4-1-2012

The Role of University Libraries in Enhancing Local Content Availability in the Nigerian Community

Chimezie Patrick Uzuegbu

Michael Okpara University of Agriculture, Umudike, ABIA State, Nigeria., fortenews@yahoo.com

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Chimezie Patrick Uzuegbu
Digital Librarian
Digital Library Department
Michael Okpara University of Agriculture, Umudike

Introduction

What is local content? According to Abdul Waheed Khan, in his paper presented in a UNESCO and World Summit on the Information Society, "Local content is an expression and communication of a community's locally generated, owned and adapted knowledge and experience that is relevant to the community's situation". Bhattacharjee (2001) says that local content is generally defined as a work which is produced under the creative control of nationals of the country. Meanwhile, the economist definition of local content is that it is the proportion of input which comes from the country itself, as opposed to those imported. Observing that the term "local content" simply refers to indigenous production of anything, the objectives of this paper are;

1. To review the importance of local content in the context of knowledge.

2. To suggest the role to be played by Nigerian university libraries in developing local content emanating from the university communities.

3. To suggest roles to be played by university libraries in the attempt to publish local content originating from Nigerian university communities to the global world.

Literature Review

Local content is important for national development. It is a product that nations, countries and communities should seize before the end of next decade. The educational, social, economic, political, and religious despondence of today's society is highly related to the reliance of man on non-local content, leaving the often rich, compactable and prized native produce to die slowly without reference to it. This was the ugly observation of several world organizations and scholars around the globe, which resulted in the copious summons to all countries of the world, especially the African countries that are yet to discover the value of their locally generated information, to ensure organization, dissemination and application of the same information in all facets of life's activities.

On Thursday, April 22, 2010, the Nigerian local content bill was signed into law by President Goodluck Jonathan while in acting capacity. Since then, Nigeria's analysis of the gains and future of the law is barely narrowed to the economic sector, largely concerned with the empowerment of Nigerian nationals in the country's oil and gas industry, arousing little or no consciousness in other sectors like information, which is the power of western nations. The strength, extremes and all-sector importance of the law is not yet understood by Nigerians. Maybe, that President Jonathan and

Nigerians, judging by few comments, are happy that this new law will help provide domestic jobs to Nigeria's 140 million citizens, is a representation of how narrowed they have placed the importance of the law. It is no doubt however, that Nigerians may be happier when they shall see and comprehend the benefits of the law in the information milieu (Edemhanria, 2010).

Local content also sharpen government and private enterprises. The studies of Leydesdorff and Etzkowitz (2001); Duran-Romero (2003); Ondategui (2001) and European Union Reports (2002, 2006) reveal the positive result of employing university content (thesis, dissertations, etc.) to production by government and private enterprises in Europe. The application of local research knowledge to manufacturing, engineering, business and other services can be of immense advantage to a community's economic growth. Universities furnish qualified and mobile human resources, researchers and/or students, whose services can be enlisted by the corporate world, with appropriate information.

Moreso, local content provision is an integral part of the development process of local communities. A library with content of local relevance will encourage communities to make use of the library services, especially if they are empowered to participate in development of the content. Greyling and Zulu (2010) opines that low local content on the Web inhibits buy-in from local communities into digital resources and thereby inhibit development of digital skills.

According to the 1998/99 World Development Report, knowledge, not capital, is the key to sustainable social and economic development. Building on local knowledge, the basic component of any country's knowledge system, is the first step to mobilize such capital. Moreover, there is a growing consensus that knowledge exchange must be a two way street. Stiglitz (1998) opines that the vision of knowledge transfer as a sort of conveyor belt moving in one direction from the rich, industrialized countries, to the poor and developing ones, is likely to lead to failure and resentment. Therefore, development activities, especially those that aim to benefit the local communities directly, need to consider local knowledge in the design and implementation stages of the process.

In addition, local contents are not only very important to a country's national development, growth and global relevance alone, but also contribute to open access actualization. UNESCO (n.d) maintains that access to knowledge would only be possible if information is available and accessible. If UNESCO's mandate on the Promotion of free flow of ideas by word and image, and the maintenance, increase and spread of knowledge must be met, local content development is vital. But this copious call may not be achieved only by enhancing information flows and providing infrastructure, until it involves encouraging knowledge creation, ensuring knowledge preservation, promoting knowledge dissemination, and enhancing knowledge utilization (UNESCO, n.d). The library and information centres should not slumber. No wonder the big question came up in the UNESCO and World Submit on Information Society, asking: "...information or knowledge societies?" These arouse the need to create repositories in Nigerian universities and advocate for digitization of libraries if they must take their place in today's information, but more importantly, knowledge society. Libraries should be a good means of enhancing local content creation and, above all, ensuring its availability and accessibility.

Although the importance of local content has often been raised in many international meetings and by numerous donors and cooperation agencies, concrete initiatives and expertise in this area seem to be scarce. A UNESCO paper titled *the need for local content* (n.d) records that, "…content initiatives using ICTs tend to 'push' external content towards local communities". Comparatively, content initiatives using libraries as channels of communication should not thrust external content towards local communities, rather should provide local content for the community members' use, wider public access and global view.

Rowlee's (2010) study reveals that there is great importance attached to local content on the internet. Her report in business news reveals that consumers spend over forty percent of their time online, searching contents ranging from emails, community sites, commerce and other information packages on the internet. This implies that our local content can as well attract consumers who spend more money online.

In addition, Robins (2002) conclude that local content creation in a community creates room for social navigation. Munro, *et al. (*1999) defines social navigation as:

> *"The creation of social settings and places in information space and behaviour in them,*

the sociality of information creation, people as members of groups and [the] nature of information itself, its location, evaluation and use".

Dourish (1999) deduced that the availability of local content on the web brings online researchers into a common community, where they are "guided and instructed by the activities of others on the cyberspace". This implies that the electronic success of libraries and information centres is related to the amount of locally generated knowledge or information emanating from the community it serves, which is available online through its server.

Communities as Content Originators

Communities are defined by their location, culture, language, or area of interest. They have strong cultural, linguistic, religious or common interest links. Members of a community may share the same location or are geographically dispersed. Abdul Waheed Khan (n.d) agrees that a community is not static or exclusive and as individuals, may also belong to many other communities at the same time. This description also means that a university and all those having one thing or another to do in it comprise a community.

The university, as a segment of the Nigerian community, is comprised of teachers and students who come together to pursue excellent academic knowledge and sound life skill. "It is the research engine of the society, situated in cities but not really part of them" (Iwe, 2010). The people in them are immensely talented, rigorously intelligent, indulging in activities above the daily pursuits of the ordinary people. This community is individually consisted of professors, doctorial scholars, men and women pursuing mastery over various specific subject fields, together with youths and teenagers undertaking the basic fundamentals of knowledge in diverse fields of learning. This same community, as a result of its broad focus in teaching, research and learning, create knowledge and vital information that are useful to humanity. Most importantly, the knowledge and information created by members of this community are compatible with the culture of the people.

Olmeda-Gómez, *et al* (2008) writes that universities are generators of scientific knowledge, they publicize the results of their research in globally open articles, using the channels afforded by existing journals to share their findings as widely as possible with different communities and audiences. This information, openly publicized to serve a community, makes universities epistemic institutions and sets them apart in this respect and makes them a distinct community.

Nigerian University Libraries

Maidabino (2010) quoted Gelfand who reasons that the university library is the only centralized location where new and emerging information technologies can be combined with knowledge resources in a user-focused, service-rich environment that supports today's social and educational patterns of learning, teaching and research. To fully understand the role of the university library in the university community and in the extension of the frontiers of knowledge, we must see how the fundamental functions of a university relate to those of a university library. The basic tripartite function of any university is to conserve the existing knowledge, to transmit knowledge through teaching, and to create new knowledge through research. And the submission of this paper is that new knowledge created by research, which is not disseminated, may be of no use to humanity. The library is therefore poised to request the knowledge created in the university community and make them available to the wider society. To achieve this goal, Carr (2000) writes that the university library must become automated or digital. While Igbeka and Ola (2008) believe that the UNESCO Principles of International Cultural Co–operation declared in 1966 is achievable through digitization. Thus, avoiding a breach of "*universal access to information"* would simply mean that libraries and information centres must collect, preserve, promote and disseminate information.

Local Content in the University Community

Local content found in a university community are primarily borne out of scholarly research. In Nigeria, few universities focus on subject areas like agriculture, technology, education, while majority are conventional, teaching a vast range of knowledge. Some of the local content originating from university communities includes;

- Books
- Thesis and Dissertations
- Practical Research Records
- Journal Articles
- Project Reports
- Inaugural Lecture Recordings and Papers
- Evaluation Reports
- Technical Reports
- Workshop Reports
- Working Papers
- Conference Papers
- Conference Proceedings
- Field Trip Films And Records
- Inventions
- Records of community services of academics

This content is not only in text form but include speech recordings in cassettes and other digital resources.

Developing Local Content of the University Community: The Role of University Libraries

To develop the local content in Nigerian university communities, the library and information centres of the universities must be at work. This will require substantial investment in infrastructure and technology. In a broad view, some of the things to establish are: (1) an institutional digital repository; (2) a community virtual network; (3) personnel; and (4) access to fund.

(1). A digital repository is where digital content and assets are stored and can be searched and retrieved for later use (Hayes, 2005). An Institutional digital repository in the early stages consist of content from works of the faculty members for which the university itself or the authors retain the copyright, such as PhD theses and working paper series of department. In the longer run, however, the critical mass of institutional repositories would depend on the inclusion of the best work of each university's faculty, which includes the journal papers published elsewhere. (Björk, 2004). This will imply a parallel submission of papers by authors. However, the fear for legal rights on parallel submission is discreetly supported in the creative commons license. Meanwhile, in the planning stages of institutional repository, the library and information centres need to take into account the periodic necessity to upgrade the storage media and the storage formats. Björk (2004) further submits that when universities start planning for such systems they are likely to use one of the following solutions or perhaps combinations of these:

- Plan for joint national collaboration platforms
- Use well-proven open source applications
- Buy the software from outside information technology consultants
- Outsource the whole service to commercial publishers

An example of the first option is the Dutch DARE project. The currently best-known open source solution is the D-space system, originally developed by MIT for internal use but currently offered to other universities MIT, 2001).

(2). Shin (2007) says a community networks is designed to provide local communities with free or low-cost electronic access to information content and a variety of electronic communication resources. Schuler (1996) and Kubicek *et al.* (2002) agree that a community network is a locally based, locally driven communication and information system designed to enhance community and enrich lives. Blanchard & Horan (1998) have suggested that the exchange and availability of information are perhaps the most important aspects of community networks. A good community virtual network must enable information seekers from other communities come to the virtual community to make explicit queries with the expectation of receiving relevant answers. "In addition, they can come to their communities knowing that, because other participants share their interests, they are likely to be congenial information environments, places where information in which they are interested is likely to be found, even if they do not have explicit queries". (Burnett, 2000).

(3) Personnel, ICT skilled library personnel, are important for the actualization of local content enhancement in a university community. Zhou (2005) says that a good ICT skilled librarian must be able to:

- analyze and process different kinds of information resources;
- activate and find potential value hid in any information;
- provide added value information products and services at right time and right place; and
- find the right users for information and provide personalized and tailored services

(4) Fund is the basis for establishing the other broad factors discussed above. Most, if not all libraries in Nigeria today, are funded from Educational Trust Fund (ETF) and supported by their parent bodies. Whichever source a library gets its fund, the fact is that if there is no access to fund, local content development or enhancement project will not succeed.

Nevertheless, and in a more guide-like process, some of the crucial steps to be taken by the university library and information centres in developing local content would include;

(a) Set up a committee

The library should first and foremost select from her staff people who, by skill or practice, are conversant with new media tools, and can do well in local information gathering, organization, preservation and dissemination using the new media tools and other information and communication technology. Subsequently, this committee can pave way for a unit or department of the library that would oversee the collection and dissemination of local content of that particular community. This paper titles such department: local content department of the library.

(b) Determine the scope of the project

The scope of the committees' assignment should be detailed. The need for it is to direct the group on what to do and or collect. Developing a policy statement that will define the job, limit of coverage, roles of the content originators, and other prerequisites, is indispensable.

(c) Approve funds

Funds are a challenge to content development. The university library must ensure that adequate fund is provided to meet the project expenses. The mother institution and other donor agencies – the local and the foreign agencies – are good sources of fund for the library to execute the project. The findings of Chowdhury and Chowdhury (2000) reveals that most of the digital library projects in the world are championed by higher education institutions or related research projects, national libraries, archives and museums. Adequate monitoring and evaluation of the fund spent and the extent of achievement of the project is also necessary.

(d) Purchase of facilities

One of the first facilities to secure is open source software. The committee must understand and know what choice of software they are making and how effective and efficient it will be in meeting the target of the project. There are few open source software supported by UNESCO, but Greenstone and CDS ISIS has proved adoptable in most hybrid Nigerian libraries in dealing with information science (publishing contents of text materials), while KOHA, not so popular, is also good in executing the traditional roles of the library (budgeting, acquisition, cataloguing, circulation, and providing administrative information of the library). Other open source software that is reliable in digitization include: Xlib, Moodle, Dspace and Eprints. The last two are widely used in India – a country that have attained a good height in digital repository and open access to local content.

The next facility necessary for the project actualization is the server and a broadband. The library must have an independent server that will host its files and the content database and must ensure that high speed broadband is secured for efficient transmission. Ali, *et al* (2010) forwards that the use of standard information retrieval system like Z39.50 is also necessary in sharing information with other communities, pointing that it would allow:

- library collection from different libraries;
- connection of member libraries via the Internet;
- no single location to host distributed library collection;

A system analyst would best design the information station to enable posting of content by "content authors" on a particular station of the server, so that the "content editors" would evaluate and publish a document or not. This will no doubt, enhance the availability of local content more often than not, but shall require a Local Area Network or Wide Area Network (LAN or WAN). Computers for all department, units and offices in the community would be suggested to the administration. Other facilities would include digital cameras, CDs, DVDs, projectors, scanners, etc.

(e) Collection of local content materials and document

The committee should study and understand the information "consumer" market. Uniqueness is a tool that can fast sell a product in the midst of many others. The uniqueness of a product that is at the same time very rich and relevant to a large category of "consumers" should be the target of the project team. The policy statement therefore should be clear in defining what nature, how depth, significant and reliable a document accepted in the local content file should be. So there should be a show of meticulousness in recognition and identification of contents, recording and documenting, storage and transfer, up to dissemination and exchange of the content. Pinfield *et al.* (2002) submits that the best method of collecting data for the institutional repository is for the researchers, in the university community for instance, to e-mail their papers to the "archive administrator".

(f) Conversion of print contents into digital

Among the committee should be digital/virtual librarians. The use of video disk (DVD) or compact disc player (CD), textual scanners, marc readable machines and relevant tools is appropriate in the migration. Kreutz (2010) also includes text recognition software (OCR) and voice recognition devices as among the tools needed for local content publishing. Communicating faculty members on the need to provide soft copies of the work would be an advantage to the library team in preserving, validating and publishing of contents to the wider community.

(g) Uploading and organization of contents on the server

At this stage, the "selected" contents are uploaded to the main server, hopeful to be ready for public view and access. Digital librarians who are very good in web publishing are needed at this stage. The librarians should ensure that a good arrangement of content is done. Some arrangements are alphabetical, others according to subject, some chronological, and other classes as deemed fit by the content providers. The presentation format of the text is also considered here. The committee also decides on the document format to employ. Most presentation digitally is either in HTML or in PDF formats.

(h) Create a database (repository)

A local content database is an assortment of various databases that have been designed to help researchers access research information from local resources such as theses and dissertations covering specific subjects/disciplines, research reports, research articles and many others.

Challenges for Local Content Creation and How the University Libraries Can Overcome in the University Community

Some of the challenges that university libraries and information centres would face in the course of enhancing local content in the teaching, learning and research communities would include:

- Limited financial resources of developing countries for content production;
- Inappropriate training opportunities for library and information professionals to keep abreast of skills and new media tools used in creating local content;
- Lack of access to advanced technology (production units, digital cameras, digital studios, etc);
- Low motivation and commitment at the decision making level of the community;
- Market forces, which do not encourage diversity;
- Inadequate scope of content.

To overcome the challenges of finance, training of staff, access to technology, and also improve commitment of the people at the decision making level in the communities, the library and information body should prepare a proposal and send to world organizations like UNESCO (based on

her interest and support to creative content and free access to knowledge), government and non-government agencies, the community administrators, and other key players or advocates of "information for all". Emphasis should be made on the relevance of knowledge emanating from the community, relating it to why such information should be published to the wider community. Thus, details of how and what the libraries need to achieve the goal should be stated and corresponding fund requested.

On the other hand, inadequate scope of content can be surmounted by informing content originators to reflect language and lifestyle in their work and also build up their works to benefit those "consuming" the content. Success over this challenge would also be meaningful when the libraries obtain International Property Right (IPR) to secure recognition for the authors and the community at large.

The Facilities for Disseminating Local Content

Local content can be easily accessible. And to make them easily accessible requires substantial investment in infrastructure and technology. This might appear self-evident but is often ignored! Some of the technology essentials include;

- A dedicated Internet connection with sufficient bandwidth

This is very important because networked resources rely on a functioning and acceptably fast network, requiring:

- A leased line, satellite (VSAT) or wireless connection

Sufficient bandwidth, because without this the network becomes congested and it becomes impossible to download full text. Bandwidth is the amount of data that can be sent through a connection and is measured in bits per second. INASP (n.d) announced that universities in Africa have between 512kbps to 2/3Mbps.

- A LAN, WAN, Workstations and peripherals hardware

When members of the university community are connected in the local or wide area network of the library, research literatures originating from various nooks and crannies of the university community and other relevant documents are easily forwarded to the local content department's computer for evaluation and uploading of data on the local content database. This is best achieved in an academic environment where the INASP (n.d) recommendation of one computer for every nine or ten students in a whole university is applicable.

- Appropriate Software

Open source software is a crucial information resource for easy access to knowledge materials. A web browser and adobe acrobat (PDF) reader (since many people prefer PDF files to HTML reader formats) containing a package specific requirements like image reader, is also very important.

- Power supply and other support and maintenance facilities

Power supply or back up is indispensable in enhancing local content availability to the Nigerian community and the global world at large. And the continuance of the project is only guaranteed in its maintenance.

Conclusion

The increasing global recognition of local content as distinct, legitimate, valuable and vulnerable systems of knowledge raises a range of issues that pose challenges for the library and information services sector in Nigeria. The challenges for the information professionals begin with the recognition of local content as a distinct system of knowledge that requires handling, management and dissemination for use.

New media tools or information communication technologies would be the fastest, far-reaching and

reliable means of disseminating local contents in the Nigerian community. Relevantly, the library is the best medium for local content dissemination and sustenance in the global community, considering her perfect understanding of the taxonomy of information. With open source software, campus network and a broadband connectivity and national educational grid, Nigerian universities can create local content repositories for wider dissemination of their own scholarly literature and knowledge. And the success of this project shall be based on the interaction between the library, the community and the technology used.

References

Ali, H., Owoeye, J., & Anasi, S. (2010). Resource sharing among law libraries: an imperative for legal research and the administration of justice in Nigeria. *Library Philosophy and Practice*. Available: http://unllib.unl.edu/LPP/etim.htm

Bhattacharjee, K. (2001). Local content rules in broadcasting. A paper drafted by Ken Bhattacharjee, Legal Officer, and revised by Toby Mendel, Head of Law Programme, Canada. ARTICLE 19. March 2001.Canada. Available: http://www.article19.org/pdfs/publications/local-content-rules.pdf

Björk, B-C. (2004). Open access to scientific publications an analysis of the barriers to change. *Information Research*, 9(2) paper 170 Available: http://InformationR.net/ir/92/paper170.html

Blanchard, A., & Horan, T. (1998). Virtual communities and social capital. *Social Science Computer Review*,16(3), 293-307.

Burnett, G. (2000). Information exchange in virtual communities: A typology. Information Research, 5(4) Available: http://informationr.net/ir/5-4/paper82.html

Carr, R. (2000). The future of libraries and collections. In Igbeka, J.U. and Christopher O. Ola (2008). The need for digitization of special library materials in Nigerian university libraries. *World Libraries* 18 (1). Available: http://www.worlib.org/index_author.shtml#i

Chowdhury, G.G., & Chowdhury, S. (2001). An overview of the information retrieval features of twenty digital libraries. *Program: Electronic Library and Information Systems* 34(4): 341–73

Creative Commons License. Available: http://creativecommons.org/licenses/by-nc/2.5/

Dourish, P. (1999). Where the footprints lead: Tracking down other roles for social navigation. In: Munro, A.J., Hook, K., & Benyon, D. (Eds.) *Social navigation of information space*. London: Springer.

Durán Romero, G. (2003). *Análisis y comparación de las patentes universitarias españolas como indicador de resultados del esfuerzo investigador*. [*Analysis and comparison of the Spanish university patents as an indicator of the results of the research effort*. Madrid: Ministerio de Educación Cultura y Deportes.

Edemhanria, I.I. (June 8, 2010) *Local content policy and its implication for Nigeria. African network for environment and economic justice*. Benin: ANEEJ.Available: http://www.aneej.org/index.php?option=content&view=article&id=51&itemid=28

European Union (2002). Council Decision of 30 September 2002 adopting a specific programme for research, technological development, and demonstration: Integrating and strengthening the European Research Area (2002-2006). Luxembourg: Official Journal of the European Communities. Available: ftp://ftp.cordis.europa.eu/pub/documents_r5/natdir0000066/s_1883005_20040723_094518_1883en.pdf

European Union (2006). Council Decision of 19 December 2006 concerning the specific programme 'Cooperation' implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013). Luxembourg: Office for Official Publications of the European Communities. Available: http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/l_400/l_40020061230en00860242.pdf (Archived by WebCite® at http://www.webcitation.org/5b4TVW2m7)

Greyling, E., & Zulu, S. (2010). Content development in an indigenous digital library: A case study in community participation. *International Federation of Library Associations Journal* 36 (1): 30-39. Doi:

10.1177/0340035209

Hayes, H. (2005). Digital repositories: Helping universities and colleges. *JISC Briefing Paper: Higher Education Sector* . [Available: http://ebib.oss.wroc.pl/2005/63/bjork.php

Igbeka, J.U., & Christopher O. Ola (2008). The need for digitization of special library materials in Nigerian university libraries. *World Libraries* 18 (1). Available: http://www.worlib.org/index_author.shtml#i

INASP (n.d.). E-Resource use and the role of university libraries. A PowerPoint presentation by Martin Belcher in a workshop organized by International Network for the Availability of Scientific Publication (INASP). Available: http://www.inasp.info/martin_belcher__stim5_08_e-resource-and-libraries1

Iwe, M.O. (March 12, 2010). The role of students in sustaining university culture. A paper presented by Prof. M. O. Iwe Dean of student affairs at the maiden workshop on university culture held on Friday March 12, 2010 at the Prof. Chinua Achebe lecture theatre. Michael Okpara University of Agriculture, Umudike, Abia State.

Kreutz, C. (2010) A free post on the Internet. Posted September 13, 2010. Available: http://www.crisscrossed.net

Kubicek, H., & Wagner, R. N. (2002). Community networks in a generational perspective: the change of an electronic medium within three decades. *Information, Communication & Society*, 5(3), 291-319.

Leydesdorff, L. & Etzkowitz, H. (2001). The transformation of university-industry-government relations. *Electronic Journal of Sociology*, 5 (4). Retrieved November 4, 2010 from: http://www.sociology.org/content/vol005.004/th.html (Archived by WebCite® at http://www.webcitation.org/5b4WwndU 2)

Maidabino, A.A. (2010). Collection security issues in Malaysian academic libraries: an exploratory survey. *Library Philosophy and Practice.* Available: http://unllib.unl.edu/LPP/maidabino.htm

Massachusetts Institute of Technology. (2001). MIT to make nearly all course materials available free on the World Wide Web. MIT News, 4.4.2001 Available: http://Web.mit.edu/newsoffice/nr/2001/ocw.html

Munro, A., Hook, K., & Benyon, D. (1999). Footprints in the snow. In: Munro, A.J., Hook, K., & Benyon, D. (Eds.) *Social navigation of information space*. London: Springer

Olmeda-Gómez, C., Perianes-Rodríguez, A., Ovalle-Perandones, M.A., & Moya-Anegón, F. (2008). Comparative analysis of university-government-enterprise co-authorship networks in three scientific domains in the region of Madrid, 1995-2003. *Information Research*, 13(3) paper 352. Available: http://InformationR.net/ir/13-3/paper352.html

Ondategui, J.C. (2001). Los parques científicos y tecnológicos en España: retos y oportunidades. [Scientific and technological parks in Spain: challenges and opportunities. In Olmeda-Gómez, C, Perianes-Rodríguez, A, Ovalle-Perandones, M.A. & Moya-Anegón, F. (2008). Comparative analysis of university-government-enterprise co-authorship networks in three scientific domains in the region of Madrid, 1995-2003. *Information Research*, 13(3) paper 352. Available: http://InformationR.net/ir/13-3/paper352.html

Pinfield, S., Gardener, M., & MacColl, J. (2002). Setting up an institutional e-print archive. *Ariadne*, (no. 31). Available: http://www.ariadne.ac.uk/issue31/eprint-archives/

Robins, J. (2002). Affording a place: the role of persistent structures in social navigation. *Information Research*, 7 (3) Available: http://InformationR.net/ir/7-3/paper131.html

Schuler, D. (1996). *New community networks: Wired for change*. New York, NY: ACM Press.

Shin, D. (2007). A social dynamics analysis of the problems raised in the development of a community network: a case study of A-Net. *Information Research*, 12(3), paper 317 Available: http://InformationR.net/ir/12-3/paper317.html

Stiglitz, J. (October 6, 1998) An op-ed article by Joseph Stiglitz, Vice President and Chief Economist,

World Bank, in *International Herald Tribune*, October 6, 1998.

UNESCO (1966). Declaration of the principles of international cultural co-operation. Available:
http://portal.unesco.org/en/ev.phpURL_ID=13147&URL_DO=DO_TOPIC&URL_SECTION=201.html

UNESCO [n.d.] Promoting local content. A paper presented by Abdul Waheed Khan, Assistant
Director-General for Communication and information UNESCO, at World Submit on the Information
Society. PrepCom II. Multi-stakeholders Roundtable No: 2. Web World. Available:
http://www.itu.int/wsis/docs/pc2/roundtables/rt2/khan.pdf

University of Dar es Salaam Library (Online) Local content databases. University of Dar es Salaam
web page. Available: http://196.44.164.4:1080/databases.html.

UNESCO (n.d) The need for local content. Creative Content: Radio, TV, New Media. Supporting
creativity and innovation in local content production in radio, television and new media.
Communication and Information, UNESCO. Available:
http://portal.unesco.org/ci/en/ev.phpURL_ID=5463&URL_DO=DO_TOPIC&URL_SECTION=201.html

World Bank Organization (November 4, 1998). Indigenous knowledge for development: a framework
for action. World Bank. Knowledge and Learning Centre, Africa Region.
www.worldbank.org/afr/ik/ikpaper_0102.pdf

World Development Report (1998/99). Knowledge for development. In *Indigenous knowledge for
development: a framework for action by World Bank*. November 4, 1998. [Available:
www.worldbank.org/afr/ik/ikpaper_0102.pdf

Zhou, Q. (2005). The development of digital libraries in China and the shaping of digital librarians.
The Electronic Library, 23(4) 433-447.