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2010-12-15
http://hdl.handle.net/10539/8939

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Providing access to knowledge in Africa: the need for capacity building in classification, indexing & abstracting skills

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Presented at the First International Conference on African Digital Libraries and Archives (ICADLA-1), Addis Ababa, Ethiopia, 1st-3rd July 2009

Abstract

The realities of the present era of globalization and information and communication technologies (ICT) culminating in the African Virtual Library and Information Network (AVLIN) have made it expedient that African information professionals should be able to develop, showcase and make accessible African indigenous information to the knowledge world. This literature-based opinion paper has tried to identify with the view of the conference organizers that "Major digital initiatives involving African content are currently being undertaken by non-African organization without widely accepted protocols and agreement". The paper argues that there is a serious need for a theoretical and policy framework necessary to provide a basis for systematic training of library and information science professionals to place African knowledge on a pedestal that will make it accessible to the world of knowledge. It was found that the library schools in most African universities are ill-equipped to train professionals to handle information in the new digital era. This is exacerbated by the fact that professional associations are not doing enough to retool the existing workforce for the task ahead. The paper recommends, among other things, that much emphasis should be placed on the training of cataloguers and indexers in African research institutions and universities to be able to organize African knowledge and produce information surrogates that will help researchers locate them on the internet.

Introduction

One of the visions of the African Virtual Library and Information Network (AVLIN) is to be a web of network information accessible to the people of the region and others engaged in African development. This implies that AVLIN will seek to develop an indigenous/endogenous knowledge base dependent on available information resources within the regional institutions. The library professionals employed in the region's universities and research institutions, whose major functions are research and knowledge development, should play a leading role in this project. Witten et al. (2002) recognized this when they argued that the most important thing to do is not

to disseminate information originating in the developed world but to foster the ability to build information collections locally. Alemna and Cobbla (2005) noted that Africa is ready to pursue developing digital libraries in a more earnest way but lacks some basic resources. We are of the opinion that the most important resources lacking in this venture are those of skilled cataloguers, indexers and abstractors. This is evident in the claim by the organizers of this conference that "There is urgency to these policy discussions as major digital initiatives involving African content are currently being under-taken by non-African organizations without widely accepted protocols and agreements..." This paper argues that there is a serious need for the theoretical and policy framework required to provide a basis for systematic training of professionals, in order to place African knowledge on a pedestal that will make it accessible to the world of knowledge. This argument is predicated on the following questions:

- How should the profession look at emerging Information and Communication Technologies (ICTs) and their effect on the way professionals do their work?
- What should constitute the essential features of education and training for professionals in the new information era?
- What should constitute the need and direction for continuing education for professionals?
- What should constitute the direction of policy for data-base creation in universities and research institutions?

The objective of this paper is to show that the advances in ICT are not a hindrance but a complement to the tools used by the cataloguer to do his/her work. More fundamentally the paper is designed to show that, with commitment and resourcefulness on the part of cataloguers and complementing institutional polices, African knowledge will not only be accessible to the knowledge world but could indeed be a negotiating instrument for collaboration in information resource sharing. This work is an opinion paper based on a literature search and the experience of the lead author as a cataloguer and indexer for several years, currently the chief cataloguer of the Nnamdi Azikiwe Library, University of Nigeria, Nsukka. The authors' experience from the annual cataloguing and classification conferences organized by the Nigerian Library Association (NLA) has also shaped the work. It is hoped that the conclusions and recommendations of the work will help policy decisions on the digitization of African knowledge.

ICTs and Library and Information Services

The Librarianship and Information Services profession came into existence because of the need to provide effective guidance on research information sources to the intellectual community in a knowledge system. These practitioners came from among their colleagues in the knowledge field to provide these important and essential services required for the development of knowledge. Due to the growth of the profession and the development of specialized techniques for practice, it now seems that these groups of people are on their own trying to provide services not actually needed or not too important to their colleagues.

Imo and Igbo (2008) argued that librarianship, documentation and information services are geared towards giving specialized services, and are products of one knowledge discipline which developed as a result of the search for relevance in development and production of knowledge and its surrogate information. Librarianship started as a social service necessitated by the ability of

man to create knowledge which could exist independent of the creator. It developed rules that guided its services, which consisted mainly of acquisition and storage. Documentation emerged as a result of changing needs in the mode of production and dissemination of information. Aiyepeku (1993) described three stages of transformation in librarianship that led to the emergence of the documentalists. They emerged as the need arose for efficient methods of finding information (records) and collating them in the midst of masses of knowledge or data and appropriately delivering them to a targeted audience. This led to the development of techniques that involved the analysis of the content of documents and the formulation of this content into sets of descriptors. These descriptors are arranged in such a way that library users can match their information needs in the form of requests. This is the development of indexing and abstracting services and most importantly the perfecting of cataloguing principles and rules.

The emergence of ICTs in the production, acquisition, processing and accessing of information fundamentally altered the way information is stored and disseminated. This brought a utilitarian value to information and made it a resource of major importance in social and economic development. These developments brought about the need for more efficient methods to acquire, process, store and access the maze of large quantities of information which are generated and which grow rapidly. To tackle this problem a group of scientists in the late 1950s came together on the task of providing information services to targeted groups of users (Keenan, 1996). This group called themselves “information scientists”, obviously to stress the importance of the study of (scientific) information and the process involved in scientific communication (Ingwersen, 1992). These professionals have strived to maintain the value of acquisition, service quality, universal access and co-operativity. Greth (1996) argued that these values are the foundation of the library profession and would remain the same for a long time to come.

As noted earlier the profession has always defined itself by effective ways of making global information resources accessible to those who need them. This led to the development of methodological procedures for the description of documents, to make them easy for scholars and information searchers to identify those that meet their information needs. These methodological procedures gave rise to cataloguing, classification and indexing. These have turned out to be the bedrock on which the profession lays claim to professionalism.

At present, arguments are rife as to the relevance of these professional skills (cataloguing, classification, indexing and abstracting) for the organization of information in the ICT era. This problem is exacerbated by major concerns among library and information professionals that search engines are fast replacing library catalogues as better information retrieval tools. These concerns can be observed in the ways library professionals describe the profession in the ICT era. Okojie noted the obvious fact that cataloguing, classification and indexing continues to be the critical point around which every other aspect of the profession revolves, but argues that “we must change our work patterns. We must move from a position where cataloguing is seen as a ‘craft’ to a position where it is an industry” (Okojie, 2007, p5). Thinking along the same line Okentunji pointed out that since its inception cataloguing has aimed to create and organize information to promote the access and use of information, but argued that the “information explosion has presented a scenario that will necessitate the cataloguer to review its concepts,

adopting the new technology's facets to get adapted to the human information necessity in the common sense way and in the scientific areas as well" (Okentunji, 2007,p39).

These, like other arguments in their realm, would rather want to see a position where the profession would abandon the rigorous nature involved in cataloguing, classification and indexing to the simplified search engines (key words) in the ICT era. They would rather want to water down the rules of cataloguing, classification and indexing to hasten the production of keyword "cataloguing" of most of the library automation software. Library automation software generally places emphasis on keyword indexes rather than the analytic subject approach to indexing and classification.

One major concern here is that it seems to us that these professionals who have written off this essence of our profession, do not have the hindsight of the history of the profession in the face of the information explosion. Joint (2007) answers the fears expressed by these professionals. He argued that the idea that, when computers succeed librarians must fail is nonsense, noting that there are certain key components that remain in place in both the traditional library and the digital library environment, which in turn means that the profession has evolved across the print digital era to deal with those constant ongoing features in today's changing, largely hybrid information environment. This is in agreement with Lancaster's advice (1997) to the profession. He argued that in order to justify its existence in the electronic world "the library must continue to perform one of the most important functions it now performs in the print on paper world: to organize the universe of resources in such a way that those most likely to be of value to the user community are made most accessible to this community physically and intellectually".

Providing access to voluminous information is an intellectual problem that has historically been solved in the print environment by indexing, abstracting and cataloguing services with attendant rules and procedures to ensure consistency and accuracy. Graham (1995) advised that these tools, adapted to suit new needs, will work for electronic information as well. One important argument that must be made is that the profession is one which studies large texts in whatever formats, containing preserved knowledge, with more interest in solving theoretical and practical problems of its organization and representation in systems for later retrieval and use on demand (Igwersen, 1992). Therefore McMenemy (2006) advises that, in our deliberations on librarianship in the modern times, we need to emphasize two distinct but vital areas. The first is the reflection on and the championing of best practice, the constant revisiting of what we do as professionals and why we do them; and secondly we need to ensure that our core values are continuously communicated to wider society.

Cataloguing, classification, indexing and abstracting have no doubt become the pivot of professional practice in library and information service. Instead of suggesting or finding ways to circumvent or simplify its procedures to hasten the production of surrogates of knowledge, the profession should fine-tune its rules to produce efficient methods for accurate information description and searching, so that users could use them, in the words of Lancaster (1997)," to find needles in the Internet haystack". Efforts should be intensified at various professional levels to emphasize the need to develop techniques for effective building of knowledge surrogates. When this is achieved the profession should ensure that these are used effectively in every sector where

knowledge and information is generated to provide knowledge surrogates. If this is ensured, collaboration will only ensure that the world's knowledge pool is made available to whoever needs them in any part of the world through the use of ICT. This may be the reason behind the argument of Witten et al. (2002) that "perhaps even more important than disseminating information originating in the developed world is the need to foster the ability for people in developing countries to build information collection locally".

Concluding this section it may be noteworthy to re-echo an earlier argument by Imo (2007) that the new information age has strictly divided the work of the information professional into two: creating access to, and communication (dissemination) of, information. Access creation is within the domain of cataloguers and indexers. This implies that the library of the future should be able to structure its workforce to create a good access base for its users, starting from the selection and acquisition stage. This access should be based on locally available documents: locally produced books, journals, dissertations, theses and reports should be sought for, indexed, catalogued and classified properly, to international standards. This implies that libraries should strive to employ competent cataloguers and indexers for this task, or develop a good policy framework and environment for the training of those already employed

Essential features of education and training for library professionals in the new information era

Prior to the advent of the new information era, the objective for the training of librarians was tailored towards developing their knowledge and skills for optimum performance as custodians and providers of information resources. This direction in training programmes no doubt facilitated the effectiveness of traditional (largely manual) library operations like acquisition, cataloguing, classification, serials control and user education services. Hashim associated the following traditional skills with librarians: information handling, training and facilitating, evaluation and concern for the customer. According to him these skills cover the cataloguing, classification, indexing, enquiry work and user education functions of the librarian. Creth (1996) argued that the values of service quality, universal access and co-operation, which are the foundation of the library profession, should be maintained even into the next century. Lancaster (1997) equally argued that in order to justify its existence in the electronic environment, the profession must continue to perform one of the most important functions it now performs in the print-on-paper world, "to organize the universe of resources in such a way that those most likely to be of value to the user community are made most accessible to this community, physically and intellectually".

The above notwithstanding, it has been argued in several places that the new information environment requires fine-tuning or, in some instances, radical changes and additions to librarianship skills. The challenges of the new information era have attracted the attention of such authors as Ochogwu (1990, 2009), Turner (1991), Adams, (1999), Ochalla (2003), Diso and Njoku (2007) and Manir (2009). They were unanimous in their opinion that library education and training should be tailored towards developing ICT skills in new professionals in addition to exposing them to the practical aspects of professional skills. Edoka (2001) posits that education and training of librarians in the ICT era should reflect international standards which should include, universal bibliographic control, universal availability of publication, trans-border transfer of information and globalization of information products.

We are, however, of the view that while the above suggestions will necessitate a drastic re-ordering of the curriculum contents of library schools, the "traditional" library skills mentioned above should be reassessed and their values to information services in the ICT era applied. For example, the skills of cataloguing, classification and indexing can be used to improve end-user experience in information retrieval. It could equally be used to improve the usefulness of search engines, database construction and management, and electronic archiving. Using these skills in creating meaningful metadata files can, in the words of Lancaster (1997), help users find needles in the Internet haystack.

Commenting on the features of education and training programmes for library professionals in the present dispensation, Diso and Njoku (2007) argued that the integration of ICT in library and information science (LIS) schools in Nigeria is still in its infancy, and noted that the majority of LIS schools have no competencies in the teaching of these courses. Manir (2009), after a literature review on LIS education in Nigeria, has also argued that courses offered in LIS schools placed a high emphasis on print orientation and print media with very little on post-industrial information and communication technologies. He equally noted that most LIS schools teach these ICT courses theoretically because they have inadequate computer laboratories and poor internet access.

The above arguments notwithstanding, librarians are now regarded not just as professionals who physically handle information resources but as information managers who should be able to provide answers to every question related to information location, utilization and access, irrespective of where such information is located. To this end we are of the view that librarians should be trained to function effectively as information managers, conversant with global trends in information handling and dissemination. The aim of the training should be to inculcate the following skills in students:

- Electronic information sourcing, cataloguing and indexing, with emphasis on automatic indexing and abstracting;
- Website design and maintenance with emphasis on the mechanics of search engines and internet surfing;
- Library automation systems including hardware and software selection and design;
- Text digitization, desktop publishing, electronic archiving and multimedia management;
- Current awareness services (CAS) and selective dissemination of information, with emphasis in diagnosis and customization of information production; and
- Library advocacy with emphasis on information literacy skills and user education for adapting to the electronic environment.

It is our belief that if emphasis is placed on these areas in the LIS schools the profession should be able to produce professionals who would be able to place African knowledge where it would be visible to the rest of the world.

Continuing education for professionals

The transforming effects of technology on libraries have challenged the library profession a great deal. Because libraries are at the epicentre of information generation, storage and access,

professionals have found themselves in great need of fundamental retooling as a result of the impact of information and communication technologies (ICTs) on the profession. They have been saddled with the challenge of learning the skills of these new ICT tools for effective practice in the profession. In the case of formal students who are learning the rudiments of the profession, it is easy to adjust the curriculum content of the programme to include the fundamental principles of these tools. For practitioners it has been an uphill task trying to retool them for effective practice in the new information era.

The fundamental challenge facing the profession in this dispensation is to determine the extent of retooling in the profession. Some believe there have to be far-reaching changes in the profession before we can function properly. This school of thought believes that we should think and act like core ICT professionals (computer scientists and electronic engineers). Others believe that we have to concentrate on improving our professional techniques to incorporate skills that will enable us function effectively as information professionals. At the centre of these debates is the cataloguing, classification and indexing section of the profession which carries the responsibility for creating access to all forms of information resources, manual or electronic.

Heinstron (2005) argued that our present information-rich society demands increasingly more of our capacity to handle information, in terms of both quantity and quality. It is not enough to know how to choose relevant information from the flow around us, it is equally essential to be able to analyse and evaluate it critically. The availability of web-based information resources and the shift by electronic information providers and vendors to web-based services have made librarians with web technology skills an imperative in professional practice. Therefore Martell (2003) argued that the strength of the libraries in the 21st century will not relate to the symbolism of the institutions but to the expertise of the librarians. To this end a number of arguments have been raised by researchers as to the changing roles and training needs of practitioners especially in the cataloguing, classification and indexing of information materials.

Edoka (2001) identified a seeming lack of exposure and breath of knowledge required for managerial library and information work in the training programmes. Nwachukwu (2005), citing Reiham, observed that the new information era has resulted in changes in the nature and mode of library work leading to reconfiguration of the ethics of information transformation and the resultant new role expectations for library professionals. Glasser (2007) skillfully enumerated a number of concerns affecting the technical services division of the library. She noted that since the late 1980s, the amount of knowledge and information available in electronic formats has grown considerably. Electronic books, electronic journals, Internet sites and digitization projects are all relatively new forms of recorded knowledge in need of cataloguing.

Cataloguing departments have had to grapple with difficult issues of how best to bring electronic resources under bibliographic control. A number of questions have been begging for answers, such as, what is the best way to catalogue electronic resources: the MARC format or another metadata scheme? What electronic resources should be catalogued, only those purchased or subscribed to or also freely available Internet sites and other sites to which the library may have access? What is the best way to deal with the non-static, ever changing, ever moving nature of electronic resources? (Glasser, 2007). We may wish to note here that the essence of the

profession is to contribute meaningfully to the world of bibliographic control no matter the source or the format. To this end what should be uppermost in any cataloguer's or indexer's mind is how to make the world of globally available information resources accessible to users. So the problem of the indexer or cataloguer is not actually organizing the information resources available in his local library but making these part of the world information resources.

Omekwu (2007) therefore argued that the most critical role of cataloguers, especially those of developing countries, is to develop or adopt cataloguing practices that will effectively mainstream their information resources into the global information network environment. Having this in their mind, he noted, their cataloguing systems would then become tools for access and controlled description of physical and virtual resources.

Amidst these concerns a number of functional skills have been identified for cataloguers. Glasser (2007), citing Ellero, pointed out that 45% of advertisements for cataloguers in America required electronic resource cataloguing. Other skills identified for cataloguers and indexers include:

- the use of an increasing number of on-line tools;
- the management of materials in new formats;
- developing metadata schemes, metadata creation, extraction and manipulation
- heading internet cataloguing projects;
- writing training manuals for higher skilled tasks such as the cataloguing of newer formats;
- learning to read code: XML, SQL and CQL;
- understanding more about how computers work, what they can do, and what they can't do.

Apart from the last item on the list, most training programmes organized for practicing librarians in developing countries do not lay emphasis on these points. This has resulted in cataloguers in developing countries not being able to keep abreast of developments in ICT, and the resultant poor reflection of African resources in the World Wide Web. The implication of this is that professional associations in Africa should design appropriate in-service training for staff in the areas highlighted above. Appropriate policy frameworks should be put in place at regional levels in Africa to ensure a fundamental retooling of professionals in core technical needs that will help them function as professionals in this ICT era. This should not be left to individual institutions in our universities.

Direction of policy for database creation in university libraries

Information handling (generation, storage and dissemination) in any university system has always been one of the foremost academic activities for development of knowledge and contribution to the global knowledge pool. Librarianship and the information profession came into existence because of the need to provide effective guides to research information sources for the intellectual community system. Technological progress has changed how libraries do their work, not why. Therefore if librarians and information professionals must remain relevant and continue to impact in the information world, clear and effective models of training and retraining of professionals must be developed, especially in Africa where there seem not to be much activity in that direction.

Studies have shown that African states pay lip service to issues of integration of ICT in library work. Authors will always indicate the clear understanding among African states that libraries need an ICT backbone to function effectively, but they lack the will to support this with appropriately funded programmes for the development of skills and provision of a conducive environment in which librarians may operate. Edem (2007) and Manir (2009) are of the view that ICT infrastructural development in Nigeria is still in its infancy. Edem showed that cataloguing and indexing functions are not mentioned in the range of professional work done with computers. In a related study carried out in eight federal universities in the South East and South West geopolitical zones of Nigeria the authors found that while these universities acquire and store primary information materials like theses, dissertations, newspapers and magazines, there are no efforts at using standard or controlled indexing languages in the organization of these materials. There are equally no abstracting services in these universities. This is a clear indication of a lack of supportive policy frameworks in the production of information surrogates, though the librarians are clearly aware of the need of these services in the provision of digital information to users.

This clearly indicates a need for policy formulation in two directions. University libraries and research institutions should play more proactive roles in the training of the existing work force. Libraries should formulate strategic plans on how to train a specified number of staff within specified period. They should be able to locate appropriate venues and modes for this training and monitor its implementation. Professional library associations should equally follow developments in the library and information profession and develop programmes for professionals for meetings, workshops and conferences. There may be a need to develop plans for part-funding of these conferences and meeting from donor organizations. For instance in Nigeria in over eight years of annual seminars and workshops of the Cataloguing, Classification and Indexing Section of the Nigerian Library Association (NLA), none has been devoted to issues of metadata development or the functional requirement for bibliographic records (FRBR) which are areas that professional cataloguers and indexers need to know in order to contribute effectively to modern cataloguing in electronic environment.

Recommendations

Cataloguing, classification and indexing have been identified as the bedrock on which the practice of the profession is established. It is also the required leverage we need to showcase African knowledge on the Internet. It is necessary that African research institutions and universities should place much emphasis on the training of cataloguers and indexers, specifically indexers who would be tasked to organize African knowledge and produce information surrogates of some sort that would help researchers locate these on the Internet.

There is an urgent need for a reappraisal of LIS education in Africa, to set standards that will enable schools to teach properly the ICT component of LIS. Multimedia laboratories should be made compulsory in universities that offer LIS courses. The African Regional Centres for Information Science were established in some African countries some years ago to kick-start ICT programmes in African universities. This project should be reviewed and their standards should be used as a yardstick for other LIS schools on the continent.

The new information era has divided the work of the information professional into two: creating access to, and communication of, information. Access creation is within the domain of the cataloguer and indexer. It is evident that access creation to local information content in Africa is very low, therefore African research institutions and universities should develop a "Marshall Plan" to train indexers and cataloguers in the current cataloguing and indexing needs for digital materials. This will enable Africa to compete with other continents in local, endogenous knowledge content in the Internet.

Efforts should be made by various organizations in the profession to identify and harmonize developments and bring them to the attention of professionals. No efforts should be spared at bringing in experts to discuss relevant issues at annual professional meetings and workshops.

Conclusion

ICTs are bringing the world's information resources into one large library. If properly organized, bibliographic control could be perfected for the benefit of mankind. What is actually required and is hereby advocated is the development of capacity among African professionals to be able to contribute African knowledge to this international "library". The main purpose of the Anglo-American Cataloguing Rules (AACR), controlled indexing languages and other metadata schemes is to streamline cataloguing, classification and indexing principles so that to a great extent there should be consistency in the description of information materials. Online cataloguing and OPACs have simplified this for the information professional.

Opinions of researchers in the profession are that library education and training should be tailored towards developing ICT skills in professionals in addition to exposing them to practical professional aspects. Integration will mean that the cataloguer or indexer is not only actually organizing the information resources available in his local library but making these part of the world's information resources. The critical concern, therefore, of cataloguers or indexers, especially those from Africa, is to develop or adopt best practices and principles that will mainstream their information resources into the global information network environment.

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