

# Academic and Research Libraries in the Digital Environment.

## Challenges and Prospects

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### Abstracts

The research work is about Academic and Research Libraries in the digital environment of 21<sup>st</sup> century. The researcher undertake a survey of Nigeria society with respect to the Library operation in Nigeria and concluded that Nigerian Librarian need to be literate in information technology which brought drastic changes to the world and to the library profession. The research took a survey of the capability of most of Nigerian Librarians, the challenges, and gives its recommendation after conclusion.

**KEY WORDS:** Digital, Environment, Information, Literary, Literacy, Challenges

### 2. INTRODUCTION

Information age is characterized by many developments which require a shift from the traditional library instruction to a more global and technology oriented mode of managing and using information.

According to Okojie (2012) Information Literacy is a concept that is associated with the competency as knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner. Mishra and Mishra (2010) Information literacy is a transformational process where the learner needs to find, understand, evaluate and use information in various forms for personal, social or global purposes. It requires individual ability to recognize their information needs as well as to process the ability to locate, evaluate and use information effectively.

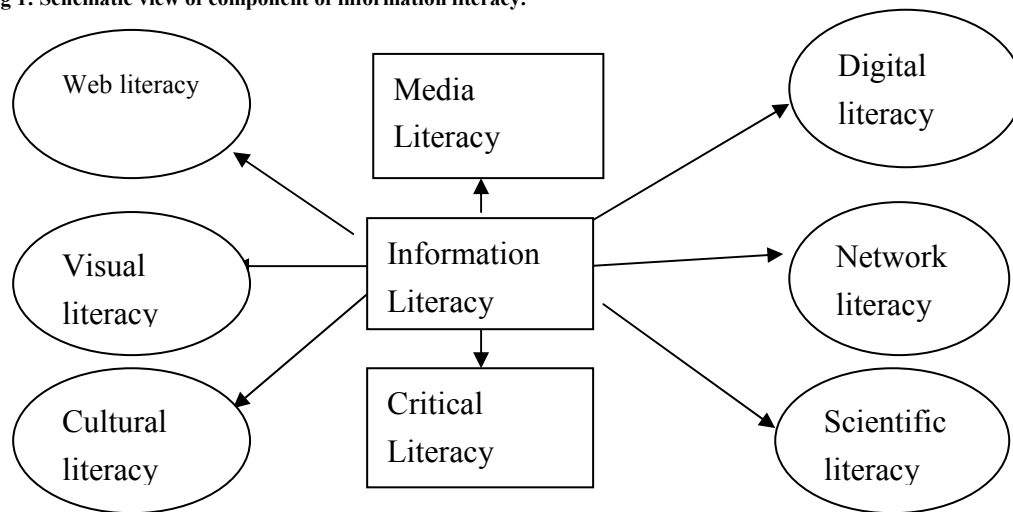
Librarian requires effective integration into library and information programmes in Nigeria. Librarianship profession is in flux, requiring many roles and responsibilities from the librarian, like content developer, knowledge creator, information instructor/teacher, content manager, web developer/manager etc. Academic and research librarians face a greater challenge as the number of users who visit the library is daily on the decline.

Academic and research library users are becoming more advanced and educated with the knowledge to access and use electronic information from the internet and other networks.

Information technology has brought drastic changes to the world and to the library profession; there are changes occurring in acquisition, organization, management and dissemination of information on the part of the users, information explosion, both in quality and quantity poses major challenges and threat to the society.

As there are proliferation of information in different forms and complexity in the digital environment so are users faced with the difficulties in making choices in their researchers and education. As most of the information is electronic sources is unfiltered and users not sure of their authenticity, validity and reliability. The quest to exploit the opportunity provided by information communication Technology to deliver more efficient and effective library and information services becomes a major contributory factor in the emergence of information literacy. Okojie (2012).

**Fig 1: Schematic view of component of information literacy.**



According to Okojie (2012) information literacy is a lifelong process. Mishra and Mishra (2010) developed the schematic view from the main source (information literacy) are distributed in different forms to serve her users needs. In all Librarians must be information literacy to be able to undertake the above search to save her customers' needs.

The objectives of information literacy is to make the individual an informed man who will be able to use information and information technologies to solve both personal and community problems. According to Doyle (1992) an information literate person:

- Recognizes the need for information
- Recognizes that accurate and complete information is the bases for intelligent development.
- Formulate questions based on information needs.
- Identify potential sources of information.
- Develop successful search strategy.
- Access sources of information including computer based and technologies.
- Evaluate information.
- Organizes, manages and communicates information for practical applications.
- Integrate new information into existing body of knowledge.
- Uses information in critical thinking and problem solving.

### **3. LIBRARIAN NEED FOR INFORMATION LITERACY**

Okojie (2012) posit that the adoption of information in Nigeria libraries is very imperative because of the information society. Some of the development necessitating information literacy in libraries includes:

#### **(1) Information Explosion**

Information and communication technology has result in the proliferation of information in different formats. Information sources are being produce in large volume into the information environment not minding the quality of the information. Mishra and Mishra (2010) stated that

Uncertain quality and expanding quantity of information poses major challenges and threats to the society. Information Literacy competencies are required to assure access to, evaluates and uses quality information and sources, to evaluate and use quality information and sources to solve problems. Research and academic environment are the major producers of information and information sources for the development. Knowing these facts, it is important that the concept of information literacy take root in academic and research libraries to provide the needed platform for quality information access and use for development.

#### **(2) Rapid Changes in Technology**

The information society is characterized by rapid change in technology. The format and form, interfaces, application and other concepts associated with digital technologies are rapidly changing Okojie (2012). This makes it imperative for librarians as well as their users to be information literate in order to be able to cope with this challenge and turn the changes into advantage for growth and development.

### (3) Empowerment of users

Information society has witnessed different categories of information from managers and users. There are users who are computer literate and can manipulate digital systems effectively but this is not in itself information literacy. The adoption and application of information literacy will empower the information manager as well as the users to package, access, evaluate and use information efficiently and effectively. Information literacy is undeniably an indispensably for user empowerment.

## **4. DEVELOPMENT OF INFORMATION LITERACY IN UNIVERSITY LIBRARIES IN NIGERIA.**

As experience in other countries such as USA, UK and Australia, Okogie (2012) expressed that Nigeria need to advocate and domesticate information literacy policies and programmes to promote an information literacy society. Some of the requirement for effectively implementation and promotion of information literacy in Nigeria include:

### **3.1 Review of library and information Science Curriculum:**

Information Literacy has taken root in many Countries sometime now, but no concentrate step has been taken in Nigeria to domesticate it. Stakeholders in the information sector need to come together, advocate and review the library and information Science curriculum in tertiary institutions to reflect adequate and effective information literacy training and learning for the teacher as well as the learner.

### **5. Capacity building for librarians on information Science Stakeholder:**

Capacity building for librarians on information literacy needs to be given priority. Librarians and information managers who are already in empowerment who may not have opportunity to go back to school need to be retained and re-skilled. Workshops and conferences should be organized to equip librarians and information managers with necessary skills and knowledge to promote and ensure an information literate Society.

#### **4.1 Attitudinal Change:**

Librarians are knowledgeable people because they are custodians of knowledge. Information Literacy requires innovation and transfer of knowledge. It also require numerous and higher level of competencies to effectively deliver on our mandate, hence the need to change our orientation and attitude towards acquiring competencies in information technology and other necessary Skill to meet up with the challenge of developing an information literate society.

#### **4.2 Institutional Commitment:**

Academic and other relevant institutions and organizations should be committed to information literacy projects in their various institutions, to ensure the success of information literacy programmes.

### **6. Open Access initiatives for Academic and research libraries:**

Open access simply means free availability of internet information to the public, permitting users to read, down load, copy, distribute, print, search or link to the full texts of articles, crawl them for indexing, passing them as data to software or use them for any other lawful purpose, without financial, legal or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint reproduction, distribution and role for copyright in the domain is to give the authors control over the integrity of their work and the right to be properly acknowledge and cited Gbaje (2012).

#### **5.1 Open access publication meets the following contribution:**

Gbaje (2012) express that the author(S) and the copyright holder(S) grants all users free, irrevocable, worldwide, perpetual right of access to and a license to copy, use, distribute, transmit and display publicly and to make and distribute derivative works in any digital medium for any responsible purpose, subject to proper attribution of authorship as well as the right to make numbers of printed copies for their personal use.

He further explained that complete version of the work and all supplemental materials including a copy of the permission as stated above be deposited immediately upon initial publication in at least one online repository that is supported by an academic institution, scholarly society, Government agency or other well- established organization that seeks to enable open access, unrestricted distribution and long – term archiving.

For the purpose of open access Journals, the idea portray is to address specific problem and add to the body of knowledge, hence dissemination of research findings is central to research activities. The emergence of the internet and the ability to distribute research findings electronically on the internet offered a means to circulate scholarly and research information globally. In open access there's no charge of fees/Subscription to access information. Boai (2001) posit open access journals as having the following characteristics:

- Open access are scholarly
- Utilize quality control mechanisms like those of conventional Journals.

- Digital in nature.
- Freely available.
- Permit author to retain their copyright.
- Use creative commons or similar license

Gbaje, (2012) in suber (2003) analyze same of the advantages as thus:

- Authors own original work but not license copies of electronic journals.
- Archive electronic journals without special permission or period payment.
- Provide access without authenticating users or administer proxy server.

In Nigeria there are four University operating open repository access information services, they are: Ahmadu Bello University, Zaria; Covenant University Ogun State, University of Jos and University of Agriculture Abeokuta.

### **7. Ethical and legal issues in information management, access and use in the digital environment.**

Egunjobi (2012) citing lynch(2000) defined ethics as including moral choice made by individuals in relation to the rest of the community, standard of acceptable behavior and rules governing members of a profession. It relates to choice made and actions undertaken by the individual and how these have impact on wider society. Mcmenemy and Burton (2007) sees ethics of profession as a statement of principles that guide the practice of that profession, its states the value to which the members are. Commitment to the profession as well as the responsibilities of the profession. He further express that librarian is a profession that has its own ethics well spelt out. Sturges (2009) noted that media and press ethics, computer and internet ethics and ethics of governance and business only concern those in the profession, similar to the librarianship. This includes core issues of intellectual freedom, privacy and secrecy concerns with social equity and justice and ownership of information.

Ethics of librarianship in Nigeria failed to provide any handy document on ethics of library practice in Nigeria. Ethical issues relating to electronic information systems include control of and access to information, privacy, and misuse of data. Carpurro (2010) identified the main topic of digital (information) ethics to include intellectual property, privacy, security, information overload, digital divide, gender discrimination and censorship.

Ethical issues are issues of human conscience, what man feels right or wrong while there are power and authorities enforcing legal issues. It is obvious from this discussion that traditional library ethics overlaps with digital ethics but with new additions engendered by the nature of digitalized information service cannot be separated. These have been identified to include intellectual freedom, censorship, intellectual property rights, fair relationship with co-workers and other colleagues, capacity building, privacy and security information overload and digital divide.

### **8. Digital Environment**

Digital environment is a virtual space where information resources are accessed through the provision of basic ICT infrastructures: computers, phones, I-phones, and I-pad symbian /java enabled mobile devices, high bandwidth internet etc.

### **9. The Essence of Academic/ Research Librarian**

Modern librarian must be:

1. Be equipped with a wide range of personal and transferable skills in order to manage the changing environment.
2. Be effective managers of networked resources and services.
3. Aware of the strengths and weaknesses of the new technologies.
4. Able to strategies to promote their services to external /online patrons.
5. Confident
6. Knowledgeable
7. Supportive
8. Highly interactive

### **9. To communicate values, Academic Research librarian must:**

- Recognize that accurate and complete information is the basis for intelligent decision-making.
- Recognize the need for information.
- Formulate questions base on information needs

- Identify potential sources of information
- Develop successful search strategies
- Access sources of information including computer base and other technologies
- Evaluate information
- Organize information for practical application
- To integrate new information into an existing knowledge
- Use information for critical thinking and problems solving

#### 10. Preservation of information materials using ICT:

Agibili et al (2012) define materials in information centers especially libraries as material that consist of media, non –book/ non- print and print resources. Examples of media resources includes computer hard drive, data base, library, software,

projectors etc while non-books, thesis/ projects, maps and photo graphic materials etc.

Librarians all over the world are tasked with the responsibility of acquiring, processing, storing, disseminating information to users, and due to constant exposure of clients to these materials, the rate of degradation increases.

Every library is prone to two kind of deterioration:

Biological deterioration caused by insect attack /fungi growth or environmental deterioration caused by extreme dampness, wide fluctuations of relative humidity, variations in temperature, light and atmospheric pollutants (maravilla,2008).

Shoos(1990)express that the process of preservation, conservation and restoration are applied to safeguard the library materials from further decay and deterioration where as conservation includes proper diagnosis of the decayed material, timely curative treatment and appropriate prevention from further decay.

Information and communication Technology is the technology that supports activities involving the creation, storage, manipulation and communication of information, together with the related methods, management and application. In other words, ICT enables us to record, store, process, retrieve and transmit information. It encompasses modern technologies such as computers, telecommunications, facsimile and micro electronics etc.

Older technologies such as document filling systems, mechanical accounting machines, printing and cave drawings are also included in the term information communication technologies. ICT facilities in information centre are:

- |                            |           |                          |              |      |
|----------------------------|-----------|--------------------------|--------------|------|
| • Palm top                 |           | Digital camera           | Mobile phone | iPod |
| • Server                   | Projector | Analog camera            |              |      |
| • Mobile phone camera      | Server    | Projector                |              |      |
| • Microfilm and microfiche |           | Media player             |              |      |
| • Recording machines       |           | Computer/Desktop         |              |      |
| • Laptop                   | Modern    | Internet                 |              |      |
| • E-granary                | Scanner   | Motion Analysis software |              |      |
| • Microform                |           |                          |              |      |

#### 11. Causes of Deterioration of print information materials:

Mohamed (2006) enumerated some of the causes thus:

1. Chemical instability of the components of the information centre
2. Temperature and relative Humidity
3. Exposure to light
4. Atmospheric pollutants
5. Biological Agents.

#### 12. Preventive measures of information print materials

Ajbili (2009) cited Mohammed (2006) who stated some usual ways of preserving information materials in an information centre as thus:

- Air circulation should be maintained in storage areas to avoid dampness.
- Print material especially books should be held upright on shelves and should not be shelved too tightly in order to avoid damage when retrieving.
- Shelving a book spine down rather than up will prevent the text from pulling out of the binding due to its height.
- Print materials are often unnecessary damage during photocopying. The frequent open and bending during photocopying affects spines of materials.
- Regular fumigation to prevent pest and rodents from invading and attacking the materials.
- De-acidification of materials to reduce its acidity.

#### 13. Preservation of print materials using ICT.

Some of the ways to preserve the library resources are:

1. Micro filling: that is by reducing images down to a size so that they cannot be read without a loupe or a reader.
2. Digitalization: that is transforming an object or idea (analogue signal or code) into numerical code. Digitalization is the preparation of material for scanning and conversion occurs via scanning technology that transforms reflected light signal to digital data.

#### **14. Selection Criteria for Digital Preservation**

1. Scarce materials
2. Access to relative research materials available
3. Physical condition and format
4. Intrinsic/ inherent/ monetary value
5. Information value
6. Evidential value
7. Archival /historical /continuing /Enduring value

#### **15. Cost Effectiveness, Added value of Additional features, and Budgeting Circumstances:**

Some of the factors to be considered in cost effectiveness are:

1. Scanning colour mode
2. Variety of formats
3. Identify projects
4. Copyright and other intellectual Rights
5. Administrative / operational value

#### **16. Benefits of Digital preservation:**

Due to digitalization all knowledge has become very accessible due to the free open access repositories that are made available online. The benefits are:

1. No physical limit for storing
2. Can be access via the internet
3. Available accessed
4. Create saving of space
5. Preservation of old texts / manuscripts
6. Easy retrieval of information using key words
7. It is cheaper to maintain digital library than book library
8. Any number of times digital files can be duplicated with exactness
9. Many can access a digital file at the same time
10. Integrated online resources sharing
11. Linking and networking possibilities

#### **17. Challenges of Digital preservation:**

Digital preservation has so many advantages but it is worthy to note that there are some factors that hinder it. Kanyengo (2006). Identified some specificity of preservation issue in Africa

1. Information policies
2. Infrastructures
3. Financial constraints
4. Technical knowledge
5. Legal Barriers

#### **18. Conclusion:**

Information literacy must be promoted to enable users cope with Technological changes which has led to information explosion. Learners and users lack necessary skills to function adequately in this digital environment. Therefore libraries and librarians have to be multi – skilled and build up competences that will help them face new challenges of the digital environment. Information professionals, experts' trainers. For successful information literacy in the institution, strong collaboration between libraries must exist.

The magnitude of digital preservation poses problems beyond institutional boundaries reading collaborative relationship between Governments and institutions. Digital preservation remains largely experimental and full with risk associated with interest methods. Information scientist, information manager, archivist, record – keepers, who are empowered with the responsibility of acquiring, processing, storing and disseminating information should ensures to preserved vital information using modern technology that are related to information and communication.

#### **19. Recommendations:**

Information literacy should be incorporated into Nigeria's National policy on education.

1. Librarians should collaborate with faculty members, ICT, Student s and others users to foster networking and knowledge sharing in order to promote exchange of new ideas, trends and cutting – edge services.



2. Librarians should show more commitment to professional development particularly in information literacy.
3. Review of the library and information school curriculum to include information literacy.
4. Library schools in Nigeria should incorporate digital preservation program in their curriculum to prepare future librarians and archivist.
5. Practical librarians, archivist and researcher in preservation need to retool and develop digital preservation skills.
6. There's need to formulate national policy for digital preservation by federal Government of Nigeria.
7. Libraries should create their web site to provide information to their patrons.
8. Librarians should complement their electronic information resources collections with institutional repository and open access Journals.

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