

KNOWING IS NOT ENOUGH: ENGAGING IN THE KNOWLEDGE ECONOMY

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Abstract

The paper focuses on the place of the library in the Knowledge Economy and the need for librarians to evolve alongside the changing needs of library patrons. It discusses Ghana's ranking in the Knowledge Economy Index and indicates that though the country has made considerable strides in ICT and Education, progress is not reflected in the status of most institutions. Also, the role of the library in the development of the country is not known by stakeholders. The paper discusses the role of the library in transition from information management to knowledge management to reflect the needs of the knowledge economy. It mentions efforts by some libraries that are using technology to assist users to access, create and share information as well as knowledge, through Library Automation, Open Access, Web 2.0 technologies and Information Literacy. It exhorts librarians to empower themselves so that they can become active participants and not passive observers in the transition of the country to the knowledge economy.

KEYWORDS: KNOWLEDGE ECONOMY, KNOWLEDGE MANAGEMENT, LIBRARY AUTOMATION, INFORMATION LITERACY, OPEN ACCESS.

Introduction

The ability to create, distribute and exploit knowledge is increasingly central to competitive advantage, wealth creation and better standards of living...” Organisation for Economic Co-operation and Development (OECD, 2001). This ability is a skill for the 21st century and for any country to attain any appreciable level of development, all its citizens must have that skill. This competence

provides one with the capacity not just to be passive receivers of knowledge but active participants. This statement of the OECD further explains that to meet the need for citizens to have such competence, investment in knowledge has been increasing, accelerated by investments in ICT. Investment in knowledge means more spending on higher education, research and development and this in turn translates into innovation. The number of patents filed in countries in the developed countries such as USA, Sweden, Finland etc is a result of innovation and this is reflected in their economic performance. The duty of librarians in organizations and institutions is to actively pursue their essential role to facilitate access to information and knowledge and provide capacity for citizens to locate and assess information in order for them to be creators as well as knowledge receivers. To be able to perform this role, librarians need to empower themselves for service delivery in the knowledge economy. This paper focuses on the place of the library in the knowledge economy. It is a call for librarians to get involved, to participate as individuals and as professionals so that they can become active participants and not passive observers in the transition of the country to the knowledge economy.

The Context

The transition from one level of development to another takes place, because a new productivity factor is introduced. We are in the Knowledge age, the latest stage of development in global economic restructuring. The New Zealand Council of Educational Research NZCER (2009), describes how the world transitioned from an agricultural economy, where land and farm labour were the main factors of production. Land was the most fundamental basis of wealth and prosperity. Most people mainly needed 'know-how' that is, 'hands on' kinds of knowledge. They learned this knowledge by participating in the everyday life and work of their community. Most people had no formal education.

Then to an industrial economy, where land was still of value but where labour was transferred to machines and larger industries. Labour and natural resources such as coal and iron ore were the key resources. Mass production was the basis of wealth and prosperity. In addition to knowing how to do things, people needed different, more abstract, theoretical – or 'know what' – kinds of knowledge. Schools were set up to deliver this kind of knowledge to the young, and mass education began. Currently we are in transition to a knowledge economy where the central resource is knowledge, where more than "Know-how, know-what" kinds of knowledge are needed, People need to be able to use it to create new knowledge. This kind of knowledge is a resource, something to learn (or think) with.

Land, natural resource and industries are still important but knowledge in the 21st century is the new productivity factor. Thus with abundant raw materials, vast lands and huge populations Africa is lagging behind small countries such as Sweden, Norway, Finland, Malaysia and Indonesia. These countries are using knowledge as a resource, as an asset for the society. This kind of knowledge makes the difference between poverty and wealth.

What is Knowledge, Information and Data?

From the above, it is clear that knowledge has always played an important role throughout the various stages of global economic restructuring. The meaning of knowledge has also been changing over the years. It is generally agreed now that Knowledge encompasses data, information, images, symbols, culture, ideology, and values. Knowledge is therefore the full utilization of information and data, together with the potential of people's skills, competencies, ideas, intuitions, commitments and motivations. Knowledge is the awareness and understanding of facts, truths or information gained in the form of experience or learning. Finally, knowledge begets wisdom and wisdom only comes about when knowledge is assimilated and internalized, when it changes existing behavior patterns and makes things better. (Maher, 2011). Gargasz (2012) portrays an example of a Knowledge Pyramid below:



At the bottom is data which is simply the representation of facts. This forms the basis for intelligent actions. On its own, it carries no meaning. Information is data in context; it is the meaning of data. For data to become information, it must be interpreted and take on a meaning. We use information to create knowledge. For example, the height of Mt. Everest is generally considered as "data", a book on Mt. Everest geological characteristics may be considered as "information", and a

report containing practical information on the best way to reach Mt. Everest's peak may be considered as "knowledge". (Wikipedia, 2012).

This example supports the definition of Knowledge by Wiig (1996). According to him, Knowledge, the insights, understandings, and practical know-how that we all possess, is the fundamental resource that allows us to function intelligently. Over time, considerable knowledge is also transformed to other manifestations, such as books, technology, practices, and traditions, within organizations of all kinds and society in general.

NZCER (2012) counters that knowledge, is no longer being thought of as 'stuff' that is developed (and stored) in the minds of experts, represented in books, and classified into disciplines; Instead, it is now thought of as being like a form of *energy*, as a system of networks and flows, something that *does* things, or makes things happen. Knowledge Age knowledge is defined and valued not for what it *is*, but for what it can *do*. It is produced, not by individual experts, but by 'collectivising intelligence', that is, groups of people with complementary expertise who collaborate for specific purposes. An example is the knowledge produced through the Human Genome Project. Due to widespread international cooperation, scientists have unlocked the genetic basis of complex diseases. Due to the collaboration of scientists in different countries, the results were achieved faster than it would have taken if pursued individually.

Knowledge has always been an important factor in economic development. The difference now in the 21st century is the speed, capacity and technology to access the wealth of information and knowledge. This does not mean that land, labour and industry are not important. It simply means they are not the determining factors for development! Knowledge is the critical factor for development.

What is Knowledge Based Economy?

A knowledge-based economy is an economy in which the production, distribution and use of knowledge is the main driver of growth, wealth creation and employment across all industries. (OECD, 2001). It is variously defined as the tertiary level, post industrial level, service sector etc. Maher (2011) refers to it as the third wave economy. It is the part of the economy that includes individuals and businesses that produce services rather than goods. The service sector includes education, finance, communications, health care, utilities, wholesale and retail trade, tourism and transportation. In the mid-1980s employment in the United States was evenly divided between service jobs and production jobs. The split has

since changed, such that the service sector provides a significant majority of jobs in the United States (American Heritage Dictionary, 2010). It is the largest sector of the economy and it is the fastest growing sector. Information is the fuel that keeps the services economy running (Cleveland, 1999). It generates knowledge and with it quality products.

Some Characteristics of a Knowledge Economy

A Knowledge Economy has certain characteristics such as the following:

The economy undergoes a transition from the production of goods to the provision of services. The global competitive advantage depends more on services driven by human-to-human interactions than on engineering or product development. Majority of workers are in the service business rather than production - which is outsourced to developing countries. An example is clothing and technology products made in China etc but sold in USA.

Knowledge becomes a valued form of capital. We are our own tools, our minds have power over products. People offer their knowledge and time to improve productivity, performance, potential, and sustainability. Knowledge increases as it is shared while goods are normally succumbed to the law of diminishing returns. Knowledge as the first raw material which is growing when it is used.

Knowledge and ideas, which are intangibles, are the main source of economic growth and are more important than other tangible resources such as land, labour etc. These ideas are protected through Intellectual Property and Patents.

Through processes of globalization and automation, the value and importance to the economy of a workforce of professional workers such as, consultants, scientists, creative-industry professionals, librarians and IT professionals, rises in comparison to that of manual and mechanized type of work. This means people who work with their brains as opposed to those who work with their hands. The emphasis is on intellectual rather than physical activity.

A knowledgeable workforce is thus needed for a knowledge economy. It is the knowledge workers who create/produce and use knowledge. Goods are transformed in the process of providing the service as the quality of service depends on the quality of the worker.

Pillars of the Knowledge Economy

The following pillars are four critical requisites for a country to be able to fully participate in the knowledge economy. (The World Bank Group, 2012).

Education & Human Resource An educated and skilled population is needed to create, share and use knowledge with opportunities for quality education and life-long learning available to all. Literacy, Internet access in schools, quality, and enrolment figures in secondary as well as tertiary institutions and terms of employment, measure education and human resource.

Information Infrastructure A dynamic information infrastructure, ranging from radio to the Internet, is required to facilitate the effective communication, dissemination and processing of information. Number of telephones, computers, Internet per 1,000 persons is used to measure the information infrastructure.

Economic Incentive & Institutional Regime There should be a regulatory and economic environment that provide incentives for the efficient use of existing and new knowledge and the flourishing of entrepreneurship. In this sector, tariffs, governance, banking, exports, etc are measured

Innovation Systems A network of research centers, universities, think tanks, private enterprises and community groups is necessary to tap into the growing stock of global knowledge, assimilate and adapt it to local needs, and create new knowledge. Royalties and license fee payments and receipts, patent applications and scientific and technical journal articles are evidence of innovation.

Ghana's Ranking

A Knowledge Economy Index designed to measure a country's performance based on variables derived from the 4 pillars has ranked Ghana 113 out of 145 countries (The World Bank Group, 2012). It is an interactive tool that enables comparisons with another country or as many countries as needed. The table below positions Ghana between the first and the last country on the Knowledge Economy (KE) scale. Knowledge Index (KI) is the simple average of the normalized country scores on the key variables in three pillars – education, innovation and ICT. Knowledge Economy Index (KEI) measures performance on all four pillars.

| Country | Economic | Innovation | Education | ICT | KEI | KI |
|---------|----------|------------|-----------|------|------|------|
| Sweden | 9.58 | 9.74 | 8.92 | 9.49 | 9.43 | 9.38 |
| Ghana | 4.05 | 2.24 | 2.68 | 2.68 | 2.72 | 2.28 |
| Myanmar | 1.38 | 1.63 | 0.57 | 1.93 | 0.97 | 0.84 |

Source: World Bank, January 2012

Ghana's ranking is 8th in Africa

| Rank | Country | Missing data | KEI | KI | Economics Incentive Regime | Innovation | Education | ICT |
|------|-----------------|--------------|------|------|----------------------------|------------|-----------|------|
| 1 | 1 Mauritius | | 5.52 | 4.62 | 8.22 | 4.41 | 4.33 | 5.11 |
| 2 | -1 South Africa | | 5.21 | 5.11 | 5.49 | 6.89 | 4.87 | 3.58 |
| 3 | 0 Botswana | | 4.31 | 3.81 | 5.82 | 4.26 | 3.92 | 3.23 |
| 4 | 0 Namibia | | 4.1 | 3.38 | 6.26 | 3.72 | 2.71 | 3.71 |
| 5 | 1 Cape Verde | X | 3.59 | 3.35 | 4.3 | 1.76 | 3.49 | 4.79 |
| 6 | -1 Swaziland | | 3.13 | 2.99 | 3.55 | 4.36 | 2.27 | 2.34 |
| 7 | 2 Kenya | | 2.88 | 2.91 | 2.78 | 3.72 | 2.1 | 2.91 |
| 8 | 0 Ghana | | 2.72 | 2.28 | 4.05 | 2.24 | 2.68 | 1.93 |
| 9 | -2 Senegal | | 2.7 | 2.28 | 3.97 | 2.83 | 1.32 | 2.68 |
| 10 | 1 Zambia | X | 2.56 | 2.03 | 4.15 | 2.09 | 2.08 | 1.93 |
| 11 | 6 Uganda | | 2.37 | 1.84 | 3.97 | 2.54 | 1.09 | 1.88 |
| 12 | 8 Nigeria | X | 2.2 | 2.51 | 1.26 | 2.56 | 1.62 | 3.35 |
| 13 | -1 Zimbabwe | X | 2.17 | 2.85 | 0.12 | 3.99 | 1.99 | 2.59 |
| 14 | -1 Lesotho | X | 1.95 | 1.69 | 2.72 | 1.82 | 1.71 | 1.54 |
| 15 | -1 Malawi | X | 1.92 | 1.45 | 3.33 | 2.65 | 0.54 | 1.15 |
| 16 | 3 Burkina Faso | X | 1.91 | 1.06 | 4.46 | 2.41 | 0.28 | 0.76 |
| 17 | -1 Benin | | 1.88 | 1.79 | 2.15 | 2.8 | 1.1 | 1.47 |
| 18 | -2 Mali | | 1.86 | 1.31 | 3.49 | 1.82 | 1.05 | 1.05 |
| 19 | 11 Rwanda | | 1.83 | 1.14 | 3.89 | 1.73 | 0.77 | 0.92 |
| 20 | 1 Tanzania | | 1.79 | 1.36 | 3.07 | 1.98 | 0.83 | 1.26 |
| 21 | 1 Madagascar | X | 1.77 | 1.43 | 2.79 | 2.37 | 0.84 | 1.1 |
| 22 | 4 Mozambique | | 1.76 | 0.99 | 4.05 | 1.76 | 0.17 | 1.05 |
| 23 | -8 Cameroon | | 1.69 | 1.85 | 1.21 | 2.61 | 1.39 | 1.56 |
| 24 | -5 Mauritania | X | 1.65 | 1.52 | 2.05 | 1.68 | 0.71 | 2.18 |

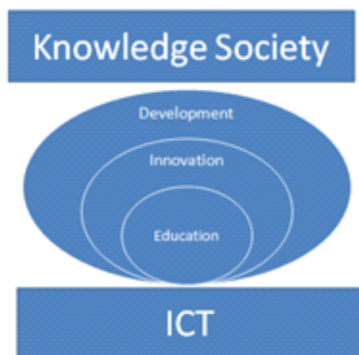
The Knowledge Economy impacts on everybody. The bottom line is the abilities of individuals, as opposed to products, intangibles as opposed to tangibles, content as opposed to infrastructure. Librarians therefore have a distinct role to play in the ability of all citizens to access content instantly, facilitate in the creation and sharing of knowledge. This role is enhanced by ICT in the same vein that Education and Human Resource development is accelerated by ICT.

ICT

ICT or information infrastructure is an enabler for education and innovation without which a knowledge economy would not be realised, supported or developed. (GESCI, 2011).

This assertion is recapped in the stance of the Government of Ghana at the opening of the Ghana-India Kofi Annan Centre of Excellence in ICT (AITI-KACE) in 1992, that is “Ghana is an emerging economy with a rapidly expanding need for

technology”. It is also a truism that Research and Development cannot be done effectively without technology. In the developed world, Education and learning have been transformed by ICT. Also, Education and training cannot progress without Technology. Innovation can also not occur without Education. Therefore technology is the beginning of the knowledge economy. The diagram below by the Global e-Schools and Communities Initiative (GESCI) illustrates the position vividly.



ICT as an enabler of the innovation and education required for development and sustenance of a knowledge society. **Source : (GESCI, 2011)**

Mr. Haruna Iddrisu, Minister of Communications, reiterates this focus on ICT when he announced that Ghana's success in the emerging knowledge economy would largely depend on how well the country adopts and adapts to a comprehensive and integrated Information Communication Technology (ICT) led economy. That recognizing the opportunities offered by ICT, Government had consistently pursued a policy to make ICT a driver of national development through the ICT “for Accelerated Development policy process.” (GNA, April 2012).

The priority set for an information infrastructure has resulted in the increase in Internet speed over the years. The speed picked up when the sub Saharan undersea cables were laid in 2011, connecting Ghana to high speed broadband networks. From a painfully slow rate at 64kbps, to 128kbps, 512kbps, 4 mbps, 8 mbps, 10 mbps and 45mbps, the speed is now 4MB and steadily climbing. Business Guide (2010) reports that in addition to being ranked number one in Africa, Ghana has

also moved from the 176th position, globally, to 52nd for downloads and 11th for uploads, according to SpeedTest.net, an independent global broadband speed test analyzer, powered by Ookla the global leader in broad band speed testing and web-based network diagnostic applications. These speeds are however varied in institutions, and hence the low score of 2.68 in ICT in the KE scale.

It is acknowledged however that the growth of ICT networks alone will not build a knowledge economy. It is this development that has enabled technology to be adopted in libraries. Just as the development of Education from teacher focus to resource based would make the role of the library to be prominent.

Education and Human Resource

In Ghana, numerous attempts have been made to bring dynamic and progressive improvements in the educational system in the country through Review committees dating back to colonial times. The latest attempt was the 2002 Committee on the Review of Educational Reforms. The Committee examined the challenges of all the levels of education and made recommendations for a reform to support a nation aspiring to build a knowledge based economy. The Universities especially were to re-examine their mandates and programmes in view of the advances in knowledge and changing demands in the economy.

The Committee was of the view that the “philosophy underlying the education system in Ghana should be the creation of well-balanced individuals with the requisite knowledge, skills, values and aptitudes for self-actualisation and for the socio-economic and political transformation of the nation.” (Ghana, October 2004). The Committee also made recommendations on cross-cutting issues such as ICT and library and information services as reported by Bannerman (2007).

As indicated above, the government has initiated some actions towards the incorporation of ICT in various areas of Government and Education. The low scores under Education (2.68) in the KE scale is indicative that there is still a long way to go. Also, recommendations such as adequate funding for the Ghana Library Board, now Ghana Library Authority, Community libraries under the District Assemblies, and a minimum of 15% budget allocation for libraries in tertiary institutions have not been implemented in most institutions. (Ghana, October 2004). It would appear that Educational institutions in Ghana are organized to produce Industrial Age and not Knowledge Age worker-citizens.

As such the following situations persist:

Most times lecturers produce pamphlets which students are required to reproduce during examinations. In some instances, students who read outside what the lecturer has provided and produce different information from what is in the pamphlets are marked down.

Generally, research focuses more on field research and does not include library research. There are occasions when authors who submit their papers to publishers outside the country are asked to enrich their papers by doing library research before final submission.

A lot of materials in libraries and Internet have content more appropriate for the developed world. What is needed most is content produced in Africa, for Africa, about Africa.

With ICT developments and access to the Internet, learners prefer to use Google for their research and learning rather than the materials in the library and databases the library has subscribed to.

From the above, it is clear that citizens in the country are unaware of the essential role that libraries can play to facilitate access to information and in knowledge creation and use. This is confirmed by research conducted in six African countries, including Ghana, which shows that citizens believe public libraries have the potential to contribute to development in the country. However, libraries are small and under-resourced, and most people associate them with traditional book lending and reference services rather than innovation and technology. These are among key findings of research into perceptions of public libraries in Ghana. With funding from the Bill and Melinda Gates Foundation, EIFL's Public Library Innovation Programme (PLIP) commissioned the research to deepen understanding of the role of public libraries in Tanzania, Ethiopia, Kenya, Zimbabwe, Uganda as well as Ghana. This includes the vision, aspirations and expectations of the general public, librarians and national and local government in the 21st century. (Fuegi, Segbert and Lipeikaite, 2011).

Librarians have a lot to do in order to change the perceptions of libraries being regarded as places for traditional book lending and reference services to places where patrons can also use technology to access information and knowledge. This change will reflect the role of libraries in the knowledge economy. Also, librarians have to understand the change in user needs to reflect the demands of the knowledge economy and therefore change the focus from information Management to include Knowledge Management.

What is Knowledge Management?

There are so many definitions of Knowledge Management but the definition by Kakabadse et al. (2001 :140) best captures it. They state that "information and data management are important pillars of Knowledge Management" but the latter "encompasses broader issues and, in particular, creation of processes and behaviours that allow people to transform information into the organization and create and share knowledge.

The creation of new knowledge may be accomplished in several ways. First, internal knowledge may be combined with other internal knowledge to create new knowledge. And secondly, information may be analyzed to create new knowledge. In the end, the cycle of knowledge management is not complete if no efforts are made to ensure that stored and shared knowledge is used. On the other hand, the success of an Information Management project is achieved when the preservation and the retrieval of information is guaranteed while the success of Knowledge Management project ultimately depends on the sharing of knowledge (Martensson, 2000).

The need for Knowledge Management in Organizations and Institutions

The above definition implies that apart from the necessary infrastructure being in place in organizations and institutions, there should be a culture of research, learning and sharing of knowledge.

Nartey-Tokoli (March 21, 2012) reiterates that no progressive organization can cope if its human resources are "bereft of insight". That to gain knowledge one must read and each organization ought to position itself as a knowledge organization and build a library and make access to information and knowledge a priority. This article in the *Ghana Business and Financial Times* speaks volumes as it links information and knowledge to business. This means all educational institutions, Ministries, Departments and Agencies (MDAs), hospitals, prisons, financial institutions, business organizations and companies must have libraries in their establishments. Thus the library has a crucial role to play in organizations and institutions.

A library is therefore not a luxury but one of the necessities of life. One librarian at the Library of Congress once remarked that "if we did not have libraries, libraries would have to be invented".

Ghanaians know they need access to knowledge and they go to Internet cafes. Institutions set up and pay huge charges to access the Internet. In the developed world it is libraries that provide access free of charge to its citizens. The reason being that in the 21st century, citizens have to learn all the time with access to information needed at any time and libraries are best placed to meet their information needs.

Hayes (2004) quotes a KPMG survey of 423 large companies, where 67 per cent of respondents claimed that they had too much information to manage and 56 per cent complained of having to 're-invent the wheel' every time they started a new project. As a result there is a firm belief in business that if we could manage the knowledge we have, this would present for companies a significant competitive advantage. Hence the need for Knowledge Management in any organization cannot be over emphasized. As librarians we must see ourselves as knowledge managers as well as information managers. As knowledge managers we have a role in helping to manage information for which we have direct and even indirect responsibility and to tailor it to the needs of our institutions or communities.

Special libraries have taken the lead in Knowledge Management due to the collection being limited in scope to that of the organization and the need for their staff to be constantly notified of any publication in their special areas to facilitate the creation and sharing of new knowledge.

Librarians as Information Managers and Knowledge Managers

Mchombu, (2010) quotes Cheong's (2008) definition of Librarianship as “the discipline and profession that is concerned with helping individuals obtain reliable information to increase their knowledge in all the spheres of their lives from the recorded information storehouse of mankind”

The needs of individuals in the Knowledge economy are:

*Instant, unimpeded online access to the library collection and other information resources; local content, different types of resources including articles, conference papers technical reports, government documents, syllabi, and other unpublished research; and
Ability to locate, evaluate and represent new information quickly any time of their lives.*

As Knowledge Managers, librarians need to create the environment to facilitate access to information and knowledge through the following ways:

Library Automation

Web 2.0, 3.0 etc Library 2.0

Open Access

Institutional Repositories

Information literacy and Media Literacy

1. Library Automation

The old methods of maintaining a library using the card catalogue are no longer dynamic and efficient. Patrons are for example, more attracted to Google because the search engine delivers information fast and in a more convenient way. It also enables sharing of information. Library automation using a 21st century Library Integrated Library System (ILS) or Library Management System (LMS) can perform the same function. Library automation refers to mechanization of library housekeeping operations predominantly by computerization. For timely and expeditious retrieval and dissemination of information and better service for library patrons, application of modern techniques has become absolutely necessary (Neelakandan et al. 2010).

Some libraries in the Consortium of Academic and Research Libraries in Ghana (CARLIGH) have taken the lead with various ILS; INNOPAC for the University of Ghana (UG), Virtua for the University of Education, Winneba (UEW), Alexandria for Kwame Nkrumah University of Science and Technology (KNUST), University of Mines and Technology (UMaT), University for Development Studies (UDS), KOHA for University of Cape Coast (UCC), Catholic University College of Ghana (CUCG), Wisconsin International University College (WIUC), Library Soft for Ghana Institute of Public Administration GIMPA), Presbyterian University College (PUC), Methodist University College, Ghana (MUCG), Ashesi University College (AUC), Alice for Akrofi Christaller Institute of Theology, Missions and Culture (ACI), Destiny for Central University College (CUC) and Valley View University (VVU), Liberty 3 for Dominion University College (DUC), CDS/ISIS for (INSTI), Library World 98 for Kumasi Polytechnic (KP), (Bannerman, 2011). KAIPTC has opted for Virtua. The public libraries in Ghana are yet to be automated.

| Name of institutions | Name of Library Management System |
|---------------------------|-----------------------------------|
| AUC, GIMPA, MUCG, PUC, | Library Soft |
| KNUST, UDS, UMaT | Alexandria |
| UCC, WIUC, CUCG | KOHA |
| UG | INNOPAC |
| UEW | Virtua |
| CUC , VVU, | Destiny |
| DUC | Liberty 3 |
| INST11 | CDS/ISIS |
| KP | Library world 98 |
| <u>Eight institutions</u> | <u>Most are considering KOHA</u> |

Source: Author's Construct, 2012

Users expect to find everything together and therefore the LMS needs to support the following:

Federated search with external information sources-Patrons search results include external sources

Faceted search- Patrons can narrow down search results based on their attributes; for example geographic region, format of the item, call number range.

Unicode to support different languages; and

OPAC linked with commercial resources and web links

It is advised that instead of continuous shopping to change LMS, it is important that any system selected has a policy to keep up with developments in the knowledge age. With the expansion of resources, professional assistance is vital, systems that support self check are important so that library staff are freed to concentrate on face to face interactions with users who require assistance. Ease of use is paramount and the OPAC must have a simple interface with simple search boxes.

2. Web 2.0, 3.0 etc and Library 2.0

To keep today's OPAC from turning into yesterday's card catalog, the academic library needs to make changes now so that patrons can also communicate with the library (Wallis, 2009). For this to be effective the OPAC needs to be deeply embedded in the Library Portal with the use of user suggestions, Blogs, Wikis, RSS Feeds. OPACs with embedded 2.0 also enable patrons have accounts which

they can manage. This statement applies to all libraries as well. Remember that creating and sharing knowledge is what makes the knowledge economy tick. To survive, one needs in addition to technical skills and access to the Internet, to have diversified and supportive social connections. Suraweera et al. (August 2010) add that Social networking is the way the 21st century communicates and social networking is a web 2.0 technology.

Web 2.0 is a term which suggests a new way that users use the Internet. A website with web 2.0 capabilities enables communities to contribute content to the site, interact and work with each other. This is opposed to Web 1.0 which has static text and images.

Library 2.0 is a response to the revolution of Web 2.0. Library 2.0 follows the example of Web 2.0 by encouraging libraries to use social media to take an active role in communicating with their users so that apart from the Library's presence on social networking sites, the library's website would be dynamic with the OPACs also keeping up with the new technologies. These activities when implemented enable libraries to stay relevant in today's society.

Manes (2006) described the genesis of Web 2.0 and its importance in business. He mentions that the companies, services and technologies that survived the technology sector market crash of the 90s, all had certain characteristics in common; they were collaborative in nature, interactive, dynamic, and the line between the creation and consumption of content in these environments was blurred. Users created the content in these sites as much as they consumed it. Companies therefore knew what consumers needed and therefore provided it.

Early efforts to get librarians trained to use Web 2.0 started when the Public Affairs Section of the US Embassy in collaboration with the Ghana Library Association (GLA) organized a Web 2.0/Social Media Workshop, CSIR CTA also organised Web 2.0 Services & Technologies Training Workshop in 2009. Papers presented at IFLA WLIC and others have provided further knowledge. The important lesson is that web 2.0, library 2.0 is incorporated into library services and activities. Librarians must therefore ensure their choice of LMS has 2.0 embedded. As indicated above it is also important that the OPAC provides access to external information resources.

3. Open Access (OA)

It is true that some of these external information resources are available through Open Access initiatives and can be accessed via the Internet outside libraries. However, using the technique in cataloguing Internet resources could place them in the OPAC and through a simple search, patrons could discover them. Librarians could build a collection of such resources from recommendations from users who found them useful.

Open Access, that is, free and unrestricted online availability of publications is required for the progress of science, and the development of society. The following quotes capture the essence of Open Access and the Knowledge Economy and the librarian's role. OA "Ideally requires the active commitment of each and every individual producer of scientific knowledge and holder of cultural heritage. Open access contributions include original scientific research results, raw data and metadata, source materials, digital representations of pictorial and graphical materials and scholarly multimedia material". Open Access provides users with access to information they desire and enable libraries maximize their role" (IFLA Governing Board, 2011 Page 3).

"Open access truly expands shared knowledge across scientific fields — it is the best path for accelerating multi-disciplinary breakthroughs in research." — Open Letter to the US Congress signed by Nobel Prize winners, 2004. (SPARC, 2012)
Widespread access to publicly funded research results is an essential, inseparable component of our nation's investment in science. Results of publicly funded research should be shared in cost-effective ways in order to stimulate discovery and innovation, and advance the translation of this knowledge into public benefits. (SPARC, 2012).

In view of the responsibility as libraries to opt for Open Access, all IFLA publications are Open Access. The Ghana Library Association in support also declared the Ghana Library Journal Open Access. The Committee of University Librarians and their Deputies (CULD) Seminar Proceedings with effect from the 2010 Seminar is likewise Open Access.

4. Institutional Repository (IR)

One of the main objectives of having an Institutional Repository is to provide Open Access to institutional research output. Every year, researchers produce thousands of research papers, theses, conference papers, reports, and working papers etc. which continue to exist in the institutions as their scholarly output. Much of this

material is not published commercially in books and journals. Teaching notes are produced for use in teaching and they are not easy to locate outside the course for which they have been developed.

Much of this material is born digital so it is possible to capture it using any software developed for the purpose. With the dearth of local content on the Internet and in the Library, the repository would also provide information with focus on African resources that is more relevant to the needs of the patrons so that citizens are not merely consumers of information. They can become creators as well.

Thanks to the initiative of The Consortium of Academic and Research Libraries in Ghana (CARLIGH) with Association of African Universities (AAU) and the Royal Tropical Institute (KIT) support, a sensitization workshop was organized in July 2011 in Ghana. It was “resolved by participants of this workshop that all institutions must have Institutional Repositories (IRs) and this must be featured in their Strategic Plans to ensure that they are established.”(Alemna and Asamoah-Hasan 2009, p.20).

Before then Librarians already had received some training from Electronic Information for Libraries (EIFL), International Network for the Availability of Scientific Publications (INASP) and Royal Tropical Institute (KIT) in 2007, Introducing IRs; 2008 Webpage design and 2009 Dspace respectively. The training has been repeated since then, the latest in February 2012. All CARLIGH members have reached various stages in the establishment of IR with only KNUST and Regent University College having theirs on Open Access and active online. Some libraries like Balme Library at the University of Ghana (UG) are involved in extensive digitization efforts to enrich their collection. These resources are accessible at the Universities' websites and on the Internet.

5. Information Literacy & Media Literacy

The ability of users to search effectively is under developed and that explains the tendency of using basic search technique of Google to access specific information needed. High quality research material are not found as they reside in the hidden web, where all library materials and paid for resources can be found.

Providing access to such broad range of information needed would be useless if library patrons are not provided the needed skills to access it. Information literacy is the skill for the knowledge age. This famous quote defines what information literacy is *"To be information literate, a person must be able to recognize when*

information is needed and have the ability to locate, evaluate and use effectively the needed information" (American Library Association, 1989).

Finding information is easy, assessing information, that is, gauging the value of information is difficult, using information is even more complex. People need to be able to make effective use of information to create knowledge. Information Literacy is not just for college students but for all of us, including librarians as professionals, in the workplace and in our personal lives. Information literacy equips people with the critical skills necessary to become independent lifelong learners. The ability to identify, access, evaluate, organize and communicate knowledge is a core capability of the knowledge economy (Hayes, 2004). Information literacy skill is thus critical in the knowledge economy.

IFLA urges governments and intergovernmental organizations as well as private institutions and organisations to pursue policies and programs that advocate for and promote Media and Information Literacy and Lifelong Learning for all. In so doing, they will provide the vital foundation for fulfilling the goals of the United Nations Millennium Declaration and the World Summit on the Information Society. The competence to do this effectively and efficiently is called Media and Information Literacy. (IFLA, March 2012)

The National Leadership Conference on Media Literacy held in the USA in 1992 defines Media Literacy as: "The ability to access, analyze, evaluate and communicate messages in a variety of forms" (Christ & Potter, 1998). Originally part of Information Literacy, Media literacy is now on its own. In general, the media literacy tradition stresses the understanding, comprehension, critique and creation of media materials, whereas the information literacy tradition stresses the identification, location, evaluation and use of information materials. The difference is that with media literacy, the emphasis is on creation whereas in information literacy it is on use. (Koltay, 2011) and (Livingstone et al. 2008). This is in consonance with the need for creative abilities where wikis, blogs, video streaming and sharing, and podcasts, etc are required in the knowledge economy.

In cooperation with UNESCO's Information for All Programme (IFAP) the IFLA Information Literacy Section drafted new Media and Information Literacy recommendations which are now available in several languages. In December 2011 these recommendations were formally endorsed by the IFLA Governing Board. (IFLA, March 2012)

Faculty attitude is a major determinant in the response of students to an information literacy or media literacy course. Students, most of the time take advice from their teachers regardless of whether they are right or wrong. The first target for this skill should be teachers and lecturers. Emphasis on handouts as the sole source of information would decline.

Knowledgeable Librarians

In order to perform the roles outlined above, Librarians need to empower themselves with the knowledge and skills needed to enable them survive in the Knowledge Economy, to be participants and not observers. This will enable the profession to appreciate better the needs of patrons and provide adequately for them. The following recommendations are being made to enhance the knowledge base of librarians:

1. The Heads of a library must:
 - Rise up to the highest qualification possible so they can relate to Leadership of the institution on an equal basis. It would facilitate advocacy efforts needed to place the library in perspective in the institution.
 - Ensure the library has a variety of skills in its professional staff, especially staff with subject expertise, ICT, Information and Media literacy and skills on issues surrounding access of information such as Ethics and Copyright.
 - Lead efforts in the institution to ensure that a balance is maintained between authors' rights and user needs. Copyright in the knowledge economy represents a significant challenge, in that its environment is constantly changing. The challenge is to protect authors' copyright, whilst also facilitating access to their works for all.
 - Provide the space needed for patrons to create and share knowledge interactively with staff support. Learning and Research Commons are the perfect environment for teaching, learning, creating and sharing knowledge. The Head of the library needs to plan strategically for space for present and future needs.

2. All librarians must:

- Read the literature, especially what colleagues write about in library journals as well as professional social networking sites. Apart from Facebook, Twitter, Delicious, Myspace, and other popular sites, be part of professional networks such as LinkedIn, Info Scientist, Net Log etc.
- Librarians need to contribute to the literature. Librarians outside academic libraries often claim that their organizations do not require them to publish for promotion. This does not preclude librarians from writing for publication. The profession requires it, otherwise why do professional journals, and newsletters exist. Are they just for academic librarians? The best way to learn from each other's best practices is when we communicate by writing. Librarians are called to contribute articles to the Ghana Library Journal but such calls do not get adequate response leading to delays in publishing on schedule. The Editor-in-Chief attributes it to the difficulty in getting quality papers for processing and inclusion in the journal. (Antwi, 2009)
- Librarians must also contribute articles to journals in their institutions so that faculty can also learn about the role of the library in the organisation. Cihak & Howland (2002) reiterate that getting published is quite important for librarians. It is actually a form of networking that allows librarians to share knowledge. More importantly, writing for publication forces careful consideration of a topic and compels the author to take into consideration the latest development in that area. So that knowledge shared would have gone through the rigorous processes that makes the knowledge even more valuable.
- Librarians need to attend training programmes. Special opportunities are CARLIGH and GLA workshops. There are a number of webinars, that is, online workshops, seminars, conferences, training available. For instance there is no excuse for not automating your library or having an institutional repository or managing your resources with a number of software available. Free and Open Software (FOSS) is now available for the multiple roles played by libraries so that finances can no longer be an excuse. Whether it is a Library Management System, software for Institutional Repository, Content Management, or IP management, Open Source is there to assist libraries manage their collection and online training programmes are announced periodically (EIFL, 2012).

- Developments take place when minds come together to take decisions for the benefit of all. No single person has the panacea for issues that have to be resolved so librarians must get involved with professional associations especially the Ghana Library Association. The dues sheet tells a long story of librarians defaulting and others joining, years after graduation. Ask “how can I contribute and make a mark?” rather than “what is the Association doing to help me?” It is well to be an active member of American Library Association (ALA), International Federation of Library Associations and Institutions (IFLA) and Chartered Institute of Library and Information Professionals (CILIP) but it is also important to belong to GLA. This will enable you share your global experience with colleagues and lift high the Association. It will enable the GLA tap all expertise as it continues to offer CPD for all librarians to make them Librarian 2.0, the type of professional needed in the knowledge economy.

Conclusion

As stated by Goethe and quoted by Tise (2011) “Knowing is not enough, we must apply, willing is not enough we must do” which is a variation of this topic. In order to apply, you must understand. This paper has attempted to explain how librarians fit in the knowledge economy. It concludes with the need to ensure they have the capacity to perform their needed role wherever they are, whether in academic, public, school, or special library. We are in a world where one has to learn all the time to keep up with development trends. Our dream should be, at the click of the button, any citizen should have access to information and knowledge without any restrictions. This will enable them create and share knowledge wherever they are.

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