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Educational Needs of Librarians in the Digital Environment: Case Studies of Selected Academic Libraries in Lagos State, Nigeria

Olukemi A. Fadehan
Obafemi Awolowo University, oadegboye2001@yahoo.com

Hussaini Ali
University of Lagos, babanayashe@yahoo.com

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Olukemi A. Fadehan, PhD
Hezekiah Oluwasanmi Library
Obafemi Awolowo University
Ile-Ife Nigeria

Hussaini Ali
Nigerian Institute of Advanced Legal Studies Library
University of Lagos Campus
Akoka, Lagos, Nigeria

Introduction

The 21st century has witnessed an unprecedented paradigm shift in the rendering of library and information services worldwide. The ripple effect of the influence of Information and Communication Technology (ICT) on every aspect of human endeavour remains colossal and its impact on library and information services has not been exclusive. Literature (Sridhar, 1999; Igun, 2006) as well as general observation of worldwide trends confirm this assertion.

A major consequence of this development has been the concept of the emergence of electronic services in libraries or betters still, the concept of digital libraries (Youngok, 2006). Library services are assuming a different dimension in philosophy, model and information delivery. The trend worldwide has proved that information provision and delivery had shifted from the traditional models to electronic and web-based formats. Traditional collections are giving way to if not total but at least hybrid collections. This change in structure is not without its attendant challenges as electronic and digital libraries come along with their peculiar characteristics despite sharing the same purpose of preserving, organizing and distributing information resources as in the case of traditional libraries (Youngok, 2006).

In the light of change in orientation of the 21st century libraries, Hayes (1998) opined that libraries must "move from resource centered, institutionalized and physically bound to network based". Becoming a network based library however, has a lot of technological implications; the single prominent factor being information technology (Sridhar 1989, 1995, 1997, 1999). Furthermore, literature affirmed that the change in the nature and roles of libraries vis-à-vis

the digital environment has equally brought about the need for the development and acquisitions of new skills and competencies (Youngok, 2006). This development again has been greeted by dearth of experienced library staff that could meet the new demands (Oduwole, 2005; Adedoyin, 2005, Igun, 2006). This latter view was also corroborated by Edie Resmussen Choi, who opined that "without well-educated digital librarians, digital libraries cannot reach their full potential" (2006).

To this end, this study has been committed to investigating the librarians' perception of their educational needs in the 21st century digital environment using a number of selected academic libraries in Lagos State, Nigeria as case studies. This has been done with a view to identifying the gaps and making recommendations as appropriate vis-à-vis the designing and modeling of digital education in Nigeria.

Objectives of the Study

The study was guided by the following objectives:

(1) To identify the level of automation process/digital application in the critical operations of the libraries.

(2) To find out the educational needs of librarians in developing the digital environment.

(3) to determine the librarians general perception of the need for Digital Education/Training.

Methodology

The research design adopted for this study was the case study method. The population size of the study was purposive and composed of librarians of five selected academic institutions in Lagos State. The study also adopted a purposive sampling method in the choice of its population; hence five academic libraries were selected as case studies.

The sampling size and procedure of study hinged on the total enumerative technique (census) of all practicing librarians of the five selected academic libraries totaling 50 (see Table 1). The choice of a total enumerative technique was because the total population was moderate enough and the available budget permitted it.

The scope of the work and choice of population was informed by the following: (1) the case studies reflected the pattern of educational needs of librarians in the same geographical and social-economic environment-Lagos State, Nigeria. (2) Each library/educational institution studied served as an example of the following educational set up: research libraries, college of education libraries, the polytechnic libraries and the university libraries (Two universities were under-studied with each presenting a federal and a state-owned establishment).

The major tool of collection of research data was a self-developed questionnaire. This was complemented with personal observation of library procedures in the investigated libraries (See Table 1 for questionnaire administration and rate of retrieval).

TABLE1: QUESTIONNAIRE ADMINISTRATION AND RETRIEVAL

S/N	Names of Institutions	Questionnaire Administered	Questionnaire Retrieved	Percentage %
1.	University of Lagos	10	10	100

2.	Lagos State Polytechnic	10	10	100
3.	Lagos State University	10	8	80
4.	Yaba College of Technology	10	8	80
5.	Federal College of Education (Technical)	10	7	70
	Total	50	43	

Operational Definition of Terms

Quite a number of words, phrases and concepts are used in a related or alternating manner in this work to depict or elucidate the scenario of obtainable electronic resources and services in the 21st century library service environment.

(a) Digital Libraries: This is defined as submitted by Weech (2005) in a presentation as thus: "organization which select, structure, offer access, interpretation, distribution, and preservation of collection of digital works and making them economically available".

(b) Digital Environment: This includes all of the resources (human and material) and scenario that characterizes the digital/electronic information management, communication as well as information delivery services especially as found dominant in the 21st century.

(c) Digital Education: This is used as encompassing all the processes and mode of teaching, training, skill acquisition and learning (formal, informal, in-service-training etc) in information technology vis-à-vis information management and library services.

Review of Related Literature

Perceptives in Digital Library Education

The world has become a global village. Information management and dissemination are increasingly becoming technologically driven with an exponential rate of turn-over in inventions and creations.

Observations and studies revealed inadequacy of library staff in developing countries particularly Nigeria in skills required to manage information in the 21st Century (Igun, 2006). When education is found available in this respect, mediocrity may be imminent as students are not exposed to complimentary components of both theoretical and practice skills.

Literature and practice support the fact that the 21st century library is synonymous with the digital library (Igun, 2006). Contiguously, to have edge in information service provision in this era makes digital education indispensable. Sridhar (1999:2) submitted that the implementation of an IT project (in libraries) requires the combination of both "IT and library and information science qualifications skills, competencies and experience". The dearth of skilled staff in digital librarianship is not without its effects Chiware (2007) noted that African librarianship has been faced with the challenge of lack of readiness of university libraries to face the execution of digital library projects through investing in skills and knowledge required for digital and electronic library services. Chiware (2007) further cited Rosenberg (2006) as thus:

skills in e-resources management, e-services development, full text digitization and teaching skills are lacking in African university libraries. There

are also many other challenges regarding funding, IT infrastructure, Internet connectivity, lack of commitment from staff and or/management and the availability of African generated content to put into the digital collections and IRS.

However, globally, awareness for the continual development of the digital environment is daily increasing and libraries in the western world especially are evolving their own digital philosophy. For instance, the New York Public Library came up with a Model for Digital advancement which in a pyramidal structure from base to top includes:

(a) Level I: Purchase/ External content, website & Integrated Library System.

(b) Level II: Enhance Discovery Tools & Findings Aids

(c) Level III: Reformatted Digital Content

(d) Level IV: New Digital Tools for Scholarship & Education (Walker, 2003).

Nevertheless the integration of the highlighted model into a library's digital agenda for instance requires a great deal of training and acquisition of skills and competencies for both library staff and users to facilitate effective digital information management (Walker, 2003) and utilization.

The Digital Environment and the Requirements

The skills required for the management of digital information are vast, in-exhaustive and range from the generalized basic computer appreciation to the more advanced and library services related ones. Igun (2006) opined that skills needed in digital library services include among others those relating to:

- Selection, acquisition, preservation, organization and management of digital collection.
- Design of technical architecture of digital library.
- Planning, implementation and support of digital services; such as information navigation; consultation and transmission of services.
- Protection of digital intellectual property etc.

In more specific terms, Tennant (1999) enumerated some skill requirements of digital librarians viz imaging technologies, optical character recognition, markup languages (HTML for web pages and SGML/XML for text), Cataloguing and metadata, indexing and database technologies, user interface design, programming web technologies as well as project management.

In addition, the submissions of Chiware (2007) on "Training librarians for the digital age in African University Libraries" enumerated further that trainees must learn about open source software such as Dspace, Greenstone and the concept of creative commons which include expertise in down-loading, installation, management and updating the softwares. Chiware (2007) further reiterated that "knowledge of web servers management, web publishing, web access and information retrieval, database management, networking, storage technologies and network processor are equally important".

Fadehan (2009), using the recommendations of Abel et al. (2003) on a general note identified management of information resources in all formats (including electronic formats) as well as application of information tools and technologies as important requirements of 21st century librarianship.

Librarians Educational Requirements for the Digital

Environment

It is an established fact that in this part of the world, training and education for librarians are grossly inadequate as evident in the very minimal skilled hands available to man and actualize the transformation from purely traditional to if not purely electronic but at least hybrid library services. The basic reason for this is that for a rather long time, librarianship and library services had been construed from purely traditional perspectives. Again, responses to changes and trends in the international world by developing nations have been very slow. In fact, the lethargy was on for a long time until the recent awakening of consciousness to conform to international benchmarks in digital library services.

On the whole, there are two schools of thought as regards the mode of training and education of library professional in Africa and its environs. These are either through continuing education programmes or formalized training in library and information science schools (Chiware, 2007). There are also suggestions that the curricula in the library schools should also combine information management science (Igun, 2006) and computer science (Chiware, 2007).

It may be added that formal training in computer science will only be desirable and most beneficial when it is library and information science schools based. Models for library schools curricula in digital library education are however generally still evolving (Spink and Cool, 1999; Chiware, 2007).

Finally, as attested to by Chiware (2007) who further cited Bawden et al. (2004) the type and level of educational requirements of library staff vary from establishment to establishment.

Data Analysis and Discussion of Findings

Demographic Characteristics

As presented in Table 2 below, the study showed that there were (51.16%) female and (48.8%) male academic librarians serving in Lagos State, Nigeria. It also revealed that (41.9%) of the librarians were 41 years and above old. Majority of the librarians (53.5%) had masters in library science, and had also worked for more than 21years (32.6%) in their respective libraries. Out of 43 respondents, 12 (27.9%) were librarians I and 11 (25.6%) were principal librarians.

TABLE 2: DISTRIBUTION OF RESPONDENTS BY DEMOGRAPHIC STATISTICS

S/N	Demographic Characteristics	Frequency	Percentage %
1.	Sex a. Male b. Female Total	21 22 43	48.84 51.16 100
2.	Age (a) 20-25yrs (b) 26-30yrs (c) 31-35yrs (d) 36-40yrs (e) 41yrs & above Total	- 3 5 17 18 43	- 7.0 11.6 39.5 41.9 100
	Educational Qualifications (a) BLS	13	30.2

3.	(b) MLS (c) Ph. D (d) others Total	23 - 7 43	53.5 - 16.3 100
4.	Working Experience (a) 1-5yrs (b) 6-10yrs (c) 11-15yrs (d) 16-20yrs (e) 21yrs & above Total	6 4 14 4 15 43	13.9 9.3 32.6 9.3 34.9 100
5.	Status/Designation (a) Assistance Librarian (b) Librarian II (c) Librarian I (d) Senior Librarian (e) Principal Librarian and above Total	5 10 12 5 11 43	11.6 23.3 27.9 11.6 25.6 100

Level of Library Automation

As presented in Table 3, it was discovered that cataloguing processes require digital application most with 42 (97.9%). This confirms Tennant's (1999) submission that "skills required of digital librarians include: cataloguing and metadata, indexing and database technologies". Further analysis showed that the respondents indicated that their libraries had automated one or two of the traditional library operations 40 (93.0%). It could therefore be inferred that academic libraries in Lagos State, Nigeria are beginning to recognize the relevance of ICT on library and information services, thereby giving support to Sridhar's (1999) and Igun's (2006) views that the impact of ICT on library and information services has not been exclusive of the influence of ICT on every aspect of human endeavour. The survey also 'srevealed that the extent of the automation project was moderate 22 (51.2%). This finding is in accord with Fadehan's (2009) position on "the recent awakening of consciousness (on the part of the developing countries) to conform to international benchmarks in digital library services".

TABLE 3: FREQUENCY AND PERCENTAGES SCORES FOR LEVEL OF

LIBRARY AUTOMATION

1.	Library Critical Operations	Frequency (n=43)	Percentage %
	(a) Acquisitions Processes	35	81.4
	(b) Cataloguing Processes	42	97.7
	(c) Circulation Processes	39	90.7
	(d) Reference Services	35	81.4
	(e) Preservation/Conservation	20	46.5
	(f) Library Instruction Program	22	51.2
	(g) Others	3	7.0
2.	Automation and Library Critical Operations (a) Yes (b) No Total	40 3 43	93 7.0 100
	Extent of Automation (a) High Extent (b) Moderate Extent	7 22	16.2 51.2

3.	(c) Low Extent	11	25.6
	(d) No Response	3	7.0
	Total	43	100

Librarians' Educational Needs

Generally, there was a low response to the level of digital education possessed by the respondents. This revealed that most library professional education in computer education was poor. However, Table 4 revealed that majority of the respondents 20 (46.5%) worked in the cataloguing section of their libraries. This perhaps confirms our earlier discovery that cataloguing processes requires digital application most 24 (24.4%) while certificates in computer studies was the highest qualification possessed by most of the respondents 9 (32.0%), and therefore indicated their readiness to seek for further digital education without which digital librarians and digital libraries cannot reach their full potential (Edie Resmussen Choi, 2006). This study also found that majority of the respondents needed further education in Internet Resources Management with 35 (13.3%). This is in accord with Chiware's (2007) submission that training in networking, database management, etc are important requirements of the 21st century librarianship. This finding also agrees with Oduwole (2005); Adedoyin (2005) and Igun (2006) that there is dearth of new experienced library staff that could meet the new demands of 21st century digital environment. This is evident from the fact that majority of the respondents were not acquainted with web-based programs, 18 (29.5%).

TABLE 4: FREQUENCY AND PERCENTAGE SCORES ON LIBRARIANS' EDUCATIONAL NEEDS

1.	Respondents Section in the Library	Frequency	Percentage %
	(a) Readers Services	14	32.6
	(b) Cataloguing	20	46.5
	(c) Acquisitions	8	18.6
	(d) Administration	1	2.3
	Total	43	100
2.	Possession of Relevant Digital Education for Library Task by Respondents (a) Yes (b) No Total	28 15 43	65.1 34.9 100
3.	Level of Digital Education Possessed (a) System Administration (b) Diploma in Computer Studies (c) Certificate in Microsoft word (d) Personal Development (e) Certificate in computer studies (f) Higher Diploma in Basic Computing (g) Skills in Alice for Windows (h) IT Application (i) Numerous courses (j) Certificate in Desktop Publishing (k) Information Processing Certificate I &II Total	1 5 1 1 9 1 2 3 1 1 3 28	3.6 17.9 3.6 3.6 32.0 3.6 7.1 10.7 3.6 3.6 10.7 100
4.	Further education Required (a) Yes (b) No Total	43 - 43	100 - 100

		Frequency	Percentage %
5. 6.	Education and Skill Development		
	(a) Internet Resource Management		
	(b) Multimedia Design	35	13.3
	(c) Data base Management	27	10.3
	(d) Library Networking	29	11.0
	(e) Automation of Collection Development	30	11.4
	(f) Automation of Cataloguing processes	22	8.4
	(g) Automation of Circulation processes	29	11.0
	(h) Electronic Reference and Information Services	19	7.2
		19	7.2
	(i) Designing of Information Systems	13	4.9
	(j)Communication in Electronic Environment	12	4.6
	(k)Information Policies/economics and legal implicating	11	4.2
		17	6.5
	(i) Web Design	-	-
	(m) Others	4	6.6
	Acquaintance with web-based programs	5	8.2
	(a) Web-design	9	14.8
	(b)Web development Systems and application	14	22.9
	(c) Digital Imaging and formatting	11	18.0
	(d) Basic System Administration	18	29.5
	(e) Digital Technology		
	(f) None of the above		

Mode of Digital Education

"Library digital agenda requires a great deal of training and acquisition of skills and competencies for both library staff and users" (Walker, 2003). As presented in Table 5, majority of the respondents were in accord with Walker's submission as they scored in service training, Periodic online workshop/seminar in the workplace 39 (34.5%) respectively while formalized education in digital library management was scored 35 (31.0%). Also, majority of the respondents indicated the need for digital education in the 21st century as very expedient with 21 (48.8%), moderately expedient 16 (37.2%), and expedient 6 (14.0%). It was also noted that thirty-two (74.4%) of the respondents negated this view, and therefore opted for an integration of digital education in library school program. Their view is in accord with Igun (2006) and Chiware (2007) who posited that the curricular in the library schools should combine information science and computer science. Lack of funds was indicated the major obstacle to acquisition of digital education in Nigeria with 34 (28.0%). This is also in accord with Rosenberg's (2006) conclusion that digitization project in African universities are facing many challenges regarding funding. The survey also found that although there was lack of inducement from management 26 (22.0%), as well as lack of interest in digital education 25 (20.8%). There was also a significance lack of awareness of the importance of digital technology in libraries by the librarians, while only 12 (10.0%) respondents identified satisfaction with traditional librarianship as a hindrance to acquisition of digital education in Nigeria.

5: FREQUENCY AND PERCENTAGE SCORES ON OVERVIEW OF 21ST CENTURY LIBRARY SERVICES IN DIGITAL ENVIRONMENT (*Mode of Digital Education, Need for Digital Education, Advocacy for Independent Certificated Digital Library Education, Option of Integration of Digital Education in Library School program and Hindrances to Acquisition of Digital Education in Nigeria).*

		Frequency	Percentage %
1.	Mode of Digital Education		
	(a) In –Service training	39	34.5

	(b) Periodic online- workshop/ Seminar in the work place	39	34.5
	(c) Formalized education in digital library management	35	31.0
	(d) All of the above	-	-
	(e) None of the above	-	-
2.	Need for Digital Education in the 21st Century (a) Very Expedient=4 (b) Moderately Expedient=3 (c) Expedient=2 (d) Not Expedient=1 Total	21 16 6 - 43	48.8 37.2 14.0 - 100
3	Advocacy for Independent Certificated Digital Library Education (a) Yes (b) No Total	32 11 43	74.4 25.6 100
4.	Option of Integration of Digital Education in Library School Program (a) Yes (b) No Total	11 32 43	25.58 74.42 100
5.	Hindrances to Acquisition of Digital Education in Nigeria (a) Lack of interest in digital education (b) Lack of inducement from management (c) Lack of awareness (d) Lack of funds (e) No need for digital information (f) Satisfaction with traditional librarianship	25 26.23 34 - 12	20.8 22.0 19.2 28.0 - 10.0

Conclusion

The challenges of the 21st century digital environment on library and information services cannot be over emphasized. The dichotomy between the countries of the "centre" and those of the "periphery" could best be explained from the way and manner the former package and disseminate information. Hence information packaging and retrieval has shifted (in developed nations) and is gradually shifting from traditional methods to electronic formats in developing countries. Literature affirmed that although developing countries are striving to move with the developed nations in the area of digital information services, they lack adequate personnel to do so.

This research has further confirmed this assertion as all the respondents indicated that they needed additional knowledge and skills in digital education to be able to cope with the 21st century digital environment. This knowledge is particularly in the areas of networking, acquisition processes, cataloguing processes, circulation and reference services. To achieve this aim, the study investigated, integration of digital education in the curricula of library schools in Nigeria is of paramount importance.

The study found that lack of funds is a major impediment to the implementation and acquisition if digital education by library professionals in Nigeria. This is closely followed by lack of inducement from the management.

Finally, the findings of this study presented an unimpressive picture of digital education in academic libraries in Lagos in particular and Nigeria in general when compared with their counterparts in other parts of the world.

Hence, the findings of this study could serve as a guide or platform for further research and also as a corrective tool for planners of digital education in academic institutions in Nigeria.

Recommendations

Based on the various findings of this research, the paper therefore proffers the following recommendations:

- Intensive advocacy and awareness creation for the need for digital education in the Nigerian library and information environments.
- Restructuring of the library and information school curriculum (with a vibrant integration of courses in digitalized information management) for new entrants.
- Facilitation of In-Service Continuous education and hands-on experience in digital information for library and information professionals.
- Adequate funding of library digitization programmes by government/all strata of educational establishments particularly the tertiary institutions in this regard.
- Enlistment of the goodwill of governments and institutional management in the promotion of digital education and infrastructure.

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