

# TECHNOLOGICAL ADVANCES IN LIBRARY WORK AS A CATALYST FOR CHANGING ROLES OF LIBRARIANS AT THE UNIVERSITY OF NAIROBI

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## **Abstract**

*The study investigated the effect that technological advancements and introduction in library services and functions have had on the duties and responsibilities of academic librarians at the University of Nairobi. The study employed a quantitative approach whereby a survey research design was adopted. Purposive sampling was used to select respondents from each of the 11 libraries. Data was collected using a questionnaire and interview schedule. A total of 70 librarians were targeted with questionnaires but only 54 of them responded to the questionnaire. A semi-structured interview was also conducted with the library director, three deputy librarians and twelve librarians who preferred the interviews to completing the questionnaire. The study found that changes that have taken place in service provision as well as functions within the UoN library, largely due to the emergence of the information and communication technologies (ICTs), have impacted on the manner in which librarians at the said library perform their duties thereby bringing some changes to the librarians' roles. Some librarians have taken up some new roles in the library's pursuit of serving users. We recommend that librarians should undergo continuous training to acquire new skills and competencies in order to stay abreast with the evolving nature of their work.*

**Keywords:** *Librarianship; Information and communication technologies; library services; Kenya; Academic libraries.*

## **Introduction**

For a long time, librarians were only custodians of library collections. This is based on the fact that for many centuries, book collecting was an opportunity either to display one's wealth or the result of scholarship (Olivia, 2007). Many people did not understand the work of librarians because librarians were simply looked at as custodians of the chained books (Deegan & Tanners, 2002). It was not until the nineteenth century that library collections became more universally available and library science began to codify standards for describing and organizing resources and libraries began to move beyond merely keeping and preserving books (Olivia, 2007). Even Melville Dewey wrote in an early edition of the Library journal that "it is not enough that books are cared for properly,

are well arranged, are never lost ... (The librarian) must put every facility in the way of the readers so that they shall be led on from good to better. He must teach them how, after studying their own wants, they may themselves select their reading wisely” (Olivia, 2007).

Elkin (2005) describes a traditional librarian as a person located in the library building carrying out the tasks like acquiring, organizing, preserving the printed documents besides helping the readers to locate the information they need. Crawford and Gorman (2005) define the role of the librarian today as; “to acquire, organize, and give access to and safeguard carriers of knowledge and information in all forms and provide instruction and assistance in the use of all the collections to which their users have access”. The Online Dictionary of Library and Information Science (2005) define a librarian as an information professional trained in library and information science and is engaged in library service which is the organization and management of information services or materials for those with information needs. These definitions provide an indication of the roles which librarians have assumed during the final half of the twentieth century. They acquire information resources relevant to their user population in whatever format available; they organize the information within the library collection; they provide means for users to access that information; and they educate users in accessing and interpreting information resources. Librarians are now moving beyond the traditional roles of collection, maintenance and custodial duties to wider functions of translating, accessing and marketing resources beyond the walls of the physical library building.

With the emergence of information technology (for example the internet), it was thought that librarians would be rendered obsolete. Ramos (2007) predicated that the electronic age would wipe public bookshelves clean and permanently end the centuries old era of libraries. He also viewed the future of libraries and consequently librarians as determined by technology, and therefore predicted a diminished role for both libraries and librarians in the future (Ramos, 2007). Janice (2006), too, noted that rather than rendering the librarian obsolete, the digital revolution has made librarianship more essential because of the librarian’s ability to link users with information resources and providing services where and when needed. Obadare (2004) observed that as the information explosion continues, everyone will need more help finding, sorting and filtering the available materials and that will be the work of the librarian. Elkin (2005), on the other hand, observes that the librarian makes a significant contribution, often defining the search, honoring the researcher’s goals and helping the researcher to understand their needs. She believes the value of human expertise, judgment and empathy are integral to the development of the electronic library environment. Deegan & Tanner (2002) observe that the public image of librarians remain poor and distinctly old fashioned, while technologies lay claim to so-called electronic libraries that will apparently replace place-based librarians with a few key-strokes.

Melchionda (2007) describes the changing role of librarians as partly attributed to the consequences of new technologies and information developments. To start with, universities and colleges are investing in providing improved teaching and distance learning resources via electronic media. This calls for librarians to increase their technical knowledge, ability and skills in order to perform their demanding duties and responsibilities.

### ***Problem statement***

Today, librarians are confronted with new roles in their pursuit to serve library clients whose needs are ever changing, a situation that requires practical and technical skills, professional competencies and ability to perform and to constantly be in touch with those emerging technologies to stay afloat. These dynamic roles have been necessitated partly by technological developments. This paper poses one main question which is the research problem under investigation in this study. What are the over-arching implications of the introduction of information and communication technologies in the University of Nairobi's library and its branches vis-a-viz the role of librarians? The sub-questions, which inform the main research question include the following: what library functions and services have been affected the most with the adoption and use of ICTs in the library? Have the duties and responsibilities of librarians become more or less complex as a result of the introduction of ICTs in the library? Which skills and competencies are required for information age librarian to effectively perform his/her duties and responsibilities?

### ***Purpose of the Study***

The purpose of the study is to examine the extent that the evolution of the library work has changed the role of librarians and how this changing role of academic librarians at the University of Nairobi and its other constituent colleges in context of the current information age.

In view of the above-mentioned purpose, the study seeks to address the following objectives in the context of the University of Nairobi and its constituent college libraries:

- Determine the extent to which library functions as well as processes have changed in the current information age by:
  - Assessing the nature of services available to and offered by the respondents at the start of their work
  - Examining the library user services offered by respondents when they were first employed
  - Determining the library functions and other library services that have been discontinued in the library
- Explore the changes in librarians' responsibilities over the last 10 years

- Assess the complexities associated with the current duties and responsibilities of librarians at the UoN
- Find out the competencies and skills required of librarians in the current information age
- Determine the effect of information and communications technologies (ICTs) on the roles of librarians

### **Research methodology**

The current study largely followed a quantitative research approach with a survey being adopted as the main research design, but qualitative data was sought to explain the quantitative data. As the title clearly indicates, the area of study was the University of Nairobi's main library and its constituent branch libraries, totaling ten (10). School of Law library; Institute for Development Studies library; Population Studies and Research Institute library; Institute of Anthropology Gender and African Studies library; Architecture, Design and Development studies library; Medical School library; Kabete campus library; Kikuyu campus library; and the Chiromo campus library. As at the time of conducting the current study, there were a total of 155 library workers at the University of Nairobi and its constituent college libraries. However, the current study targeted a total number of 124 trained library workers who included the library director and three deputy library directors. The 124 trained library workers have acquired some kind of training in library and information science ranging from certificate level to PhD level (University of Nairobi Staff Establishment 2010), hence their inclusion in the study. A total of 70 library workers were targeted to complete the questionnaire, having excluded ten (10) library attendants who were certificate holders, 20 library workers who were on leave at the time of conducting the study and 14 librarians who opted for interviews instead of completing the questionnaire. Out of the 70 librarians who accepted and received questionnaires, only 54 returned completed questionnaires, thereby registering a response rate of 77.1%. A self-administered questionnaire consisting of closed-ended questions and a few open-ended questions was distributed to the 70 respondents by the researchers. On its part, the interview method of data collection employed the face-to-face type of interviews, using a semi-structured interview schedule to collect data from the 15 participants.

### **Results and Discussions**

The results and discussions are offered in line with the themes reflected in the research objectives as follows:

- Extent to which library functions as well as processes have changed in the current information age
  - Nature of services available to and offered by the respondents at the start of their work
  - Library user services offered by respondents when they were first employed
  - Library functions and other library services that have been discontinued in the library
- Changes in librarians' responsibilities over the last 10 years
- Complexities of duties and responsibilities
- Competencies and skills required of librarians in the current information age
- Effects of information and communications technologies (ICTs) on the roles of librarians

### ***Respondents' Profiles***

The findings revealed that majority of respondents at the UON and its constituent college libraries were male. Out of the 54 library staff who participated in the study, 28(51.9%) were male while 26(48.1%) were female. Age-wise, many respondents, i.e. 17(31.5%), were in the age range of 41 to 50 years followed by those who were in the age range of above 50 years (i.e. 16 or 29.6%). Fifteen (27.7%) respondents were in the age range of 31-40 years while the minority of respondents, i.e. 6 (11.1%), was below 30 years of age. The distribution of the staff members at the libraries shows a mixture of employees in terms of age, which may imply a broad spectrum of experience.

In terms of the respondents' job titles, the majority of respondents who numbered 34(63.0%) went by the title library assistants, 13(24.1%) respondents were senior library assistants, 4 (7.4%) work as librarians; senior librarians totaled 2(3.7%) while library attendants constituted a minority of 1(1.9%). These titles do not necessarily reflect the changes in the employees' work and responsibilities. The titles have been in existence for a long time. Apparently, therefore, the titles have remained the same over time.

The other item that was required of the respondents as far as building their profiles for this study was concerned is Professional qualification. Twenty-three (42.6%) respondents had diplomas, 16(29.6%) had degrees while 14(26.0%) had masters degree. Postgraduate diploma constituted a minority of 1(1.9%) respondent. The respondents had been provided with the option of PhD but none of them selected the qualification, implying that none of the respondents had attained a PhD qualification at the UoN library. Respondents were also asked to indicate the years they have worked in their respective libraries as a way of assessing their work experience. The findings revealed that the majority of the respondents numbering 22(40.7%) had worked in the library for over 15 years,

followed by 17(31.5 %) respondents who had worked for less than 5years. Ten (18.5%) respondents had worked in the library for between 11 and 15 years while the minority totaling 5(9.3%) had worked for between 5 and10 years.

Finally, in the development of the respondents' profiles, respondents were asked to indicate their experience in the library environment in terms of years they have worked in the sector. The findings revealed that most of the respondents who numbered 30(55.6%) had a work experience of over 15 years followed by 9(16.7%) who had a work experience of between 2 and 5 years while 7 (13.0%) had worked for 6-10 years. The minority that is 1(1.9 %) person had a work experience of less than 2 years.

### ***Extent to which library functions as well as processes have changed in the current information age***

Respondents were asked to state the extent to which library functions and processes have changed over time in terms of the nature of services conducted by respondents at the start of their work at the UoN library; library services available to employees at the start of their career; library functions and other library services that have been discontinued in the library; how library functions/services have changed over time; changes in librarians' responsibilities over the last 10 years; complexities of duties and responsibilities and time spent on discharging duties and/ or responsibilities

### ***Nature of services available to and offered by the respondents at the start of their work***

Table 1 and 2 provide the results on the nature of collection development and technical services that they encountered when they first joined the UoN library. A majority of the respondents who numbered 48 (88.9%) indicated that they encountered manual acquisition of print books while a similar number 48 (88.9%) indicated that they had manual subscription of journals and a further 45 (83.3%) respondents selected the manual subscription of library newspapers as one of the activities that they found in place when they were first employed in the sector. Table 1 below provides a summary of the findings.

**Table 1: Nature of services available to and conducted by the respondents at the start of their work (N=54)**

<b>Information resources</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Manual acquisition of print library books	48	88.9
Manual subscription of journals	48	88.9
Manual subscription of library newspapers	45	83.3
Manual subscription of periodicals	41	76.0
Acquisition of CD ROMS	28	51.9
Acquisition of Compact Disks (CD)	17	31.5
Online subscription of periodicals	12	22.2
Online acquisition of library books	11	20.4
Online subscription of journals	11	20.4
Acquisition of digital books	10	18.5
Online subscription of newspapers	4	7.4

**Table 2: Technical services available to the respondents at the start of their work (N=54)**

<b>Technical services</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Manual cataloguing and classification of library materials	52	96.3
Manual indexing of library materials	44	81.5
Manual abstracting of information materials	43	79.6
Online cataloguing and classification of library materials	13	24.1
Online indexing of library materials	6	11.1
Online abstracting of information materials	4	7.4

It can be summed up that most services and functions in the library during the period the respondents were employed for the first time were largely conducted manually. Comparing the available resources today and the resources that were available to the respondents when they started work, there is an indication that the functions as well as processes and procedures have changed in view of the current information age and given the shift from manual based to electronic

based functions. Nevertheless, there are those staff members who started working when those services were already automated but that constitutes the minority. A study conducted by Ticker (2009) reported that before the advent of computer and communication technology (ICT) in India, the academic library services were manual while the library collections were print dominant. This pattern calls into question the type of skills required on the part of librarians. It has been observed by Orme (2008) that today's library and information professionals need to be multi-skilled in order to respond to the changing demands of the working environment and make the most of the opportunities available.

***Library user services offered by respondents when they were first employed***

Traditionally, the main function of libraries was to offer circulation services, interlibrary loans, and library instruction, among other services. Users had to physically visit the library building to acquire services such as registration, borrowing and returning information materials, make book reservations, reference service, indexing and abstracting, selective dissemination of information (SDI) and current awareness service (CAS) just to mention a few. In view of the aforementioned, the respondents were asked to identify, from a list, the library user services that they encountered when they were first employed in the sector. The findings revealed that 54(100.0%) encountered registration and identification of library users as well as lending and returning of information materials. This was followed closely by Fifty-three (98.1%) respondents who indicated that they had interlibrary loan services while 49(90.7%) revealed that manual catalogue was in existence when they were first employed in the sector. Forty-eight (88.9 %) respondents selected face-to-face reference while user education and weeding of information materials were each selected by 46 (85.2%) respondents as shown in Table 3.

**Table 3: Library services available to the respondents at the start of their work (N=54)**

<b>Library services</b>	<b>Frequenc y</b>	<b>Percentage (%)</b>
Registration and identification of library users	54	100.0
Lending and returning of information materials	54	100.0
Interlibrary loan service	53	98.1



Manual catalogue	49	90.7
Face to Face reference	48	88.9
User education	46	85.2
Manual weeding of information materials	46	85.2
Manual stock taking	45	83.3
Current Awareness service (CAS)	43	79.6
Reservation/Recall service	40	74.1
Marketing of library resources	33	61.1
Selective dissemination of information	30	55.6
Information literacy	26	48.1
Bibliographic instruction	26	48.1
Ask the librarian service	23	42.6
Searching of electronic databases	16	29.6
E-mail service	15	27.8
Online public access catalogue (OPAC)	15	27.8
Online reference services	15	27.8
Online searches	14	26.0
Internet training to library users	11	20.4
Electronic stock taking	7	13.0
Instant messaging to library users	5	9.3
LinkedIn service	3	5.6
Electronic weeding of Information materials	2	3.7

It is safe to say that, as was the case with collection development and technical services, the library services that were present at the time when the respondents started working in the sector were largely offered manually. This contributed to slow delivery of services as opposed to services that are now being offered electronically. Information Literacy was encountered by slightly less than half of the respondents, and was also known by other names such as orientation, library education and tours, etc which took the form different from information literacy. Library instruction programs are offered to improve the students' ability to use library collections and services effectively. This includes the full range information and knowledge resources (ACRL, 2010). Delivery of information literacy instruction to students has become progressively more important due to proliferation of electronic resources and the increased usage of the internet as an information source. Librarians now play a more important teaching role; directing students to high quality print and electronic sources and educating them on the need to evaluate Web resources. This finding supports that of Li et al's (2007) suggestion that librarian's shift of focus from providing technical assistance on using library resources to user education has assisted students in developing information literacy skills to identify the information needed, locate it, evaluate and use that needed information effectively.

***Library functions and other library services that have been discontinued in the library***

According to the findings in Table 4, the majority 40(74.1%) of the respondents reported that the manual subscription of journals has been discontinued followed by 33(61.1%) respondents who selected manual subscription of periodicals while 27(50.0%) indicated that acquisition of Compact Disks (CD) has been discontinued. Twenty-three (42.6) respondents reported that CD ROMS no longer exist in their libraries.

**Table 4: Library functions that have been discontinued in the library (N=54)**

<b>Information resources</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Manual subscription of journals	40	74.1
Manual subscription of periodicals	33	61.1
Acquisition of Compact Disks (CD)	27	50.0
Acquisition of CD ROMS	23	42.6
Manual acquisition of print library books	18	33.3

Online subscription of journals	5	9.3
Online subscription of newspapers	4	7.4
Online acquisition of library books	0	0.0
Acquisition of digital books	0	0.0
Manual subscription of library newspapers	0	0.0
Online subscription of periodicals	0	0.0

The analysis of the results indicates that most of the functions which have been discontinued are basically manual apart from the acquisition of CDs. This, we believe, reflects how the roles of the librarian have changed from manual based services/roles to electronic based services/role. Respondents were asked which library services have been discontinued in their libraries and gave the responses as shown in Table 5. The majority, forty-six (85.2%) respondents, said that the manual catalogue has been discontinued and replaced by online public access catalogue. Also discontinued was manual stocktaking which is being done electronically and was reported by 33(61.1%) respondents. Manual subscription of journals has been discontinued due to the fact that most journals are going online as well as most companies require payments through online means. This also applies to manual subscription of periodicals. Eight (14.8%) reported that interlibrary loan service and bibliographic instructions have been discontinued respectively. Seven (13.0%) respondents discontinued manual weeding of information materials while 3(5.6) indicated face to face reference, reservation/recall service3 (5.6) and selective dissemination of information3 (5.6) have also been discontinued. A further 2(3.7%) respondents indicated information literacy and user education, 2(3.7%) have been discontinued however I disagree with the discontinuation of these two because library users must be taken through user education programme and taught information literacy to enable them find their way within the library while the minority numbering 1(1.9%) respondents indicated that internet training to library users, current awareness service1(1.9%) and marketing of library resources1(1.9%) have been discontinued. No one selected registration and identification of library users, lending and returning of information materials, e-mail service, online searches, OPAC, online reference services, searching of electronic databases, instant messaging, LinkedIn service, electronic stocktaking, electronic weeding of information materials and Ask the librarian service as library services which have been discontinued. A follow up question was posed to the respondents to further find out if there was any other service that had been discontinued but was not provided for in the questionnaire. Manual taking of

statistics was indicated but the same is being carried out electronically. Observably, the services have not ceased, but what has changed is the way those services are being offered from manual based to electronic based. CD-ROMs have been discontinued because the emergences of new technologies are not compatible with the way services were offered before.

**Table 5: Library services, which have been discontinued (N=54)**

<b>Library services</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Card catalogue	46	85.2
Manual stock taking	33	61.1
Interlibrary loan service	8	14.8
Bibliographic instruction	8	14.8
Manual weeding of information materials	7	13.0
Face to Face reference	3	5.6
Reservation/Recall service	3	5.6
Selective dissemination of information	3	5.6
Information literacy	2	3.7
User education	2	3.7
Internet training to library users	1	1.9
Current Awareness service (CAS)	1	1.9
Marketing of library resources	1	1.9
Registration and identification of library users	0	0.0
Lending and returning of information materials	0	0.0

E-mail service	0	0.0
Online searches	0	0.0
Online public access catalogue (OPAC)	0	0.0
Online reference services	0	0.0
Searching of electronic databases	0	0.0
Instant messaging to library users	0	0.0
LinkedIn service	0	0.0
Electronic stock taking	0	0.0
Electronic weeding of Information materials	0	0.0
Ask the librarian service	0	0.0

From the findings, there is evidence that the manual catalogue has been discontinued and replaced by OPAC. However the librarians observed that the manual catalogue acts as a back up when the OPAC system is off. Stocktaking is now being done electronically. As for information literacy, it seems like librarians have not embraced it as we had hoped. As argued by Heidi and Genius (2009) who has been quoted as saying that while instructional work is important, librarians are not universally accepting their instructional roles. Heidi and Genius go further to say that previous research suggests ambivalence, and sometimes hostility, towards instruction, and in particular academic librarians who have been interviewed concerning their relative responsibility for teaching information literacy, interviews have revealed a degree of discomfort with instructional work arising from insufficient preparation, insufficient resource allocation and dislike for teaching (Heidi and Genius, 2009).

Respondents were asked to indicate the technical services that had been discontinued in their libraries. Forty-two (77.8%) respondents named manual cataloguing and classification of library materials, 37(68.5%) respondents selected the manual indexing of library materials while 35(64.8%) said that manual abstracting of information materials have been discontinued. It was surprising to note that online cataloguing and classification of library materials as well as online abstracting of information materials were selected as having been discontinued. In our opinion, these services would not have been selected

because currently, they form part of the automated services. There is a possibility that the few respondents who selected those services may have not understood the question.

### *Changes in librarians' responsibilities over the last 10 years*

Mohsenzadeh and Moghaddam (2008) explain that rapid developments in ICTs and their wide applications in all aspects of everyday life have led to dramatic changes which have not been observed before. Nyamboga & Kemparaju (2002) and Webster (2009) corroborates with Mohsenzadeh and Moghaddam's statement by saying that information technology has entered into libraries especially academic and research libraries to speed up their daily activities and reduce their operation costs. Godden (1991) argues that information and communications technologies (ICTs) have induced paradigm shift in libraries which include the shift from traditional libraries to digital libraries, print on paper to digital information, use of online classification schemes, card catalogues to web based OPACs, circulation services have changed from traditional charging and discharging to remote login, to use of RFID machines. These changes imply that there is either an increase or a decrease in the volume of responsibilities. Table 6 provides responses on whether or not the volume of certain functions/services has increased. Seemingly, the amount of work may have increased or decreased depending on a number of factors such as automation of services and functions, staffing, experience of personnel, and introduction of new functions or services, among others. Automation may play a part, for instance, as there could be a decrease in responsibility for some functions like cataloguing and classification which was selected by 12 (22.2%) respondents each, probably because of less print materials for processing given the subscription of e-journals and e-books. The same may apply to the work put into interlibrary loan services, which has somewhat decreased because of online lending and librarians don't have to move physically from one library to another. The amount of responsibility on stocktaking and indexing was reported as having decreased. Some respondents said that the volume of responsibility has increased because librarians now have to liaise with faculties and class representatives to discuss library matters, attend board meetings, search information online for the users, organize library orientation and information literacy classes, and respond to emails from resident lecturers who consult on various matters through the librarians phone when need arises.

**Table 6: Increase or decrease in responsibility over the last 10years in terms of functions performed in the library (N=54)**

**Key: GI - Greatly Increased SI - Somewhat Increased NO - No Change  
SD - Somewhat Decreased  
GD - Greatly Decreased N/A - Not Applicable**

Function/ service	GI		SI		NO		SD		GD		N/A	
	F	P (%)	F	P (%)	F	P (%)	F	P (%)	F	P (%)	F	P (%)
Acquisition	13	24.1	18	33.3	3	5.6	11	20.4	8	14.8	1	1.9
Cataloguing	12	22.2	12	22.2	2	3.7	15	27.8	12	22.2	1	1.9
Classification	12	22.2	12	22.2	2	3.7	15	27.8	12	22.2	1	1.9
Indexing	3	5.6	8	14.8	11	20.4	10	18.5	16	29.6	6	11.1
Abstracting	2	3.7	9	16.7	1	1.9	11	20.4	13	24.1	7	13.0
Access to catalogue	28	51.9	5	9.3	4	7.4	5	9.3	9	16.7	3	5.6
Reference services	22	40.7	11	20.4	4	7.4	8	14.8	7	13.0	2	3.7
Information literacy	25	46.3	14	26.0	3	5.6	8	14.8	3	5.6	1	1.9
Registration & identification of users	20	37.0	10	18.5	4	7.4	8	14.8	11	20.4	1	1.9
User education	2	50.0	12	22.2	3	5.6	8	14.8	2	3.7	2	3.7

	7			2				8				
Charging & discharging	1 7	31.5	9	16. 7	3	5.6	10	18. 5	1 0	18. 5	5	9.3
Interlibrary loan	2	3.7	6	11. 1	9	16. 7	23	42. 6	8	14. 8	6	11.1
Reservation/ recall service	4	7.4	8	14. 8	1 2	22. 2	21	38. 9	8	14. 8	1	1.9
Stocktaking	3	5.6	6	11. 1	1 1	20. 4	13	24. 1	1 6	29. 6	5	9.3
Weeding of materials	2	3.7	10	18. 5	2 0	37. 0	7	13. 0	9	16. 7	6	11.1
Bibliographic instruction	7	13.0	18	33. 3	6	11. 1	14	26. 0	7	13. 0	2	3.7
Literature searches for clients	2 5	46.3	11	20. 4	4	7.4	5	9.3	8	14. 8	1	1.9
Library orientation	2 7	50.0	13	24. 1	8	14. 8	5	9.3	0	0.0	1	1.9
Current Awareness Service	2 1	38.9	11	20. 4	8	14. 8	9	16. 7	3	5.6	2	3.7
Selective dissemination of Information	2 1	38.9	6	11. 1	1 3	24. 1	11	20. 4	4	7.4	3	5.6
Marketing of library resources	2 5	46.3	8	14. 8	8	14. 8	9	16. 7	3	5.6	1	1.9
Ask the librarian service	1 6	29.6	12	22. 2	6	11. 1	14	26. 0	1	1.9	5	9.3
Instant messaging to users	2 6	48.1	9	16. 7	6	11. 1	5	9.3	4	7.4	4	7.4
Internet training of library users	2 6	48.1	9	16. 7	6	11. 1	6	11. 1	3	5.6	4	7.4
Use of E-mails	3	55.6	12	22.	1	1.9	6	11.	2	3.7	3	5.6



	0			2				1				
Online searches	3 4	63.0	10	18. 5	2	3.7	6	11. 1	1	1.9	1	1.9

***Complexities of duties and responsibilities***

When asked to state on whether or not their duties/responsibilities have become more or less complex, many librarians, i.e. 19 (35.2%), indicated that duties and responsibilities have not become any more complex than they have always been while 17 (31.5%) indicated that duties and responsibilities have become somewhat complex when compared to the past. Ten (18.5%) respondents agreed that duties and responsibilities were complex while 8 (14.8%) believe that duties/responsibilities have become very complex. The interviews conducted with the library directors, however, revealed that complexities of duties/responsibilities for librarians could be attributed to additional duties of co-coordinating and streamlining of extra mural centers alongside running their major branch libraries. Others attributed complexities to teaching of information literacy, which was quoted as an issue of concern. Another complexity was associated with giving feedback to users who pose questions through “Ask the librarian service”. Usually users expect feedback at earliest time possible and where feedback is delayed, it casts doubt on the librarian’s capability and ability regardless of how much he is dealing with.

The librarians were further asked to state the approximate time spent on discharging duties/responsibilities as a way of determining on whether changes in their work can be associated to the time of completing tasks or discharging their duties and responsibilities. The findings revealed that the majority, 36(66.7%), of the respondents indicated that they spent less time discharging their duties/responsibilities, 15(27.8%) felt that more time was spent discharging duties/responsibility, 1(1.9%) respondent was undecided while another 1(1.9%) did not know whether or not he/she spent more or less time discharging his/her duties. We aver that spending less or more time in discharging duties/responsibilities highly depends on the task that each librarian is handling and the level of training that one has acquired to carry out that task in an electronic environment. Librarians who are conversant with the library management software may require less time discharging their duties/responsibilities while those who are still in a learning phase may require more time. Also, depending on the hours in which librarians are supposed to work, they may find themselves working for extra hours due to the nature of the duties that may require more time to accomplish.

A follow up question was asked to gauge on whether the respondents would require more or less time to execute their duties/ responsibilities in the

information age. The majority, numbering 29(53.7%), respondents stated that they needed more time to execute their duties/responsibilities, 21(38.9%) believed that they needed less time, 2(3.7%) were undecided and 2(3.7%) did not know whether or not they needed less or more time to discharge their duties/responsibilities. It can therefore be argued that whether librarians needed more or less time to execute their duties/responsibilities depends on a number of factors such as the number of tasks they are expected to perform, their competencies and skills, and work experience, among others. As mentioned above, it also depends on the familiarity of the librarian with the library management and automation software and the level of training notwithstanding.

### ***Competencies and skills required of librarians in the current information age***

This section discusses the findings obtained from respondents in respect to the most valuable competencies and skills that were required prior to the introduction of ICTs; competencies and skills that have increasingly become important after the introduction of ICTs; extent to which various competencies and skills have improved the provision of services; and finally, how librarians' competencies and skills have changed over time.

Different authors have defined competencies in somewhat different ways. Dessler (2008) defines competencies as a demonstrable characteristic of the person that enables performance of a job. Competencies as defined by Eval (2007) are a combination of skills, knowledge and behavior patterns vital to organizational success, personal achievement and career development. On the other hand, skill as defined by the Business Dictionary (2012) is an ability and capacity acquired through deliberate, systematic and sustained effort to smoothly and adaptively carry out complex activities or job functions involving ideas (cognitive skills), things (technical skills), and or people (interpersonal skills). Elkin (2008) argues that it is widely agreed that both professional and generic skills are essential to the librarian and other information professional; traditional skills need enhancing by IT, management and leadership skills, allied to significant personal skills. To achieve this, Partridge and Hallam (2004) note that the librarians and other information professionals therefore need to acquire and develop both sets of skills throughout their career. These then can be applied in a wide range of environments, both traditional and non-traditional, enabling the individual to adapt and respond to changing circumstances (Brine, 2004). In view of Orme's (2008) observation that there is considerable need to research on the existing skills and competencies required by librarians and other information professionals; by first examining their functions and roles, the current study found that the most valuable competencies and skills in the libraries before the introduction of ICTs were basic principles of librarianship and more so, organization of recorded knowledge, knowledge of information resources and the foundations of the profession as well as competencies in the area of reference and user services. Thirty-two (59.3%) respondents felt that

competencies in administration and management were also valuable. It was not surprising to find that majority of respondents, numbering 51(94.4%), indicated that communication skills was the most valuable skill before the introduction of ICTs in libraries followed by information retrieval skills, cataloguing and classification skills. Other librarians indicated listening skills were the most valuable skills while others selected decision-making skills. These skills are still regarded as important for librarians to execute their duties and responsibilities.

The emergence of ICTs has meant that the librarians adopt or get re-skilled on various aspects, particularly those related to ICTs. Most respondents identified the following as the competencies and skills that have become increasingly important with the introduction of ICTs: competencies and skills associated with technological knowledge, basic computer literacy, internet, metadata; classification and cataloguing, and information retrieval. The interviews with the library directors concurred with the other librarians and hastened to add the following as the other competencies and skills which have become increasingly important after the introduction of ICTs which included good general IT skills and proven ability to learn new applications and understanding of the library management software. It was however noted that the traditional services that demanded specialized skills are still regarded as areas within which librarians require special skills. These include cataloguing and classification, reference services and library instruction.

In regard to the extent to which current competencies and skills have improved service provision in libraries, the majority of respondents (i.e. 44 or 81.5%) pointed out that skills associated with the use of the internet have improved service provision in libraries to a very great extent. The respondents felt that the internet is a source of current and timely information and besides, it is used for information searching, send and receive emails as well as for networking with friends using Facebook, twitter, and MySpace, among others. Other skills that have improved service provision to a great extent include problem solving skills and administration and management skills. The librarians argued that the aforementioned skills have made librarians more visible and users can now see the products and services they are offering. ICT skills have made searching online easier and librarians can now be able to get comprehensive and wide range of information to satisfy user needs. This has, however, come with additional responsibilities but the bottom line remains that users can now access online resources independently after being taken through information literacy classes.

Finally, respondents were asked whether or not the competencies and skills of librarians have changed with the introduction of ICTs in the library and the majority of respondents, numbering 50(92.6%), indicated that the competencies and skills required at this information age have, to a great extent, changed as a result of the introduction of ICTs in their library while a minority who

numbered 7 (13.0%) indicated that the competencies and skills have changed slightly. This finding concurred with the observation made by Alidousti and Sheykh-Shoae (2006) to the effect that information technology has changed performance, skills, and information needs of librarians. New roles and methods of service delivery in libraries have replaced traditional ones.

Having observed that librarians' skills and competencies have changed as a result of ICTs, we sought to find out if there are skills that the respondents felt were needed for effective service provision. Table 7 reveals that all respondents indicated that information retrieval skills were the most needed skills for effective service provision in libraries followed closely by basic computer skills (52 or 96.3%), emailing skills (49 or 90.7%), and information literacy (48 or 88.9%), internet skills (48 or 88.9%), and cataloguing and classification (45 or 83.3%).

**Table 7: Skills needed in libraries for effective service provision (N=54)**

	<b>Frequency</b>	<b>Percentage (%)</b>
Information retrieval skills	54	100.0
Basic computer skills	52	96.3
Emailing skills	49	90.7
Internet skills	48	88.9
Information literacy skills	48	88.9
Bibliographic (cataloguing & classification skills)	45	83.3
Communication skills	42	77.8
Metadata skills	42	77.8
Library management system skills	42	77.8
Management skills	41	76.0
Problem solving skills	36	66.7
Decision making skills	36	66.7
Marketing skills	34	63.0

Budgeting skills	31	57.4
Listening skills	30	55.6
Evaluative skills	29	53.7
Leadership skills	25	46.3

It is worth noting that Philbin (2014) had opined that information retrieval and dissemination of information are a vital part of the skills needed by library, information and knowledge management professionals. Information retrieval skills are essential to both the librarian and the users to enable them know how to retrieve relevant information for their use. Basic computer skills are a requirement especially at the UON where a library management system is in use. Librarians require computer skills to be able to send emails to users and colleagues and also for Internet searching. Information literacy is essential to libraries because the provision of the right information to the right person at the right time is the key to success for any organization (Brun, 2009). Management skills are also very important although librarians have taken it for granted. Librarians need to manage their staff. On the other hand, budgeting, which was identified as a skill that is needed, is also important because librarians require basic financial skills since there is budgeting involved in library work.

***Effects of information and communications technologies (ICTs) on the roles of librarians***

The respondents were asked to state whether or not the roles of librarians have generally changed as a result of ICTs in the last 10 years. The findings were not that surprising given the overwhelming support for ICTs at the UoN wherein majority of the respondents responded that they fully supported the introduction and adoption of ICTs in the main library and its constituent libraries. In response to the above question, a total of 51(94.4%) respondents believe that the roles of librarians have generally changed over the last 10years as a result of ICTs while 3(5.6%) respondents said that their roles have not changed. Agreeably, the roles of academic librarians at the UoN have changed tremendously given that they have moved away from manual-based systems. Most functions like acquisition, cataloguing and circulation modules are fully automated. It is however noted that librarians still perform their roles as custodians of information resources. They also organize the resources for easy access and use. Reliance on ICTs to perform many duties and carry our responsibilities at the UoN was noted.

## **Conclusions and Recommendations**

It is no doubt that the functions and services offered in academic libraries, including those offered at the UoN in Kenya, have been transformed courtesy of the information and communication technologies (ICTs). When we compared the available functions, resources and services that were in place at the time of conducting the study (in the information age) and those that were available to the respondents when they first started work, we found that that most functions have been greatly transformed due to adoption and use of ICTs at the UoN. Whereas the format in which some functions/activities are conducted has changed over time given the shift from manual based services to electronic or digital based services, some other functions or activities have been discontinued while others have been introduced. Specifically, functions as well as processes and procedures have been enhanced in the current information age, especially in terms of the mode of delivery, format of resources, time spent on accomplishing tasks, and volume of work. The implication of the aforementioned changes is that new competencies and skills are needed for effective service delivery. This was more apparent through the examination of the extent to which the competencies and skills required of librarians have changed, whereby it was established that information retrieval skills, technological knowledge, basic computer skills and Internet skills were the most valuable skills after the introduction of ICTs in libraries. The need for the aforementioned skills and competencies was indeed noted. As opposed to the traditional skills (e.g. critical analytics of information, communication skills, and managerial skills), the contemporary scenario largely requires computer and Internet-related competencies and skills on the part of librarians. The implication of this finding therefore is that librarians have been forced to learn new skills and obtain new competencies or simply re-skill themselves so as to be enabled to effectively function in the information age.

Finally, the results based on the investigation on the effect of ICTs on the role of librarians generated an agreement by the majority that their roles have changed for the better given that they have moved away from traditional services and most of their functions are now fully automated. Most of them are happy and motivated as a result of the emergence of ICTs. Their roles can be executed with ease in the current information age. An examination of the new roles of librarians at the UoN revealed similar findings as outlined by Jain & Akakandelwa (2016). The library director and her deputies posited that librarians are now required to perform or be involved in duties and responsibilities in the following areas: knowledge management, system librarianship, instruction and teaching, content production and dissemination; curriculum development; training users on the use of the Internet; research support through such techniques as bibliometrics; knowledge brokerage; and blended librarianship. Most of these new roles have a common denominator,

namely, they have been propelled by the emergence, adoption and use of ICTs in libraries.

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