthesis indicate percentages.

students excluding those in computer science. That the students of computer science are well aware and knowledgeably strong in information technology disciplines possibly makes a difference. The need is to provide a basic education to students of other faculties as well to attract them towards the new technology.

Suggestions

The study proved that the digital divide still exists among college students in Kashmir and that many problems are responsible for this divide. These problems need to be solved in order to bridge the gaps. The following suggestions are intended to be helpful in this regard:

- Lack of facilities is the major obstacle in the Internet access. Therefore, immediate steps need to be taken to establish browsing centres in the institutions/colleges with full Internet connectivity for all the students. Adequate facilities in terms of space, staff and technology (number of computers, etc.) should be available for the maximum utilization of Internet sources and services.
- Internet access should be made available for all working hours in colleges so that students can access it in their spare time and so will not miss teaching classes. This will reduce traffic congestion, monopolization of computer systems connected to the Internet and students jostling for Internet access.
- Lack of access to the Internet is another major problem hindering Internet use. The majority of the colleges which have Internet facilities provide access only to computer science students and restrict students of other faculties in exploiting its services and sources. This indifferent attitude should immediately be stopped, as the Internet is the most essential educational tool for all students irrespective of subject differences.
- Lack of awareness is another issue that needs to be resolved with urgency. The academic community in general and the students in particular are not aware of the potential of the Internet as an educational tool. Orientation programmes should be conducted to increase the awareness of the students regarding all aspects of the Internet.
- The technology is practically worthless unless students are equipped with the know-how and the willingness to use it. Students should be trained to use the new technology to bridge the gap. To raise the awareness of the Internet among students and to train them in using the Internet, information technology should be included as one of the subjects in the school curriculum.
- Internet illiteracy (lack of training) is another area of concern among the general science, social sciences, humanities and business and commerce students. Training programmes should be conducted to increase their Internet operating skills.
- Negative attitudes as well as conservative acts are also barriers to effective Internet use. These attitudes should be changed in students through awareness raising programmes regarding the role of the Internet in educational achievement.
- Insecurity in using the cyber cafes is also a hurdle in the way of more Internet use. Some students, especially females, feel insecure in using the Internet in public places like commercial cyber cafes and community information centres. An awareness drive is needed to change and develop positive attitude towards the Internet.
- The rural students do not have adequate Internet facilities. The government should establish more community information centres in towns and information kiosks in villages to overcome this problem. There is also a great opportunity for information professionals to establish commercial cyber cafes in major towns, to earn their livelihood

Table 5. Reasons for not using the Internet (by gender and region).

Reasons for not using Internet	Total	Male	Female	Rural	Urban
Lack of facility in college/home/ locality	255/374 (68.18)	127/189 (67.20)	128/185 (69.19)	181/241 (75.10)	74/133 (55.64)
Lack of access	247/374 (66.04)	125/189 (66.14)	122/185 (65.95)	164/241 (68.05)	83/133 (62.41)
Lack of training	205/374 (54.81)	95/189 (50.26)	110/185 (59.46)	138/241 (57.26)	67/133 (50.38)
Lack of awareness	168/374 (44.92)	79/189 (41.80)	89/185 (48.11)	120/241 (49.79)	48/133 (36.09)
Others	112/374 (29.95)	48/189 (25.40)	64/185 (34.59)	84/241 (34.85)	28/133 (21.05)

Note: Figures in parenthesis indicate percentages.

Table 6. Reasons for not using the Internet (by faculty).

Reasons for not using Internet	General Science	Social Sciences and Humanities	Business and Commerce	Computer Science
Lack of facility in college/home/ locality	82/120 (68.33)	136/193 (70.47)	33/53 (62.26)	04/8 (50.00)
Lack of access	81/120 (67.50)	134/193 (69.43)	32/53 (60.37)	00/8 (0.00)
Lack of training	69/120 (57.50)	109/193 (56.48)	27/53 (50.94)	00/8 (0.00)
Lack of awareness	57/120 (47.50)	86/193 (44.56)	25/53 (47.17)	00/8 (0.00)
Other	38/120 (31.67)	60/193 (31.09)	12/53 (22.64)	02/8 (25.00)

Note: Figures in parenthesis indicate percentages.

on the one hand and overcome the problem of the digital divide on the other. Another most promising direction to bridge the digital divide is to provide electronic services through wireless technology in the rural areas.

- The existing Internet service providers should also minimize their tariff rates so that Internet service can be subscribed to by more customers. Also, the market should be opened for new entrants so that Internet services can be available in every corner of the state.
- The other problem is political interference in Internet access. The governments often ban Internet access due to the political tensions in the Valley. The practice of banning Internet access off and on should be stopped and new strategies applied to deal with the problem.

Conclusion

The existence of the digital divide is a great hurdle in the progress and development of the country. A serious approach from central and state governments to overcome the existing barriers could be a positive step in bridging the digital divide. The governments should establish sound information technology policies and implement them on a timely basis, especially in politically sensitive states like Jammu and Kashmir, for balanced development of the country.

Note

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Digital preservation strategies: A case study of Nigerian national information centres

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Abstract
This study examines digital preservation strategies in national information centres in Nigeria. Specifically the study tried to find out the digital preservation strategies and structures put in place for the implementation of the strategies adopted. The population of the study consists of the National Library of Nigeria, the National Archives of Nigeria and the National Bureau of Statistics. A case study and qualitative methodology approaches were adopted for the study. A semi-structured questionnaire was designed and administered to a focused group of five staff of the digital preservation/digitization unit of the population. The study discovered, among others, that migration is the most popular digital preservation strategy adopted and no structure to assess digital objects for preservation action is put in place. The study recommended that a National Centre for Digital Preservation, responsible for monitoring and conducting research in digital preservation activities, should be established.

Keywords
digital preservation strategies, national information centres, Nigeria

Introduction

Background to the study

There has been an explosion in the growth of the amount of information created, disseminated and accessed in digital form in every human endeavour in Nigeria since year 2000. The use of computers and the Internet in many organizations, especially universities, research institutions, businesses, national examination bodies, national information centres and many other government agencies and parastatals, has also resulted in an enormous amount of digital objects. The increasing use of computers and the Internet in these sectors of the society can be attributed to the policies of the Federal Government of Nigeria in relation to information technology and telecommunication. For example, the first general object of Nigerian National Information Technology policy is to ensure that information technology resources are readily available to promote efficient national development (National Policy for Information Technology 2000). Similarly, the National Policy on Telecommunications (2000) has as one of its short-term objectives the need to promote widespread access to advanced communication technologies and services, in particular the Internet.

Currently, every business, government, private, and academic document is first created in digital form, even if it is eventually published and preserved on paper. The number of ways in which digital materials can be stored is also increasing, resulting in large quantities of digital materials containing vital personal, corporate and societal information, in an ever-expanding number of file formats.

This assertion is also supported by the UNESCO Draft Charter for Preservation of the Digital Heritage (Webb 2003, Chapter 2: 12–16), which states that

> "Resources of human knowledge or expression, whether cultural, educational, scientific and

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> administrative, or embracing technical, legal, medical and other kinds of information, are increasingly created digitally, or converted into digital form from existing analogue resources. Where resources are "born digital", there is no other format but the digital original. Digital objects include texts, databases, still and moving images, audio, graphics, software, and web pages, among a wide and growing range of formats".

This draft charter clearly supports the argument that information is largely created in digital forms resulting in digital objects, irrespective of the nature of the content or data type. Preservation of these digital objects for future re-use is a long-term commitment which information professionals must provide to their user community. For the digital objects to be used, a user must have access to the right combination of hardware and software to enable the object to be re-created and re-used. According to Wilson (2007), computer systems and software applications change so rapidly that there is no guarantee that the existing data sources will be accessible and usable on future computing platforms or software versions. Digital preservation goes beyond saving digital objects on storage medium and maintaining them.

Digital object preservation

Digital preservation is the act of physically and intellectually protecting and technically stabilizing the transmission of the content and context of electronic records across space and time, in order to produce copies of those records that people can reasonably judge to be authentic (Hitchcock et al. 2007). Similarly, the Research Libraries Group and Online Computer Library Center (2002) defined digital preservation as the activities necessary for ensuring both the long-term maintenance of a byte stream and continued accessibility of its contents. Lievesley (1995) lists the following objectives for preservation of digital objects:

1. preserving the physical reliability of the data
2. ensuring the continued usability of the data
3. integration into information and dissemination systems.

Digital preservation strategies

The concept of strategy has been borrowed from the military and adapted for use in organizations. According to Nickols (2010), strategy is a general framework that provides guidance for actions to be taken and, at the same time, is shaped by the actions being taken. Strategies can be viewed as the steps to be taken for the actualization of formulated policies. Any long-term access and future benefits from preserving digital objects may be heavily dependent on implementation strategies being put in place. Many digital preservation strategies have been proposed, but no one strategy is appropriate for all data types, situations, or institutions. Strodl et al (2007) posit that every scenario has its own requirements and problems, calling for different strategy to resolve the problem at hand.

Nigerian national information centres

National information centres are mandated by the laws establishing them to collect vital public data and information within their mandate for preservation and dissemination. The National Bureau of Statistics, the National Library of Nigeria, National Archives of Nigeria, National Population Commission of Nigeria, Cooperate Affairs Commission, National Broadcasting Commission and National Commission for Museum and Monuments fall within this category. These information centres have traditionally been managing, preserving, and provided access to significant government, private, business and research information in paper and digital formats.

Statement of problem

The law establishing Nigerian national information centres makes it obligatory for them to collect preserve and make available for re-use information within their mandate. It becomes imperative therefore, for these centres to collect, preserve and make available for re-use digital objects. For example the National Library maintains digital objects of the bibliographic information of all published materials in Nigeria for bibliographic control, while the National Archives collects and preserves records of government transactions or historical documents of national importance. For these digital objects to be accessed and re-used in the long term, they must be rendered in the same rendition system or an emulated rendition system.

Software and hardware obsolescence have been identified as the greatest technical threat in terms of digital preservation. As a result of this challenge, Lawrence et al. (2000), Granger (2002), Rosenthal et al. (2005) and Gladney (2007) all observed that digital objects will cease to be accessible without active management and intervention.

The rate at which Nigerian government institutions, research communities, private and business sectors continue to digitize their collections and create

new digital objects, in some cases without print copies, is alarming. This is of great concern, particularly since there is no digital preservation policy or any national or institutional framework for digital preservation. Unless significant efforts are urgently put into active management of digital objects, Nigeria and its national information centres will lose vital digital objects of significant importance.

Objectives of the study

The general objectives of the study are to examine digital preservation strategies in some selected national institutions in Nigeria. In specific terms the study has the following objectives:

1. to identify strategies for preservation of digital objects adopted by Nigerian national information centres
2. to identify the structures put in place for the implementation of the digital preservation strategies by the national information centres.

Significance of the study

It has been observed by the researcher that there is currently no research work addressing issues on digital preservation with particular focus on Nigeria. The outcome of this study will result in model implementation strategies that will address the problems identified at the end of the study. The model can be adopted by any Nigerian national information centre. In addition the outcome will fill the gap and assist the Nigerian government and other relevant stakeholders in the preservation of growing digital objects, and also recommend appropriate measures to safeguard them.

Review of related literature

Implementation strategies for digital preservation

Over the last few years, a lot of efforts were put into defining, improving, and evaluating digital preservation strategies. Digital preservation strategies are methods for keeping stored digital objects permanently accessible for long-term re-use. Implementing a digital preservation strategy is a crucial part of managing the risk associated with rapid hardware and software obsolescence. Implementation strategies for digital preservation can be categorized into investment, short-term and long-term strategies.

Investment digital preservation strategies

These strategies can be adopted at the start of a digital object lifecycle and include the following:

Use of standards. This strategy involves the use of preferably open, widely available, supported or agreed standards and file formats, for which there is an increased likelihood of stability and longer term support. Reliance on standards may lessen the immediate threat to a digital document from obsolescence. For example, the PDF/A standard had been widely adopted as the standard for long-term preservation of documents due to its omitting embedded scripts (Strodl et al. 2007). Another example would be the conversion of Microsoft Word to Rich Text Format (RTF).

Normalization. This involves converting all digital objects into one or more preferred formats. For example, all images might be converted from their original format (such as JPEG or GIF) to Uncompressed Baseline TIFF, and all word-processed documents might be converted to Open Document Text (ODT). The re-presentation of content can be liberated from specific software applications and achieved using different applications. In order to control complexity and cost, an institution may decide to support only a limited number of standardized file formats, and migrate all digital objects to an appropriate supported format.

Encapsulation. This is the means of binding together data and the means of providing access to it. It is often impractical and unnecessary to encapsulate the actual means of access such as software and hardware. Hence, encapsulation usually bundles metadata describing or linking the digital objects with software that renders the program. This allows future users to interpret digital objects by running the same software that was used in their creation. According to Boudrez (2005), encapsulation is a storage technique in which metadata is added to a digital object and/or several documents are grouped in one digital object. Ferreira (2006) argues that encapsulation strategy is generally oriented at collections of objects that are expected to remain unexploited for long periods of time.

Short-term digital preservation strategy

The short-term strategy is considered to be between 1–5 years. This strategy includes:

Technology preservation. Preservation of the original technology used to create the digital object in order to preserve the functionality and 'look and feel' of the product. This is a 'museum style' approach which is probably only suitable as a short-term solution. The technology approach focuses on the technological environment rather than on the digital object. Instead

of mimicking the original environment, it involves preserving the digital object together with the actual rendition system. It could be argued that maintaining the original technology is the most effective and obvious means of preserving the look and feel of a digital environment, and there is certainly merit in keeping samples of old computer systems as a resource for researchers in the future. However, this might offer a short-term solution (Thibodeau 2002). This is not a viable strategy for long-term digital preservation.

Refreshing. This is essentially a means of mitigating media degradation and obsolescence. Refreshing involves the copying of digital objects from one long-term storage medium to another of the same type, with no change whatsoever in the bit stream. Reis and Lindley (2007) posit that media migration describes the transfer of data from one storage medium to another storage medium. Bilateral digital media migration is primarily motivated by the following:

- information loss due to physical effects like de-magnetization of tapes
- digital media storage constantly becomes cheaper, smaller, and faster
- new hardware platforms no longer support certain media storage systems.

Andrews and Law (2004) assert that refreshing cannot be viewed as a solution to digital preservation in itself, because it does not involve the transfer of the entire digital environment, but only the physical storage medium.

Long-term digital preservation strategy

Migration and Emulation are the two strategies that have dominated long-term preservation strategy for digital objects.

Migration. This is the process of transferring data from a platform that is in danger of becoming obsolete to a current platform. The task force on Archiving of Digital Information defines migration as the periodic transfer of digital objects from one hardware/software configuration to another or from one generation of computer technology to a subsequent generation. The purpose of migration is to preserve the integrity of digital objects and to retain the ability for clients to retrieve, display, and further use them in the face of constantly changing technology. From the above definition, it is clear that migration involves transferring digital objects from one hardware or software generation to another periodically and is not just a single ad hoc transformation step. Migration focuses on the digital object itself, rather than its environment. The aim of migration is to change the object in such a way that hardware and software developments will not affect its accessibility. This includes content migration, which transforms data from a source format into a target format, and media migration from one digital medium to another (either digital or non-digital) medium (Reis and Lindley 2007).

Migration has measurable risks which vary, sometimes significantly, given the context of the migration project. The notable danger of migration is that of data loss, or in some cases, the loss of original functionality or the look and feel of the original platform (Granger 2000). Organizations that adopt migration as a strategy for digital preservation have to establish organizational structures that allow for the following:

- regular inspection of the digital objects
- planning of the next migration steps as soon as inspection detects a migration need
- performing individual migration process according to a plan as part of their daily routine.

Emulation. Emulation strategy seeks to preserve the environment not through the preservation of original hardware/software but by using current technology to mimic the original environment. This might involve emulation of the original software or emulation of the original hardware (in this case the original software and operating system are stored along with the digital object itself). Granger (2000) posits that the essential idea behind emulation is to be able to access or run original data/software on a current platform that emulates the original platform. Either way, the strategy relies on a detailed description of the original environment on which to base the emulation in future.

It is important to note that these are all strategies that have been demonstrated to work in certain circumstances over limited periods of time. They have not proven themselves against unknown threats over centuries of change. But they do have current applications in the management of digital objects, and it seems likely that combinations of them will continue to be researched and proposed for large-scale long-term preservation. Research on long-term digital preservation strategies is ongoing.

Open Archival Information System (OAIS) Reference Model

The Open Archival Information System (OAIS) Reference Model was published in 2002 by the

Consultative Committee for Space Data Systems (CCSDS) to deal with long-term preservation of digital objects (Borghoff et al 2006). The term 'open' refers to the fact that the reference model was developed and released in an open public forum, in which any interested party was encouraged to participate. An archival information system is ''an organization of people and systems that have accepted the responsibility to preserve information and make it available for a Designated Community'' (International Organization for Standardisation 2003). The Reference model's main objectives are to clarify basic terms of long-term preservation and to identify the corresponding key processes. Although it originated from space research, the OAIS Reference Model is a general, theoretical model describing the organization of an archive which can be adopted and modified by any organization. It examined the problem of long-term digital preservation from information and process model viewpoints, as discussed below.

The Information Model. The information Model of the OAIS Reference Model provides a fundamental distinction between Data object and Information object. The digital object is the focus of preservation, along with metadata necessary to support its long-term preservation and access, bound into a single logical information package (International Organization for Standardisation 2003). Hence, the information model is built around the concept of a conceptualization of the structure of information as it moves into, through, and out of the archival system.

Data turns into information only if the corresponding Knowledge Base and additional Representation Information are available. The knowledge which is required to understand a data object is called Knowledge Base in the OAIS Reference Model. Borghoff et al. (2006) assert that unavailability of the Knowledge Base can result in the inability to interpret the data at all. There is also the need for additional information to understand the data object, which is subsumed by the Representation Information in the OAIS Reference Model. Representation Information might include a description of the hardware and software environment needed to render the Content Data Object and/or access its contents (Lavoie 2004).

The OAIS Process Model. The OAIS Process Model, according to Borghoff et al. (2006), describes the flow of information within an institution from producers to archive and from archive to consumer. The OAIS Reference Model models these processes and groups them according to the following:

1. Ingest Process: This process receives a Submission Information Package (SIP) and prepares it for storage and administration within the archive. The SIP is transformed into Archival Information Packages (AIPs) and Descriptive Information corresponding to the AIP created. Finally the AIP is passed onto the Archival Storage process and the corresponding Descriptive information to the Data Management process.
2. Storage Process: This process is responsible for the storage, management, maintenance of the bit-stream and the retrieval of the AIPs. The process ensures the periodic refreshing of storage media and guarantees the reconstruction of the AIPs in case of system failure.
3. Data Management Process: This process manages the Descriptive Information and the data necessary to run the system. The data are saved in a database and can be queried for editing and updating.
4. Administration Process: The Administration process handles routine work in the archive. The process checks whether the delivered SIPs meet the archive's standard. It is also responsible for the hardware and software architecture of the archive.
5. Preservation Planning Process: This process monitors the environment and provides recommendations to ensure the long-term accessibility of the stored information. This includes monitoring of the technology and designed community and evaluation of the archive and periodical recommendations on archival update for migration.
6. Descriptive Information is information that supports discovery and retrieval of Content Information by the Designated Community through the OAIS's finding aids. For example, Descriptive Information takes the form of a Dublin Core metadata record maintained by the OAIS to facilitate resource discovery by the consumer.

The OAIS Reference Model is a conceptualization of the environment, functional components and information objects associated with a system designed to effect the long-term preservation of digital materials. Lavoie (2004) asserts that the OAIS Reference Model provides nothing about system architectures, storage or processing technologies, database design, computing platforms or any of the myriad technical details involved in setting up a functioning archival system. The OAIS Reference Model only articulates the requirements to be met by digital archive and library systems (Borghoff et al. 2006). This makes the

Table 1. Preservation strategies used for digital preservation

Preservation strategies	National Library of Nigeria	National Archives	National Bureau of Statistics
Technology preservation	X	X	X
Refreshing	X	X	X
Technology preservation	X	X	X
Normalization	X	X	√
Migration	√	√	√
Emulation	X	X	X
Encapsulation	X	X	√
Universal Virtual Computer	X	X	X
LOCKSS	X	X	X
Open Archival Information System (OAIS) Model	X	X	X

Key: X = not applicable; √ = applicable.

adoption of OAIS very flexible by any institution and in different ways.

Research methodology adopted for the study

The study adopted the qualitative methodology approach using case study. The researcher systematically questioned the staff of the digitization/digital preservation unit in each of the target organizations as a focus group. The interview adopted an unstructured and semi-structured questioning technique in order to elicit information on digital preservation strategies adopted for long-term digital preservation. The focus group interview was used to build on data collected from individual interviews by verifying and elaborating on information supplied by the informants individually.

Population and sampling procedure

The population of the study consists of the National Library of Nigeria, the National Archives of Nigeria and the National Bureau of Statistics. The target population of the study cuts across the senior management and staff of the digitization/preservation units of national information centres.

A purposive and criterion-based sampling technique was used to select samples from these three national information centres. In each case, a homogeneous sampling of five staff in the digitization/digital preservation unit as well as one top management staff member of the rank of Assistant Director was sampled for data collection. The justification for choosing the three national information centres was that they have traditionally been managing, preserving, and providing access to significant government, private, business and research information in paper and digital formats.

Table 2. Factors considered in adopting preservation strategy

Preservation strategies	National Library of Nigeria	National Archives	National Bureau of Statistics
Look and feel of the document	√	√	X
Content of the document	√	√	√
Size of document to be preserved	X	X	X
Authenticity and reliability	X	√	√

Key: X = not applicable; √ = applicable.

Data analysis and discussion

Strategies for preservation of digital objects adopted by the Nigerian national information centres

The researcher sought to find out the strategies adopted by the national information centres. The findings are summarized in Table 1.

Table 1 show that a migration digital object is the only digital preservation activity carried out by all the national information centres. It can be argued that the reason for this was the relative by short period (6–8 years) in which they have been involved in building their digital collections. It was revealed during the interview sessions that the migration of digital objects in the National Library and the National Archives was limited to transfer of digital objects from one computer hardware to a more recent computer hardware.

The National Bureau of Statistics, on the other hand, is taking a lifecycle approach to digital preservation. It views preservation as including collecting material, producing metadata and making storage decisions. This explains why it was able to adopt strategies such as normalization, migration and encapsulation, and so is able to preserve different types of digital objects.

A number of factors are considered in selecting preservation strategies and these are as shown in Table 2.

Table 3. Frequency of inspection of digital objects stored on storage medium

	National Information Centres								
	NLN			NAN			NBS		
Frequency of Inspection	CD	HD	External HD	CD	HD	External HD	CD	HD	External HD
Less than 6 months	X	X	X	X	X	X	√	√	√
Bi-annual	X	X	X	X	X	X	X	X	X
Once a Year	√	X	X	X	X	X	X	X	X
Once in Two Years	X	X	X	X	X	X	X	X	X
Once in Three Years	X	X	X	X	X	X	X	X	X
Once in Four Years	X	X	X	X	X	X	X	X	X
Once in Five Years	X	X	X	X	X	X	X	X	X
Not at all	X	X	X	X	X	X	X	X	X
On Demand	X	√	√	√	√	√	√	√	√

Key: X = not applicable; √ = applicable; HD = hard drive.

The content of the document to be digitized and preserved was a common factor taken into consideration in selecting the digital preservation strategies adopted by the three national information centres. Two other factors taken into consideration by the National Library and the National Archives were the look and feel of the documents. Authenticity and reliability of the information resources were factors taken into consideration by the National Archives and National Statistics. The size of the document to be preserved was not a factor considered by any of the national information centres. This might be connected to the fact that storage space was relatively cheap in the years 2005 and during the study.

The choice of migration as a strategy for digital preservation is not adequate, since it has been established that some data types are best preserved for long-term use using other strategies.

Structures put in place for digital preservation strategies in Nigerian national information centres

The structures put in place for the implementation of the digital preservation policy and strategies were analyzed and discussed under: methods of accessing digital objects for digital preservation action; staff strength of digital preservation unit and their areas of speciality; and specialized training on digital preservation attended by the staff.

Methodologies of assessing digital objects for preservation action. Digital preservation action needs to be taken when the digital object has been assessed to be in danger of either technological or software obsolescence. Methods of assessing digital objects for preservation action include methods of assessing the risk of loss of digital objects, determining file formats of digital objects and determining the rendition system of digital objects. Apart from the National Bureau of Statistics, none of the national information centres had put in place a method to monitor and provide warning of the need for preservation action. This could be because the National Library and the National Archives are yet to stock large mixed-format collections which would require automated discovery of existing preservation risks. However, with the growth in digital information this will in time become very necessary to prevent the loss of vital digital objects. A mechanism to assess the risks of digital objects therefore needs to be put in place in these institutions.

Inspection of digital objects stored on storage media. Lifetime predictions of storage media are complicated because many chemical and physical conditions contribute to their degradation and eventual failure. This makes it imperative that inspection of digital objects on storage media be scheduled at regular intervals to ensure that they are still accessible. The frequency of inspection of stored digital objects to determine their accessibility and rendition differed in each of the national information centres, as shown in Table 3.

The National Library of Nigeria inspected digital objects stored on CD-ROM once a year, and those stored on computer hard drive and external hard drive only on demand. The National Archives conducted inspection of digital objects on all storage media only on demand, particularly when there was a need to access the objects.

The National Bureau of Statistics carries out inspection of its digital objects on CD, computer hard drive and external hard drive every 6 months and on demand. Conducting a regular inspection at least once in a year would enable the National Library and National Bureau of Statistics to detect the deterioration of a

Table 4. Metadata recorded and used for accessing the digital objects stored for archiving

Types of metadata	National Library of Nigeria	National Archives of Nigeria	National Bureau of Statistics
Date digital object was stored on storage media	X	X	√
Author(s) of digital object	X	X	√
File format	√	√	√
Operating System digital objects were created	X	X	X
Hardware requirement for displaying the digital objects	X	X	X
File name	√	√	√
Date of data creation	√	X	√

X = not applicable; √ = applicable.

storage media early and quickly refresh the digital objects onto new media or migrate them to completely new types of storage media. There is a great danger in inspecting digital objects only on demand, the implication being that when there is no demand for a long period, no action will be taken, even where the digital objects are in danger of becoming inaccessible.

Metadata recorded for stored digital objects. Digital objects have very little value without metadata. Metadata records for stored digital objects are important information for the rendition of any object. They provide the information required to recreate and access digital objects. The metadata recorded for digital objects in the three sampled institutions are shown in Table 4.

Table 4 shows that the default file formats used for creating digital objects as well as the filenames were recorded by all three national information centres. The National Library and the National Bureau of Statistics recorded metadata in respect of date of data creation, while only the National Bureau of Statistics recorded metadata on the date on which digital objects were stored and their authors. The National Bureau of Statistics uses the International Household Survey Network (IHSN) application known as NADA 2.0 which requires that all necessary metadata are provided for all digital objects archived for digital preservation.

Table 4 also shows that none of the national information centres collects metadata on the operating systems and hardware requirements for the digital objects stored for archiving. This will make rending of digital objects very challenging and perhaps impossible in the long term, particularly if none of the current staff is available to provide the necessary information.

Staff and staffing for digital preservation units. In all three institutions, respondents indicated that the number of staff currently assigned to the digitization unit and digital preservation was insufficient. It was revealed during the interview session at the National Library that as a result of the large amount of newspapers available for digitization and archiving, the management has decided to outsource some of the work to consultants. The implication of this is that many more materials can be digitized and preserved digital for re-use in the long term.

The data collected revealed that the digital preservation unit in the National Bureau of Statistics has specialists in computer science, electrical engineering, archives and records management. This clearly suggests that it has capable hands to effectively manage digital objects for long-term re-use. The National Library of Nigeria has specialists in library and information science and electrical engineering. The National Archives has only a specialist in archives and records management, and this definitely has some negative affects on digital preservation activities which require some computer science skills.

Special short term training is one way of equipping the staff of any organization with the necessary skills to carry out their jobs effectively. The national information centres were asked about the opportunities for special training on digital preservation that had been available to their personnel. Their responses are shown in Table 5.

Table 5 reveals that the staff of the National Library of Nigeria indicated that they had undergone training only on the use of Greenstone digital library software, assumed to cater for the digital preservation of their digital objects. However, during the interview session it was revealed that the National Library staff had only received training on digitization organized by the vendor that supplied their digitization scanner. This training had no relevance to digital preservation process. The implication of not attending training programmes on digital preservation is that the staff will not be equipped to carry out digital preservation effectively.

Table 5 also shows that the staff of the National Archives had not received formal training on any aspect of digital preservation, whereas the staff of the National Bureau of Statistics had the opportunity to

Table 5. Special training opportunities/programmes on digital preservation strategy

Special training	National Library of Nigeria	National Archives	National Bureau of Statistics
Refreshing of storage media	X	X	√
Technology preservation	X	X	√
Normalization	X	X	√
Migration	X	X	√
Emulation	X	X	√
Encapsulation	X	X	X
Universal Virtual Computer	X	X	X
LOCKSS	X	X	X
Open Archival Information System (OAIS)	X	X	√
Institutional Repository – Greenstone	√	X	X
Institutional repository – Dspace	X	X	X

Key: X = not applicable; √ = applicable.

attend training workshops on several aspects of digital preservation.

A number of reasons were given for the failure of the staff of the national information centres to attend specialized training in digital preservation. While the National Library and National Archives indicated that this was due to lack of funds and lack of awareness of the sources of digital preservation training, the National Bureau of Statistics revealed that lack of digital preservation training opportunities in Nigeria had limited the number of training opportunities available. The responses from the three national information centres indicated that lack of support from management and lack of interest in attending specialized training on digital preservation were never a problem. This can be attributed to the interest of the management staff in preserving their digital objects, as was also revealed in the interview sessions with management.

Unless funds are made available and a training institution for digital preservation established in Nigeria, the national information centres will continue to have shortages of skilled man power for digital preservation activities.

Conclusions

From the findings of the study, it could be concluded that the national information centres in the sample have adopted very few digital preservation strategies, while the structures put in place for the implementation of the strategies are inadequate. This implies that digital preservation activities in these centres cannot ensure the long-term availability and re-use of the enormous amount of digital objects being created. A national digital preservation strategy based on international standards is needed to provide a well articulated roadmap for digital preservation activities for the national information centres and other efforts in digital preservation in the country.

Recommendations

Based on the findings of this study and the conclusion reached, the following recommendations are made:

1. The national information centres should base their choice of digital preservation strategies on the digital objects to be preserved.
2. A National Centre for Digital Preservation, responsible for monitoring and conducting research in digital preservation activities, should be established.
3. The national information centres should adopt the Open Archive Information System Model using appropriate repository software for ingest, storage and access.
4. The national information centres should provide training on digital preservation activities for their staff, while components of digital preservation should be incorporated into the curricula od Nigerian library schools.

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Quality library and information science education in Nigeria: The place of public–private collaboration

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Abstract

This paper espouses the rationale for public–private sector collaboration for quality library and information science education in Nigeria. In all the phases librarianship has passed through in Nigeria, it has been public sector sponsored. The paper identifies ways in which the private sector could participate towards ensuring quality library and information science education in Nigeria. It identifies the token presence of the private sector in librarianship as one of the factors that lead to infrastructural decay, inadequate or near absence of teaching and learning aids, low social perception of the profession and poor remuneration of librarians in the country. Ways that can could be used to attract private sector support are outlined. Private sector participation in librarianship will provide funds to acquire new facilities, maintain existing ones, develop infrastructure and equip libraries and resource centres which will ultimately lead to the production of technically sound and knowledgeable professionals.

Keywords

library and information science education, public–private partnership, Nigeria

Introduction

Librarianship as a profession in Nigeria is yet to take its rightful position in the scheme of national priorities. This is better appreciated when viewed against the backdrop of other professions like law, accountancy, medicine, pharmacy, architecture, engineering and the like, which have taken their rightful positions and continue to be felt in any part of the national scheme of things. What is today the profession of librarianship began as a routine, non-professional occupation where a librarian's basic qualification was possession of a certificate or diploma in librarianship from library schools in the USA or the United Kingdom. There were few persons recruited by the government to do library work. Many of them never knew what library duties were all about before they were recruited (Lawal 2002).

Contemporary librarianship in Nigeria has gone beyond that stage in terms of certification and the number of applicants seeking admission to read librarianship in tertiary institutions in Nigeria and abroad. Applicants no longer read librarianship as a matter of chance or "I-have-no-alternative" syndrome. They come into librarianship consciously and willingly, having fully realized, more than ever before, the increasing recognition of the importance of library and information services to both individual development and national growth (Nwokocha 1996; Uhegbu and Unagha 2008).

The training of library and information professionals who are responsible for the management of the information and library infrastructure cannot be left in the hands of the government alone because of its expensive and capital-intensive nature in terms of curriculum development, training facilities and infrastructure. For instance, technical tools like the *Library of Congress Classification* and *Library of Congress Subject Headings* cost more than three million Naira (NGN) (about US$ 20,000) just to procure

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a set of 21 volumes. The *Anglo-American Cataloguing Rules* 2nd edition costs not less than NGN 1.5 million (about US$10,000) to purchase. More worrisome is the fact that these technical tools can only be purchased from overseas and consequently have to be paid for in hard currency. Information and communication technology facilities like computers, projectors and audiovisuals, which have become integral parts of the curriculum for the training of quality professionals, are expensive to procure. Since the inception of librarianship in Nigeria, the training of librarians and information scientists in terms of provision of facilities and remuneration of personnel has been left to the government, whether at federal or state level.

The private sector (companies and wealthy individuals) seems to exhibit an extremely low opinion of the critical role of librarians and information scientists in the economy. They seem to believe that because librarianship is a service-oriented profession, whose responsibility is to meet the information needs of patrons, it does not make any financial contribution to the economy. As such, it makes no sense to invest in such a sector. They therefore promote ignorance of the capability of library and information services to influence the nation's fortunes positively (Nwokocha 1997). The token donations of computers by companies like Cadbury, Nigerian Breweries and Nestle Foods, etc. to universities like Ibadan and Ahmadu Bello cannot be enough to assist in the training of the technical manpower to manage the nation's library and information institutions.

Today the discipline of library and information science is taught in Nigerian universities as a professional course where candidates spend a minimum of four academic sessions to obtain a bachelor's degree (BLIS), a minimum of two academic sessions to obtain a master's degree (MLIS) and a minimum of three academic sessions to obtain a doctorate (PhD). Those who possess a master's degree or doctorate are regarded as academic librarians and treated as academic staff wherever they work in terms of conditions for promotion and remuneration.

The status of teaching and learning of librarianship has changed from producing librarians who are only knowledgeable in the management of libraries and information centres, to those who are technically trained in the art of information and knowledge management. As a result, a librarian or information scientist should no longer be seen as a person who sits comfortably in the library to wait for patrons. A librarian or information scientist should now be an information manager who professionally provides information services to users who visit the library but also seeks out the patrons wherever they are in order to satisfy their information needs. With the enactment of the Librarians Registration Council of Nigeria Law in 1995, the profession of librarianship acquired legal and professional status in Nigeria. The Council is responsible for regulating the practice of librarianship within Nigeria. This has given added impetus to the legitimacy of the profession.

Training quality librarians and information scientists is expensive and capital intensive. The absence of the private sector in this field has meant that official sources have to bear a heavy financial burden. There is therefore pressing need to attract private collaboration in the library and information sector of the economy. Private sector participation in librarianship will provide the needed funds to acquire new facilities, maintain existing ones, develop infrastructure, restructure training curricula and equip libraries and resource centres which will ultimately contribute in sustaining the growth of the profession and quality of the products for the good of the economy.

Library and information science education in Nigeria: an overview

Library and information science education in Nigeria began as a response to the urgent need to develop indigenous manpower in librarianship. The philosophy behind library and information science education in the country rests on the recognition of the role of libraries in the educational system and the importance of information for technological transfer, government transactions, business and commerce, national planning and decision-making. In the contemporary world economic and information order, to control the flow of information is to control progress in many fields of human endeavour (Opara 2010; Ashcroft and Watts 2005).

The objectives of library and information science education in Nigeria include, among others:

- to produce competent library and information professionals for all types of libraries, information centres and institutions
- to inculcate in the students the right attitude and an understanding of the responsibilities and judgements necessary for success in library and information profession
- to prepare students to understand the changing ideas and patterns of service and to encourage them towards a commitment to improvement
- to equip the students with the basic methodology necessary for research in library and information profession

- to inculcate in the students an awareness of the importance of library and information service in Nigeria and infuse in them a desire to produce these services (Department of Library and Information Science 2007).

Library and information science education in Nigeria has passed through four phases – the apprenticeship, certificate/diploma, undergraduate and the postgraduate phases. In the apprenticeship phase, there was no formal curriculum for training librarians. A person was recruited and attached to one of the foreign librarians under whose guidance they learned the various duties in the library such as cataloguing, classification and reference work, among others. There was no certificate at the end; rather the person was equipped with the knowledge of how to do library duties more competently. The second phase was that of formal training, which began with the award of an ordinary diploma certificate. Prior to the establishment of the library and information science school at the University of Ibadan, Nigerians were sent overseas by the government or through foreign agencies like Ford Foundation to read librarianship (Ojo-Igbinoba 1995; Lawal 2003). When the University of Ibadan Library and Information Science School was established, its emphasis was initially on the award of an ordinary diploma certificate and later a postgraduate diploma after periods of formal training. The school was the pivot upon which other library and information science schools in Nigeria began. When polytechnics and colleges of education began to establish library schools for the award of ordinary diplomas and other certificates, Ibadan stopped the diploma programme and concentrated on postgraduate education.

The third phase marked the undergraduate certificate era, which was started by the Ahmadu Bello University (ABU), Zaria. At its inception, the Ibadan Library and Information Science School vehemently criticized the Ahmadu Bello undergraduate programme, stating that it was a ''dangerous'' deviation from the norm, an improperly conceived programme and a subtle way to dilute the standards of the profession. Following the success of the Ahmadu Bello programme, Bayero University Kano and the University of Maiduguri established their own undergraduate library programmes (Lawal 2002:33; Ogundipe 2005). From the 1980s, state universities emerged with full fledged undergraduate programmes in librarianship. Theirs was a ''subtle revolution'', as most of them, led by the Abia State University Uturu, deviated completely from the Ibadan, Ahmadu Bello, Bayero and Maiduguri tradition. While the first four universities housed their library schools in the faculty of education, the state universities housed theirs in the faculty of social sciences (Uhegbu and Unagha 2008:6). Federal universities like the University of Nigeria Nsukka, the Federal University of Technology Minna and the University of Port Harcourt (Uniport), also modelled their library and information science schools after Ibadan in terms of housing of the programme. Unable to halt the undergraduate programme in librarianship and having fully realized the rationale for such a programme, Ibadan later began its own undergraduate programme.

The last phase is the graduate programme phase, when librarianship went to the postgraduate level. Ibadan again began this phase when librarians were trained to the level of master's degree in librarianship (MLS) and Doctor of Philosophy (PhD). Many other library schools in Nigeria have also gone to the postgraduate level.

In all phases of library and information science education in Nigeria, it is the public sector, represented by the government, that is involved in providing facilities and funds. The few private interests that assisted the profession in the early stages, such as the Carnegie Corporation and Ford and Rockefeller Foundations, were all foreign organizations. In the contemporary world economic order, especially where human capital is to be developed, the private sector is an important stakeholder. Nigerian library and information science education cannot be an exception.

Library and information science education and the rationale for private sector support

Notwithstanding the low perception of librarians and library institutions by Nigerians, library and information services have remained significant in the scheme of national development. As a way of re-inventing library and information services in the minds of Nigerians, it is important to state once more the role of library and information services in national development so that people can begin to appreciate the need to properly support the training of those that will make the services available to the people and manage our library and information service institutions.

Nigeria has five categories of library institution:

1. Public libraries, which are wholly funded through public taxes. They provide information services to all categories of people and have remained a major player in sustaining the nation's adult and continuing education programmes.
2. Academic libraries, found in universities, colleges of education and polytechnics, are meant

to sustain the academic programmes of the tertiary institutions where the nation's best minds are nurtured and developed.

3. School libraries are found in primary and secondary schools. It is in the school libraries that the reading habits of our young children are incubated, developed and sustained.
4. Special libraries are found in research institutes where the nation's pursuits for food security, technological advancement and environmental re-engineering are developed and nurtured.
5. The National Library acts as information consultant and adviser to the Federal Government. It is the apex library whose responsibility is to facilitate the development of the library and information service infrastructure in the country.

Also, in private companies and establishments, there are information centres, databases, records departments and archives and systems management (Onatola 2004; Onwubiko and Uzoigwe 2004; Ugocha 2008).

In all these library and information centres, it is the librarian or information scientist that has the technical knowledge and competence to manage them. It is the librarian or information scientist that ensures that the information needs of all types and for all categories of persons are identified and satisfied. Information needs could be economic, social, political, health, security, technological, scientific, religious and even community-based needs. The users could be lawyers, architects, engineers, medical doctors, rural women, traders, artisans, clergymen, lecturers, civil servants to mention but a few. It is the librarian's duty to make available both the information and the carriers of such information to the users, be it in print or electronic format. The librarian is the gateway to knowledge, a pathfinder who liaises between information and a user of information. Sometimes, a librarian is both the source and the conveyer of the information. Because of the technicality of his duties, he requires exposure to a variety of training facilities including knowledge of subject areas of other disciplines.

The current reforms in the nation's socio-economic sectors are private sector driven, especially in the oil and gas, power, manufacturing, banking and health sectors. Library and information science education will benefit tremendously if there is adequate private sector investment in the sector. Aina (2004), Nwokocha and Uhegbu (2000) and Ogundipe (2005:62) have decried the decay of infrastructure in most library and information science schools in Nigeria and its negative implications on the quality of library and information science education. The 2007 accreditation of academic programmes in Nigerian universities by the Nigerian Universities Commission (NUC) was a clear eye-opener to the inadequate facilities and infrastructure and their terrible decay in existing Nigerian library and information science schools (Nwosu 2007). This deplorable situation is attributed squarely to the dominance of the sector by the public sector, represented by the government. This situation could be reversed if the private sector were to invest and support library and information science education.

public–private sector collaboration is a situation where the public sector, represented by the government, partners with the private sector, represented by wealthy private individuals, organized groups, associations or corporate bodies. It is all about inclusion and working together to achieve a common purpose, in this case, quality library and information science education in Nigeria. It involves pooling resources, ideas, personnel and finance together to improve the training of librarians and information professionals. The increasing sophistication of our library and information institutions and the cost of library and information science training facilities like computers, projectors, technical tools, Internet facilities and the use of information and communication technology (ICT) in services delivery – including maintenance and management of facilities through total quality measures – have made the issue of public–private partnership a compelling imperative (Opara 2010:3).

Public–private collaboration will not only help to improve the quality and quantity of facilities for library and information science education, but also improve the quality of training, restore confidence in the student librarians, attract more applicants into the profession and above all, elevate the image of both the profession and the librarians and information scientists themselves.

Areas that require private sector support for quality library and information science education

Library and information science is a service-oriented profession. It requires both theoretical and technical training in the art of human and material resources management as well as knowledge of a subject area other than librarianship. A librarian must be competent in computer applications and other ICT facilities, have knowledge of publishers and published resources and how to reach them, and understand the information needs of users of all types and appropriate ways to satisfy them. Library and information science education requires continuous upgrading of facilities, infrastructure and curricula. It also requires continuous financial

support so that library and information science schools in the country are able to produce qualified, technically competent personnel to man the nation's library and information service institutions, and thus meet the information needs of the country, preserve the nation's intellectual property and creative arts, sustain the flow of appropriately packaged information locally and at the same time control the dissemination from overseas of improperly packaged, character-destroying information and its conveyors. Soludo (2007) laments that developing countries – including Nigeria – which, for whatever reasons, fail to take advantage of private sector participation in the economy are bound to trail behind others in all spheres of development – in this case, in the sphere of library and information science education.

There are many areas in library and information science education that require urgent private sector collaboration. For instance, technical training tools in cataloguing and classification, indexing and abstracting are exorbitantly expensive and can only be purchased from overseas. For example, in 2007 Abia State University spent more than NGN 5 million (about US$ 33,000) just to acquire a set each of the *Library of Congress Classification Schedules* and *Subject Headings List*. A library and information science school requires at least 10 sets of each of these tools to meet the needs of its students. The private sector could assist here by purchasing some of the technical tools required to train librarians and information scientists.

Today, ICT has become an integral part of the curriculum of most library schools. Student librarians are expected, after training, to be competent in computer applications and knowledge of other ICT-based information facilities. Internet facilities are also necessary for library and information science schools so that student librarians will have access to the global information network. The present situation, whereby universities provide one VSAT (Very Small Aperture Terminal) for the entire university community, cannot meet the peculiar needs for student librarians to be competent in Internet use. To give adequate exposure and quality education to student librarians, a library and information science school should have a well equipped information resource centre with its own VSAT and other ICT facilities. Such facilities are usually imported and expensive. Poor funding makes it hard for universities to provide adequately for the needs of their departments, including the library and information science schools. Private sector collaboration could make the difference if they could procure ICT facilities and donate them to library and information science schools. This could certainly improve the quality of training in many such schools in Nigeria.

Quality library and information science education requires that a library and information science school establish a well-equipped and stocked departmental laboratory (workroom or library) which will act as a clinic for practical library exposure for student librarians. Books, journals and reference materials that ensure proper exposure of student librarians to current information and trends in the profession through practical library experience are hardly easy to come by. Many library and information science textbooks and journals come from abroad. The few Nigerians that have published books in librarianship can hardly make any significant difference. Even a departmental building which provides adequate accommodation for classrooms and other facilities for the training of student librarians is lacking in many instances. Today, many library and information science schools are housed in unsuitable places. Some are housed in the same building as other unrelated disciplines and even merged with such discipline because of lack of accommodation. The result is congestion, struggles for classrooms for lectures, inadequate chairs and desks for lectures, noise and filth. Private sector collaboration is urgently needed here. The private sector could establish departmental buildings, which could be named after the company, association, union or corporate body or individual that established them. In this regard, the university would provide the land and building design so that its environmental and architectural uniqueness are not compromised.

Many applicants to library and information science programmes find it hard to meet the financial demands of the training. Whether pursued locally or abroad, it costs a lot of money before a person qualifies as a librarian or information scientist. This is made worse by the ever-increasing cost of higher education in Nigeria and the extreme poverty that is ravaging many Nigerians. After completing an undergraduate programme, one is also expected to obtain a master's degree in library and information science before being recognized as an academic librarian. Many Nigerians who are keenly interested to obtain university degrees in librarianship may be unable to do so because of poverty and the cost of higher education. The private sector could assist here by offering scholarships to deserving candidates, with priority given to intelligent but indigent ones, to pursue librarianship either at undergraduate or postgraduate level, locally or overseas. This will help to make available adequate and skilled manpower to manage the nation's library and information service institutions and even for the private sector's own records and databases.

Apart from scholarship awards for full-time studies, the private sector could also collaborate in terms

of sponsoring particular aspects of librarianship education. Library and information science has many branches. These include technical services, serials management, archives and records management, information resources management, user education, information development, bibliometrics, indexing and abstracting, database management and so on. The private sector could sponsor people to specialize in any of these fields. Professional tours, conferences, seminars and workshops that are organized locally and internationally are all part of technical competence exposure for student librarians to be aware of the latest developments in the field and by so doing improve their knowledge and technical skill.

The establishment of a 'professional chair' whereby the best librarianship student graduating in a particular year could be given certain benefits is another area where the private sector could collaborate in order to encourage quality library and information science education. Such a 'professional chair' could be established for either undergraduate or postgraduate programmes. A student who produced the best results in a particular year could be offered automatic employment in an establishment, given cash incentives, provided with computers and other information resources and the like. This will attract many applicants to read librarianship and also help to make them take their studies very seriously.

Strategies for attracting private sector support

The private sector may not be in a position to understand and appreciate how vital their support (financial and otherwise) may contribute to the uplift of library and information science education in the country. They may also not be aware of the facilities and infrastructure or even the technicalities that are involved in the training of quality librarians and information scientists. This is better appreciated when considered against the backdrop that the private sectors are not directly involved in the management of higher education in Nigeria. As a result, matters relating to higher education, especially such specialized and technical areas like librarianship, may not be areas of their immediate focus. This is why there should be concerted strategies to sensitize the private sector so as to draw their attention to the needs of library and information science education in the country. It is one thing to know that the private sector exists; it is entirely a different ball game to make them realize what they stand to gain in terms of immortalizing their names in the minds of Nigerians if they contribute in the training of professionals that will manage the nation's library and information institutions.

One of the strategies to be adopted in this regard is to reach out to the private sector. The outreach programme should be done through either personal contact or letters of appeal. To achieve this, heads of library and information science schools have a lot of work to do. They have to make personal contacts with corporate bodies and establishments such as banks, manufacturing companies and even non-governmental organizations (NGOs) for interaction and enlightenment. They have to properly package their departments, their programmes and products and market them to the private sector. They have to let the private sector know the critical areas of their needs and how the private sector's contribution will positively change the whole process of training the professionals that will be responsible for managing the nation's libraries, archives, records and information centres and related institutions, which are critical agents for preserving the nation's creative arts and culture.

There are many wealthy Nigerians who are looking for an opportunity to contribute to the development of Nigerian youth. Such people should be identified and talked to and sensitized on the role of librarians and information scientists in the economy. By approaching them directly, the wealthy Nigerians may feel recognized, especially if they have not been visible in the national scheme of activities. This may be the tonic needed to convince them to invest in library and information science education in the country, especially if they are told that contributing to the training of librarians and information scientists is a means of developing Nigerian youths and a way of paying back to society.

Personal contacts should be followed by letters of appeal and reminders as some potential donors may easily forget due to pressures from engagements. Apart from wealthy Nigerians, alumni of library and information science schools should also be approached for assistance, whether living in the country or abroad. Letters of appeal should be extended to them.

Library and information science schools could organize exhibitions, cultural fiestas during Students' Union week, departmental seminars, workshops, conferences and the like, to which wealthy individuals and heads of corporate bodies could be invited. Library and information science schools could use such opportunities to showcase what they have to offer to the outside world. Such occasions may enable corporate bodies and individuals to appreciate what the whole profession is all about and attract them to support the activities of the schools. Heads of schools should be aware that whatever support they may get from the private sector, it must be judiciously utilized. They could set up departmental committees to handle such support. They should always remember to write letters of appreciation to those that support them, or

even send them departmental season's greeting cards annually. Delegation of teachers and students from the schools should be sent to visit any individual or corporate body that assists them. These are a viable way of saying thank you, and help to sustain their support to library and information science schools thereafter.

Conclusion

The 21st century library and information science education no longer justifies the dominance of the public sector in its funding and development of facilities and infrastructure. The contemporary world economic and information order is now private sector driven. What is required for quality library and information science education in Nigeria is viable and sustainable public–private partnership. This will not only make available the needed funds and infrastructure for quality training, but also attract many applicants to read librarianship. The nation's library and information service institutions will be better for it.

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Investigating the information needs of nomadic students in Iran: Presenting a library service model

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Abstract

This article reports on a study designed to find out the information needs of nomadic students in Iran in order to present a library service model to meet their needs. The results show that the preferred information format of the majority of students was print, especially books. Most of the students stated that they were in need of cultural and medical non-educational books. The study led to improved and expanded library services for respondents who are deprived of such services, including audiovisual services, extending the book collection, loaning books, advertising books and other publications, reference services, technical services and providing needed information to them. The paper presents for the first time a model for providing library services for nomadic students. Both practitioners and researchers in the nomadic library services domain will benefit from the synthesis offered in this paper, as it puts together convergent views on what nomadic students currently need.

Keywords

information needs, students, nomads, Qashqa'i, library services, Iran

Introduction

Although, according to the United Nations Development Programme (2000), access to information and communication services is now seen as a universal right, and the United Nations is advocating for a global initiative for such access, the information needs of youth, particularly in rural areas, have scarcely been investigated by researchers. Similarly, the information needs of nomadic students are very poorly covered in the literature of library and information science (LIS). This is despite the fact that such work could play a key role in developing library and information services for this group. Indeed, many researchers and commentators over the past three decades have noted a lack of investigation in this area and consequent exiguous knowledge of the topic. Assadi (1977), Parsa (1980), Patterson (1987), Haghighitalab (1995), Atuti (1999), Ghorbani (2000), Kazemi (1991), Dyer (2001), and Dorr and Akeroyd (2001) all draw attention either to how little is known about such needs or to the necessity of learning more. Meager coverage in the literature should not obscure the importance of research on youngsters' information needs, especially in terms of its contribution towards a more effective tailoring of the content of information services and systems to meet young people's requirements.

The target population studied in the following research is that of nomadic students in Iran. The nomadic life style is one of the oldest features of human social life, and has continued until now, in spite of historical ups and downs. The nomadic tribes of Iran comprise approximately 2 percent (1,304,089

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people) of the total population of the commonwealth (Zahernasab 2007).

One of the positive population traits of diverse societies is a high rate of literacy and educational progress, while one of the indicators of social retardation norms is a low level of literacy and study. In order to increase the productivity and participation of an efficient stratum in the economic, political and social efforts in any society, proper education is necessary, so the education of nomadic people represents a great responsibility for the education of the progeny of this community. In other words, psychic sanity and knowledge promotion and scientific mastery of young people in the country, including nomadic students, affect the progression or retardation of society (Zahernasab 2007).

The main objective of this survey is to know the information needs of some nomadic students of the Qashqa'i tribe in Iran. The Qashqa'i are the second-largest Turkic-speaking group in Iran. Numbering about 600,000, they are a confederation of several Turkic-speaking tribes in Fars Province in south-central Iran. Historically, the Qashqa'i were pastoral nomads who moved between summer pastures in the higher elevations of the Zagros Mountains north of Shiraz and winter pastures at low elevations south of Shiraz. Most Qashqa'i are Shia Muslims. The Qashqa'i confederation emerged in the 18th century, and during the 19th century it became one of the best-organized and most powerful tribal groups in Iran. Reza Shah Pahlavi (r. 1925–1941) forcibly settled the Qashqa'i in the early 1930s, but, like the Bakhtiaris and other forcibly settled tribes, they returned to nomadic life upon Reza Shah's exile in 1941. However, the reduction in numbers and disorganization they had suffered after their settlement kept the Qashqa'i from regaining their previous strength and independence. Since the mid-1960s, Qashqa'i have been settling in villages and towns. According to some estimates, up to 75 percent of all Qashqa'i had settled by the early 2000s. Both Qashqa'i and non-Qashqa'i Turkic speakers in Fars Province recognize a common ethnic identity in relation to non-Turks. All the Turkic-speaking groups of the region speak mutually intelligible dialects that are closely related to Azerbaijani (Curtis and Hooglund 2008). Figures 1 and 2 demonstrate the outer limits of Qashqa'i territory and migratory routes of the Qashqa'i tribes respectively (Beck 1991).

The paper is structured as follows. After discussing related work, we describe the research design and analyze the results of the study. The analysis includes a classification of the information needs reported by the participants, a classification of the type of information sources used and an analysis of the underlying information sources by the characteristics of information need. We then discuss the extent to which the sources satisfy the students' information needs. Finally, we discuss library service model considerations based upon our experiences in the research.

Literature review

The study of tribes, since the earliest times, has been considered and observed in geographical books, the history of cities and different regions of the world. Most of the previous studies on this populace concern their tradition and conventions; however, their information needs have not yet been surveyed sufficiently. A few researchers have shown interest in fields similar to this one. Some of these are reviewed concisely below.

Rieger and Anderson (1968) inquired into the information hierarchy of people in a largely rural community of Michigan. The effort was to identify the sources of information used by people in a local area on a variety of subjects pertinent to carrying on their daily lives and the needs these people felt for new information. Their analysis revealed a hierarchy of expressed dissatisfaction with current sources and of the needs for new information. Five topic areas received over two-thirds of the responses, ranked as follows: financial matters; occupational, professional or farm matters; public affairs; consumer matters; and educational matters. The data they accumulated indicated that a substantial information gap existed in terms of felt needs on the part of many members of the local population.

Ghorbani (2000) inquired into the information hierarchy of Mashhad High School in Iran, considering Maslow's hierarchy of needs and the general goals and objectives of an intermediate education system. Accordingly, he determined the priority of information needs from the teachers' and the students' viewpoints and also evaluated the capability of high school libraries' collections to satisfy these needs.

Shenton and Dixon (2004) considered the ways in which past researchers have attempted to clarify the term 'information needs' and examined the different techniques that have been employed for their scrutiny. The latter have included measurements of youngsters' use of library materials and analysis of their reference questions in libraries. In their opinion, any researcher wishing to investigate young people's information needs is faced with a series of hurdles, many of which apply to information needs research generally, whichever segment of the population has been targeted for scrutiny.

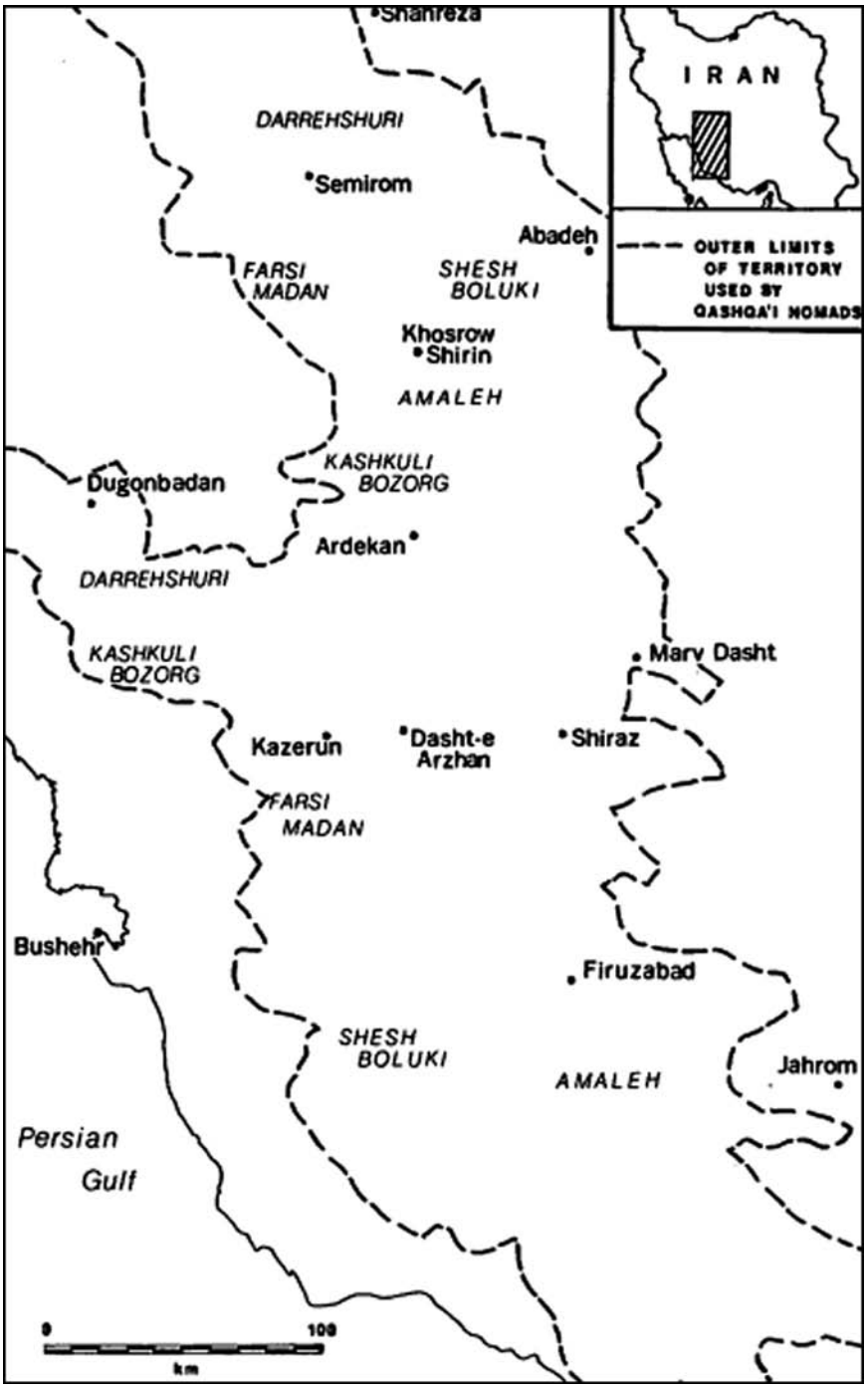

Figure 1. Outer limits of Qashqa'i territory.

Another example of studying the information needs of youth is that of Nwagwu (2009), who documented a participatory gender-sensitive assessment of the information needs of the youth in Uzoagba, a rural community in the old Owerri senatorial zone in South-eastern Nigeria. The objective was to assess the information and learning needs of male and female youth in the Uzoagba community in order to generate information that could assist in planning. The author highlighted the need for governments and development planners to adequately understand the socio-economic circumstances and desires and needs of the youth of different ages in order to plan and implement programs for them effectively. Also, he suggested some strategies that can be adopted in enrolling the youth in decisions about issues that affect them.

Both Shahbazi (1998) and Kazemi (1991), in their dissertations, talk about aspects of tribal life such as the history of tribes, their culture, hygiene, education,

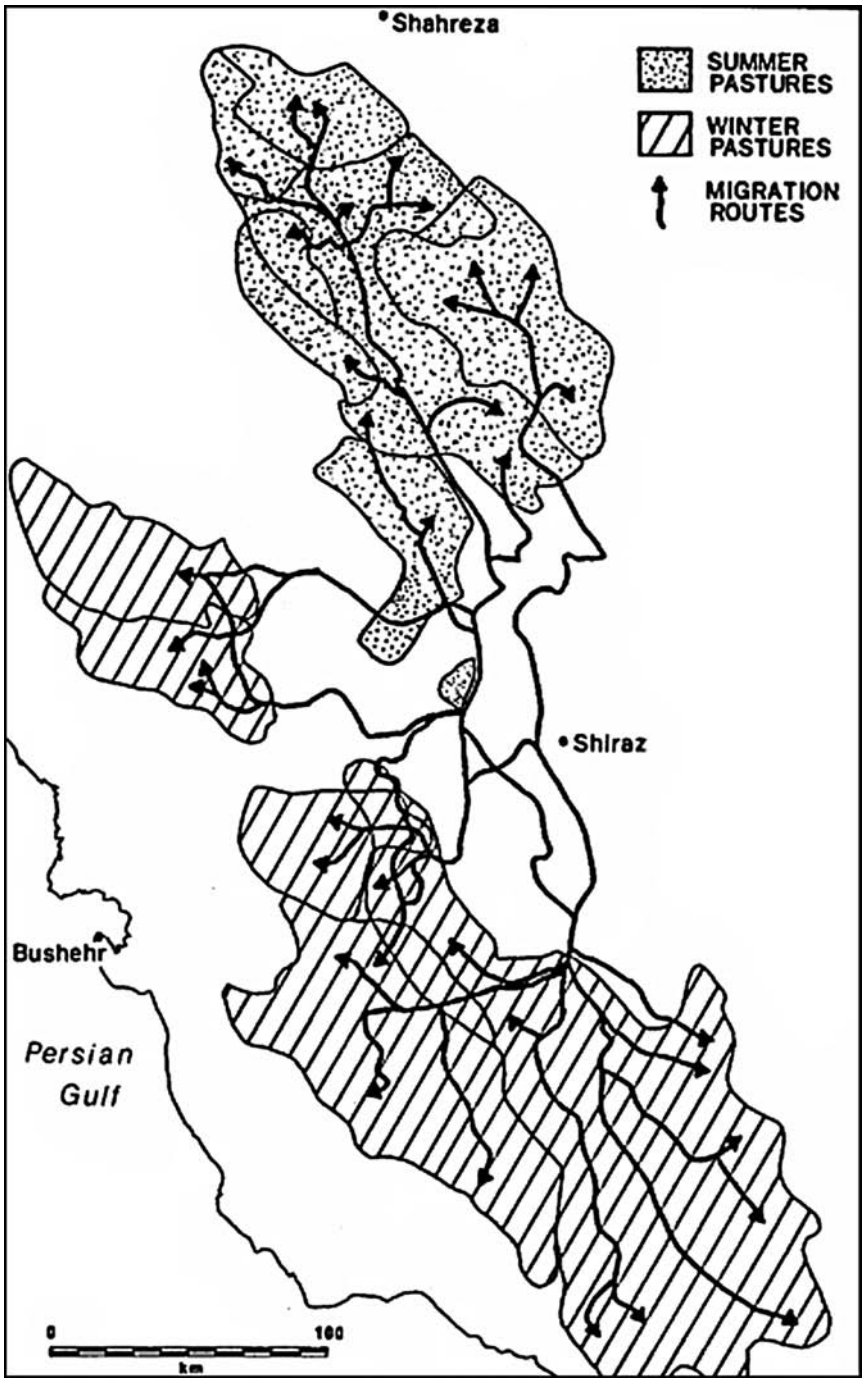

Figure 2. Migratory routes of the Qashqa'i tribes.

and also library services provision for them before and after the Islamic revolution in Iran.

Assadi (1977), in his dissertation, intended to present a model for Iranian rural library services considering the community needs and social situations of Iran. He believed that the proposed model for rural libraries should have these traits: (1) the library should be available to the majority of the rural population; (2) the library should be coordinated with the situations and quotidian life of the rural world; (3) books, films and audiovisual aids should be distributed in the most widely available mode possible; (4) access to education should be similar to library access in a rural society; (5) the required manpower for the rural library should have the essential training; and (6) rural libraries should provide more communicative media than urban ones (Sedigh Behzadi 2000).

Patterson (1987), in a booklet provided by the Library of Congress, sought support for optimizing the library services in Native American tribal libraries

and to expand interlibrary collaboration among the tribal libraries. He presented a list of materials and instructions that might be used in these libraries. Similarly, Dorr and Akeroyd (2001) concluded that tribal libraries have a vital importance for their societies. Dorr and Akeroyd and their colleagues were in touch with young and old people who were the clientele of tribal libraries in New Mexico in order to know the information needs of the tribes and to be familiar with their cultural and technological expectations. Subsequently, they executed a project entitled 'To provide availability to technology for American natives' in New Mexico tribal libraries.

Saravani (2010) addressed the subject of mobile learning, which has challenged the library world to rethink the way it delivers services to, and addresses the issues of, learners who use portable devices to access learning from a place and time and in a manner of their choice. She aimed to explore some of the issues surrounding the approaches to mobile learning and nomadic learning, with a specific emphasis on library planning. She concluded that the development of standards relating to mobile learning is still in its infancy and heavily dependent upon a comparison with e-learning. The multiplicity of devices has focused standards and best practices upon the technology aspects of mobility.

As for the use of animals to provide mobile library services, Atuti (1999) mentions using camels to provide library services to nomadic pastoralists in rural regions. In Kenya, long distances, non-availability of public and rural libraries, scattering of villages, poor quality roads and hard climatic conditions motivated the national library of Kenya to provide camel library services in a few regions. To determine the viability of using camels in information dissemination to the nomadic pastoralists in the north-eastern provinces of Kenya, many aspects were considered: the acquisition of the best modes of giving information services to pastoralists; the best design for convenient methods to disseminate information; how to determine the type of information and how to satisfy nomadic the pastoralist's information needs. The author concluded that book shipment by non-motorized vehicles (here, to use camels as bookmobiles) is a proper substitution for other forms of libraries and also an important means to satisfy the information needs of nomadic pastoralists.

Research design

Research purpose and objectives

On reviewing the literature, the missing element is felt to be that of tribal information needs surveys or 'library services provision distinctive to tribes'. The main purpose of this study was therefore to explore the information needs of nomadic students of the Qashqa'i tribe, Amaleh clan, Safikhani family in Fars province in Iran, so as to present a library service model in order to meet their needs. The specific objectives were:

1. to assess nomadic students' information needs in order to present a model to provide library services for them
2. to study their current situation of accessing information
3. to determine their required information sources in order to satisfy their information needs
4. to determine the essential equipment which could help them in accessing information
5. to determine the methods of disseminating and sharing the required information sources
6. to identify the library personnel who can play key roles in meeting nomadic students' information needs
7. to recognize the organizations that support library services provision for nomadic students.

Methodology

The target population for this comparative and descriptive study was nomadic students of the Qashqa'i tribe, Amaleh clan, Safikhani family, from two tribal boarding high schools called Maleke Ashtar and Shahid Beheshti in Shiraz city. In these two schools, 60 students belonged to Qashqa'i tribe, Amaleh clan, Safikhani family and they were all selected as the research population.

The instrument used by the researchers was a questionnaire, which was distributed among the target population in paper form after measuring validity and reliability. The survey included 14 close-ended questions on a variety of topics, including demographic characteristics, essential information needs and information sources. Since the researchers themselves were in the environment and gave guidance to the students, the students were interested in the survey and the questionnaire was brief, simple and easy to complete, 60 completed questionnaires were returned, giving an overall response rate of 100 percent.

To ensure content validity, a thorough examination was made of the relevant literature. To further reduce the possibility of non-random errors, the advisor professor, three members of the faculty board of the Department of Library and Information Science of the University of Isfahan and two statisticians from Alzahra University were asked to review the questionnaire for

Table 1. Reliability analysis results (Cronbach's α coefficients).

Variables	Level of measurement	Cronbach α
Respondent's age	Nominal	–
Respondent's gender	Nominal	–
Respondent's degree	Ordinal	–
Content*		
Educational	Nominal	–
Non-educational	Nominal	–
Topic*		
Cultural	Nominal	–
Medicine and Health	Nominal	–
Social	Nominal	–
Religious	Nominal	–
Political	Nominal	–
Information source criteria		
Quality of information	Scale	0.881
Reliability	Scale	0.862
Relevance	Scale	0.875
Accessibility	Scale	0.869
Availability	Scale	0.867
Ease of use	Scale	0.874
Currency	Scale	0.878
Choice of printed sources	Nominal	–
Choice of non-printed sources	Nominal	–
Use of printed sources of information	Nominal	–
Use of non-printed sources of information	Nominal	–
Most important feature of a proper library	Nominal	–
Librarian characteristics	Nominal	–
Mail and telecommunication availability in summer	Scale	0.879
Mail and telecommunication availability in winter	Scale	0.872

validity (measuring what is intended), completeness (including all relevant variable items), and readability (making it unlikely that students will misinterpret a particular question) (Liu and Arnett 2000).

Inter-item analysis was used to check scales for internal consistency or reliability. Specifically, Cronbach's reliability coefficient (alpha = α) was calculated for each scale, as recommended by empirical research in operations by many researchers (Downing 2004; Flynn et al. 1995; Smith and Reece 1999; Swamidass and Newell 1987). Usually, a value of 0.7 in the Cronbach's alpha is considered adequate in order to ensure the internal consistency of a questionnaire (Aranda 2003; Nunnally 1978). The questionnaire used in this survey demonstrated excellent inter-rater reliability (Cronbach $\alpha = 0.87$). Analyzing scale variables individually, the score varied between 0.862 (reliability) and 0.881 (quality of information). The domains such as 'respondent's age' were not scaled and the Cronbach's reliability coefficient could not be calculated. The Cronbach's alpha coefficients for each domain are summarized in Table 1.

Table 2. Demographic characteristics.

Variable	Frequency	Percentage
Age (Years)		
14	3	5.0
15	19	31.7
16	14	23.3
17	9	15.0
18	10	16.7
19	2	3.3
20	3	5.0
Gender		
Male	24	40.0
Female	36	60.0
Level of education (Grade)		
1st Grade of high school	17	28.3
2nd Grade of high school	11	18.4
3rd Grade of high school	17	28.3
Pre-university course	15	25.0

Descriptive statistics were calculated with the Statistical Package for the Social Sciences (SPSS) (version 16.0) to obtain the demographic characteristics of the population and frequency of use of information sources. The collected data are illustrated through adjusting summarized frequency distribution tables and graphs.

Research findings

Demographic details

The age range of the studied students was 14–20 years and the majority were 15 years old. Sixty percent were girls and 40 percent were boys; 75 percent were studying in grades 1–3 of high school and 25 percent in the pre-university course. Detailed demographic characteristics of the students are given in Table 2.

Information needs by content

Based on the questionnaire responses, Table 3 shows that the students' information needs may be divided into two broad groups, educational and non-educational, with the majority of students giving priority to non-educational information.

Information needs by topic

Based on what the students expressed in the questionnaires, a typology of five categories of information

Table 3. Breakdown of information needs by content.

Content	Frequency	Percentage
Educational	23	38.3
Non-educational	37	61.7
Total	60	100.0

need with 17 subcategories was developed as a classification scheme for information needs. The five information need categories were: cultural information, medicine and health information, social information, religious information and political information. These categories were identified from the questionnaires and refined throughout the review process to reflect prominent themes from similar studies. The corresponding subcategories and the number and percentage of responses for each category are presented in Table 4. Cultural information, with subcategories subcultures, sexual relationships and family, ranked first among the five categories of information need identified by the students.

Information sources

Based on the questionnaire responses a typology of the information sources used by nomadic students was developed containing two main source categories and 43 distinct subcategories. The two main information source categories were printed sources and non-printed sources. The subcategories were identified as follows:

- Printed sources: books, newspapers, periodicals, research articles, dictionaries, encyclopedia, yearbooks, gazetteers, dissertations and theses, patents, reports, atlas/maps, workshop, seminar and conference proceeding, brochures and folders, posters and billboards, manuals/guides, bibliographical database, indexes and abstracts, unpublished materials, grey literature, pamphlet and diaries.
- Non-printed sources: globes, CD/DVD, A/V material, electronic periodicals/journals, online catalogues, electronic media, microforms, microfilm, microfiches, film reels, World Wide Web, email, television, teletext, radio, telephone, mobile, attending lectures and seminars, visit exhibition/museum, face-to-face, friends and personal narratives (University of California Santa Barbara 2010; Biradar et al. 2009; University of Maryland 2008; Madden et al. 2007; Singha and Satijab 2007; Finney Rutten et al. 2005; Bouwman and Wijngaert 2002; Majid and Tan 2002).

Table 4. Breakdown of information needs by topic.

Category	Subcategory	Frequency	Percentage
Cultural	Subcultures, sexual relationships and family	32	26.89
Medicine and Health	Human anatomy, human physiology, personal health and safety and disease	28	23.53
Social	Sociology and anthropology, social groups, communities	23	19.32
Religious	Philosophy and theory of religion, concepts of God, creation, spiritual beings	19	15.97
Political	Political rights, systems of governments, colonization	17	14.29
Total		119	100.0

Choice of information sources

The majority of the respondents stated that factors such as quality of information, its reliability, relevance, and accessibility highly influenced their choice of information sources (Bekoe et al. 2008). Therefore, based on students' opinions, books, newspapers and periodicals in printed sources and mobile, A/V material, radio, television, atlas/maps, globes and World Wide Web in non-printed sources were selected.

Use of selected information sources

Apart from knowing the usage of information sources, it is equally important to know the frequency of use of the chosen types of information sources (Thon and Ullrich 2008). Therefore, respondents were asked to indicate the frequency of use of information sources available in the nomadic tent, in school and on the move. Analysis of the responses indicates that there was a marked preference for books (60 percent) followed by newspapers (20 percent) and periodicals (20 percent) (Table 5). It was also observed that non-printed sources viz., mobile (25 percent), A/V material (25 percent), radio (20 percent), television (15 percent), atlas/maps (5 percent), globes (5 percent), and World Wide Web (5 percent) are being consulted by the users (Table 6). Figure 3 demonstrates the most frequently used sources of information for students information needs as reported by participants.

Table 5. Use of printed sources of information.

Sources of information	No. of respondents	Percentage	Rank
Books	36	60	1
Newspapers	12	20	2
Periodicals	12	20	2

Table 6. Use of non-printed sources of information.

Sources of information	No. of respondents	Percentage	Rank
Mobile	15	25	1
A/V material	15	25	1
Radio	12	20	2
Television	9	15	3
Atlas/Maps	3	5	4
Globes	3	5	4
World Wide Web	3	5	4

Discussion

The required resources for students are divisible in two sections: educational (texts relating to their lessons, e.g. mathematics) and non-educational (texts not relating to their lessons, e.g. novels). In consideration of the majority of the students' attitudes, the need for non-educational resources is more felt. Perhaps the major reason for this need is the lack of proper non-educational information resources in their school libraries. In the students' opinion, the non-educational subjects which took priority in importance were cultural, medicine and health, social, religious and political subjects.

Concerning the students' point of view, the most important feature of a proper library is its availability, since they are library deprived in their summer and winter resorts. The majority of the studied students said that they are deprived of mail and telecommunication availability in their summer and winter resorts.

The restricted research backgrounds of the survey demonstrated that few researchers have been interested in meeting information needs of the nomads and providing library services for this stratum. Therefore, the findings of this survey can be considered as a primary source of information.

In consideration of the results acquired through data analysis, reviewing the background and to optimize the students' access to information, we suggest a model of a public library with the characteristics outlined below.

Library service model

Organizational support and human resources

Considering that no library exists in the summer and winter resorts of the studied nomad students, it is proposed to establish a public library with the cooperation of the organizations involved, namely:

- Center for Intellectual Development
- Department of Posts and Telecommunications, Fars Province
- Department of Education for Nomads, Fars Province
- Provincial Public Libraries Office.

Some LIS professional competencies have been discussed and developed by many groups as a means to identify credentials, improve education, describe jobs and evaluate performance (Association of Southeastern Research Libraries Education Committee 2000). These competencies pertain to the delivery of services to all ages, to all constituencies, and for all types of libraries. Competencies are the skills, technical knowledge and personal attributes that enable individuals to contribute positively to their organizations and the library profession. These core competencies apply to all librarians:

- understanding and supporting the culture and context of the library
- adhering to the Code of Ethics of the American Library Association
- sharing knowledge and expertise with users
- displaying excellent computer, networking and communication skills (American Association of Law Libraries 2006)
- working effectively with diverse groups, creating an environment of mutual respect
- evaluating and assessing existing and new information resources in relation to user needs
- providing free and open access to information
- demonstrating commitment to literacy and learning (Association of Southeastern Research Libraries Education Committee 2000).

The librarian of the proposed model library is someone who has all these traits with the added ability of maintaining continual access to information services regardless of location or time and while understanding the clientele's preferences as regards appropriate information sources.

Collection building

The students expressed a need for non-educational subjects, among which culture, medicine and health subjects were the most popular. It is therefore

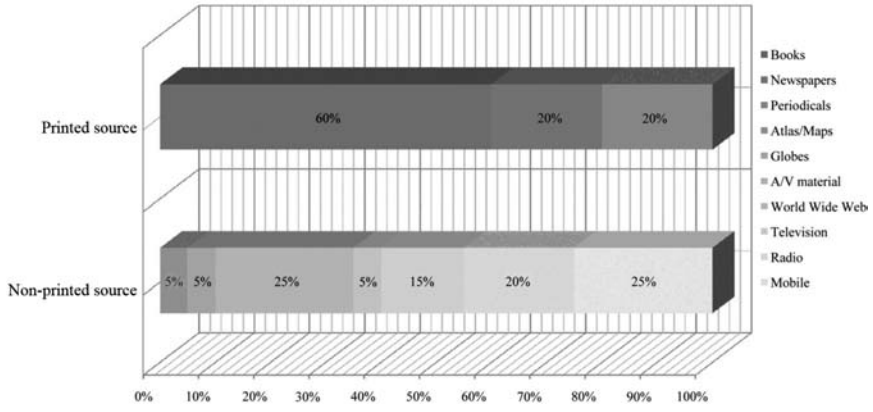

Figure 3. Most frequently used sources of information for students' information needs as reported by participants.

recommended to take great care in choosing and providing books to build a good collection, and to place more emphasis on cultural, medical and health subjects. Furthermore, it is recommended to have cassettes or special adolescents' tales, newspapers, publications and instructional CDs as information sources in the library while paying more attention to books and cassettes (Sinai 1999).

Considering that the majority of students have mobile handsets, it is also suggested to have some audiobooks and instructional movies, which it is possible to load on to mobile handsets. To establish students' access to the Internet, several computers should be provided. Since a lot of books exist electronically on the web, it is suggested to have a few e-book readers in the library to lend to the students, so that they can read e-books in their tents easily.

Care and maintenance

In order to increase the life span of books, it is suggested to bind books scientifically. Furthermore, special bags to carry books and other information sources should be designed in a mode which will not soak when raining and snowing. They should be made of a cloth that will not let water penetrate. It is also important to attach a label providing the necessary advice to students on how best to use and maintain the information sources.

Information dissemination

The majority of students expect their library to be always available. To access the library, it is necessary that Telecommunication Company of Fars give two or three phone lines to the library so that the nomadic students can connect to it through fixed phones, public phones and mobile handsets. It is suggested that the library essentially collaborates with the national broadcasting network to provide book programs and programs on the nomads' interests.

In order to better meet the nomadic students' needs, workshops proper to their information needs should be set up in the library. It is also necessary that a branch of the post office bureau exist actively in this library to take the information sources supplied to the nomadic students to the nearest post office, telecommunication or ICT center in order that they can be delivered to the students' tents.

How does the model work?

The precise work style is that the studied students get in touch with the library to express their information needs, while the librarian provides appropriate information sources proper to the students' information needs and gives them to the library post office bureau to send them to the post office, telecommunication or ICT bureaux which are nearest to the students' summer and winter resorts. The working hours of the library should be coordinated with these centers.

According to information acquired from the general office of tribal works in Fars province, the majority members of families of the Safikhani clan frequently cross these places while migrating: Nojin and Khani yek Farashband, Mouseghan, Baladeh, Kohmare Sorkhi (Shiraz-Kazeroon route), Shiraz's cement factory, dokouhak, dorahi beyza (Shiraz-Sepidan route) Tange Khiare, Koushke Beyza village (Doroud zan dike route), Doroud zan village, Dashte Chahoo, Dashte Bakan, Gardaneh Mikhgholo, Sedeh, Sephid river, Bande Bahram. Those who are deprived of mail facilities and telecommunication centers on the migration route or in their summer and winter resorts can collect the requested information sources from the nearest ICT office or post and telecommunication offices to their tents and also return them to the same place.

Table 7. Post offices, telecommunication and ICT centers in the migration route.

	Telecommunication center	ICT	Post office
Nojin	√	√	√
Khaniyek	√	√	√
Baladeh		√	
Dokouhak		√	
Koushk	√	√	√
Beyza			
Doroodzan		√	
Dashtebakan	√	√	√
Sadeh	√	√	√

Table 7 indicates the post offices, telecommunication and ICT centers in the migration route.

Conclusion

The focus of this study is the information needs of nomadic students of Qashqa'i tribe, Amaleh clan, Safikhani family in Fars province in Iran. Iranian nomadic tribes comprise more than 2 percent of the population of Iran, and are relatively the most self sufficient division of the community (Sohrabi 1994). Considering that in order to create responsible citizens free access to information and thoughts is as essential as equality and liberty laws and human rights (Eastwood 1967) and also that for continuing education, utilizing information sources is obligatory and even the only solution, the authors have attempted to present a library service model to make needed information sources accessible to nomadic students. The proposed model seems able to cover almost all the information needs of selected nomadic students when it is applied and its applicability is expected to expand into a broader arena.

The insufficient number of investigations focusing on nomadic students' information needs and the results illuminated through the development of our typology offer fertile ground for making recommendations for further research on nomadic students' information needs and sources. Since the findings reported here are limited to the Qashqa'i tribe, Amaleh clan, Safikhani Family in Fars province in Iran, some of the results (for example, relating to students' information needs) might not be applicable to other groups of nomadic students. Future research should therefore investigate other nomadic students' information needs and explore the contingency model for providing library services according to their needs. Conducting a feasibility study on designing a digital library exclusively for the nomads in which they can find required information is important; a feasibility study should also be conducted on establishing a telecottage for the nomads in their winter and summer resorts (Bawden and Rowlands 1999).

Acknowledgements

The authors wish to thank Noushafarin Ansari for her assistance with this project and Dr. Amir Ghaebi, Dr. Saeed Rezaei Sharifabadi, Dr. Ebrahim Afshar Zanjani and Dr. Roya Baradar, who gave generously their time to assist with this study. We would also like to acknowledge that this work was funded by the Iranian National Youth Administration (NYA).

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London Book Fair 2011: A truly international gathering for its 40th year

Sanjay K Bihani

The London Book Fair 2011, held from 11–13 March 2011 at Earls Court, London was a leader among international trade book fairs, with new countries exhibiting, its largest ever Market Focus Pavilion, the doubling in size of its Digital Zone and an expanded programme of seminars and events.

The London Book Fair is the global marketplace for rights negotiation and the sale and distribution of content across print, audio, TV, film and digital channels. Taking place every spring in the world's premier publishing and cultural capital, it is a unique opportunity to explore, understand and capitalize on the innovations shaping the publishing world of the future. The London Book Fair brings direct access to customers, content and emerging markets.

The London Book Fair this year celebrated its 40th anniversary. The first Fair was held in the basement of the Berners Hotel, off Oxford Street in 1971, with 22 exhibiting publishers. The London Book Fair annually attracts over 23,000 attendees – 58 percent are domestic and 42 percent are from overseas.

This year the Fair featured 1,696 exhibiting companies from 58 countries including Turkey, Iran and Kuwait – all new for 2011. The Russia Market Focus 2011 placed a spotlight on contemporary Russian authors and Russia as an important publishing arena in the international community. The Russia Pavilion is the largest Market Focus Pavilion to date, and featured over 60 major publishers from Russia.

The London Book Fair also hosted a bigger and better digital offering than ever before. Over 14 countries were represented and the number of exhibitors increased from 22 in 2010 to 46 in 2011.

Seminar and event highlights

A diverse programme of nearly 300 seminars and events addressing key industry issues took place during the three days of the Fair, with over 500 speakers taking part.

Children's Zone. The Children's & Young Adult Publishing Zone was one of the Fair's largest zones and main seminar streams, featuring 150 exhibitors with a further 450 general exhibitors offering children's content. There was an increase in emphasis on children's events in 2011. Authors also took part in the Children's seminar programme.

Digital seminars. Due to the high demand for Digital Seminars at last year's Fair, there were more digital seminars in 2011. They included 'The Book is Dead: Long live the global book'; 'Going Digital, How independent publishers can achieve the full works'; 'The Great Debate: will publishers soon become irrelevant?'

Cook Book Corner. International chefs from France to Romania and Denmark to Dubai took part in live cookery demonstrations throughout the show in the Cook Book Corner, located in Earls Court Two.

Authors of the Day. Best-selling authors Claire Tomalin, Boris Akunin and Julia Donaldson, with illustrator Axel Scheffler, were Authors of the Day for 2011. This popular initiative was introduced in 2006. Each author spent one day at the Fair, where they showcased their work across a programme of seminars, book signings, events and photo opportunities.

And looking forward.... **The London Book Fair 2012 takes** place 16–18 April 2012, Earls Court, London. The market focus country for LBF 2012 is China.

About the Author

Sanjay K Bihani works as Attaché (Library and Press & Information) in the High Commission of India at London is a Member of IFLA Standing Committees on Government Libraries, RSCAO, CLM and the IFLA Journal Editorial Committee. He may be contacted at sanjaykbihani@gmail.com or bihanisk@hotmail.com

News

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News contents

From IFLA headquarters

Election of President-elect

IFLA has pleasure in announcing the result of the postal ballot for the election of President-elect 2011.

Sinikka Sipilä (Finland) is elected to serve as President-elect for the term 2011–2013 and to serve as President for the term 2013–2015.

The votes received were as follows: Sinikka Sipilä 1017 votes and Jesus Lau 828 votes.

The total number of valid ballot papers received for the elections for this post was 579, a return rate of 48%. This represents 1888 votes, 60% of the possible total.

Dr. P.J. Moree and Drs J.J.M. Bos, the scrutineers appointed by the Governing Board, are satisfied that the above result is correct, following an accurate count of the ballot papers.

Jennefer Nicholson, Secretary General. 6 June 2011

Election of Governing Board members

IFLA has pleasure in announcing the result of the postal ballot for the election of the Governing Board 2011:

There are 10 vacancies for elected places on the Governing Board. The first 10 candidates in order of the number of votes cast are therefore elected. They are indicated in the list above. They serve on the Governing Board for the term 2011–2013.

The total number of valid ballot papers received for the vacancies on the Governing Board was 579, a return rate of 48%. This represents 1888 votes, 60% of the possible total.

Name	Number of votes
1. Inga Lundén (Sweden)	1107
2. Paul Whitney (Canada), 2nd term	976
3. Barbara Lison (Germany)	965
4. Kent Skov Andreasen (Denmark)	909
5. Donna Scheeder (United States), 2nd term	888
6. Frédéric Blin (France)	851
7. Buhle Mbambo Thata (South Africa), 2nd term	842
8. Genevieve Clavel-Merrin (Switzerland)	821
9. Christine Mackenzie (Australia)	795
10. Ingrid Bon (Netherlands)	743
Ngian Lek Choh (Singapore)	725
Qiang Zhu (China), 2nd term	706
Upali Amarasiri (Sri Lanka)	520
Eva Semertzaki (Greece)	508
Sook Hyeun Lee (Korea, Rep. of)	442

Dr. P.J. Moree and Drs. J.J.M. Bos, the scrutineers appointed by the Governing Board, are satisfied that the above result is correct, following an accurate count of the ballot papers.

Jennefer Nicholson, Secretary General. 6 June 2011

Retirement of Sjoerd Koopman

On 13 May 2011, IFLA Secretary General Jennefer Nicholson posted the following on IFLA-L:

Sjoerd Koopman, IFLA Professional Programmes Director, will retire on 1 August 2011. I have accepted Sjoerd's resignation reluctantly but with full understanding of his wish to retire now and move on to the next stage of his life pursuing and enjoying different interests.

Sjoerd has been a mainstay of the IFLA Headquarters staff over the last 13 years, a time that has seen IFLA grow and go through many changes. Sjoerd has always willingly taken on the challenges presented by this, and throughout has provided valuable support to the Governing Board, Professional Committee, professional units, members, our corporate and other partners, and staff. Like many of us, I have had the

pleasure of knowing him for many years, through working with him as a staff member here in HQ, and as the always willing and responsive HQ contact person for matters relating to Sections I have served on, and at IFLA congresses where though extremely busy he was always available with a smile and good humour. Sjoerd's commitment to IFLA goes beyond that of a staff member; IFLA has been the beneficiary of Sjoerd's great passion for our profession and the role IFLA can play in it.

Governing Board members and staff wish Sjoerd well in his retirement. We will miss him, his knowledge and expertise, and his kind and generous nature. We will though still keep finding postcards of libraries for him for his postcard collection!

Membership matters

New members

We bid a warm welcome to the 47 members who have joined the Federation between 30 March 2011 and 21 June 2011.

National associations

Colegio de Bibliotecarios de Chile AG, Chile
Nederlandse Vereniging van Beroepsbeoefenaren in de Bibliotheek-, Informatie- en Kennissector (NVB), Netherlands

Institutional members

Public Libraries Victoria Network Inc., Australia
Assemblée Nationale, Burkina Faso
Library of Jinjiang City, China
Southeast University Library, China
InTech, Croatia
Institut national d'histoire de l'art (INHA), France
Indian Institute of Management Bangalore, India
Food and Agriculture Organization of the UN, David Lubin Memorial Library, Italy
Qatar University, Qatar
The University of Trinidad and Tobago, Trinidad and Tobago
Marymount University, United States
Benetech, United States
Midlands State University, Zimbabwe

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Khumo Dibeela, Botswana
Christine Brown, Canada
Sandra Melody Campbell, Canada
David Sulz, Canada
Leslie Weir, Canada
Tian Xiaodi, China
Joumana Boustany, France
Fiskani Ngwira, Malawi
Blessing Solomon-Uwakwe, Nigeria
Cajetan Onyeneke, Nigeria
Okee Okoro, Nigeria
Geanrose Lagumbay, Philippines
Natalia Lea Delos Reyes, Philippines
Milan Vasiljevic, Republic of Serbia
Jean-Philippe Accart, Switzerland
Gulcin Cribb, Turkey
Robert Bothmann, United States
Martha Patton Childers, United States
Judy Consales, United States
Gretchen Higginbottom, United States
Sarah Holterhoff, United States
Peter D. Ivanick, United States
Praxedes Rivera, United States
Herbert Rogers, United States
Raymond Santiago, United States
Kief Schladweiler, United States
Jeffrey Scherer, United States

Student affiliates

Pia Letalick Rinaldi, Sweden
Siwaraj Sakulbenjauothin, Thailand
Sara Franqui, United States
Regina Renee Ward, United States

Grants and awards

CILIP/IFLA Aspire Award winner selected

Oksana Rozmirovska has been selected to receive the CILIP/IFLA Aspire award for a new professional in Ukraine in 2011. This award is made in memory of Bob McKee who had a strong belief in libraries as a means to a fairer and more prosperous society. This award is in the form of a grant to attend the IFLA Congress in San Juan, Puerto Rico this August. The grant is for up to 3,000 EUR and covers registration for the conference, accommodation, flights, and per diem.

Oksana works in the Kherson Oblast (Regional) Library for Children. In 2007, she joined the library and worked at the Foreign Literature Department. From 2008, Ms. Rozmirovska is in charge of the Library Services Department. She is active in advocacy, project management. In 2012, she will receive her Masters Degree in Library and Book Science from Kyiv National University of Culture and Performing Arts.

The UK Aspire Award winner was also announced today. Jointly sponsored by the Chartered Institute of Library and Information Professionals (CILIP) and IFLA, the Aspire Award was launched in memory of

CILIP's Chief Executive Bob McKee, who died in August 2010. The Award supports Bob's strong interests in developing new professionals and strengthening international relationships by providing bursaries for new professionals to attend CILIP and IFLA conferences.

The Aspire Award is being funded entirely by donations, which can be made through CILIP or IFLA.

De Gruyter Saur IFLA Research Paper Award 2011

De Gruyter Saur and IFLA are delighted to announce that the winners of the De Gruyter Saur IFLA Research Paper Award 2011 are Erin Thomas, Grace Costantino, Bianca Crowley and Rebecca Morin with their paper entitled 'Heeding the Call: User Feedback Management and the Digital Library'. The first three authors are from the Smithsonian Institution Libraries (USA), and Rebecca Morin is from the California Academy of Sciences (USA).

The authors receive prize money of EUR 1,000 donated by De Gruyter Saur and are invited to attend the President's Lunch at the Annual IFLA World Library and Information Congress in San Juan in August 2011.

Using the example of the collaborative Biodiversity Heritage Library (BHL), the paper offers a timely view how users' views and feedback can be captured and integrated in order to improve the quality and comprehensiveness of digitization projects. As the authors write, ''In adopting issue tracking software, a small, decentralized staff is able to leverage user feedback, transforming it into an essential component of daily workflow and empowering users to determine ongoing Biodiversity Heritage Library activities''.

The jury – assembled by IFLA Governing Board Members Patrice Landry (Switzerland), Zhu Qiang (China) and Sjoerd Koopman (IFLA HQ) – was impressed by the quality of the paper and the insight it gave into an innovative approach to encourage and utilize user involvement in digital library collection development.

Further information: Ulrike Lippe, Manager Public Relations, De Gruyter. Phone +49(0)30-260 05 153. Emailulrike.lippe@degruyter.com

Future IFLA conferences and meetings

Helsinki pre-conference meetings

IFLAcamp, 9–10 August 2012. Hämeenlinna, Finland

Prior to the IFLA Congress 2012 in Helsinki, Finland, the New Professionals Special Interest Group welcomes you to IFLAcamp, the first IFLA satellite unconference. IFLAcamp is a two-day satellite meeting in the mode of an unconference. It will provide a place for New Professionals and the wider LIS community to meet, share experiences and create new ideas. The barcamp style will allow for active participation of all attendees and the inclusion of all kinds of topics related to New Professionalism, emerging technologies and innovation in libraries. The City of Hämeenlinna is conveniently located 100 km north of Helsinki. The conference rooms of Verkatehdas will serve as location for IFLAcamp.

More information on the New Professionals Special Interest Group blog: http://npsig.wordpress.com/iflacamp/

Helsinki 2012

The World Library and Information Congress: 78th IFLA General Conference and Assembly, will take place in Helsinki, Finland from 11–16 August 2012. *Theme:* Libraries Now!–Inspiring, Surprising, Empowering.

Further information from: Josche Ouwerkerk, Conference Officer, IFLA Headquarters, PO Box 95312, 2509 CH The Hague, Netherlands. Tel. +31 70 314 0884. Email: josche.ouwerkerk@ifla.org

IFLA publications

Marketing Libraries in a Web 2.0 World. Edited by Dinesh Gupta and Réjean Savard. Berlin/Munich: De Gruyter Saur, 2011. ISBN 978-3-11-026331-2. (IFLA Publications; Nr 145). Euro 89.95 / for USA, Canada, Mexico US$ 135.00. Special price for IFLA members Euro 69.95 / for USA, Canada, Mexico US$ 105.00. Also available as an eBook.

Marketing the 21st century library and information organization to its new age customers using Web 2.0 tools is a 'hot topic'. These proceedings focus on the marketing applications and (non- technical) aspects of Web 2.0 in library and information set ups. The papers included (in English and French) are exploring and discussing the following aspects:

- General concepts of Web 2.0 and marketing of library and information organizations.
- How libraries are adopting Web 2.0 marketing strategies.
- Marketing libraries to clients in using Web 2.0 tools.
- International trends.
- Interesting cases of marketing through Web 2.0 tools.

Global Perspectives on School Libraries; Projects and Practices. Edited by Luisa Marquardt and Dianne Oberg. Berlin/Munich: De Gruyter Saur, 2011. ISBN 978-3-11-023220-2. (IFLA Publications; Nr 148). Euro 89,95 / for USA, Canada, Mexico US$ 135.00. Special price for IFLA members Euro 69,95 / for USA, Canada, Mexico US$ 105.00. Also available as an eBook.

Education for all can be more effectively provided through the services, programmes and activities of the school library tailored to the needs of the school community. This inspiring book can foster the school librarian's professional development for school library enhancement. It aims at providing amazing topics, methodologies, approaches and experiences. It presents projects and practices addressing the challenges of supporting basic literacy, including contexts where many children cannot or do not access formal instruction on a regular basis. These may inspire education authorities, public librarians and other cultural professionals who work closely with schools and communities.

Subject Access. Edited by Patrice Landry, Leda Bultrini, Edward T. O'Neill and Sandra K. Roe. Berlin/Munich: De Gruyter Saur, 2011. ISBN 978-3-11-023443-5. (IFLA Series on Bibliographic Control; Nr 42). Euro 99.95 / for USA, Canada, Mexico US$ 150.00. Special price for IFLA members Euro 79.95 / for USA, Canada, Mexico US$ 150.00. Also available as an eBook.

This volume contains the proceedings of a special conference held in Florence, August 2009. The theoretical and methodological aspects of rethinking semantic access to information and knowledge are explored. Innovative projects deployed to cope with the challenges of the future are presented and discussed. This book offers a unique opportunity for librarians and other information professionals to get acquainted with the state of the art in subject indexing.

ISBD: International Standard Bibliographic Description – Consolidated Edition. Edited by the Standing Committee of the IFLA Cataloguing Section. Berlin/Munich: De Gruyter Saur, 2011. ISBN 978-3-11-026379-4. (IFLA Series on Bibliographic Control; Nr 44). Euro 89.95 / for USA, Canada, Mexico US$ 135.00. Special price for IFLA members Euro 69.95 / for USA, Canada, Mexico US$ 105.00. Also available as an eBook.

This is the new edition of the first consolidated ISBD that was published in 2007. The first years of usage have led to interesting and useful corrections and additions. Many cataloguers and practitioners worldwide will welcome this updated first class tool, which is useful and applicable for descriptions of bibliographic resources in any type of catalogue.

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Using research to promote literacy and reading in libraries: Guidelines for librarians. Lesley Farmer and Ivanka Stricevic. The Hague, IFLA Headquarters, 2011. 28p. 30 cm (IFLA Professional Report: 125) ISBN 978-90-77897-48-5. ISSN 0168-1931. Download: [PDF] http://www.ifla.org/files/hq/publications/professional-report/125.pdf

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From other organizations

Bangkok designated World Book Capital 2013

Bangkok, Thailand has been designated World Book Capital 2013. The city was selected as the 13th World Book Capital by a committee made up of representatives from the publishing world and UNESCO, which met at the Organization's Paris Headquarters on 27 June.

The committee said it selected Bangkok "for its willingness to bring together all the various stakeholders in the book supply chain and beyond, actors involved in the publication chain for a range of projects proposed, for its community-focused and the high level of its commitment through the proposed activities."

UNESCO Director-General Irina Bokova congratulated Bangkok "for the rich and varied programme it has prepared and committed itself to, that gives special emphasis to young people, marginalized groups and the development of reading for all.

> "With its accent on cooperation and dialogue, at local, national and international levels, this programme responds perfectly to the objectives of the World Book Capital project, which is attracting the attention of an increasing number of cities worldwide."

The World Book Capital selection committee includes representatives from the International Publishers Associations (IPA-UIE), the International Booksellers Federation (IBF), the International Federation of Library Associations (IFLA) and the United Nations Educational Scientific and Cultural Organization (UNESCO).

Each year this committee attributes the title to a city which has committed itself to promote books and reading, and to highlight the vitality of literary creativity. The nomination does not imply any financial prize, but an exclusively symbolic acknowledgement of the best programme dedicated to books and reading, UNESCO said.

Previous World Book Capitals were: Madrid (Spain, 2001), Alexandria (Egypt, 2002), New Delhi (India, 2003), Antwerp (Belgium, 2004), Montreal (Canada, 2005), Turin (Italy, 2006), Bogotá (Colombia, 2007), Amsterdam (the Netherlands, 2008), Beirut (Lebanon, 2009), Ljubljana (Slovenia, 2010).

Current and upcoming: Buenos Aires (Argentina, 2011) and Yerevan (Armenia, 2012).

Source: UNESCOPRESS

Personal news

IFLA President-elect Ingrid Parent honoured by University of Ottawa

Ingrid Parent, IFLA President-elect, received an honorary doctorate on June 11, 2011 from the University of Ottawa in Canada as part of its 190th convocation. Ingrid was honored as part of the Faculty of Arts ceremony, which includes the first graduating class of the Masters in Information Studies Program. She is one of 10 people to receive a 2011 honorary doctorate from the University of Ottawa.

"Ingrid is a leader in her forward-thinking vision of libraries and in her profession," says David Farrar, Provost and Vice-President, Academic for the University of British Columbia. "On behalf of the University, we congratulate her on receiving this honor."

For more information on the University of Ottawa Convocation, please visit their website.

Congratulations, Ingrid!

Obituary

Jaffrey Musisi

It is with deep sorrow that we announce the death of Mr. Jaffrey Musisi last Thursday. He was one of the very senior Librarians and LIS leaders from East Africa. Jaffrey is remembered for having led the campaign that resulted into the Kenya Library Association hosting the IFLA conference in 1984 in Nairobi. This was the first time that this conference was ever hosted on African soil. He will be remembered as a good mobiliser, a skilled negotiator and a mentor to many LIS leaders in the region. May his soul rest in eternal peace.

25 June 2011. Charles Batambuze, Executive Secretary, National Book Trust of Uganda.

Former IFLA President Kay Raseroka writes: Dear Charles and Colleagues:

Please accept condolences on the passing on of Mr. Jafred Musisi. It is fitting, however, that we celebrate his life in recognition of the footprints he has left on the sands of our profession.

I would like to pay tribute to Mr Jafred Musisi as the stalwart of our profession in the region as well as at IFLA. Let us celebrate his life as one of those who contributed to the development of our profession in many ways and as a result was a mentor long before the concept was widely used, within African professional circles. He is one of those who understood early that the development of librarianship required further education, further education which enabled him to serve in academic librarianship in his country.

Within the region he remained an active professional member of SCECSAL and in his own Library Association. My lasting memory of him is his service to delegates at the SCECSAL held in Nairobi where he, in retirement, happily helped with secretariat duties: the humility of the Man set a harmonious tone for the entire conference through his pleasant banter, jokes that accompanied service delivery.

The IFLA Africa Section of the 80's continued to hold him in high regard for having pulled off a feat that was simply unheard of at the time: as the past KLA president who dared to persuade his own Government and LA to throw its cap into the arena, successfully negotiated and convinced the then IFLA community to take a risk and allow the KLA to be the host of an IFLA conference. This became a watershed conference with regard to strategic discussions and tactical approaches to donor funding specifically for the development of librarianship in the Third World, under the IFLA umbrella. The conference was a memorable one in many other ways: as Africans we learnt lessons which are part of the folklore and values that influence approaches to service within IFLA to date.

May perpetual light shine upon Mr Musisi. May his Family and Colleagues be comforted by shared warm memories.

26 June 2011. Kay Raseroka.

International calendar

International Federation of Library Associations and Institutions
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October–December 2011. Antwerp, Belgium.
LIB@WEB : Management of Electronic Information and Digital Libraries (3 months course)
Lib@Web is the successor to the STIMULATE ITP which has been running successfully for 10 years (2000–2010) at the Vrije Universiteit Brussel. Target group : Young but technologically skilled librarians and information managers in universities and research institutes. Aims: Training of the new digital and electronic librarians to manage modern library technologies which can effectively support development in science, culture and technology.
Further information: Website: http://www.ua.ac.be/lib@web

4–5 October 2011. Vienna, Austria.
EuropeanaTech Conference.
Contact: europeanatech@onb.ac.at
Website: http://www.europeanaconnect.eu/europeanatech/
Follow us on Twitter: http://twitter.com/europeanatech
Join us on LinkedIn to discuss the conference themes: http://www.linkedin.com/groups?gid=3799285
Entry to the conference is free and open to all. Places are limited and registration is requested at: http://www.europeanaconnect.eu/europeanatech/

5–7 October 2011. Delft, The Netherlands.
5th International Symposium on Intelligent Distributed Computing – IDC 2011.
Website: http://idc-2011.d-cis.nl/

10–12 October 2011. Chicago, Illinois.
12th Interlending and Document Supply Conference (ILDS).
Further information: Mary A. Hollerich, Director, Lewis University Library, 1 University Parkway, Romeoville, IL 60446, USA. Tel. +1 847-275-0666 (cell). Email: mary.hollerich@gmail.com

24–27 October 2011. Beijing, China.
International Conference on Asia-Pacific Digital Libraries (ICADL 2011).
Further information: Email: michael.b.huang@stonybrook.edu Website: http://www.icadl2011.org/

27–28 October 2011. Belgrade, Serbia.
10th International Conference: The World / European Horizons of Librarianship in Digital Age.
Registration online: https://spreadsheets.google.com/spreadsheet/viewform?hl=en_US&formkey=dFBkUE9EcndUVkh3T2RRbTJHVXN3RVE6MA# gid=0
Further information: Vesna Vuksan, Assistant director, Belgrade City Library, Knez Mihailova 56, Belgrade, Serbia. Tel. +381 11 2024 026. Cell: +381 61 8802 052.

2–3 November 2011. (multiple time zones)
Worldwide Library 2.011 Conference.
The conference will be held online, in multiple time zones and languages and attendance is free.
Further information: Dr. Sandra Hirsh, Professor and Director, School of Library and Information Science, San José State University, One Washington Square, San José, CA 95192-0029, USA. Tel. +1-408-924-2490. Fax: +1 408 924-2476. More information: http://slisweb.sjsu.edu/people/faculty/hirshs/hirshs.php
OR
Steve Hargadon, Web 2.0 Labs. Phone: +1-916-283-7901. Email: steve@hargadon.com. More information: http://www.stevehargadon.com

14–18 November 2011. Johannesburg, South Africa.
ICADLA-2. 2nd International Conference on African Digital Libraries and Archives. *Theme:* Developing knowledge for economic advancement in Africa.
Website: http://www.wits.ac.za/newsroom/conferences/13135/home.html

2012

22 March 2012. Düsseldorf, Germany
DGI–Conference 2012 – European Afternoon. Social Media and Web Science: The Web as a Living Space.
Co-located with the 2nd DGI-Conference and 64th Annual Meeting, 22 and 23 March 2012.
Further information: Nadja Strein, Deutsche Gesellschaft für Informationswissenschaft und

Informationspraxis e.V. (DGI) / German Society of Information Science and Information Practice, Windmühlstraße 3, 60329 Frankfurt am Main, Germany. Fon +49 (0)69 430313. Fax +49 (0)69 4909096. Email: mail@dgi-info.de Website: www.dgi-info.de

16–19 May 2012. Vancouver, BC, Canada.
5th International Conference of Institutes and Libraries for Chinese Overseas Studies. *Theme:* Chinese through the Americas.
Further information: http://wcilcos.library.ubc.ca/

18–22 June 2012. Zadar, Croatia.
Libraries in the Digital Age (LIDA) 2012.
Further information: website: http://ozk.unizd.hr/lida Email: lida@unizd.hr
Conference co-directors:
Tatjana Aparac-Jelusic, PhD, Department of Library and Information Science, University of Zadar, Zadar, Croatia. Email: taparac@unizd.hr
Tefko Saracevic, PhD, School of Communication and Information, Rutgers University; New Brunswick, New Jersey, USA. Email: tefkos@rutgers.edu

9–10 August 2012. Hämeenlinna, Finland.
IFLAcamp. IFLA satellite unconference.
Organized by New Professionals Special Interest Group.
Further information: http://npsig.wordpress.com/iflacamp/

11–16 August 2012. Helsinki, Finland.
IFLA World Library and Information Congress: 78th IFLA General Conference and Council. *Theme:* Libraries Now! – Inspiring, Surprising, Empowering.
Further information: Josche Ouwerkerk: http://www.ifla.org/en/hq#josche-ouwerkerk

2012–2015

2012 Canada; 2013 Denmark, Århus; 2014 Austria, Vienna; 2015 USA, New York
International Association of Music Libraries, Archives and Documentation Centres (IAML).
Further information: http://www.iaml.info/en/activities/conferences or email Roger Flury, AML Secretary General at: roger.flury@natlib.govt.nz

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Abstracts

Sommaires

Painted lines – Preservation connections [Lignes de peinture – Connexions de conservation]
Heather Brown
IFLA Journal 37 (2011) No. 3 pp. 189–194

La conservation, la sauvegarde des collections pour l'avenir, est le domaine de convergence clé des bibliothèques, archives, musées et autres institutions de mémoire. Ceci concerne la conservation des collections physiques « traditionnelles » comme la conservation dans le nouveau monde numérique. La gestion de la conservation est essentiellement « une manière de voir », fournissant un cadre de soutien et de guide des différentes stratégies pour la sauvegarde des collections. En utilisant la métaphore des « lignes de peinture » connectées, ce papier explore la manière dont le principe « d'une manière de voir » interconnectée puisse potentiellement créer des stratégies de conservation pratiques et efficaces, qui traversent les mondes numériques et physiques.

Digital preservation: Converging and diverging factors of libraries, archives und museums – An Indian perspective [La conservation numérique: des facteurs convergents et divergents des bibliothèques, archives et musées – Une perspective indienne]
Dinesh Katre
IFLA Journal 37 (2011) No. 3 pp. 195–203

Cet article insiste sur la nécessité d'aborder les facteurs convergents comme les facteurs divergents des Bibliothèques, Archives et Musées (en anglais: Libraries, Archives and Museums -LAMs) pour élargir l'étendue de la convergence proposée au-delà de l'accès intégré. En réfléchissant sur cette convergence, nous devons protéger le rôle, la cible, l'étendue et les identités des ces disciplines plutôt que de les traiter comme des choses identiques auxquelles on réfère par des terminologies différentes. Une telle approche mixte s'est exprimée dans de nombreuses solutions logicielles généralisées qui revendiquent sans trop de rigueur de gérer des archives, des musées, des bibliothèques et des entrepôts ensembles. Les cours proposés en Inde et ailleurs sur la muséologie, les sciences d'archivage, documentaires et d'information se trouvent à des étapes différentes d'évolution en termes d'intégration des méthodes de conservation numérique. Nous avons effectué une analyse des lacunes dans la numérisation de bibliothèques, d'archives et de musées, d'une perspective indienne et un ensemble d'actions est proposé pour combler ces lacunes.

Synergizing the collections of libraries, archives and museums for better user services [La synergie des collections d'archives, de bibliothèques et de musées pour de meilleurs services aux utilisateurs]
Neelam Prasad
IFLA Journal 37 (2011) No. 3 pp. 204–210

L'âge numérique a amené de nouveaux moyens de stockage des informations et les technologies de l'information et de la communication ont rapproché les informations stockées de ceux qui les cherchent. Ceci a changé le comportement des utilisateurs par rapport à l'accès aux informations. Cet article tente d'introduire un modèle de construction d'un consortium impliquant des bibliothèques, des archives et des musées en Inde pour que les utilisateurs puissent trouver l'information au bout d'un simple clic de leur souris ou sur leur téléphone portable.

The digital divide among the college students of Kashmir, India [L'écart numérique parmi les étudiants de l'enseignement supérieur au Kashmir, en Inde]
Fayaz Ahmad Loan
IFLA Journal 37 (2011) No. 3 pp. 211–217

La recherche actuelle vise à identifier l'écart numérique parmi des étudiants de l'enseignement supérieur dans la Vallée du Kashmir et de suggérer des solutions possibles pour combler des lacunes. La méthode d'enquête a été appliquée pour conduire la recherche et un questionnaire a été utilisé comme outil de collection de données. Les résultats révèlent

un grand écart numérique parmi les étudiants de l'enseignement supérieur au Kashmir. Les données démontrent que des étudiants utilisent davantage l'Internet que des étudiantes et que des étudiants urbains l'utilisent d'avantage que leurs homologues à la campagne. Parmi les différentes facultés, les étudiants en sciences informatiques utilisent l'Internet le plus souvent et les étudiants en sciences sociales et humaines le moins souvent. Les étudiants qui n'utilisent pas l'Internet indiquent de nombreuses raisons telles que le manque d'équipements Internet dans les établissements, les maisons et les environs, le manque d'accès, le manque de formation, le manque de sensibilisation, le manque d'intérêt, l'absence de besoin, des menaces externes et de nombreuses autres. Des suggestions possibles sont recommandées pour combler les lacunes.

Digital preservation strategies: A case study of Nigerian national information centres [Des stratégies de conservation numériques: Une étude de cas des centres nationaux d'information au Nigéria]
Ezra Shiloba Gbaje
IFLA Journal 37 (2011) No. 3 pp. 218–227

Cette recherche étudie les stratégies de conservation numérique dans les centres nationaux d'information au Nigéria. La recherche a tenté de découvrir spécifiquement les stratégies et les structures de conservation mises en place pour la mise en œuvre des stratégies adoptées. La population de recherche se compose de la Bibliothèque Nationale du Nigéria, des Archives Nationales du Nigéria et du Bureau National des Statistiques. Une étude de cas et des approches méthodologiques qualitatives ont été adoptées pour cette recherche. Un questionnaire semi-structuré a été conçu et distribué à un groupe ciblé de cinq membres du personnel de l'unité de conservation numérique/numérisation de la population. La recherche a découvert, notamment, que la migration est la stratégie de conservation numérique la plus couramment adoptée et qu'aucune structure d'évaluation des objets numériques pour l'action de conservation n'a été mise en place. La recherche recommande la création d'un Centre National de Conservation Numérique, chargé de la surveillance et de la direction de recherches dans le domaine des activités de conservation numérique.

Quality library and information science education in Nigeria: The place of public–private collaboration [L'éducation des sciences documentaires et d'information de qualité au Nigéria: La place de la collaboration publique/privée]
Augonus Nnamdi Uhegbu
IFLA Journal 37 (2011) No. 3 pp. 228–234

Cet article expose le raisonnement pour une collaboration entre les secteurs publics et privés afin d'obtenir une éducation des sciences documentaires et d'information de qualité au Nigéria. Dans toutes les étapes que la bibliothéconomie a franchies au Nigéria, elle a été subventionnée par le secteur public. L'article identifie les manières dont le secteur privé pourrait participer afin d'assurer l'éducation des sciences documentaires et d'information de qualité au Nigéria. Il identifie la présence prise par le secteur privé dans la bibliothéconomie comme un des facteurs conduisant au déclin des infrastructures, l'enseignement et des supports d'études inadaptés ou quasi-absents, la perception socialement inférieure de la profession et la maigre rémunération des bibliothécaires dans le pays. Les façons dont on pourrait attirer le soutien du secteur privé sont exposées. La participation du secteur privé dans la bibliothéconomie fournirait les fonds nécessaires à l'acquisition de nouvelles installations, au maintien des installations existantes, au développement des infrastructures et à l'équipement des bibliothèques et des centres de ressources conduisant finalement à la naissance de professionnels techniquement solides et bien informés.

Investigating the information needs of nomadic students in Iran: Presenting a library service model [La recherche des besoins en information des étudiants nomades en Iran: Présentation d'un modèle de service bibliothécaire]
Hajar Salehi Dehpadekani and Masoud Pourhamidi
IFLA Journal 37 (2011) No. 3 pp. 235–245

Cet article rapporte sur une étude menée pour découvrir les besoins d'information d'étudiants nomades en Iran afin de présenter un modèle de service bibliothécaire répondant à leurs besoins. Les résultats démontrent que le format d'information préféré d'une majorité d'étudiants était le support imprimé et spécialement des livres. La plupart des étudiants indiquait qu'ils avaient besoin de livres culturels et médicaux non-éducatifs. L'étude a conduit à une amélioration et à un élargissement des services bibliothécaires aux personnes interrogées privées de ce type de services, y compris des services audiovisuels, en augmentant la collection de livres, de prêt de livres, de livres publicitaires et d'autres publications, des services de référencement, des services techniques et en leur fournissant des informations nécessaires. L'article présente pour la première fois un modèle de fourniture de services bibliothécaires

aux étudiants nomades. Les utilisateurs comme les chercheurs dans le domaine des services bibliothécaires nomades bénéficieront de la synthèse offerte dans cet article, puisqu'il réunit des vues convergentes sur les besoins courants des étudiants nomades.

Zusammenfassungen

Painted lines – Preservation connections [Gemalte Linien – Konservierungsverbindungen]
Heather Brown
IFLA Journal 37 (2011) No. 3. pp. 189–194

Die Konservierung – die Langzeitarchivierung von Sammlungen für die Zukunft - ist ein Schlüsselbereich der Konvergenz für Bibliotheken, Archive, Museen und andere Speicherinstitutionen. Das betrifft die Konservierung „traditioneller" physischer Sammlungen wie auch die Konservierung in der neuen digitalen Welt. Das Konservierungsmanagement ist im Prinzip eine Betrachtungsweise, die einen passenden Rahmen zur Unterstützung und Lenkung der einzelnen Strategien zur Konservierung von Sammlungen bietet. Anhand der Metapher der miteinander verbundenen „gemalten Linien" untersucht dieser Artikel, in welcher Weise das Prinzip einer vernetzten Betrachtungsweise möglicherweise praktische und wirksame Konservierungsstrategien hervorbringen kann, die die digitalen und physischen Welten durchziehen und miteinander verbinden.

Digital preservation: Converging and diverging factors of libraries, archives und museums – An Indian perspective [Digitale Konservierung: konvergierende und divergierende Faktoren im Zusammenhang mit den Bibliotheken, Archiven und Museen – eine indische Perspektive]
Dinesh Katre
IFLA Journal 37 (2011) No. 3. pp. 195–203

Dieser Artikel betont die Notwendigkeit, sich mit den konvergierenden und divergierenden Faktoren im Zusammenhang mit den Bibliotheken, Archiven und Museen zu befassen, um den Rahmen der vorgeschlagenen Konvergenz über den integrierten Zugang hinaus zu erweitern. Während wir über diese Konvergenz nachdenken, müssen wir aber auch die Rolle, den Fokus, den Umfang und die Identitäten dieser Disziplinen schützen, statt sie als Äquivalente zu behandeln, die sich lediglich durch die unterschiedliche Terminologie voneinander unterscheiden. Ein solches gemischtes Konzept schlägt sich in vielen generalisierten Softwarelösungen nieder, die den unverbindlichen Anspruch erheben, Archive, Museen, Bibliotheken und Sammlungen gemeinsam zu managen. Die in Indien und anderswo angebotenen Kurse über Museumskunde, Archivkunde, Bibliotheks- und Informationswissenschaft befinden sich augenscheinlich in unterschiedlichen Phasen der Evolution, was die Integration der digitalen Konservierungsverfahren betrifft. Wir haben eine Lückenanalyse der Digitalisierung in Bibliotheken, Archiven und Museen aus der indischen Perspektive durchgeführt und schlagen dementsprechend einen Maßnahmenkatalog zur Überwindung dieser Kluft vor.

Synergizing the collections of libraries, archives and museums for better user services [Gemeinsame Nutzung der Sammlungen von Bibliotheken, Archiven und Museen zur Verbesserung der Benutzer-Services]
Neelam Prasad
IFLA Journal 37 (2011) No. 3. pp. 204–210

Das digitale Zeitalter hat neue Wege zur Daten- und Informationsspeicherung eröffnet und die Kommunikationstechnologie hat den Interessenten die gespeicherten Informationen näher gebracht. Damit hat sich auch das Verhalten der Nutzer beim Zugriff auf die Informationen geändert. Dieser Beitrag versucht, ein Modell zum Aufbau einer Arbeitsgemeinschaft unter Einbeziehung der Bibliotheken, Archive und Museen in Indien vorzustellen, so dass die Nutzer die gewünschten Informationen mit einem Mausklick oder über das Mobiltelefon abrufen können.

The digital divide among the college students of Kashmir, India [Die digitale Kluft zwischen den Hochschulstudenten in Kaschmir in Indien]
Fayaz Ahmad Loan
IFLA Journal 37 (2011) No. 3. pp. 211–217

Dieser Beitrag zielt darauf ab, die digitale Kluft zwischen den Hochschulstudenten im Kaschmirtal festzustellen und mögliche Lösungen zur Überwindung dieser Kluft vorzuschlagen. Das Erhebungsverfahren wurde im Rahmen des Forschungsvorhabens genutzt; als Werkzeug zur Datenerfassung diente ein entsprechender Fragebogen. Die Ergebnisse zeigen, dass es eine breite digitale Kluft zwischen den Hochschulstudenten in Kaschmir gibt. Den Daten ist

zu entnehmen, dass männliche Studenten stärker geneigt sind, das Internet zu nutzen, als weibliche Studenten; wobei die Internetnutzung in städtischen Bereichen ausgeprägter ist als in ländlichen Gebieten. Im Vergleich der einzelnen Fachbereiche ist festzustellen, dass die Informatikstudenten das Internet am intensivsten nutzen, wohingegen sich die Studenten der Sozialwissenschaften und Geisteswissenschaften am wenigsten damit befassen. Die Studenten, die das Internet nicht nutzen, begründen dies in vielfältiger Weise, sie führen das beispielsweise auf die fehlenden Interneteinrichtungen in den Hochschulen und Fachhochschulen, Heimen und Örtlichkeiten zurück; weiterhin werden der fehlende Internetzugang, die fehlende Erfahrung, fehlende Aufklärung, fehlendes Interesse, fehlender Bedarf, externe Bedrohungen und viele andere Gründe genannt. Dieser Beitrag schlägt mögliche Lösungen zur Überwindung dieser Kluft vor.

Digital preservation strategies: A case study of Nigerian national information centres [Digitale Konservierungsverfahren: Eine Fallstudie in Bezug auf die nationalen Informationszentren in Nigeria]
Ezra Shiloba Gbaje
IFLA Journal 37 (2011) No. 3. pp. 218–227

Diese Studie untersucht die Verfahren zur digitalen Konservierung, die in den nationalen Informationszentren in Nigeria zur Anwendung gelangen. Dabei ging es speziell darum, die digitalen Konservierungsstrategien und Strukturen zu ermitteln, die zur Implementierung der verwendeten Strategien genutzt werden. Diese Studie bezieht sich auf die Nationalbibliothek von Nigeria, das nigerianische Nationalarchiv und das Statistische Bundesamt. Im Rahmen dieser Studie gelangte eine Fallstudie wie auch eine qualitative Methodik zum Einsatz. Dazu wurde ein halbstrukturierter Fragebogen erstellt und einer ausgewählten Gruppe von fünf Mitarbeitern der digitalen Konservierungs-/Digitalisierungseinheit der Population vorgelegt. Diese Studie hat beispielsweise gezeigt, dass die Migration die gängigste digitale Konservierungsstrategie ist und dass keinerlei Strukturen zur Beurteilung digitaler Objekte für Konservierungsmaßnahmen eingeführt wurden. Aus dieser Studie ergab sich die Empfehlung, ein nationales Zentrum für die digitale Konservierung einzurichten, das für die Überwachung und Durchführung von Forschungsprojekten im Zusammenhang mit der digitalen Konservierung verantwortlich ist.

Quality library and information science education in Nigeria: The place of public–private collaboration [Anspruchsvolle Ausbildung im Bereich der Bibliotheks- und Informationswissenschaft in Nigeria: eine öffentlich-private Zusammenarbeit]
Augonus Nnamdi Uhegbu
IFLA Journal 37 (2011) No. 3. pp. 228–234

Dieser Artikel tritt für das Grundprinzip der Zusammenarbeit zwischen dem öffentlichen und privaten Sektor ein, um eine anspruchsvolle Ausbildung im Rahmen der Bibliotheks- und Informationswissenschaft in Nigeria zu gewährleisten. Das Bibliothekswesen in Nigeria war in allen seinen Phasen auf die finanzielle Unterstützung des öffentlichen Sektors angewiesen. Dieser Beitrag zeigt auf, in welcher Weise der privatwirtschaftliche Sektor dazu beitragen könnte, eine anspruchsvolle Ausbildung im Rahmen der Bibliotheks- und Informationswissenschaft in Nigeria zu gewährleisten. Er zählt die symbolische Präsenz der Privatwirtschaft im Bibliothekswesen zu den Faktoren, die zum infrastrukturellen Verfall führen; weitere Folgen sind die inadäquaten oder so gut wie gänzlich fehlenden Unterrichtsmittel und Lernhilfen, die geringe soziale Wahrnehmung des Berufsstandes und die schlechte Bezahlung der Bibliothekare in den ländlichen Gebieten. Dabei werden Wege aufgezeigt, um die Unterstützung der Privatwirtschaft zu gewinnen. Durch die Beteiligung des privatwirtschaftlichen Sektors am Bibliothekswesen werden finanzielle Mittel bereitgestellt, um neue Räumlichkeiten / technische Hilfsmittel zu erwerben, die bestehenden ordentlich zu warten, eine entsprechende Infrastruktur zu entwickeln und die Bibliotheken und Resource Centres besser auszustatten, was letztendlich dazu führen wird, dass technisch versierte und kompetente Professionals bereitstehen.

Investigating the information needs of nomadic students in Iran: Presenting a library service model [Untersuchung des Informationsbedarfs nomadischer Studenten im Iran: Vorstellung eines Modells für den Bibliotheksservice]
Hajar Salehi Dehpadekani und Masoud Pourhamidi
IFLA Journal 37 (2011) No. 3. pp. 235–245

Dieser Artikel befasst sich mit einer Studie zur Klärung des Informationsbedarfs nomadischer Studenten im Iran, mit dem Ziel, ein Modell für den Bibliotheksservice vorzuschlagen, das diesem Bedarf gerecht wird. Die Ergebnisse zeigen, dass Druckmedien – insbesondere Bücher - das bevorzugte Informationsformat für die Mehrheit der Studenten sind. Die meisten der Studenten teilten mit, dass sie literarische und populärwissenschaftliche medizinische Bücher benötigten. Aufgrund dieser Studie wurde ein verbesserter und erweiterter Bibliotheksservice für die befragten Personen eingeführt,

die keinen Zugang zu einem solchen Service haben. Dies beinhaltet auch audiovisuelle Einrichtungen, die Erweiterung der Büchersammlung, Leihbücher, Reklamebücher sowie weitere Publikationen, Auskunftsdienste, ein technischer Service und die Bereitstellung der benötigten Informationen. Dieser Beitrag präsentiert zum ersten Mal ein Modell zur Bereitstellung von Bibliotheksservices für nomadische Studenten. Die in den Bibliotheken tätigen Mitarbeiter wie auch die Forscher, die sich mit den nomadischen Bibliotheksservices befassen, werden von der in diesem Beitrag entwickelten Synthese profitieren, da sie die konvergenten Perspektiven über die Frage zusammenbringt, was nomadische Studenten heute brauchen.

Resúmenes

Painted lines – Preservation connections [Líneas pintadas: conexiones para la conservación]
Heather Brown
IFLA Journal 37 (2011) No. 3 pp. 189–194

La conservación, entendida como una salvaguardia de las colecciones para el futuro, constituye un área clave de convergencia para bibliotecas, archivos, museos y otras instituciones dedicadas a la memoria. Esta idea es aplicable tanto a la conservación de las colecciones físicas "tradicionales" como a la del nuevo universo digital. La gestión de la conservación, en esencia, ha de consistir en una "forma de ver" que proporcione una estructura de soporte y una guía para las diversas estrategias de salvaguardia de las colecciones. Empleando la metáfora de las "líneas pintadas" que se conectan, este documento analiza cómo una "forma de ver" interconectada puede ofrecer la posibilidad de moldear estrategias de conservación prácticas y eficaces que atraviesen el mundo digital y el físico.

Digital preservation: Converging and diverging factors of libraries, archives und museums – An Indian perspective [Conservación digital: factores de convergencia y divergencia de bibliotecas, archivos y museos desde una perspectiva india]
Dinesh Katre
IFLA Journal 37 (2011) No. 3 pp. 195–203

Este artículo pone de relieve la necesidad de abordar los factores tanto de convergencia como de divergencia de bibliotecas, archivos y museos (LAM, por sus siglas en inglés) para ampliar el alcance de la convergencia propuesta, más allá del acceso integrado. Al pensar en esta convergencia, debemos cuidar el papel, el centro de atención, el alcance y las identidades de estas disciplinas, en lugar de tratarlas como si fueran un mismo elemento al que nos referimos con distintas terminologías. Este enfoque combinado se ha plasmado en muchas soluciones generalizadas de software que, de una forma flexible, se ofrecen para gestionar archivos, museos, bibliotecas y fondos conjuntamente. Los cursos sobre museología, archivística, biblioteconomía y ciencias de la información que se ofrecen en India y los que se ofrecen en otros lugares se encuentran en fases distintas de evolución, en términos de integración de los métodos de conservación digital. Hemos realizado un análisis de las diferencias en la digitalización de bibliotecas, archivos y museos desde la perspectiva india, proponiendo un conjunto de medidas destinadas a superar estas diferencias.

Synergizing the collections of libraries, archives and museums for better user services [Búsqueda de sinergias entre las colecciones de bibliotecas, archivos y museos para mejorar los servicios al usuario]
Neelam Prasad
IFLA Journal 37 (2011) No. 3 pp. 204–210

La era digital ha traído nuevos métodos de almacenamiento de la información, y las tecnologías de la información y la comunicación han acercado la información almacenada a quienes la buscan. Esto ha provocado un cambio de actitud en la forma de acceder a la información. En este documento se pretende presentar un modelo para la creación de un consorcio que implique a las bibliotecas, archivos y museos de India, para que los usuarios encuentren la información que buscan con sólo un clic en su ordenador o teléfono móvil.

The digital divide among the college students of Kashmir, India [La división digital entre los estudiantes universitarios de Kashmir, India]
Fayaz Ahmad Loan
IFLA Journal 37 (2011) No. 3 pp. 211–217

Este estudio se propone identificar la división digital entre los estudiantes universitarios del valle de Kashmir y sugiere varias soluciones para superar la brecha. Para realizar la investigación, se aplicó un método basado en sondeos en el que la herramienta para recopilar la información fueron los cuestionarios. Los resultados revelaron que existe una profunda división digital entre los estudiantes universitarios de Kashmir.

Los datos demuestran que los chicos utilizan Internet más que las chicas, y que los estudiantes de las zonas urbanas hacen un mayor uso de la red que los de las zonas rurales. De entre las distintas facultades, los estudiantes de Informática son los que hacen un mayor uso de Internet, mientras que los de Ciencias Sociales y Humanidades son los que menos uso le dan. Los estudiantes que no utilizan la red esgrimen muchas razones, como la falta de instalaciones con Internet en universidades, hogares y localidades, la falta de acceso, la falta de formación, el desconocimiento, la falta de interés, que no les hace falta, las amenazas externas y muchas otras. Se proponen varias recomendaciones para superar esta brecha.

Digital preservation strategies: A case study of Nigerian national information centres [Estrategias de conservación digital: caso práctico de los centros de información nacionales nigerianos]
Ezra Shiloba Gbaje
IFLA Journal 37 (2011) No. 3 pp. 218–227

En este estudio se analizaron las estrategias de conservación digital de los centros de información nacionales de Nigeria. En concreto, en este estudio se intentaron descubrir las estrategias de conservación digital y las estructuras llevadas a la práctica para implementar dichas estrategias. La población del estudio estuvo formada por la Biblioteca Nacional de Nigeria, el Archivo Nacional de Nigeria y el Instituto Nacional de Estadística. Para este estudio, se adoptaron enfoques basados en un caso práctico y en la metodología cualitativa. Se diseñó un cuestionario semiestructurado que se entregó a un grupo específico de cinco empleados de los departamentos de conservación digital/digitalización de la población del estudio. En el estudio se descubrió, entre otros aspectos, que la migración es la estrategia de conservación digital más extendida y que no está implementada ninguna estructura de evaluación de los objetos digitales para su conservación. El estudio recomienda la creación de un Centro Nacional para la Conservación Digital que se ocupe de supervisar e investigar las actividades de conservación digital.

Quality library and information science education in Nigeria: The place of public-private collaboration [Formación de calidad en biblioteconomía y ciencias de la información en Nigeria: un espacio para la colaboración público-privada]
Augonus Nnamdi Uhegbu
IFLA Journal 37 (2011) No. 3 pp. 228–234

En este documento se exponen los fundamentos de la colaboración entre los sectores público y privado para conseguir una formación de calidad en biblioteconomía y ciencias de la información en Nigeria. En todas las fases que ha atravesado la biblioteconomía en Nigeria, ha estado financiada por el sector público. En este documento se identifica cómo podría participar el sector privado a fin de garantizar una formación de calidad en biblioteconomía y ciencias de la información en Nigeria. Se describe la presencia simbólica del sector privado en la biblioteconomía como uno de los factores causantes del deterioro de las infraestructuras, de las ayudas inadecuadas o casi inexistentes para el estudio y la docencia, de la devaluada percepción social de la profesión y de la baja remuneración que perciben los bibliotecarios del país. El artículo da ideas de cómo se podría atraer el apoyo del sector privado. La participación del sector privado en la biblioteconomía proporcionará fondos para adquirir nuevas instalaciones, mantener las ya existentes, desarrollar infraestructuras y equipar las bibliotecas y centros de recursos, lo que permitirá, a la larga, contar con profesionales técnicamente solventes y bien formados.

Investigating the information needs of nomadic students in Iran: Presenting a library service model [Investigaciones acerca de las necesidades de información de los estudiantes nómadas en Irán: presentación de un modelo de servicio bibliotecario]
Hajar Salehi Dehpadekani y Masoud Pourhamidi
IFLA Journal 37 (2011) No. 3 pp. 235–245

Este artículo informa sobre un estudio diseñado para descubrir las necesidades de información de los estudiantes nómadas en Irán, a fin de presentar un modelo de servicio bibliotecario que satisfaga sus necesidades. Los resultados revelan que el formato de información preferido para la mayoría de estudiantes son los documentos impresos, especialmente los libros. La mayoría de estudiantes afirmaron que necesitaban libros sobre cultura y medicina, no pedagógicos. El estudio permitió mejorar y ampliar los servicios bibliotecarios para los encuestados que no disponían de ellos, ofreciéndoles servicios audiovisuales, ampliación de las colecciones de libros, préstamo de ejemplares, publicidad de libros y otras publicaciones, servicios de consulta, servicio técnico y toda la información que necesitaran. En este documento se presenta, por vez primera, un modelo de prestación de servicios bibliotecarios a estudiantes nómadas. Tanto los profesionales como los investigadores en el ámbito de los servicios bibliotecarios itinerantes podrán aprovecharse de la síntesis que ofrece este documento, que expone de forma global visiones convergentes sobre las necesidades de los estudiantes nómadas.

Рефераты статей

Painted lines – Preservation connections [Соединение «окрашенных линий» - Объединение стратегий хранения]
Хизер Браун
IFLA Journal 37 (2011) No. 3 pp. 189–194

Хранение, обеспечение сохранности коллекций для будущего является ключевой областью конвергенции для библиотек, архивов, музеев и других учреждений, призванных сохранять наследие прошлого. Это относится как к сохранению «традиционных» коллекций, так и к сохранению коллекций в новом цифровом формате. Менеджмент хранения по существу является «образом мышления», создающим основы по формированию и направлению различных стратегий хранения коллекций. Использование метафоры соединение «окрашенных линий» в этой статье рассматривается как принцип “образа мышления”, который может потенциально сформировать практические эффективные стратегии хранения, которые проникают как через цифровой, так и через физический мир.

Digital preservation: converging and diverging factors of libraries, archives and museums – An Indian perspective [Цифровое хранение: факторы конвергенции и дивергенции в работе библиотек, архивов и музеев - индийская перспектива]
IFLA Journal 37 (2011) No. 3 pp. 195–203
Динеш Катр

В этой статье подчеркивается, что предлагаемое расширение сферы конвергенции выходит за рамки интегрированного доступа к коллекциям, что вызывает необходимость принимать во внимание как факторы конвергениции, так и факторы дивергенции в работе библиотек, архивов и музеев (LAMS). Размышляя над конвергенцией, мы должны защищать роль, фокус, масштаб и идентичность этих дисциплин, а не рассматривать их как одно и то же называемое различными терминами. Такой смешанный подход проявился во многих обобщенных решениях программного обеспечения, претендующего на использование в управлении архивами, музеями, библиотеками и хранилищами вместе. Курсы по музеологии, архивированию, библиотечному делу и информационным услугам, предлагаемые в Индии и других странах, находятся на разных этапах эволюции с точки зрения интеграции цифровых методов хранения. Мы провели анализ пробелов цифровизации в библиотеках, архивах и музеях в индийской перспективе, на основании чего предлагается провести ряд мероприятий с целью восполнения этого пробела.

Synergizing the collections of libraries archives and museums for better user services [Синергизм фондов библиотек архивов и музеев для лучшего обслуживания пользователей]
IFLA Journal 37 (2011) No. 3. pp. 204–210
Нилам Прасад

Вступление в цифровой век ознаменовалось возникновением новых способов хранения информации, а применение информационно-коммуникационных технологий позволило донести ее до потребителя. Это изменило поведение пользователей по отношению к доступу к информации. Эта статья является попыткой предоставить модель построения консорциума с участием библиотек, архивов и музеев в Индии, чтобы позволить пользователям найти информацию при помощи щелчка мыши или через мобильный телефон.

The digital divide among the college students of Kashmir, India [Различия среди студентов колледжа в Кашмире в области использования Интернета, Индия]
IFLA Journal 37 (2011) No. 3. pp. 211–217
Фаяз Ахмад Лоан

Данное исследование направлено на выявление разницы в использовании Интернета среди студентов Кашмирской долины и создано с целью предложить возможные решения для преодоления этого разрыва. Метод наблюдения был применен для проведения исследований, а анкетный опрос был использован в качестве инструмента сбора данных. Результаты показали, что существует большая разница в области использования Интернета среди студентов Кашмира. Данные показывают, что студенты мужского пола пользуются Интернетом чаще, чем студенты женского пола, и горожане чаще, чем их сельские коллеги. Оказалось, что среди студентов различных факультетов студенты факультетов информатики используют Интернет больше всех, а студенты факультетов социальных и гуманитарных наук - меньше всех. Студенты, которые не используют Интернет, приводят множество тому причин, таких как отсутствие Интернета в колледжах, домах и населенных пунктах, отсутствие доступа к нему, отсутствие курсов использования Интернета, низкий уровень осведомленности, отсутствие интереса, отсутствие необходимости, внешнюю угрозу

безопасности и многие другие. Выдвигаются различные предложения с целью сокращения этого разрыва.

Digital preservation strategies: A case study of Nigerian national information centres [Стратегии хранения цифровой информации: тематическое исследование нигерийских национальных информационных центров]
IFLA Journal 37 (2011) No. 3 pp. 218–227
Эзра Шилоба Гбайе

В настоящем исследовании проводится анализ стратегий хранения цифровой информации в нигерийских национальных информационных центрах. В частности, в исследовании делается попытка выработать стратегии цифрового хранения информации и создать структуру реализации принятых стратегий. Исследование охватывает Национальную библиотеку Нигерии, Национальный архив Нигерии и Национальное статистическое бюро. В исследовании использовался тематический подход и качественные методологические подходы.

Была разработана анкета смешанной структуры, которую получила группа из пяти сотрудников вышеуказанных заведений, занимающихся цифровым хранением/оцифровкой информации. Исследования кроме прочего показали, что самой популярной используемой стратегией цифрового хранения информации является миграция, и отсутствует готовая структура хранения цифровых объектов в их первоначальном виде. В данном исследовании рекомендуется создать Национальный центр по хранению цифровой информации, ответственный за мониторинг и проведение исследований в области цифрового хранения информации.

Quality library and information science education in Nigeria: The place of public-private collaboration [Качественная библиотека и образование в области информатики в Нигерии: область государственно-частного сотрудничества]
IFLA Journal 37 (2011) № 3 стр. 228–234
Аугонус Намди Ухегбу

Эта статья обосновывает необходимость сотрудничества между государственным сектором и частным капиталом с целью создания качественных библиотек и обеспечения образования в области информатики в Нигерии. На всех стадиях развития библиотек в Нигерии имело место субсидирование со стороны государства. В этой статье определяется, каким образом сектор частного капитала может участвовать в деле создания качественной библиотеки и обеспечения образования в области информатики в Нигерии. В статье определяется, что показное присутствие частного сектора в области спонсирования библиотечного дела является одним из факторов, ведущих к инфраструктурному распаду, неадекватному использованию или почти полному отсутствию методических и учебных пособий, низкому социальному восприятию профессии и низкому вознаграждению библиотекарей в стране. В статье излагаются пути, которые могут быть использованы для привлечения действительной поддержки со стороны частного капитала. Участие частного капитала в области библиотечного дела будет предоставлять средства для покупки новых объектов, поддержания существующих, развития инфраструктуры и оснащения библиотек и исследовательских центров, что в конечном итоге приведет к подготовке технически образованных и знающих специалистов.

Investigating the information needs of nomadic students in Iran: Presenting a library service model [Исследование информационных потребностей студентов-кочевников в Иране: Представление модели библиотечного обслуживания]
IFLA Journal 37 (2011) No. 3 pp. 235–245
Хаджар Салехи Депадекани и Масуд Пурхамиди

Эта статья является отчетом об исследовании, разработанном с целью определения информационных потребностей студентов-кочевников в Иране, чтобы представить модель библиотечного обслуживания для удовлетворения своих потребностей. Результаты показывают, что предпочтительным форматом носителя информации для большинства студентов являются средства печати, в особенности книги. Большинство студентов заявили, что они нуждаются в неучебных книгах в области культуры и медицины. Исследование имело результатом совершенствование и расширение библиотечных услуг для респондентов, которые первоначально были лишены подобных услуг, таких как аудиовизуальные сервисы, расширение собраний книг, выдача книг на дом, реклама книг и другие публикации, справочные услуги, техническое обслуживание и предоставление необходимой информации на них. В статье впервые приведена модель для предоставления библиотечных услуг для кочевых студентов. Как практики, так и исследователи в области кочевых библиотечных услуг получат преимущества от синтеза, предлагаемого в данной работе, поскольку речь идет о соединении встречных точек зрения на потребности студентов-кочевников в настоящее время.

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