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Roles and Proficiency of Systems Librarians as Managers of Library Systems in Academic Libraries in Nigeria

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ABSTRACT

The study explores the roles and proficiency of the systems librarian as manager of library systems in academic libraries in Nigeria. Specifically, the forms of training, level of proficiency in requisite ICT skills as well as the ability to perform the roles of systems librarians by librarians in the systems department of academic libraries in some universities in Nigeria were examined. The results revealed that most systems librarians in Nigeria acquire their training through self studies, colleagues and on the job and that their proficiency both in the requisite ICT skills and their ability to perform their specialized roles is low. The study demonstrated that the low proficiency in the requisite ICT skills possessed by the respondents accounted proportionately for their poor proficiency in performing their roles as systems librarians. The study re-echoes the need for urgent overhauling of LIS school curriculum to include more contents on systems librarianship.

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Introduction

The evolution of Information and Communication Technology (ICT) especially in the area of Integrated Library System (ILS) has changed the responsibilities of librarians, the basic knowledge, skills and abilities expected. These changes resulting from the emerging sophistication in library and information systems technologies generated the need for a specialized role for librarians known as "Systems Librarian" to manage the electronic library systems and digital knowledgebase.

The primary responsibility of a systems librarian is to manage the computer-based library systems Yusuf (2014). They play a critical role in academic libraries as experts who understand information technologies and libraries, and able to combine these two fields to work seamlessly as a whole (Iglesias 2010).

The role of systems librarian has evolved overtime alongside the evolution of computer technologies especially in automating the process of electronic holdings and library catalogue (Gordon 2003). These developments heralded the need for the position of the systems librarian to manage all aspects of these ILS. The evolution of the Internet coupled with the advent of the ILS greatly expanded the roles of systems librarians to manage complex ILS (Rhyno 2013; Majumdar & Singh 2004). Since systems librarians are largely on their own in integrating these systems they are required to have certain advanced skills in library and information technology.

Many studies have been conducted worldwide examining issues relating to the roles and proficiency of systems librarians but not much has been done concerning systems librarians in academic libraries in Nigeria. Arising from this fact, this study explores the roles of systems librarians, and their proficiency both in ICT and in their ability to perform those roles in academic libraries in Nigeria. Based on the foregoing the following research questions were put forward for the study:

RQ1.   What are the forms of training adopted by Systems Librarians for their specialization in systems librarianship?

RQ2.   What is the ICT proficiency of Systems Librarians in academic libraries in South-south Nigeria?

RQ3.   What are the roles of Systems Librarians in academic libraries in South-south Nigeria?

RQ4.   What is the level of proficiency of Systems Librarians in performing their roles as managers of library systems?

RQ5.   To what extent does the proficiency in requisite ICT skills of systems librarians influence their ability in performing their duties as managers of library systems in academic libraries in South-south Nigeria?

Literature review

The term systems librarian have attracted several definitions which varies contextually based on such factors as the size and type of the library, responsibilities of the systems librarian. This study adapts Yusuf's definition that systems librarian is a librarian who is responsible for managing the information systems and technologies used in a library Yusuf (2014).

Systems librarians play an important role in academic libraries. They are professionals that are grounded in libraries and ICTs, and also see that these two fields converge and work seamlessly

together as a whole (Iglesias 2010). The evolution in the library systems has resulted in tremendous changes in the roles, skills and abilities required of them.

According to Jordan (2003); Matthew and Pardue (2009) the basic characteristic of systems librarians in performing their jobs requires that they must continually obtain new skills that will enable them to respond to developments in technology at various levels, they must keep current with available technologies, possess the ability to evaluate technologies to make informed decisions about using such technologies. As regards to training, Jordan posited that systems librarians undergoes various forms of training such as formal training through pre-service education in library schools, on the job training, and professional development in the form of workshops, and conferences (Jordan 2003).

Studies have shown that academic curriculum of pre-service education in library schools lacks specialized content on systems librarianship (Yusuf 2014; Xu & Chen 2001). It is either they run short of content, time allocated or lack logical sequence such that students often cannot take enough lessons on systems librarianship (Xu and Chen 2001).

Yusuf (2014) listed the roles of systems librarians to include: ILS management, network design and management, server administration, training, documentation, support, application development, planning, budgeting, specification, purchasing, technology exploration, system evaluation, communication and coordination. The study also reported some specific skills expected of a systems librarian to include: ability to use data structures related to library materials, classification of knowledge, information storage and retrieval systems, desktop and network operating systems, programming, database design and maintenance, systems troubleshooting, information standards and protocols.

From a vendor perspective, Yusuf (2014) reported that since the systems librarian is the point of contact or liaison between the library and the vendor, its role covers all activities before, during and after the installation of the system. These activities according to Adebisi (2016); Benson and Reyman (2009) will involve the following skills: the ability to takes responsibility for the system and the decisions required to progress the project; good communication skills so as to be able to negotiate with vendors and staff; knowledge of the library and its procedures; good at training other staff etc.

According to Ingersoll and Culshaw (2004) the roles ascribed to the systems librarian centers on planning, staffing, communication, development, service, support, training, and the overall operations of the electronic library system. This involves administering the ILS server, software and client systems maintenance, upgrades, configuration, systems backup, security, asset tracking and inventory. Yusuf (2014) reported that due to the integration of library management systems with virtually all library units interfacing with the ILS, it is the duty of systems librarians to assist in the selection of an appropriate ILS, facilitate the installation of the system, and maintain the system after installation. Rhyno (2003) reported that web technologies like XML have been widely employed in library systems, this by implication, expanded the role of systems librarians. Guinea (2003) reported that systems librarians interfaces between the library and other units of the university in the development and promotion of ICT-based library systems.

Studies on systems librarians' proficiency such as Xu and Chen (1999) asserted that proficiency in ICT is a strong requirement for the job. Ingersoll and Culshaw (2004) also emphasized that, systems librarians should be proactive in facing constant change and keep abreast of emerging library technologies. According to Yusuf (2014) some proficiency required of a systems librarian include:

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flexibility; sound judgment; curiosity and ability to take risk; persistence; time, human resource, equipment and data management; analytical and problem solving capabilities; technical aptitude etc. On the knowledge of library systems protocols and standards, Yusuf (2014) identified some of proficiency required of systems librarians to include: knowledge of library systems standards and protocols such as MARC, z39.50, OAIPMH etc.; hardware and software troubleshooting, installation and configuration; communication; and system administration. He further posited that the systems librarian requires the librarianship skill of diagnosing the information needs of clients and the information technology skills to probe into the system to satisfy those needs.

In addition, Renee (2016); Jane (2008); Chuck and Patel (2008); Michael (2007); Stoffle, *et al.* (2013); Croneis, and Henderson (2012); Tennant (2002) reported other areas of ICT proficiency relevant to systems librarians as: programming, knowledge of computer systems; software/hardware knowledge; Internet skills; and networking skills.

Other personal proficiency required by systems librarians are Adebisi (2016); Benson and Reyman (2009): good listening, writing, communication, teaching and presentation skills; interpersonal, public relations and leadership skills; negotiating, project management and analytical skills.

Methodology

The survey research design was adopted for the study. From The population of systems librarians in the academic library of the 144 universities in Nigeria, 63 systems librarians from the libraries of the 24 universities in the South-south Nigeria was selected for the study through purposive sampling. The questionnaire designed by the researcher was used to collect data pertaining to the forms of training, roles and proficiency of systems librarians from the respondents through email and physically through research assistants within 6 weeks. 52 copies of completed questionnaire were successfully retrieved from the respondents which yield 82.5 percent response rate (See Table 1.). The data collected were analyzed using both descriptive and inferential statistics and the results were presented in tables.

SN	Academic Library	No. of Systems Staff
1	Federal University of Petroleum, Effurun	3
2	Federal University Otuoke, Otuoke	2
3	University of Benin, Benin City	3
4	University of Calabar, Calabar	6
5	University of Uyo, Uyo	5
6	University of Portharcourt, Port-Harcourt	4
7	Delta State University, Abraka	5
8	Rivers State University of Science and Technology, Portharcourt	6

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9	Ambrose Alli University, Ekpoma	3
10	Cross River State University of Science and Technology, Calabar	3
11	Akwa Ibom State University of Science and Technology, Uyo	2
12	Edo University, Iyamho	2
13	Niger Delta University, Yenegoa	3
14	Novena University, Ogume	1
15	Western Delta University, Oghara	1
16	Edwin Clark University, Kiagbodo	2
17	Michael and Cecilia University, Agbarha-Otor	1
18	Benson Idahosa University, Benin City (BIU)	3
19	Wellspring University, Evbuobanosa	1
20	Obong University, Obong Ntak	1
21	Rhema University, Obeama-Asa	1
22	Ritman University, Ikot Ekpene,	1
23	Samuel Adegboyega University, Ogwa	1
24	Igbinedion University, Okada	3
	Total **Questionnaires Returned** **Rate of Return**	**63** **52** **82.5%**

Table 1. Population for the study

Results

Profile of respondents

From Table 2, out of the 52 respondents 47 (90.4 percent) were male, while 5 (9.6 percent) were female. The respondents were asked to state their highest academic qualifications and other ICT proficiency certifications, 29 (55.8 percent) have Bachelors Degree in Library Science, 19 (36.5 percent) have Masters Degree, while 4 (7.7 percent) are PhD Degree holders in Library Science. Regarding their highest ICT certification/qualification, 2 (3.8 percent) have Bachelors Degree in Computer Science, 4 (7.6 percent) have professional certification in ICT such as Oracle, A+ etc., while 31 (59.6 percent) of the respondents hold some certificate in computer appreciation courses, while 17 (32.7 percent) have no ICT certification.

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		n	Percent
Gender	Male	47	90.4
	Female	5	9.6
Highest	PhD LS	4	7.7
Library	MLS	19	36.5
Qualification	BLS	29	55.8
Highest	PhD	-	-
ICT/Computer	MSc.	-	-
Certification	BSc. /HND	2	3.8
	Professional ICT Certification (A+, Oracle, Java, etc.)	4	7.7
	Certificate (Computer Appreciation)	31	59.6

Table 2. Profile of respondents

Types of training for systems librarianship

On where they got their training for systems librarianship, the result from the analysis as shown in Table 3 revealed that almost all the respondents, 49 (94.2 percent) affirmed that they got their training on the job, 31 (59.5 percent) of the respondent claimed they also get training through self-studies, while about half 24 (46.1 percent) of the respondents claimed they were mentored by their colleagues.

		n	Percent
Types of Training	Pre-Service Training Library Schools	2	3.8
for Specialization			
in Systems	On the Job Training	49	94.2
Librarianship			
	Professional development (Workshops/Conferences)	9	17.3
	Self-Studies	31	59.6
	From Colleagues	24	46.1

Table 3. Type of training for systems librarianship

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ICT Proficiency of Respondents

In determining the ICT proficiency of respondents the three point Likert scale "High", "Moderate" and "Low" was used. The respondents were asked about their level of ICT proficiency. The result as shown in Table 3 revealed a weighted mean of 1.86 which is less than the criterion mean (2.0) thus, indicates a low level of ICT proficiency by the respondents. However, the respondents are highly proficient in using the Internet (Mean = 2.82) and are quite conversant with library system standards and protocol (Mean = 2.21).

Table 4. ICT proficiency of respondents

		N	High	Moderate	Low	Mean
ICT	ILS server administration	52	8	28	16	1.84
Proficiency	Client maintenance	52	10	30	12	1.96
of	Software maintenance	51	4	19	29	1.51
Respondents	Systems upgrade	52	12	27	13	1.98
	Systems configuration	52	9	21	22	1.73
	Systems security	52	3	29	20	1.68
	Systems backup	52	10	30	12	1.96
	Systems installation	52	8	20	24	1.69
	Library standards/protocols	52	19	25	8	2.21
	Programming	52	2	10	30	1.06
	Internet	52	43	9	-	2.82
	Networking	52	12	22	18	1.88
	Weighted Average Mean = 1.86					

*Criterion Mean = 2.00   *Mean ≥ 2.0 indicates high proficiency

Respondents' roles as systems librarians

On the roles of systems librarians, the result in Table 5 shows that the respondents affirmed to the following as their main roles: ILS management 49 (94.2 percent), human resource management 38 (73.1 percent), systems administration 33 (63.4 percent), training 41 (78.8 percent), planning 39 (75.0 percent), specification 39 (75.0 percent), evaluation 40 (76.9 percent), technology exploration 35 (67.3 percent), communication 48 (92.3 percent), organization and coordination 46 (88.4 percent), support 50 (96.1 percent), documentation 44 (84.6 percent), asset tracking/inventory 49 (94.2 percent), systems installation 36 (69.2 percent), systems maintenance 34 (65.4 percent) and liaison 46 (88.4 percent).

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		n	Percent
Roles	ILS management	49	94,2
of Systems	Human resource management	38	73.1
Librarian	Network design	15	28.8
	Network management	22	42.3
	Systems administration	33	63.4
	Training	41	78.8
	Application development	11	21.1
	Planning	39	75.0
	Budgeting	9	17.3
	Specification	39	75.0
	Evaluation	40	76.9
	Purchasing	23	44.2
	Technology exploration	35	67.3
	Communication	48	92.3
	Organization and coordination	46	88.4
	Support	50	96.1
	Documentation	44	84.6
	Staffing	13	25.0
	Asset tracking/inventory	49	94.2
	Systems installation	36	69.2
	Systems maintenance	34	65.4
	Data management	19	36.5
	Liaison	46	88.4

Table 5. Responsibilities of respondents

Proficiency of respondents in performing their roles as systems librarians

On the proficiency of respondents in performing their roles or responsibilities as systems librarians the three-point Likert scale ranging from "High", "Moderate" and "Low" proficiency was used. From Table 6 the Weighted Average Mean = 1.7 which indicates that the respondents exhibits overall low proficiency in performing the duties of systems librarian. However the result shows that the

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respondents are proficient in Communication (Mean = 2.4), Support (Mean = 2.2), Human Resource Management (Mean = 2.0) and Liaison (Mean = 2.0).

Table 6. Respondents proficiency in performing their roles as systems librarians

		n	High	Moderate	Low	Mean
Rate your	ILS management	50	10	21	9	1.8
Proficiency	Human resource management	38	7	25	6	2.0
in performing	Network design	15	1	6	8	1.5
the following	Network management	22	3	6	13	1.5
duties	Systems administration	33	5	16	12	1.7
	Training	41	7	21	13	1.8
	Application development	11	-	2	9	1.1
	Planning	39	3	24	12	1.7
	Budgeting	9	-	2	6	1.1
	Specification	39	9	20	10	1.4
	Evaluation	40	2	19	19	1.5
	Purchasing	23	3	7	13	1.5
	Technology exploration	35	5	11	19	1.6
	Communication	48	28	15	5	2.4
	Organization and coordination	46	11	19	16	1.8
	Support	50	8	27	15	2.2
	Documentation	44	8	17	19	1.7
	Staffing	13	1	5	7	1.5
	Asset tracking/inventory	49	6	22	21	1.6
	Systems installation	36	8	11	17	1.7
	Systems maintenance	34	4	13	25	1.8
	Liaison	46	11	22	13	2.0
	Weighted Average Mean = 1.68					

*Criterion Mean = 2.00   *Mean ≥ 2.0 indicates high proficiency

Influence of proficiency in ICT on proficiency in systems librarianship

The result in Table 3 and 6 shows the weighted average mean score of 1.85 and 1.68 for the respondents' proficiency in ICT and proficiency in performing their duties as systems librarians

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respectively. Since both means are less than the Criterion Mean of 2.0, it implies that the respondents are weak both in their proficiency in ICT and proficiency in performing their duties as systems librarians. The result from the regression analysis in Table 7 show that the coefficient of determination r^2 = 0.047 which implies that 4.7% proficiency for the respondents in performing their duties as systems librarians can be predicted or accounted for by their ICT proficiency.

n	Mean Proficiency in ICT	Mean Proficiency in Systems Librarianship	r	Coefficient of Determination r^2	Adjusted r^2
22	**1.85**	**1.70**	0.216	**0.047**	-0.001

Table 7. Influence of proficiency in ICT on proficiency in systems librarianship

Discussion

The paper contributes to the growing trends and debates on the roles and proficiency of systems librarians in the management of library systems. The study revealed that most of the respondents have Bachelors Degree in library science as their highest academic qualification and weak ICT or computer qualification which is highly needed to effectively perform the roles required of systems librarian.

The result show that the main form of training obtained by the respondents for systems librarianship are through self-study, on the job training and from colleagues. This conforms to Jordan (2013) position that, on the job training is a major form of training undertaken by systems librarians. However, the low score for pre-service training from library schools is explained in the report by Xu and Chen (2001) and Yusuf (2014) that pre-service education in library schools lacks specialized content on systems librarianship thus, it is neither a potential source for acquiring such knowledge. Even though the respondents have attained various levels of academic degrees in library science, it does not translate to cognate training in systems librarianship. On the other hand, professional development through workshops and conferences is expensive, unaffordable to individuals and could not be taken as a feasible alternative due to lack of funds and sponsorship.

Although the respondents were proficient in using the Internet and are conversant with library system standards and protocol, their poor ICT proficiency could be explained by the weak ICT and systems librarianship training they got from the library schools operating curriculums bereft of ICT and systems librarianship content (Xu & Chen 2001).

On the major roles of systems librarians in academic libraries in universities in Nigeria, the study corroborates those of Yusuf (2014); Guinea (2003); Culshaw (2004) that the major roles include ILS management, human resource management, systems administration, training, planning, specification, evaluation, technology exploration, communication, organization and coordination, support, documentation, asset tracking and inventory, systems installation, systems maintenance and liaison. Roles like application development, data management, network design and management were not reported as core responsibilities as such roles are usually assigned to the ICT department with qualified personnel to handle these roles. Similarly, roles like budgeting, purchasing and staffing are usually the responsibilities of the purchasing and human resources departments respectively.

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The study revealed that the respondents' proficiency in performing most of the basic roles of systems librarianship is low, except for communication, support, human resource management and liaison which recorded a high level of proficiency. This position corroborates studies like Adebisi (2016); Benson (2009); Guinea (2003), that, systems librarians liaise between the library, the ICT department and the vendor.

The study concluded that a quantum increase in the proficiency to perform the core duties of systems librarianship was accounted for by a commensurate degree of ICT proficiency possessed by the respondents. Generally, this phenomenon implies that, the ICT proficiency of the respondents is directly proportional to their proficiency to perform their role as systems librarians. This position corroborated Renee (2016); Yusuf (2014); Jane (2008); Chuck *et al.* (2008); Michael (2007); Stoffle *et al.* (2013); Tennant (2002); Croneis *et al.* (2012). Thus, a high ICT proficiency could have resulted in a high proficiency of the respondents to perform their roles and vice versa.

Conclusion

From the foregoing it is clear that the roles of systems librarians in university libraries in Nigeria are quite enormous. The system librarians neither possess sufficient proficiency in the requisite ICT needed for the job nor the ability to effectively perform their statutory roles as systems librarians. To worsen this situation, there is virtually no formal training institution or channel dedicated purely for training in systems librarianship. The curriculums of library and information science schools are devoid of systems librarianship contents. To ameliorate this situation the paper recommends an urgent overhaul of the entire LIS curriculum to provide for specialization in systems librarianship. As an immediate measure, systems librarians in university libraries in Nigeria should be sent on compulsory training especially on those aspects of ICT that are essential to systems librarianship. Staying educated, active and current with emerging library technology cannot be underestimated it must be prioritized. The qualifications needed for systems librarianship should be broadened to include knowledge and certification in ICT as well as in the management of the entire library system *viz-a-viz* the financial and human resources as well as the underlying systems technologies and bureaucracies.

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