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Knowledge Production through Mentorship of Next Generation Scholars: Case Study of Universities in Kenya

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Abstract

This article is based on part of the findings of doctoral study that was completed at the University of KwaZulu Natal in 2015. The study investigated knowledge production in Kenyan universities. It addressed the following research questions among others: What is the level of scholarly productivity in universities in Kenya? What is the relationship between mentorship and scholarly productivity? What is the nature of ties between scholars in universities in Kenya? The study was underpinned by the Social Network Theory and applied the post-positivist paradigm. The quantitative and the qualitative approaches were used along with survey design. The population of the study consisted of academic staff and postgraduate students drawn from six purposively selected universities. Qualitative and quantitative data collected were analysed and presented using thematically on one hand and IBM SPSS Statistics and Gephi Social Network Analysis software on the other. The results revealed that a majority of young academic staff and postgraduate students in universities in Kenya were not actively involved in knowledge generation through research and publications, as only 42% of academic staff and 37% of postgraduate students produced 1-3 journal articles in the period 2010 to 2014. The study recommended institutionalisation of mentorship programmes to entrench scholarship amongst academic staff and graduate students, nurturing of scholarly collaboration to facilitate knowledge production.

Introduction

Strengthening African knowledge production through research in the universities rests largely with academic staff and postgraduate students, especially at the PhD level. Investment in R and D (Research and Development), enhancing mentorship programmes aimed at capacitating next generation of scholars, and collaborative scholarly engagement are vital (Mkandawire, 2009). Through mentorship, the postgraduate students and the young academics learn from the more senior academics, especially the professoriate for personal and professional development (Donaldson, Ensher and Grant-Vallone, 2000; Rose, Rukstalis and Schuckit, 2005).

Garvey and Alred (2003) assert that mentoring is increasingly employed in educational, social and occupational settings, and is associated with induction, career development, and career support and change. The mentor-mentee relationship makes significant contribution to professional, academic and personal development as the mentee integrates the prior and current experience of the mentor through supportive and challenging dialogue. Johnson (2006) opines that good mentorships promote socialisation, learning, career advancement, psychological adjustment and preparation for leadership. Compared to non-mentored individuals, those with mentors show more career satisfaction, are more committed to the organisation or profession and are more likely to mentor others in turn. Johnson (2006) points out that knowledge productivity in universities is correlated mentorship programmes targeting young and upcoming scholars. He observes that graduate students are better prepared to present papers at conferences, publish articles and book chapters, secure grant funding and generally demonstrate initiative and independence as scholars if they are mentored early in their careers. Worley (2011) assessed eight of the most productive researchers in

criminology and criminal justice to determine the characteristics shaping their success and found that almost all the respondents acknowledge that experienced scholars, who had mentored them while they were in graduate school, were instrumental in introducing them to rigorous research ethics, standards and practices that enabled them to be grounded in research publication. They also pointed out that collaborative research and scholarship greatly contributed to their overall exemplary scholarly productivity.

Coates (2012) affirms that organisations that foster mentoring programmes and partnerships among senior academics and postgraduate students foster greater networking and subsequently higher levels of productivity.

Levinson et al in Johnson (2002) observes that higher education, although officially committed to fostering of intellectual and personal development of students, provides mentoring that is generally limited in quantity and poor in quality. Levinson's study found that mentoring was rare when institutional constraints discourage supportive behaviour and when lecturers, as potential mentors, were rewarded primarily for other forms of productivity such as research, teaching and committee work (Johnson, 2006).

Theoretical Framework

The study was guided by the Social Network Theory which analyses the relationships and ties between individuals with emphasis on the structure of the relationships as opposed to the attributes of the participants in the relationships (Serrat, 2009; Otte and Rousseau, 2002). The Social Network Theory seeks to visualise, among other things, the channels through which information flows from one person to another and through which one individual could influence another (Scott, 2000). Social networks are nodes of individuals, groups, organisations, and related systems that tie in one or more types of interdependencies: these include shared values, visions, and ideas; social contacts; kinship; conflict; financial exchanges; trade; joint membership in organisations; and group participation. Social network analysis views social relationships, in terms of nodes and ties, as basic building blocks. Nodes are the individual actors within the networks, and ties are the relationships between the actors (Cahill, 2009). The nature of the ties between nodes in a social network is an important concept since it determines the extent of information sharing between nodes. Research has shown that strong ties are required for knowledge creation and sharing (McFadyen, Semadeni, and Cannella, 2009; Dyer and Nobeoka, 1998).

Mentoring networks among academics and between academics and students have been identified over the years as comprising dyads or triads in traditional or peer mentoring models. The traditional model basically involves a one-to-one, uni-directional relationship where a less experienced individual is paired with a more experienced person for guidance and support. Peer mentoring involves participants who are more or less equal in terms of age, experience, rank or position along hierarchical levels in an organisation. In such a setting, all participants have something of value to contribute and gain from each other (Angelique et al, 2002). More recently, however, mentoring has evolved to include newer models, research, approaches and experiences (Sorcinelli and Yun, 2012). Such developments include multi-mentoring networks where early career faculty are encouraged to build a network of support consisting of a variety of mentoring partners who each provide different aspects of mentoring (Sorcinelli and Yun, 2012; Packard, Walsh and Seidenberg, 2004). The modern mentoring relationship, has also benefitted greatly from the use of technology giving rise to e-mentoring where most of the mentoring relationship is conducted online using Internet-based tools such as video-conferencing, e-mail, virtual environments and groupware. E-mentoring supports the development of team-mentoring where several mentees are linked to one mentor or several mentors linked to one mentee, making it more practical and flexible (Faulin, Juan, Lera, Barrios and Forcada, 2012). Mentoring networks particularly those facilitated by technology, have also enabled collaborative research, writing and publication between geographically separated participants, as well as mentoring across and within various boundaries (Bristol, Adams and Guzman Johannessen, 2014).

Statement of the Problem

In the last decades, the proper training of new researchers has been gaining increasing interest, both

in academic and in industrial environments (Faulin et al., 2012). Mentorship has been shown to play a critical role in training new researchers to equip them with necessary knowledge and skills as the next generation of researchers and generally influencing their research productivity (Johnson, 2006; Worley, 2011). In terms of contribution to the global scholarly debate, Teferra (2004:159) asserts that Africa lies at the periphery of the knowledge market. Universities in Africa, and Kenya in particular, are ranked lower in global university ranking systems such as Webometrics compared to those in Europe and the Americas. These rankings are in part based on the universities' volume and quality of research output from both academics and postgraduate students (Cybermetrics Lab, 2015).

Few studies have been carried out to examine the levels of mentorship in universities in Kenya in relation to how this prepares emerging scholars to take up the mantle in research and publication. Sigué (2012) cites lack of sufficient mentorship and training of young faculty members/researchers and graduate students by senior academics as one of the contributing factors to low research productivity. This situation implies that emerging scholars and researchers in Africa generally, and Kenya in particular, are therefore not gaining sufficient research skills to enable them conduct and report on research through publications, leading to low research productivity that is then reflected in the low ranking of the institutions. As the British Academy for Humanities and Social Sciences (2015) acknowledges, research has tremendous potential to benefit the economy, our quality of life, as well as the effectiveness of public policy.

This study therefore sought to investigate the extent to which mentorship is used as a strategy to nurture emerging scholars in universities in Kenya.

Research Questions

The following research questions are addressed:

1. What is the level of scholarly productivity in universities in Kenya?
2. What is the relationship between mentorship and scholarly productivity?
3. What is the nature of ties between scholars in universities in Kenya?

Methodology

The population of the study consisted of academic staff and postgraduate students (PhD and Master's) of six universities in Kenya which were selected based on their relative performance in the 2013 Webometric ranking of universities. The top universities in Kenya were purposively selected. The Webometric ranking criteria are based on the volume and the quality of content an institution reflected through the web visibility. Within the six universities a sample of 350 academic staff and 370 postgraduate students were selected based on convenience sampling. This sampling technique was preferred because it was not possible to obtain and construct a sampling frame from the universities beforehand that would allow the use of probability sampling techniques. Convenience sampling allowed the researcher to include those participants who were readily available at the time of conducting the survey. This was especially because academic staff and postgraduate students were not always available in their offices or classrooms when the questionnaires were being distributed. This approach though introduced a number of biases. For example, it led to inclusion of more students and academic staff from the natural sciences, leaving out those from social sciences. This impacted on the generalisation of the results to the general population, although the results gave information that was relevant to the aim of the research (Saunders, Lewis and Thornhill, 2012). The characteristics of the individuals in the sample were generally comparable to those of the entire population in the universities in the study and universities in Kenya as a whole.

Separate self-administered survey questionnaires were designed for data collection from the postgraduate students and the academic staff. The data collected from respondents was mostly quantitative, and was analysed using SPSS that produced descriptive and inferential statistics. Qualitative data obtained from open-ended questions in the questionnaire were analysed thematically. Overall, of the 350 and 370 copies of the questionnaires administered to academic staff and postgraduate students of the six universities in Kenya, 273 (78%) and 332 (89.7%) respectively were returned and were found useful for analysis.

Results

The results of the research on the research questions outlined above are presented in this section.

Scholarly Output of Universities in Kenya

Although Boyer (1990) acknowledged that scholarship involves discovery (or research), integration (that is: interpretation or fitting one's own research into larger intellectual patterns), teaching and outreach, the productivity of scholars is now commonly measured in terms of the number of peer-reviewed articles and books written or edited, book chapters published, conference presentations made, and book reviews done (Freedenthal, Potter and Grinstein-Weiss, 2008).

Respondents were asked to rate the level of research in their departments in terms of quantity of output and their responses are shown in Table 1.

Table 1: Quantity of Research Output in the Departments (N = 590)

Level of research in department	Frequency	Percentage
Not sure	58	9.8
Low	156	26.4
Medium	242	41.0
High	134	22.7
Total	**590**	**100.0**

Compared to students, academic staff generally rated quantity of research output in their universities as being higher (Figure 1). This may be attributed to the fact that academic staff are usually more involved in research activities as compared to students, so in their view, much research was going on. Students, on the other, would be more preoccupied with completing their studies than conducting research.

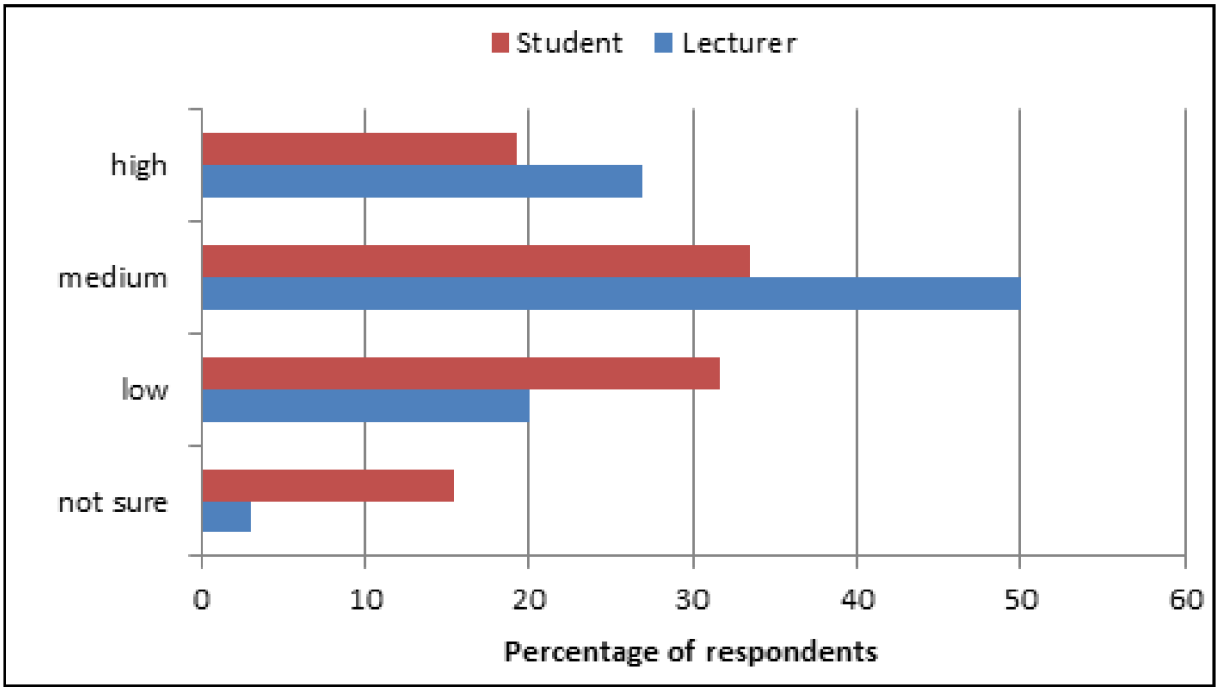

Figure 1: Respondents' Rating of Quantity of Research Output in the Universities

When asked to indicate the quantity of different scholarly output(s) respondents in the study had generated in the last five years (2010–2014) most of the academic staff (154, 70%), had produced between 1 and 3 theses (again assuming this was done either as authors or supervisors); conference presentations (121, 52%), and journal articles (91, 42%) in the last five years. However, the majority of them had not authored a book (92, 63%), book chapter (73, 46%), book review (77, 50%), technical reports (70, 52%), and working papers (71, 43%) in the same period (see results in Table 2).

Table 2: Frequencies of Academic Staff's Scholarly Output in the Last Five Years (2010—2014)

Type of scholarly output	Quantity of scholarly output in last five years									
	None		1 – 3		4 – 6		7 – 9		10 or <	
	Fq	%	Fq	%	Fq	%	Fq	%	Fq	%
Conference presentation	27	11.7	121	52.4	40	17.3	17	7.4	26	11.3
Journal article	51	23.5	91	41.9	44	20.3	16	7.4	15	6.9
Book	92	62.6	40	27.2	13	8.8	1	0.7	1	0.7
Book chapter	73	45.9	60	37.7	21	13.2	5	3.1	0	0.0
Book review	77	49.7	57	36.8	15	9.7	2	1.3	4	2.6
Abstract	51	32.5	48	30.6	35	22.3	6	3.8	17	10.8
Thesis	22	10.0	154	70.0	14	6.4	15	6.8	15	6.8
Technical report	70	51.9	34	25.2	12	8.9	7	5.2	12	8.9
Working paper	71	43.0	45	27.3	29	17.6	13	7.9	7	4.2

Key: Fq = frequency
Cronbach's Alpha: 0.81

With the exception of theses and conference presentations, most of the postgraduate students in the universities had not produced a book (166, 83%), book chapter (162, 81%), book review (141, 69%), technical reports (127, 58%), working paper (120, 57%) and journal article (130, 56%) in the last five years (Table 3). These findings are in line with the authors (Johnstone, 2007; Gabbidon, Higgins and Martin, 2011) who have found that researchers are expected to publish in peer-reviewed journals that are the most important for tenure and promotion, as opposed to other forms of publishing.

Table 3: Frequencies of Postgraduate Students' Scholarly Output in the Last Five Years

Type of scholarly output	Quantity of scholarly output in the last five years									
	None		1 – 3		4 – 6		7 – 9		10 or <	
	Fq	%	Fq	%	Fq	%	Fq	%	Fq	%
Conference presentation	114	45.6	113	45.2	20	8.0	1	0.4	2	0.8
Journal article	130	55.8	86	36.9	12	5.2	2	0.9	3	1.3
Book	166	83.4	20	10.1	11	5.5	0	0.0	2	1.0
Book chapter	162	81.4	22	11.1	14	7.0	1	0.5	0	0.0
Book review	141	68.8	50	24.4	13	6.3	1	0.5	0	0.0
Abstract	122	53.3	87	38.0	13	5.7	3	1.3	4	1.7
Thesis	100	40.3	128	51.6	15	6.0	2	0.8	3	1.2
Technical report	127	57.5	71	32.1	16	7.2	3	1.4	4	1.8
Working paper	120	56.9	71	33.6	16	7.6	1	0.5	3	1.4

Key: Fq=frequency
Cronbach's Alpha: 0.84

The Cronbach's Alpha values for this question were 0.81 and 0.84 for items in the academic staff and postgraduate students' questionnaires, respectively. This suggested a high internal validity of the test items.

Mentorship Programmes

Respondents were asked if they were mentoring (or were being mentored by) anybody academically at the time of the survey. The results are shown in table 4. A sizeable proportion of postgraduate students (150, 47%) was neither being mentored nor were mentoring others.

Table 4: Mentorship Programmes

Respondent type	Are mentoring or being mentored?	Frequency	Percentage
Academic staff	No	102	38.2
	Yes	165	61.8
	Total	**267**	**100.0**
Postgraduate students	No	150	46.6
	Yes	172	53.4
	Total	**322**	**100.0**

A Chi – square ($\div^2$) cross tabulation was computed to determine if mentoring or being mentored was dependent upon the respondents' university. There was a statistically significant influence of the respondents' university on productivity to mentoring or on being mentored, $\div^2 (5) = 27.45$, $p < 0.001$. Maseno University, Strathmore University and Egerton University were the strongest universities with regard to mentorship programmes (of the respondents, 46, 85%; 14, 70% and 38, 68% respectively said they were involved in mentoring someone or were being mentored (table 5). Kenyatta University and University of Nairobi appeared to be universities with the weakest mentorship culture (55, 51% and 136, 48% of the respondents respectively answered that mentorship was not happening).

Table 5: Cross tabulation of the Respondent's University and Mentoring

	Mentoring or being mentored		
Respondent's university	**No**	**Yes**	**Total**
University of Nairobi	136 (47.9%)	148 (52.1%)	284 (100%)
Maseno University	8 (14.8%)	46 (85.2%)	54 (100%)
Kenyatta University	55 (51.4%)	52 (48.6%)	107 (100%)
JKUAT*	29 (42.6%)	39 (57.4%)	68 (100%)
Strathmore University	6 (30%)	14 (70%)	20 (100%)
Egerton University	18 (32.1%)	38 (67.9%)	56 (100%)
Total	**252 (42.8%)**	**337 (57.2%)**	**589 (100%)**

* JKUAT – Jomo Kenyatta University of Agriculture and Technology

The respondents were asked to comment further on the mentoring culture in their institutions. Whereas there was near unanimity on the essential role of mentoring on building up future scholars, most respondents, especially the students, felt that the mentoring culture was poor. The study established that mentoring students was a requirement at Maseno University, which might explain the greater proportion of respondents from this university who said there was mentoring. However, most respondents at this university reported a lack of a structured mentoring programme in their departments. Most mentorship programmes extant in the universities were between the supervisor and his/her student (either Master's or PhD candidate).

Scholarly Interaction with Colleagues

The study required academic staff to describe the nature of their interaction with colleagues on scholarly matters that reflect some level of scholarly collaboration. The study found that most academic staff were willing to share knowledge with colleagues (91, 36% and 52, 21% rated the willingness as being often and always, respectively) and assist others in learning scientific issues (94, 37% and 42, 16% rated the willingness as being often and always, respectively) (table 6).

More respondents also stated that they often spent time on personal interactions with colleagues to discuss ideas, solutions, and scientific proposals (107, 41% and 15, 6% spend time on personal interactions often and always, respectively) and often held professional departmental meetings based on a pre-planned schedule (96, 37% and 17, 7% stated that the meetings occurred often and always, respectively). However, a substantial proportion of the academic staff stated that interdepartmental meetings based on a pre-planned schedule rarely occurred (71, 28%) or never occurred (22, 9%). Inter-item reliability as measured by the Cronbach's Alpha was relatively high at 0.81 for the items, which showed a high internal consistency.

Respondents were further requested to provide the names (or initials of the names) of members in their departments that they were collaborating with. Using this information and the Gephi Social Network Analysis software, a network of collaborations within departments was built (Figure 2). The results in figure 2 shows the different networks comprising each respondent and the other person(s) he/she is collaborating with in the department. Each of the six universities was represented in the network, which implied that at least one member who was surveyed in every university collaborated with at least one other member of the same department.

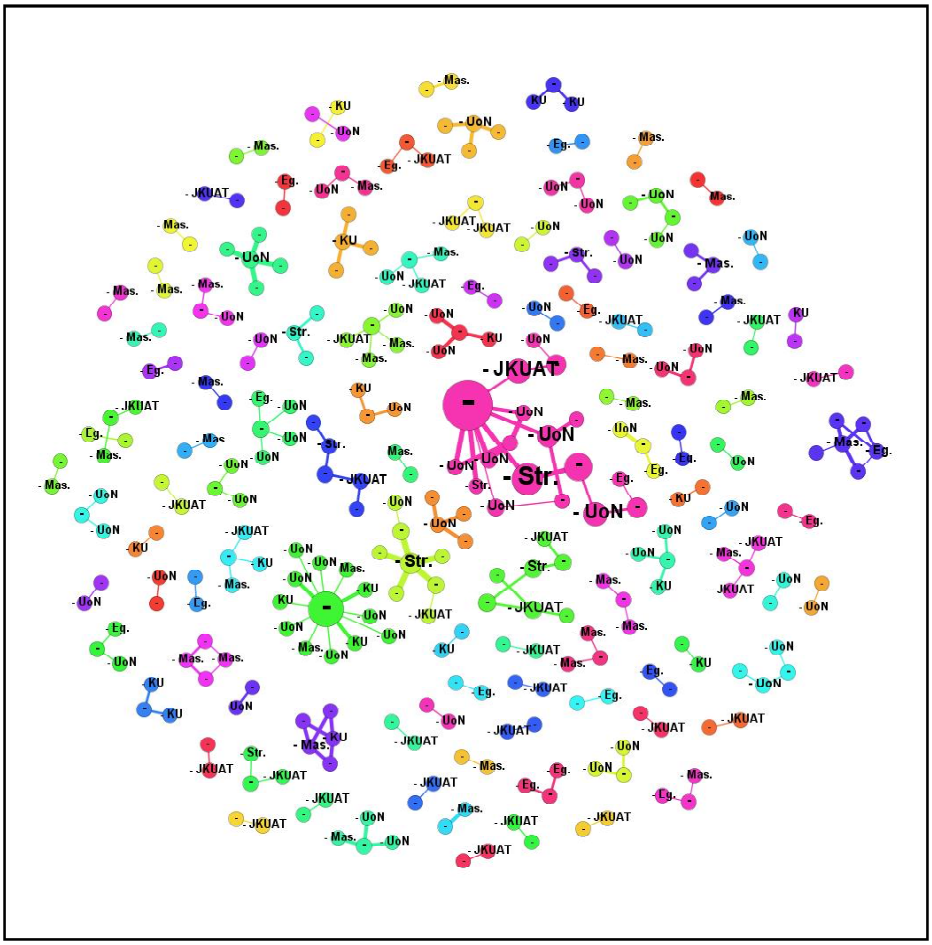

Figure 2: Network of Intradepartmental Collaborations in the Sampled Universities (N=272)

Key: JKUAT - Jomo Kenyatta University of Agriculture and Technology; KU –Kenyatta University; UoN – University of Nairobi; Mas – Maseno University; Eg – Egerton University; Str – Strathmore University

Table 6: Nature and Frequency of Scholarly Interaction amongst Academic Staff

Activity	Nature of interaction									
	Never		Rarely		Sometimes		Often		Always	
	Fq	%	Fq	%	Fq	%	Fq	%	Fq	%
How often you spend time on personal interactions?	4	1.5	38	14.7	95	36.7	107	41.3	15	5.8
How often you hold intradepartmental meetings?	9	3.4	39	14.9	101	38.5	96	36.6	17	6.5
How often you hold interdepartmental meetings?	22	8.7	71	28.1	89	35.2	54	21.3	17	6.7
More qualified colleagues willing to assist others	15	5.8	38	14.8	68	26.5	94	36.6	42	16.3
Willingness of colleagues to share knowledge	7	2.8	40	15.9	62	24.6	91	36.1	52	20.6

Key: M= moderately, Fq=frequency. (N=273 for academic staff; 332 for postgraduate students); Cronbach's Alpha: 0.81

The results in figure 2 show that the average degree of the network (that is, the number of connections each node has) was 1.297, which indicated that one member collaborated with just one other member in the department, forming dyads as the most common link between scholars in the universities. However, a few triads and tetrads are also evident from the mapping. Although the network depicted intradepartmental collaboration, there were instances in which one university was connected to another university, which indicated that some departmental members could be teaching or researching collaboratively with members in more than one university.

Relationship between Mentorship and Scholarly Productivity among Scholars in Universities in Kenya

Chi-square cross tabulations were used to compare the relationship between mentorship and research output. The results are presented in tables 7a-7g.

The cross-tabulation in table 7a revealed a weak relationship ($\div^2 = 15.589$, df=8, p = 0.049) between mentorship and publication of articles. It suggested that people with insufficient mentorship generally published more.

The cross tabulation in table 7b revealed no relationship between mentorship and book publication ($\div^2 = 3.59$, df=4, p = 0.464).

Table 7a: Cross tabulation between Mentorship and Publication of Journal Article

			Mentorship			Total
			None	Small	Large	
Journal article	none	Count	28	60	78	166
		% within journal article	16.9%	36.1%	47.0%	100.0%
	1-3	Count	37	62	60	159
		% within journal article	23.3%	39.0%	37.7%	100.0%
	4-6	Count	13	16	24	53
		% within journal article	24.5%	30.2%	45.3%	100.0%
	7-9	Count	6	3	6	15
		% within journal article	40.0%	20.0%	40.0%	100.0%
	10 or more	Count	4	9	1	14
		% within journal article	28.6%	64.3%	7.1%	100.0%
Total		Count	88	150	169	407
		% within journal article	21.6%	36.9%	41.5%	100.0%

Table 7b: Cross tabulation between Mentorship and Number of Books Published

			Mentorship			Total
			None	Small	Large	
Journal article	none	Count	28	60	78	166
		% within journal article	16.9%	36.1%	47.0%	100.0%
	1-3	Count	37	62	60	159
		% within journal article	23.3%	39.0%	37.7%	100.0%
	4-6	Count	13	16	24	53
		% within journal article	24.5%	30.2%	45.3%	100.0%
	7-9	Count	6	3	6	15
		% within journal article	40.0%	20.0%	40.0%	100.0%
	10 or more	Count	4	9	1	14
		% within journal article	28.6%	64.3%	7.1%	100.0%
Total		Count	88	150	169	407
		% within journal article	21.6%	36.9%	41.5%	100.0%

Table 7b: Cross tabulation between Mentorship and Number of Books Published

			Mentorship			Total
			None	Small	Large	
Book	none		50	76	105	231
			21.6%	32.9 %	45.5%	100.0 %
	1-3		12	25	20	57
		% within book	21.1%	43.9 %	35.1%	100.0 %
	4-6	Count	4	11	10	25
		% within book	16.0%		40.0%	100.0 %
Total		Count	66	112		313
		% within book	21.1%	35.8 %	Count	100.0 %
					% within book	
					Count	

Table 7c: Cross tabulation between Mentorship and Number of Book Chapters Published

			Mentorship			Total
			None	Small	Large	
Book chapter	none	Count	43	71	96	210
		% within book chapter	20.5%	33.8%	45.7%	100.0 %
	1-3	Count	25	27	24	76
		% within book chapter	32.9%	35.5%	31.6%	100.0 %
	4-6	Count	7	17	15	39
		% within book chapter	17.9%	43.6%	38.5%	100.0 %
Total		Count	75	115	135	325
		% within book chapter	23.1%	35.4%	41.5%	100.0 %

The cross tabulation revealed that there is no relationship between mentorship and book chapter publication ($\div^2 = 7.909$, df=4, p = 0.095).

Table 7d: Cross tabulation between Mentorship and Number of Book Reviews

			Mentorship			Total
			None	Small	Large	
Book review	none	Count	38	69	87	194
		% within book review	19.6 %	35.6%	44.8%	100.0 %
	1-3	Count	25	36	34	95
		% within book review	26.3 %	37.9%	35.8%	100.0 %
	4-6	Count	2	14	17	33
		% within book review	6.1%	42.4%	51.5%	100.0 %
Total		Count	65	119	138	322
		% within book review	20.2 %	37.0%	42.9%	100.0 %

The cross tabulation in table 7d showed that no relationship was found between mentorship and book review ($\div^2 = 7.319$, df=4, p = 0.120).

Table 7e: Cross tabulation between Mentorship and Abstract Publication

			Mentorship			Total
			None	Small	Large	
Abstract	none	Count	27	58	77	162
		% within abstract	16.7%	35.8%	47.5%	100.0%
	1-3	Count	28	49	43	120
		% within abstract	23.3%	40.8%	35.8%	100.0%
	4-6	Count	18	10	15	43
		% within abstract	41.9%	23.3%	34.9%	100.0%
	7-9	Count	7	13	8	28
		% within abstract	25.0%	46.4%	28.6%	100.0%
Total		Count	80	130	143	353
		% within abstract	22.7%	36.8%	40.5%	100.0%

The cross tabulation in table 7e showed that a weak relationship ($\div^2 = 17.015$, df=6, p = 0.009) existed between mentorship and abstract publication. It suggested that people with insufficient mentorship generally published more.

Table 7f: Cross tabulation between Mentorship and Publication of Technical Reports

			Mentorship			Total
			None	Small	Large	
Technical report	none	Count	29	70	86	185
		% within technical report	15.7%	37.8%	46.5%	100.0%
	1-3	Count	29	27	38	94
		% within technical report	30.9%	28.7%	40.4%	100.0%
	4-6	Count	4	10	10	24
		% within technical report	16.7%	41.7%	41.7%	100.0%
	7-9	Count	3	10	8	21
		% within technical report	14.3%	47.6%	38.1%	100.0%
Total		Count	65	117	142	324
		% within technical report	20.1%	36.1%	43.8%	100.0%

The cross tabulation in Table 7f showed that no relationship exists between mentorship and publication of technical reports ($\chi^2 = 10.994$, df=6, p = 0.089).

Table 7g: Cross tabulation between Mentorship and Publication of Working Papers

			Mentorship			Total
			None	Small	Large	
Working paper	none	Count	36	63	75	174
		% within working paper	20.7%	36.2%	43.1%	100.0%
	1-3	Count	17	37	53	107
		% within working paper	15.9%	34.6%	49.5%	100.0%
	4-6	Count	18	11	12	41
		% within working paper	43.9%	26.8%	29.3%	100.0%
	7-9	Count	2	9	8	19
		% within working paper	10.5%	47.4%	42.1%	100.0%
Total		Count	73	120	148	341
		% within working paper	21.4%	35.2%	43.4%	100.0%

The cross tabulation in Table 7g showed that a weak relationship ($\div^2 = 16.809$, df=6, p = 0.010) exists between mentorship and working paper publication. It suggested that people with between 4 and 6 working papers had no mentorship (44%) while those with between 7–9 working papers had either insufficient (47%) or sufficient mentorship (42%).

Barriers to Successful Mentorship

Respondents were asked to comment on the barriers to the success of mentorship programmes in their universities. The respondents indicated that the barriers to successful mentorship were lack of time as the mentors were too busy dealing with bloated workloads, too many students to be mentored, lack of mentors, bureaucratic rigidity, lack of resources, and shortage of materials. Others were poor attitudes of both the mentors and the mentees, laziness of mentors, poor communication because of lack of Internet, lack of facilities, poor motivation, and unwilling scholars. These findings concur with earlier studies (Myall, Levett-Jones and Lathlean, 2008; Nettleton and Bray, 2008) which found that effective mentorship was hindered by increased workload on the part of the mentors, having too many mentees, and inadequate institutional support for mentorship.

Discussion of Results

The results presented in the preceding section are discussed.

Scholarly Output of Universities in Kenya

A majority of postgraduate students had not authored any books (166, 83%), book chapters (162, 81%), book reviews (141, 69%), technical reports (127, 58%), working papers (120, 57%) or journal articles (130, 56%) in the period 2010–2014. This result seems to suggest that postgraduate students in the universities studied are hardly involved in producing scholarly work except theses. Belcher (2009) found that most graduate students do not write much because they lacked adequate writing skills and mentors to help them develop these skills. The results further indicated that a significant proportion (150, 47%) of postgraduate students were not involved in any mentorship programmes and cited barriers such as lack of time due to heavy teaching workload, few mentors, and unwillingness of the more established scholars to provide mentorship. This low level of participation of graduate students in the scholarly writing and publication activities seems to corroborate Garbati and Samuels (2013) who examined eighteen issues of six peer-reviewed journals in the field of education to determine the extent to which graduate students were participating in publication in these journals through co-authorship. Their study revealed that graduate students made up less than 9% of all authors published in these journals with the most common collaborative relationship involving a single graduate student and a professor. There were no instances of students publishing with other students. This study illustrated the low participation in collaborative research and writing that affects graduate students, and is similar to the situation facing Kenyan graduate students.

These results seem to indicate weak social ties between the students surveyed and their supervisors and between students themselves. This may imply that only formal course information is shared between these actors as opposed to information that would lead to creation of new knowledge. The results of this study seem to corroborate those of McFadyen et al. (2009) who conducted a bibliometric analysis of over 7,300 scientific publications by 177 research scientists working with more than 14,000 others over an 11-year period (1989–1999). Information about their publications was obtained from the Community of Science Database and verified through the Science Citation Index, PubMed, the National Library of Medicine search service and the Institute for Scientific Information's search services. The study showed that in a social network, strong ties are necessary for creation of knowledge. These ties are characterised by close and frequent interactions between a person and his/her exchange partners. This promotes the transfer of tacit knowledge which is crucial in mentorship, where the mentor provides an environment of growth characterised by visibility of the mentee, connection to other researchers within the academic environment, moral support, guidance of the mentee in self-reflection, vision-building and goal-setting (Sambunjak, Straus and Marusic, 2010; Jackson, Palepu, Szalacha, Caswell, Carr, and Inui, 2003).

Researchers who maintain mostly strong ties with research collaborators tend to have the highest levels of new knowledge creation (McFadyen et al, 2009). Similar observations were made by Dyer and Nobeoka (1998) who researched the Toyota case as an example of creating and managing a high performance knowledge-sharing network. The authors noted that sharing know-how (tacit knowledge) is difficult and therefore requires 'thick' or dense ties among members of a network. Furthermore, sharing tacit knowledge results in more sustainable advantages compared to information sharing and gives competitive advantage to networks that are able to transfer such knowledge. In the current study, the ties between the students and their supervisors in the universities surveyed seem not to promote sufficient transfer of tacit knowledge to enable generation of new knowledge.

Mentorship and Scholarly Productivity

The role of mentorship in cultivating successful scholars (whether graduate students or faculty) cannot be overemphasised. Several studies have shown that mentoring has an important influence on personal development, career guidance, career choice and research productivity of the mentees. Mentors provide emotional support and encouragement, and in the process, also benefit themselves through greater productivity, career satisfaction, and personal gratification (Sambunjak et al, 2010; Rose, et al., 2005). To succeed in academia, all faculties need super-ordinates in their networks and as mentors (Carr, Bickel and Inui, 2003; Jackson et al., 2003). This goes hand in hand with the Social Network Theory whose main postulate in an academic setting is the sharing of knowledge and passing on of skills from one node to another. The results of the current study seem to suggest that scientists and students in the universities surveyed had limited interdependencies tying them to each other, and this resulted in limited sharing of knowledge and skills between them. This was also supported by the findings of the Social Network Mapping (figure 2) which showed that majority of the ties amongst scholars in the universities comprised simple dyads and triads.

The results from this study also showed that only 91 (42%) of academic staff surveyed had written 1–3 journal articles in the last five years, with 51 (24%) of the rest producing no journal articles table 2). This is in spite of the expectation that they would be more productive, especially because it is a requirement for promotion and tenure (Gabbidon et al., 2011; Dennis, Valacich, Fuller and Schneider, 2006). The studies cited above (for example, Sambunjak et al, 2010; Rose et al., 2005) have shown that mentorship does influence research productivity. Therefore, it is possible that lack of effective mentoring programmes in the universities between junior and senior academic staff and between postgraduate students and academic staff is contributing generally to low research productivity. In this connection, it is worth noting that a majority of the respondents (398, 67%) rated the research output from their departments as low or medium, although academic staff generally rated research levels in their universities higher than the students did (refer to results in figure 1). This difference may be explained by the apparent dissociation of postgraduate students from the general research community of the universities surveyed. Since the results indicated that these students generally did not produce much scholarly content other than their theses, it may be assumed then that they were not active participants in research activity and were therefore not in a position to accurately judge what went on in research in their institutions.

The results in table 4 reveal that the majority of respondents 165 (62%) academic staff and 172 (53%) students were either mentoring others or being mentored, although a significant proportion of the respondents surveyed were not involved in mentorship, either as mentors or mentees. Moreover, respondents generally felt that mentorship in their universities was inadequate. The results revealed further that Maseno University, Strathmore University and Egerton University were the strongest in mentorship programmes (46, 85%; 14, 70%; and 38, 68%) respectively; followed by Jomo Kenyatta University of Agriculture and Technology (39, 57%); University of Nairobi (148, 52%); and Kenyatta University (52, 49%). It was established that mentoring of students was a requirement in Maseno University although students reported, that the mentorship programmes were not structured.

These results seem to strengthen the argument that was made earlier that a weak mentoring culture

in the universities in Kenya was impacting negatively on the productivity of scholars, resulting in low scholarly output. Studies have shown that mentoring is important in scholarly networks and directly influences professional development and productivity of scholars. Studies have also shown that institutions need to be formally involved in the mentoring relationships of their members for them to be beneficial. Myall et al (2008) conducted a study on the mentorship experiences of nursing students and practice mentors in the UK. The results of the study found the need to provide mentors with adequate preparation and support. Hutchings, Williamson and Humphreys (2005) examined the capacity issues required for supporting learners in clinical practice at an English acute sector hospital. The results showed that formalised institutional mentorship programmes were the most effective to enhance scholarship and vitality of faculty. From these results, it can be deduced that expertise and knowledge are not being shared effectively between researchers thus impacting on the levels of new knowledge creation in the universities. It also implies limited knowledge transfer between the more experienced researchers and their juniors' counterparts. Several authors have shown that knowledge creation is a function of the levels of knowledge sharing facilitated by conversations between individuals and teams (Botha, Kourie and Snyman, 2008; McFadyen et al, 2009; Travaille and Hendriks, 2010).

From cross tabulations of mentorship and scholarly productivity (tables 7a-7g), the study however revealed mixed findings on the relationship between mentorship and scholarly productivity. On the one hand, some of the results revealed no relationship between mentorship and productivity while on the other hand, some of the results showed that generally there was a weak relationship between mentorship and scholarly productivity of the respondents. Specifically, some of the results showed, for example, that contrary to expectations, mentorship did not produce the expected increase in production of the different types of scholarly output. For instance in table 7a, the cross tabulation between mentorship and publication of journal articles revealed that those respondents who were not adequately mentored seem to publish more than those who were mentored. Although this study did not probe the specific journals the scholars published in, this anomaly may be explained in terms of the types of journals that scholars in universities in Kenya publish in. It is possible that scholars in mentoring relationships endeavoured to publish in high ranking journals whose publication process generally takes longer and is more rigorous than the lower ranked journals. Authors have highlighted the difficulties associated with getting published in top-tier journals (Choi, 2002; Straub, 2009). Choi (2002) in particular notes that the average wait for an acceptance decision from these journals is 3 years. In contrast, scholars who lack mentorship may tend to publish more in the lower ranked journals whose turn-around time is less than the top ranking journals. In this way, these scholars may then have more output over a given period of time than those who are mentored. Other explanations for the results of the cross tabulation may be a mismatch between mentor–mentee (Gardiner, Tiggemann, Kearns and Marshall, 2007; Eby, Butts, Durley and Ragins, 2010; Eby and Lockwood, 2005), low performing mentees, expecting hand-outs from the mentors, as well as over dependence on mentors (Donald, 2007), who as the study revealed are senior academics who are extremely busy and may not provide the necessary level of mentorship geared towards increased scholarly productivity of both parties.

In table 7g, the cross tabulation revealed that respondents who were mentored produced more working papers than those who were not mentored. This concurs with authors such as Sambunjak et al. (2006) and Bristol et al. (2014) who showed that mentorship results in improved productivity. However, the results of this study are not conclusive on this aspect, and these need to be explored further in subsequent studies.

Respondents cited barriers to successful mentorship as lack of time due to heavy teaching workloads, large student numbers and few mentors, lack of resources, bureaucratic rigidity and unwilling scholars to provide mentorship. These results suggest that scholars and students at the universities in Kenya surveyed were facing similar challenges of mentorship to scholars in other parts of the world. For example, the results of this study corroborate studies that have shown that successful mentoring was hindered by lack of protected time for the mentoring programmes, challenges of balancing work demands and being a mentor, few mentors and lack of structured

mentorship programmes (Veeramah, 2011; Straus, Chatur and Taylor, 2009; Myall et al, 2008). The results of the study also corroborate Johnson (2002) and Aagaard and Hauer (2003) whose studies found that although nearly 95% of graduate students and medical students believed mentoring was essential for their personal and career development, only one third to one half reported having a mentor.

Nature of Ties between Scholars

The results revealed that (57%) of the respondents often or always shared knowledge among themselves, as well as assisting each other in learning scientific issues with 53% of respondents often or always willing to do so. Of the respondents, 44% often held professional departmental meetings. However, 37% of the respondents indicated that pre-planned interdepartmental meetings rarely or never occurred. The network analysis of collaborations within departments showed that most scholars participated in dyads and/or triads which indicate limited collaboration between scholars. A possible consequence of this is that there is limited knowledge sharing and transfer between individuals and the scholarly networks they participate in, as well as low levels of mentorship in such networks. De Janasz and Sullivan (2004) examined academic mentoring and proposed that changes and challenges in the current workplace have resulted in complexities that require individuals to rely on multiple, diverse individuals to provide needed mentorship to succeed in their careers.

Conclusions and Recommendations

The results showed that mentorship between senior academics with their junior counterparts including postgraduate students, was low. This was occasioned by weak mentoring structures within the institutions, heavy workload for both senior and junior scholars and negative attitudes towards mentorship by both senior and upcoming scholars. These factors limited opportunities for mentorship to enable the more established scholars to pass on tacit knowledge and skills to the less experienced scholars. This in turn impacted negatively on scholarly productivity of the researchers and their institutions.

The researcher therefore recommends that scholars in universities in Kenya should take a fresh look at the role and multiple benefits of mentorship to researchers' professional development and research productivity. For effectiveness in mentorship, it is recommended that the universities should set up formal structures that would create and nurture the mentorship relationships for both students and academic staff. This will entrench scholarship among academic staff and graduate students by facilitating transfer of relevant skills from the more experienced to the less experienced scholars, as well as develop relevant research, academic writing and publication skills within academia. Jackson et al (2003) proposed that mentoring should be recognised and formalised within institutions like any other academic activity. By so doing, the work of mentors would be encouraged, valued, rewarded and practised in a systematic way. Myall et al (2008) and Hutchings et al (2005) asserted that for mentorship to be successful it has to be institutionalised, and mentors should be given ample support by their institutions. Furthermore, as Carr et al. (2003) advise, mentees have the responsibility for self-examination to identify what skills and knowledge they lack so that they can proactively seek the combination of support and challenge from more experienced professionals that will foster their growth. Partnerships to nurture upcoming scholars in Kenya's universities ought to be built with efforts from both the senior and the upcoming scholars and researchers.

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Factors affecting the Timely Completion of Doctoral Degree in Library and Information Science in Nigerian Universities

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Abstract

Forty-five doctoral graduates in library and information science (LIS) of Nigerian universities from 2009 to 2013 were surveyed in order to determine factors affecting the timely completion of doctoral degree programme in LIS in Nigerian universities. Using social survey design, a questionnaire purposely designed for the study was the instrument used for collecting data. The objectives of the study were to determine the average completion time of doctoral degrees in library and information science in Nigerian universities, identify individual, supervisory and institutional factors affecting the timely completion of doctoral degree in LIS in Nigerian universities and establish doctoral graduates' perceptions of barriers to the timely completion of doctoral degree in LIS in Nigerian universities Three hypotheses were tested: (i) individual factors have no relationship with the duration of the programme, (ii) supervisory factors have no relationship with the duration of the programme and (iii) institutional factors have no relationship with the duration of the programme at 0.05 significant level. T-test, one-way ANOVA and spearman rho statistical techniques were used to test the hypotheses of the study. The findings revealed that the average period of completion was seven years. Difficulty in registration due to inability to pay on time, strike by lecturers/students and university bureaucracy were the major obstacles to the timely completion of doctoral programme in LIS. The mode of study, sponsorship, supervisors' attitude, status of supervisors and the average period between submission of final draft and time degree was awarded, have relationship with the duration of programme among LIS doctoral graduates in Nigeria. The three hypotheses were therefore rejected. It is recommended that Nigerian government should fund doctoral research given the benefits that it accrues to a nation. Also, the need for library and information science schools to attract young doctoral graduates is recommended. The library and information science schools are also advised to equip their doctoral degree students with statistical skills. The institutional bureaucracy should be reduced considerably.

Introduction

A doctoral degree or PhD as it is commonly called is very important in any national economy because a doctoral degree holder is expected to be a knowledge generator, a purveyor of knowledge and somebody with the potential to extend the frontiers of knowledge. It is well known that knowledge is pivotal to creativity and innovation. These two form the fulcrum of development which is very desirable in any developing country like Nigeria. PhD holders are therefore critical in the development of a national economy. It is therefore not surprising that they form the nucleus of a university, which is a centre known for extending the frontiers of knowledge through research. Pitchforth et. al. (2012) has described completion of PhD degree as an important factor for the student, the institution and the economy.

A doctoral degree is an advanced academic degree normally awarded by a university. It is the highest degree in any academic discipline. Holders of doctoral degree are awarded the Doctor of

Philosophy degree (PhD). Prior to the commencement of a doctoral degree programme, a student is expected to have gone through postgraduate training in the relevant discipline. It is primarily obtained through research under the supervision or tutelage of a senior academic staff in a university, usually a professor in the discipline. The main role of a supervisor is to provide advice at every stage of the research process right from the planning stage which includes the selection of title to the final stage – oral defence. The supervisor is expected to provide guidance, mentoring, and more importantly, to monitor the progress of the research process. Thus, it is important for the student and the supervisor to agree on a timeline right from the commencement of the programme.

In many cases, doctoral students are also expected to complete some courses relevant to the research discipline, such as advanced research methods, computational analysis, etc. The main requirement for obtaining a PhD is the submission of a substantial body of original research report in the field in the form of a thesis, which shall be assessed and confirmed by external assessors in an oral defence examination.

It is expected that holders of doctoral degrees will teach in a university or any higher institution which offers programmes towards obtaining a bachelor degree, master's degree, as well as research institutes, although it is not unusual to find doctoral holders in the national civil service and the private sector. The minimum period to complete a doctoral degree programme varies from one university to another, but it is usually three years; in some cases it may be longer or shorter. It can be offered on full time or part-time basis.

Given the importance of doctoral degrees in the national economy of every country, timely completion should be a major focus of universities offering doctoral programmes. Generally, universities are concerned with the attrition and completion rates of higher degree programmes. It is well known that many factors contribute to the timely completion of doctoral degree programmes in universities all over the world.

According to the Report of California Postsecondary Education Commission (1990), there has been concern at the long duration of completion of doctoral degree as far as back 1960s. The Report could not pinpoint on a singular factor responsible for this low rate of completion, although the Report suggested that the factors could be at individual and institutional levels. The Report also found that self-sponsored students spent longer time than those with financial assistance. Other factors suggested in the Report included departmental and faculty support provided to doctoral students. Many studies have also indicated that the high attrition rate and completion time of doctoral programme could be attributed to insufficient funding for graduate students, lack of constructive supervision, inappropriate programme design, academic isolation and poor quality of admissions. (O'Bara, 1993; Golde, 2000; Lovitts, 2001; Glocker, 2011).

Pinson (1998) attributed delays in the completion of doctoral degree to four significant factors: (1) how dissertation writing time was scheduled, (2) computer skills at the beginning of the dissertation, (3) perceived difficulties caused by job demands, and (4) changes in advisor or committee membership. Seagram et al. (1998) stated that science-based students have more interactions with their supervisors compared with humanities students. A study in Canada indicated that discipline area was important for completion, with completion rates varying from 45% in arts and humanities to 70% in life sciences, with science completions being generally in the high 60% range (Elgar, 2003). For the UK, completion rates after 10 years differed by general discipline area with arts/humanities rates being 51%, and sciences cited at 64% (Wright, and Cochrane, 2000). It was reported that the only reliable predictor of timely completion rate depended on what is the discipline of the subject, that is, whether science-based or arts-and humanities-based. A study of 3579 postgraduate students in a university in the UK found that gender, age, etc, had no effect.

Latone and Browne (2001) attributed determinants of attrition and completion rates as institutional factors, supervision arrangements and candidates' characteristics. It was reported that attrition rate in some universities in USA was higher than 50% (It was even suggested it could be as high as 85%).

Studies on doctoral completion rate are not limited to the Western World. According to Abiddin (2011), the average time of completion of PhD programme at Universiti Putra Malaysia was 4.84

years. In a study by Wamala, Oonyu and Ocaya (2011) on completion time of doctoral studies at Makerere University, Uganda, it was found that the average completion time rate was five years. The study further revealed that the rate of completion was higher for candidates at the younger ages, international students and those registered in science-related disciplines.

Few studies have been done in Nigeria with respect to timely doctoral degree completion. Some studies in Nigeria have attempted to discuss factors that affect doctoral completion in Nigeria. In a study on problems encountered in the timely completion of their postgraduate programme by 438 postgraduate students in 16 federal and 9 state universities in Nigeria, Duze (2010) found that lack of equipment, academic, financial, data collection, supervisor, university administration, accommodation, family background, external examiner and personality problems, in a ranking order, were factors affecting the timely completion of their programme. Olorunisola, (2011) in a study on doctoral research supervision in Nigeria found that the 217 students who were enrolled between 2005 and 2009 at the University of Ibadan took between 4.5 and 9 years to complete their doctoral research programme, even though the duration of doctoral programme in Nigerian universities is eight semesters (4 years) for full-time students and 12 (6 years) semesters for part-time students. In another study by Agu and Oluwatayo (2013) on the delay of thesis completion in a South Eastern university in Nigeria, it was found that student's skills in conduct of research and availability of needed research support were major factors in the delay in thesis completion time but supervisor/supervisee working relationship was also a factor in thesis completion. It was revealed that most of the students did not graduate within the regulated time as students spent between two and ten extra years.

Olubusoye and Olusoji (2014) studied the completion time of doctoral degrees at the University of Ibadan by surveying 187 doctoral students who completed their PhD research during the 2011/12 academic session and found out that average time for completing PhD programme at the University of Ibadan was 9 years. Factors that influenced PhD completion time were marital status, gender and employment status, among others.

Given the contribution of doctoral degree to the development of any economy it is important for postgraduate trainees to complete their doctoral degree programmes within the stipulated time, as this will free the limited number of supervisors in Nigeria to supervise more students, as there is a limit to the number of supervisees a supervisor can be allowed to supervise. While few studies have been done in Nigeria with regards to the completion rate of doctoral degree programme in Nigerian universities, none of the studies has specifically addressed library and information science.

From the review of the timely completion of doctoral programme, factors affecting completion rate of doctoral programme can be grouped into four broad areas. These are: (i) individual student factors, (ii) supervisory factors, (iii) institutional factors, and (iv) discipline-related factors.

Individual student factors: marital status, gender, employment status, candidates' characteristics, computer skills at the beginning of the dissertation, difficulties caused by job demands, status of students at enrolment, sponsorship and insufficient funding for graduate students.

Supervisory factors: supervision arrangements, changes in advisor or committee membership, supervisor's relationships with students, supervisor's attitude, lack of constructive supervision, etc.

Institutional factors: availability of research facilities, dissertation writing time; scheduling of programme, inappropriate programme design, resources, university bureaucracy, etc.

Discipline factors: nature of study and discipline area.

For obvious reason, discipline related factors will not be covered in this study since the scope is limited only to library and information science discipline.

Doctoral Programme in Library and Information Science in Nigeria

Because the minimum requirement for appointment as lecturers in the Nigerian university system is a doctoral degree in the discipline, the demand for a doctoral degree in library and information science has increased tremendously. The number of

universities offering LIS programme in Nigeria, according to Librarians Registration Council of Nigeria (LRCN) (2014), was 25. This is further exacerbated by the demand of employers of librarians in Nigerian universities to obtain a doctoral degree in library and information science before they can advance in their careers to senior management positions. This has resulted in the large enrolment of doctoral students in library and information science programme across Nigerian universities. A close observation has shown, however, that the completion time of doctoral degree programme in LIS in Nigerian universities could be anything from three to ten years, thus the necessity for this study.

Doctoral degree programme in library and information science (LIS) in Nigeria commenced at the University of Ibadan in 1969 and the first PhD was produced in 1973. Between 1973 and 1993, the number of doctoral degree holders in library and information science produced at the University of Ibadan was 15, that is, within a period of 20 years. This is because doctoral graduates were produced in trickles; but by the next twenty years (1994-2013) because of the high demand for doctoral programme in LIS, 52 doctoral graduates were produced.

For more than fifteen years, the University of Ibadan was the only university in Nigeria graduating doctoral degree in LIS. It should be noted, however, that the University has dominated the scene as it produced 69 doctoral students as at November 2014.

During the 1990s, many other universities mounted doctoral programme in LIS. Today, many universities in Nigeria offer doctoral programme in library and information science. As at 2014, there were 15 universities offering doctoral degree programme in LIS. Out of the 15 library and information science schools offering PhD, 11 had already graduated doctoral degree holders. It is, however, difficult to determine the number of LIS doctoral graduates of Nigerian universities since the first doctoral degree holder in LIS was produced in 1973 but it is estimated to be about 200 countrywide.

Objectives

This study investigates the various interrelated factors that come into play in doctoral degree completion in LIS in Nigerian universities and the perceptions of doctoral graduates to doctoral degree completion in LIS in Nigeria.

Specifically, the objectives of the study are to:

(i) establish the characteristics of doctoral degree holders.

(ii) determine the average completion time of doctoral degrees in library and information in Nigerian universities.

(iii) identify the effect of students' skills on the completion time of doctoral degree in library and information science.

(iv) identify individual, supervisory and institutional factors affecting the timely completion of doctoral degree in LIS in Nigerian universities.

(v) establish doctoral graduates' perceptions of barriers to timely completion of doctoral degree in LIS in Nigerian universities.

Hypotheses

(i) Individual factors have no relationship with the duration of the programme.

(ii) Supervisory factors have no relationship with the duration of the programme.

(iii) Institutional factors have no relationship with the duration of the programme.

Methodology

In order to attain the objectives of this study, doctoral degree holders who successfully completed the library and information science doctoral programme in Nigerian universities, between 2009 and 2013 were surveyed, with the objective of collecting the data required for this study. The period was chosen as the benchmark period because the participants in the study constituted the most recent doctoral graduates, who would be in a position to provide the most up-to-date information required for identifying factors responsible for the delay in timely completion of their programme.

The data collection period was between April and August 2014. A questionnaire designed for the study was pretested with doctoral degree holders in library and information science from Nigerian universities, who had obtained their LIS doctoral degrees earlier than 2009.

In order to obtain an estimated population of doctoral degree holders in LIS, a list of doctoral degree holders in LIS who graduated from Nigerian universities between 2009 and 2013 was generated by various methods. The heads of library and information science schools in Nigerian universities were requested to provide the names of doctoral holders who had already graduated in LIS. Also, a request was made on the discussion forum of librarians in Nigeria (nla-online-forum @yahoogroups.com) requesting all those within the category to contact the Researcher. The websites of universities offering library and information science were also visited to identify recent doctoral graduates in library and information science. Fifty-eight doctoral holders were harvested. The whole population of doctoral degree holders was used for this study. The questionnaire was sent out by mail to doctoral degree holders in LIS. The respondents were expected to return the questionnaire in a self-addressed stamped envelope included with the questionnaire. This was to protect confidentiality of the respondents**.**

Forty-five out of the fifty-eight copies of the questionnaire designed for doctoral holders were returned constituting 77.6% return. The statistics used in this study were frequencies, mean, median, t-test, one-way ANOVA test and Spearman rho. Statistical Package for the Social Sciences (SPSS) was used in analysing the data.

Findings and Discussion

The findings of this study are treated under the following categories:

(i) Distribution of respondents according universities

(ii) Background information of respondents (individual student factors).

(iii) Research skills of respondents

(iv) Financial sponsorship

(v) Programme structure (institutional factors)

(vi) Supervision process (supervisory factors)

(vii) Duration of the programme

(viii) Factors affecting completion of doctoral programme.

Distribution of Respondents

The 45 doctoral degree holders who completed the questionnaire are distributed as shown in table 1. Even though 11 library schools had already produced doctoral degree holders at the time of this study, six library and information science schools are represented in table 1. Five other respondents did not indicate their institutions. It is not surprising that the University of Ibadan constituted the institution that had most respondents, because apart, from being the oldest library school offering doctoral degree programme in library and information science, it has the largest enrolment of doctoral degree programme in LIS in the Nigerian universities.

Table 1: Distribution of Respondents according to Institution from 2009-2013

S/N	Institution	No.	Per cent
1.	University of Ibadan	21	46.7
2.	University of Nigeria, Nsukka	8	17.8
3.	Babcock University, Ilishan	7	15.6
4.	Delta State University, Abraka	2	4.4
5.	Imo State University, Owerri	1	2.2
6.	University of Uyo	1	2.2
7.	Others	5	11.1
	Total	**45**	**100**

Background Information of Respondents

Table 2 provides the distribution of respondents in terms of demographic factors (gender and age), mode of study, employment status of respondents and their subject background.

Demographic Factors

The gender distribution is almost equal as 24 or 53.3% of the respondents were male, while 21 or 46.7% constituted the female gender. Most of the respondents fell within the age groups of 31-40 years (46.7%) and 41-50 years (42.2%) at the time of enrolment as shown in table 2. It is significant that only 2 respondents (4.4%) constituted the range of less than 30 years. Given the fact that the younger the age of students the more likely the timely completion of doctoral programmes, this may be a major factor in the completion of doctoral programme.

Mode of Study

Majority of the respondents, 26 or (57.8%) registered for doctoral programme as part-time while 19 or 42.2 % were full-time students. The part-time students were asked to indicate if they had the permission of their employers to register for the doctoral programme. All of them indicated that they were given permission. Given the large number of part-time students, it is possible that this may be a major factor in the timely completion of the programme. Of the full-time students, only 10 or 52.6% were given study leave. The others had all sorts of arrangement ranging from some days off duty to occasional permission by their bosses.

Employment Status of Respondents

Table 2 also reveals that most of the respondents were in the librarians' cadre (31.1 %). The senior librarian, principal librarian and university librarian cadres were fairly represented. It is significant to note, however, that the practising librarian cadres constituted 69.5% of the total respondents as opposed to lecturers who constituted only 28.5%. This is not surprising as a doctoral degree is required by librarians before they can advance to senior positions in their careers, hence their large number.

Table 2: Background Information of Respondents

S/N	Variable	No.	Per cent
	Gender		
1.	Male	24	53.3
2.	Female	21	46.7
	Total	**45**	**100**
	Age		
1.	Less than 30 years	2	4.4
2.	31- 40 years	21	46.7
3.	41- 50 years	19	42.2
4.	More than 50 years	3	6.7
	Total	**45**	**100**
	Mode of study		
1.	Full-time	19	42.2
2.	Part-time	26	57.8
	Total		
	Employment Status		
1.	Librarian	14	31.1
2.	Senior Librarian	8	17.8
3.	Principal Librarian	4	8.9
4.	Deputy/University Librarian	2	4.4
5.	Assistant Lecturer	2	4.4
6.	Lecturer	11	24.1
7.	Others	1	2.2
	Total	**45**	**100**
	Subject Background		
1.	Education	20	44.4
2.	Social Science	11	24.4
3.	Arts	8	17.8
4.	Science and technology	2	4.4
5	Not indicated	4	8.9
	Total	**45**	**100**

Subject Background of Respondents

Every librarian (whether in practice or in teaching) is expected to have a background of another subject. This can be offered either as part of bachelor of library and information science degree programme or as a full degree in that subject. This is important because it may be a factor in the timely completion of a doctoral programme. According to the table, most of the respondents had arts-based subject background (86.6%). Only 4.4 % of the respondents had a science background.

Research Skills of Respondents

It is expected that possession of certain skills will fast track a timely completion of doctoral programme. Such skills include being adept in word processing, statistical software, surfing the Internet, editing skills, writing skills, etc. These skills are needed throughout the duration of the programme. The doctoral students were asked to indicate the skills they possessed during the programme. Table 3 reveals the variety of skills possessed by the respondents. They were mainly deficient in the use of statistical software as indicated in the table.

Table 3: Respondents' Skills in Research (N=45)

S/N	Research Skill	No.	Per cent
1.	Writing	40	88.9
2.	Internet Surfing	38	84.4
3.	Word Processing Software	37	82.2
4.	Editing	32	71.1
5.	Statistical Software	14	31.1

Financial Support to Respondents

Sponsorship is an important factor in pursuing a doctoral degree programme because financial resources are very critical to pursuing a doctoral programme. So the respondents were asked to indicate the source of financial assistance they received for the doctoral programme. Table 4 shows that the major source of financial support for the programme. Majority of the respondents was self-sponsorship. Only 14 or 31.1% of the respondents had one form of assistance or the other. This may be a major factor in the timely completion of doctoral programme in LIS.

The large number of self-sponsored students may be linked to the desire to advance in their careers. When respondents were asked to indicate the singular reason for pursuing a doctoral degree programme, majority of the respondents indicated that the major reason was the desire to become a scholar (60%), while 16 or 35.6% indicated the demand of their employers as the singular reason. This is to be expected as librarians who constituted majority of the respondents would not advance in their careers without a doctoral degree in LIS. Only one respondent indicated the prestige of being called a doctor.

Table 4: Source of Financial Support to Respondents

S/N	Source	No.	Per cent
1.	Self-sponsorship	31	68.9
2.	Staff development	13	28.9
3.	Scholarship	1	2.2
	Total	**45**	**100**

Programme Structure of LIS Programme in Nigerian Universities

The structure of doctoral programmes varies from one university to another. It could solely be based on the submission of a thesis or a combination of course work and submission of original research of a thesis. Courses are prescribed for doctoral students which on successful completion will enable a student to pursue the submission of a thesis. All the respondents indicated they went through course work as well as submission of original research for a thesis but the courses they offered varied from one university to the other. Table 5 shows the variety of courses offered during the doctoral programme.

Table 5: Courses Offered by Respondents (N=45)

S/N	Course	No.	Per cent
1.	LIS Themes	35	77.8
2.	Advanced Research	32	71.1
3.	Statistics	24	53.3
4.	ICT Themes	17	37.8
5.	Computer Applications	12	26.7
6.	Publishing	8	17.8

Majority of the students presented both pre-field (95.6%) and post-field (88.9%) seminars. Only 17.8% of the respondents disseminated their research projects through the attendance of national conference and 6.7% presented their findings at international conferences.

Library Facility Available for the Programme

Majority of the respondents used their university libraries for their research studies as shown in table 6; however, a large number of the respondents indicated that they did not find the library collections adequate (48.9%). Majority of the respondents claimed the library collection was not adequate in most of the library resources required for their doctoral as indicated in the table. From the table, it is obvious that relevant textbooks were not available to a large number of the respondents (64.4%). Journals which constitute the most important resource

for doctoral programme were not adequate to a majority of the respondents (55.6%).

Table 6: Library Facility Available for Programme

S/N	Variable	No.	Per cent
	Type of Library		
1.	University	43	95.6
2.	Department	27	60.0
3.	Faculty	17	37.8
4.	Employers	16	35.6
	Inadequacy of Library Collections		
1	Relevant textbooks	29	64.4
2.	Access to past theses	26	57.8
3.	Access to the Internet	26	57.8
4.	Journal	25	55.6

University Bureaucracy

After completing the final draft of a doctoral programme, the time it takes before the degree is awarded varies from one institution to the other. The respondents were asked to state the time it took them at every stage before the degree was finally awarded. Most of the respondents indicated that it took them three months (35.6%) before oral defence was arranged, another 31.1% respondents indicated six months, for a sizeable number, (26.7%) it took one year.

After the oral examination, most of the respondents (84.4%) reported that it took them one month for supervisor to sanction corrections they submitted to them. When respondents were asked to indicate, on average, how long it took between the confirmation of the final draft by the internal examiner and the submission to Senate for approval, more than (40.0%) of the respondents indicated that it took them more than three months.

The respondents were asked to indicate, on average, the time it took from when the final draft was submitted by the student to when the degree was approved by Senate. Table 7 shows the period. It shows that more than 71% of the respondents (i.e. six months, one year, more than one year) were awarded their degrees after six months or more of submission.

Table 7: Average Period between Submission of Final Draft and Approval by Senate (N=45)

S/N	Period	No.	Per cent
1.	Three months	13	28.9
2.	Six months	10	22.2
3.	One year	8	17.8
4.	More than one year	14	31.1

Supervision Process

For timely completion of PhD programme the role of the supervisor is crucial hence respondents' opinions on supervisory style, status of supervisors, areas of mentoring, methods of contacting supervisors and supervisors' commitment were sought. Table 8 shows the various supervisory styles, status of supervisors, areas of mentoring and methods of contacting supervisors.

Supervision Style

Majority of the respondents were supervised by sole supervisors (80%). As indicated in the table 8, six were supervised by co-supervisors and one by a team of supervisors. A cross tabulation of type of supervisor and institutions shows that only Babcock University employed team-supervision. Babcock University, Delta State University and the University of Nigeria, Nsukka used co-supervision.

Status of Supervisors

Majority of the doctoral graduates were supervised by supervisors in the professorial grade (professors and associate professors) (68.9%) as shown in table 8. A cross tabulation of institutions found that only the University of Ibadan and the University of Nigeria used non-professorial grade supervisors.

Most respondents had good relationship with their supervisors as they considered the relationship to be of senior colleague/colleague relationship (75.6%), although 8.9% of the respondents each described their relationship as teacher/pupil and master/servant. One respondent considered to be of expert/novice.

Mentoring

Almost all the respondents (88.9%) regarded their supervisors as mentors. When they were asked to indicate areas in which they were mentored, a variety of areas were mentioned as shown in table 8, which shows that students were not really mentored sufficiently in areas that have a lot of bearing on their postgraduate studies: Such areas as support services for accommodation, library and computer facilities (10%), introduction to university structure-committees, postgraduate school, senate, etc, (5%) were less mentioned by the respondents.

Method of Contacting Supervisors

Respondents were asked to indicate methods they used in contacting their supervisors. A variety of methods according to table 8 were used. Surprisingly, most of the respondents did not use e-mail as a method (46.7%) of contacting their supervisors. It has been reported that e-mail is a major method of contacting supervisors which would fast track timely completion of doctoral programme.

Supervisors' Commitment

Most doctoral graduates reported that supervisors played a major role in delaying the timely completion of their programmes, especially the length of time it takes to read their drafts. When the respondents were asked to indicate how long on average it took to receive feedback from their tutors. Most of the respondents mentioned two weeks (44.4%). Four of the respondents reported three months (8.9%) while one reported six months (2.2%). However, it also took the respondents two weeks on average (57.8%) to effect corrections. One pointed out that, on average, it took three months to effect corrections. Majority of the respondents reported that their supervisors were professional in their interaction with them (93.3%). They also mentioned that their supervisors were very enthusiastic (91.1%).

Table 8: Supervisory Process

S/N	Variable	No.	Per cent
	Type of Supervisors (N=45)		
1.	Sole Supervisor	36	80
2.	Co-supervisor	6	13.3
3.	Team of supervisors	1	2.2
4	No indication	2	4.4
	Status (N=45)		
1	Professor	24	53.3
2.	Associate Professor/Reader	7	15.6
3.	Senior Lecturer	11	24.2
4	Lecturer	1	2.2
	Mentoring Areas Mentioned by respondents Course (N=40)		
1	Assistance for financial resources	39	97.5
2.	Access to university facilities	31	77.5
3.	Assistance to publish in scholarly journals	26	65
4.	Counselling	21	52.5
5.	Career planning	16	40
6.	Assisting supervisors in invigilation and tutorials	12	30
7.	Identifying conferences	7	17.5
8.	Support services for accommodation, library s and computer facilities	4	10.0
9.	Introduction to university structure-committees, postgraduate school, senate, etc.	2	5.0
	Method of Contacting Supervisors (N=45)		
1	Supervisor's office	44	97.8
2.	Phone	39	86.7
3.	SMS	31	68.9
4.	E-mail	21	46.7

Duration of the Programme

Respondents were asked to indicate the minimum time for the completion of doctoral programme. Majority of the respondents indicated that six semesters or three years constituted the minimum time for the completion of the programme for full-time and eight semesters or four years for part-time. Some mentioned two years as minimum while others mentioned four years. No respondent mentioned any period longer than four years as minimum period for the completion of a PhD programme.

When the respondents were asked if they met the stipulated minimum period for their programme, only 5 (11.6%) respondents indicated they met the minimum period, while 38 (88.4%) of the respondents indicated that they did not meet the minimum period. When respondents were asked to indicate the duration of their doctoral programme, a variety of periods were provided, with the median time being 6.68 years, while the mean was 7 years. The minimum period was 2 years while the maximum period was 13 years. According to Olubosoye and Olusoji (2014), six years is considered as benchmark for timely completion of doctoral programme; 18 (45%) of the 40 doctoral graduates indicated that they completed the programme in six years or less.

A cross tabulation of the duration of the programme against the institutions shows that Babcock University had the best completion period. Of the seven graduates, five completed the programme in two years, while the remaining two completed the programme in three years. The study however revealed that all the seven doctoral graduates did their programme full-time. The University of Nigeria, Nsukka spent between four years and seven years. The University of Ibadan completed the programme between five years and thirteen years; Delta State University between seven years and 11 years; the University of Uyo spent four years; while Imo State University spent 6 years.

Challenges of Timely Completion of Doctoral Programme

The respondents were asked to indicate the challenges confronting them in the completion of their programme. Table 9 reveals the challenges as mentioned by the respondents. More than half of the respondents as shown in table 9 indicated that difficulty in registration due to inability to pay on time (84.4%), strike by lecturers/students (64.4%), and university bureaucracy were the major challenges (53.3%). A large number of respondents (20%) mentioned supervisors' attitude and inadequate library collections (15%) as challenges.

Table 9: Challenges of completing doctoral programme on time (N=45)

Challenge	No.	Per cent
Difficulty in registration due to inability to pay on time	38	84.4
Strike by lecturers/students	29	64.4
University bureaucracy	24	53.3
Personal/domestic issues	15	33.3
Employers' demands	14	31.1
Supervisors' attitude	9	20
Inadequate library collections	7	15.6
Getting acceptable title	3	6.7
Inadequate skills for research proposals	2	4.4
Inadequate writing skills	1	2.2
Difficulty with statistician	1	2.2

Timeliness

The study shows that most of the respondents did not have a time schedule for the completion of the programme as only 11 or 28.2% of the respondents indicated that they prepared a timeline for completion of their programme. Those who had timeline came from Babcock (5), University of Ibadan (3) and University of Nigeria, Nsukka (3). A large number of the respondents who prepared the timeline did not complete the programme on time.

Factors Affecting Completion of Doctoral Programme

Many factors come into play in the timely completion of doctoral programme. As already indicated, many

factors are likely to affect the completion of doctoral programme. In order to identify factors that affect completion of doctoral programme t-test, one-way analysis of variance (ANOVA) test and Spearman rank correlation were used in testing the effects of individual, supervisory and institutional factors on the duration of programme.

Individual Student Factors

Many individual factors affect the duration of doctoral programme. Such factors identified as individual student factors are: gender, age, employment status, mode of study, sponsorship. Statistical tests were carried out to see if these factors would have an effect on the duration of the programme. The results of t-test (t-value=-2.423;d.f=38;and p-value=0.02) show that the mode of study has a significant effect on the duration of the programme with full-time and part-time students spending an average of 5.53 years and 7.71 years respectively. The results of a one-way ANOVA test also show that sponsorship has a significant effect on the duration of the programme (F=3.741; d.f=2.37; and p-value=0.033). Other factors, i.e. gender, age and employment status, did not have a significant effect mode on the duration of the doctoral programme.

Supervisory Factors

Many of the studies on timely completion of doctoral programmes have indicated that supervisors play a major role in timely completion of doctoral programme. Thus, the factors of supervisor's status, type, and attitude were tested to see if they have significant effects on the duration of the programme. A t-test analysis shows that the supervisor's attitude has a significant effect on the duration of the programme (t-value=2.303; d.f.=31; and p-value=0.028) with students of those having an attitude spending an average of about 9.11 years while the students of those without having an attitude spend an average of about 7.04 years. A one-way ANOVA test also reveals that the supervisor's status has a significant effect on the duration of the programme (F-value=4.144; d.f.=3,34; and p-value=0.013). The type of supervision (that is whether sole supervision or co-supervision or team supervision) has no significant effect on the duration of the programme.

Institutional Factors

These are factors that exist in the departments, faculties, postgraduate school and the university, which will affect the timely completion of doctoral programme. Some of these factors include adequacy of library collections, university bureaucracy, difficulty of registration of title and payment, and time between submission of final draft and senate approval. Statistical tests show that all these factors except one have no effect on the duration of the programme. The only exception is the time degree was awarded (i.e. the average period between submission of final draft and approval by Senate) which has a positive correlation with the duration of the programme (Spearman's rho=0.411; N=40; and p-value=0.008).

Table 10 shows a summary of individual, supervisory and institutional factors affecting the duration of LIS doctoral graduates in Nigeria.

Table 10: Factors affecting timely completion of doctoral programme

S/N	Factors	Relationship Results	Level of Significance
	INDIVIDUAL		
1.	Mode of Study	t=-2.423	.002
2.	Sponsorship	F= 3.741	.033
	SUPERVISORY		
3.	Supervisors' Attitude	t=-2.303	.028
4.	Status of Supervisors	F= 4.144	.013
	INSTITUTIONAL		
5.	Average period between the submission of final draft and the time degree was awarded by Senate	Correlation coefficient= .411.	. 008

Conclusion and Recommendations

Majority of the respondents were in the age range of 30 years and above (95.6%). Most of the respondents were practising librarians (69.5%). A large number of the respondents possessed skills required for doctoral research except statistical skills which only a few of the respondents claimed to possess (31.1%). Majority of the respondents (68.9%) sponsored the doctoral programme themselves. Most of the respondents were not satisfied with their library collections. The median time and the mean for completing doctoral programme were 6.68 years and 7 years respectively.

Difficulty in registration due to inability to pay on time, strike by lecturers/students and university bureaucracy were the major obstacles to timely completion of doctoral programme in LIS. Two of individual factors (mode of study and sponsorship), two supervisory factors: supervisors' attitude and status of supervisors, and one institutional factor (the time it took between the submission of final draft and the time the degree was awarded) had relationship with the timely completion of doctoral programme.

It is recommended that library and information science schools in Nigeria should make efforts to attract young students into their programme. All final year undergraduates who obtain second class upper division and above should be encouraged to do the doctoral degree programme. Universities should provide funding for such students who have been attracted to pursue doctoral research programme. Also, Nigerian government through TETFUND (Tertiary Education Fund) should pay a lot of attention to doctoral research programme in Nigeria, given the importance of research findings that would emanate from their research projects which will contribute positively to the national economy of the nation. The idea of doctoral graduates sponsoring their doctoral programme would not augur well for the country. The Government must be aggressively involved in doctoral programmes. Library and information science schools need to give a greater attention to statistics by ensuring that all doctoral students are skilled in statistical techniques. Library and information science is a social study, unlike in the past, statistical techniques will have to be applied to LIS research. The bureaucracy in Nigeria's postgraduate system must be addressed, as institutional bureaucracy is responsible for most of the delay in the timely completion of doctoral degree programme. Supervisors will have to show more commitment to supervision process so as to improve on the timely completion of doctoral programme. Nigerian universities should learn from Babcock University, where it takes between two and three years to complete doctoral degree programme.

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Trends in Research Methodological Procedures Used in Knowledge Management Studies

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Abstract

Drawing on extant literature, this methodological study provides a content analysis of research procedures employed in knowledge management (KM) research between 2009 and 2013. A total of 303 articles published in the Journal of Knowledge Management were critically reviewed and subjected to a descriptive content analysis research approach. Non-empirical studies were on the decline. Positivist epistemologies and quantitative research approaches predominated research in knowledge management (KM). Surveys, case studies and content analysis were the most favoured research approaches. Other major research approaches such as field experiments, ethnography, grounded theory and phenomenology were conspicuous by their absence. Questionnaires and interviews were commonly used for data collection, but the use of more than one research method was not prevalent. Based on the findings, many implications emerge that improve our understanding of research procedures used in KM research. One research method was used in this study. The use of more than one research paradigm and research method may extend our understanding of research in KM. The findings revealed good practices and gaps in using research methods. The results from this article can be used to relook or reanalyse the research methodologies that are used in the KM field. Consequently, it will assist KM researchers in making informed decisions about method selection and deployment in their studies. The study used a broader and systematic multi-stage conceptual framework to comprehensively analyse the research procedures used in the KM field.

Introduction

Knowledge that is produced in any scientific field primarily depends on the methodology that is used. An investigation into the research procedures used by researchers in a subject field to acquire and generate new knowledge and validate knowledge claims is pertinent. Researchers should investigate the tools a "field is deploying to generate knowledge about its knowledge" (Chauvel and Depres, 2002) in order to deepen their understanding of the methodological approaches that scholars use to develop a subject field. Prospective studies rely on accumulated knowledge as a basis for their research. The norms and standards in a subject field are determined and mapped out by research. The development of the conceptual, theoretical and methodological foundation of a subject field depends on sound research. Studies have demonstrated that research quality and practice complement each other (Grönlund, 2008). Rigorous research also has positive influences on practice and enhances the quality of life (Serenko and Bontis, 2013).

Appropriate research methods are required to conceptualise research problems and describe the phenomena that are being investigated. A study by Stallings and Ferris (1988) in the field of public administration demonstrated that researchers in the field had initially used inappropriate methodologies to conduct research. In this regard, our concern is how knowledge in the knowledge management (KM) field has accumulated thus far. We partly dealt with this concern by investigating the research procedures

that are used in the *Journal of Knowledge Management*. Other scholars who examined the contents of scholarly journals were also interested in the research procedures followed (Jordaan, Wiese, Amade and De Clercq, 2013). Studies that investigate research procedures in a specific discipline are imperative, because scientific research methods are employed and interpreted "within the context of a particular disciplinary tradition" (Piekkari, Welch and Paavilainen, 2009).

Although, KM is an emergent and young management discipline, a lot of research on KM has been conducted to shape KM into an independent academic field (Marymalavi and Leidner, 2006; Serenko, 2013; Serenko and Bontis, 2009). The unprecedented growth of research in the field warrants research into how knowledge has been accumulated, and the knowledge claims that account for the accumulation. As an applied field with its various disciplinary influences, knowledge management requires explicit attention to research methodologies. This should form part of reflective evaluation.

Thus, the article poses the question: How have research methodological procedures been applied in the field of knowledge management? Articles that were published between 2009 and 2013 in the *Journal of Knowledge Management* were used to attend to the research question. The subjective indicators that were used to determine the time span selected for analysis are explained later under the methods and materials section. The extant literature shows that previous research into the state of journals has focused on research 'output factors' such as methodologies used in the study (Jordaan, Wiese, Amade and De Clercq, 2013).

There are many published texts on research methodologies, but there are a few studies that have been conducted on how these research procedures have been applied in developing a field such as KM which has become increasingly important (Serenko and Bontis, 2009; Serenko and Bontis, 2013). The aim of this study is to complement the increase in literature on the analysis of methodological procedures in a subject field.

Theoretical Background

The social science research methodology landscape is a minefield that can be "notoriously slippery" (Rule and John, 2011). The situation is compounded by the fact that some methodologists at times use research methodology-related terms loosely, contradictorily and inconsistently. Consequently, there are many "shapes" of research methodologies in as much as there are many shapes of knowledge (cf van den Berg, 2013). Many researchers have difficulty in identifying the conceptual differences between epistemology, ontology, paradigm, methodology, research approaches, techniques and other core concepts in research methods (Given, 2013; Ngulube, 2015).

For instance, there are some authors who call a case study approach a method, methodology or research design (VanWynsberghe and Khan, 2007). Methodology and research approach have not been spared the confusion and contradiction that will be explained later in this article. Della Porta and Keating (2008) averred that "[approaches] is a general term that is wider than theory or methodology". What is conceptualised in figure 1 as concepts constituting a research methodology is referred to as a research approach by Chu (2015). Further, Neuman (2011) equated research approaches to paradigms. These variations may be partly attributed to the fact that researchers in different parts of the world may have diverse approaches to social research. It is evident from the classification in figure 1 that we think that approaches are different from paradigms, and that the term is narrower than methodology.

Apart from the area of methodology being represented differently in the literature, some researchers in the field of KM have not helped the situation. A statement such as: "Research methodology used in this study is based on a combination of other methodologies such as action research, group discussion, documentary study and questionnaire research" (Kazemi and Allahyari, 2010) may be confusing to a novice researcher who may be trying to understand the research procedures used in a field. This statement lumps together research designs and data collection methods and refers to them as research methodologies. Another noteworthy example of the tendency is of McNichols (2010) who described the Delphi data gathering procedure as a method, technique and methodology. Such statements may bring about confusion and "paradigmatic uncertainty among authors and readers of scientific papers" (Graneheim and Lundman, 2004).

The purpose of this theoretical background is to clarify issues of using concepts in research methodology. Figure 1 diagrammatically outlines the various components of the research methodology enterprise and illustrates the hierarchical connections and relationships. It is noteworthy that figure I is only illustrative since it does not give an exhaustive picture of all the research procedures that are available in the extant literature. It only shows the relationships among the various components of the research methodology landscape so that the reader appreciates the perspective which was adopted in this article.

Philosophical assumptions about the nature of knowledge, or the nature and existence of social reality (ontology) and what constitute that knowledge and ways of knowing (epistemology) make up a paradigmatic base of research in a subject field. These are the foundations on which social research is framed. Philosophical assumptions assist researchers in choosing the problems to study, the questions to ask and the theories to utilise in their production of valid knowledge (Cecez-Kecmanovic and Kennan, 2013; Creswell, 2013; Saunders, Lewis and Thornhill, 2009). Creswell (2014) refers to these philosophical assumptions as worldviews. Following Guba and Lincoln (2005), we call them paradigms. According to Sarantakos (2013), "Ontological, epistemological and methodological prescriptions of social research are 'packaged' in paradigms which guide everyday research." The discussion of these research assumptions is the concern of the next few paragraphs.

Positivism and interpretivism are the broad frameworks or paradigms in which research is conducted. Paradigms are influenced by realist or objectivist and constructionist ontology (Fraser, 2014; Sarantakos, 2013). The realist ontology is informed by the positivist paradigm while the constructivist one, or what Neuman (2011) called nominalist, is influenced by interpretivism. For instance, social constructivism, postmodernism, feminism and critical theory draw on interpretivist frameworks, because they all assume a relativist ontology. Ontological assumptions define the epistemology of knowledge. Knowledge that is generated in the interpretivist paradigm is subjective while epistemologically, positivists generate objective knowledge that is 'out there'. Pragmatism or methodological pluralism was born out of an attempt to bridge the gap between interpretivist and positivist epistemologies.

Methodology is central to the research process, because it is the lens through which a researcher looks when making decisions on acquiring knowledge about social phenomenon and getting answers to the research questions. In other words, it specifies the types of research designs and research methods that may be employed to gain knowledge about a phenomenon. However, it is a misunderstood concept in the field of KM (Mingers, 2003). The findings of the current study partially confirm this statement.

The methodology of positivism is quantitative while that of interpretivism is qualitative as illustrated in figure I. Qualitative research is inductive and exploratory in nature while quantitative research is hypothetico-deductive, since it is theory-led and tends to be confirmatory. Mixed methods research (MMR) is in the realm of multi-paradigms since it employs both the positivist and the interpretivist paradigms. It is important to note that MMR goes beyond the boundaries of triangulation which utilises a number of research techniques in the same research design (Romm and Ngulube, 2015). MMR combines the strengths of the qualitative and quantitative methodology to produce a comprehensive and broad-based research

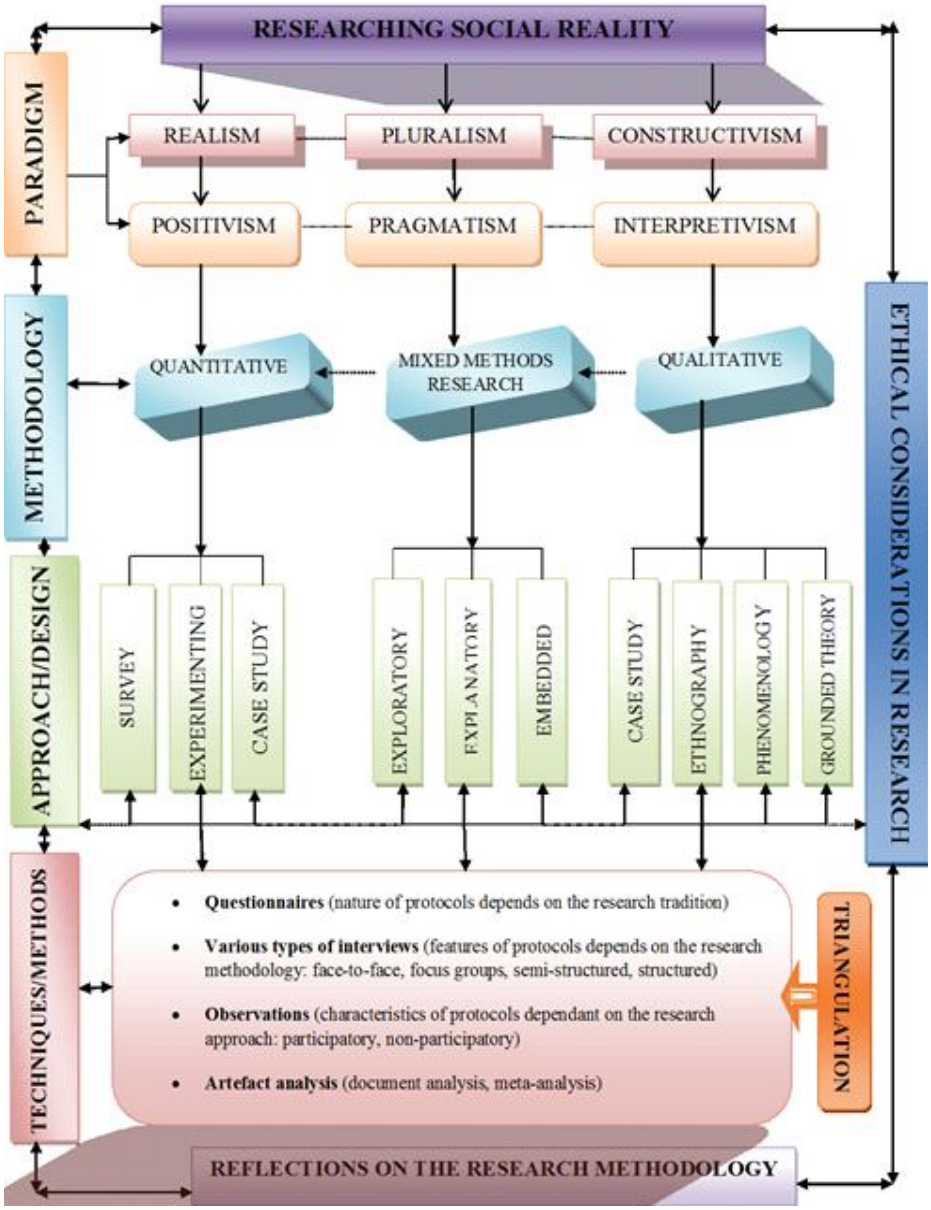

Figure 1: Mapping the research methodology discourse (author's own work)

The choice of a research methodology is determined by the "underlying theoretical paradigm" (Sarantakos, 2013), the purpose of the research, and the research question. Research questions determine the methodology that should be used to understand reality. Among other things, a good research question should be interesting, relevant and ethical (Green, 2008). Figure 1 shows that ethics is one of the overarching aspects of the research methodology landscape. Ethical standards and considerations should be upheld throughout the entire research process. Researchers should be ethical at every stage of the research. Participants should be treated with respect from the time they come into contact with the researcher up to the data collection, analysis and dissemination of the findings. Hence, research is ethically intensive (Johanson, 2013).

The research design or approach determines and controls data collection and analysis procedures. Although there is an agreement that research action

is guided by the research design (David and Sutton, 2011; Sarantakos, 2013) or the plan of the research, there is no consensus among methodologists as to what a research design is.

For instance, Creswell (2013) and Myers (2009) conceptualised it as a plan for the entire project, including all the components depicted in figure 1. On the other hand, Fraser (2014) classified research designs as methodologies. There is also confusion regarding the difference between research design and research method (David and Sutton, 2011; Ngulube, 2015). According to De Vaus (2001), "It is not uncommon to see research design treated as a mode of data collection rather than as a logical structure of the inquiry." Chu (2015) confirms the observation made by De Vaus (2001) since she does not distinguish between research designs and research methods.

Creswell (2013) and Saunders, Lewis and Thornhill (2009) use the term "research methods" to refer to techniques and procedures such as questionnaires, interviews, observation, document analysis; and artefact analysis. Following Creswell (2013) and Rule and John (2011), we use the term "research methods" to refer to techniques for gathering data, while research designs or research approaches are ways of designing and conducting research. Hider and Pymm (2008) labelled these as research strategies.

Figure 1 illustrates some of the qualitative, quantitative and mixed method research designs. Qualitative designs or approaches include the case study (situated knowledge); historical research (knowledge of history); grounded theory (knowledge of process and outcome); ethnography (knowledge of culture); content analysis (knowledge of content); phenomenology (knowledge of lived experience); action research (knowledge of process, outcome and change); hermeneutics (knowledge and interpretation of the scriptures or text) and discourse analysis (knowledge of discourse) (Mills, 2014). The major quantitative designs are experimentation survey and case study. Mixed method research designs are diverse, but Romm and Ngulube (2015) suggested that explanatory, exploratory, convergent, embedded and multiphase designs are some of the research designs that MMR researchers may use, although there are other typologies that are available, depending on what one reads.

Research methods are concerned with data collection techniques such as observations, interviews, questionnaires, physical traces, document reviews and audio-visual materials. Plowright (2011) argues for the use of "artefact analysis" to describe objects or events that are produced by people. The research instruments may be either inductive or deductive. Hence, researchers talk of qualitative and quantitative interviews. Qualitative interviews are generally unstructured and unstandardised when compared to their quantitative counterparts. These protocols may be combined to achieve triangulation whether one is using qualitative or quantitative approaches.

There is a need for researchers to reflect on the research procedures they deploy because no methodology is perfect (Ngulube, 2005). Reflection on the research methodology entails questioning the appropriateness and adequacy of the methodology one would have used to conduct a study against the available options. This also involves highlighting the limitations of the methodology used. For instance, in the field of KM, Cockrell and Stone (2010) used 52 certified management accountants as respondents in their research; and on evaluating their procedures, they pointed out that the use of a larger sample and triangulating research methods would have enhanced the validity of the study and strengthened their conclusions.

On the other hand, after assessing the validity of Davenport's classification system of knowledge work using a quantitative survey, Margaryan, Milligan and Littlejohn (2011) admitted that follow-up qualitative studies were necessary to better understand the phenomenon, while Zhou and Chen (2011) pointed out that quantitative research was needed to verify the models they were proposing. McNichols (2010) acknowledged that the unrepresentative sample size and the methodology were some of the limitations of the study. Such reflections are necessary because they are likely to enlighten the reader as to what information was needed, and how it was collected and analysed, including the advantages and pitfalls of using the research procedures (Ngulube, 2005). Such reflections were found to be prevalent among the KM researchers.

Statement of the Problem

The systematic investigation of the natural world is dependent on the use of research procedures for knowledge creation (Serenko and Bontis, 2013). Methodological assumptions and approaches determine the validity, reliability and conformability of quantitative studies, on one hand, and the dependability, credibility and transferability of qualitative ones, on the other hand.

Although research is determined by the research question and is "diverse and pluralistic, varying in focus, purpose, procedures and theoretical foundations" (Sarantakos, 2013), it is important to investigate the methodological nuances in a given subject field to understand how knowledge is produced in the discipline. Knowledge management is increasingly growing as a field of study, but little research has yet appeared on the various methodologies used by researchers in this field. Research on research procedures used in KM has been the focus of a handful of studies, but they made a partial and limited analysis of the area.

For instance, Chauvel and Despres (2002) reviewed the use of survey research in knowledge management between 1997 and 2001 and theorised about the elements they measured. Serenko, Bontis, Booker, Sadeddin and Hardie (2010) looked at the research techniques, (i.e. mainly data collection methods) used in KM research without clearly motivating the framework they used to categorise the research methods; thus, diminishing the usefulness of the findings. Serenko and Dumay (2015) only looked at the research methods used by KM articles and discovered that there were a handful of empirical studies with case studies and surveys being dominant.

Our study goes beyond what was covered by previous research, because it investigated the epistemological and methodological issues that researchers in KM used in their inquiry and their implications for the validity of the findings and conclusions, using a broader and systematic multi-stage conceptual framework.

The following research questions were formulated bearing in mind the statement of the problem.

(i) What are the trends in the use of non-empirical and empirical research procedures in knowledge management research?

(ii) Which are the commonly utilised philosophical assumptions in knowledge management research?

(iii) Which are the most frequently deployed research methodologies to analyse knowledge management matters?

(iv) Which recurring research approaches are employed in knowledge management research?

(v) What data collection techniques are exploited in knowledge management research, and extent they are triangulated?

(vi) What implications does the research procedures used have on knowledge management research?

Methods and Materials

A subjective indicator was used to select the journal for analysis. Previous studies used the same approach to select a journal for analysis (Jordaan, Wiese, Amade and De Clercq, 2013; Ngulube and Ngulube, 2015). First and foremost, the disciplinary focus of the study dictated the choice of the journal for analysis. The *Journal of Knowledge Management* was selected because it is the leading KM-centric scholarly journal in the subject field (Serenko and Bontis, 2009; Serenko and Bontis, 2013). Furthermore, it provides a broad-based coverage of issues on knowledge management (Serenko and Bontis, 2013). The assumption was that it reflected the trends in best practice KM research. Journal articles were selected instead of other avenues of scholarly communication, because academics mainly use journal articles to disseminate knowledge and obtain knowledge about developments in a discipline (Nord and Nord, 1995).

A total of 303 articles published in the *Journal of Knowledge Management* between 2009 and 2013 were analysed in order to categorise the research procedures used in each article. The number of articles that were analysed was considered enough when compared with the number of articles used by other scholars. For instance, Serenko and Bontis (2013) used 63 articles for their analysis, and Durst and Edvardsson (2012) analysed 36 articles in their research on knowledge management in small

and medium-sized enterprises. The period covered by the current analysis is also five years. Besides, Thomson Reuters recommends a period of at least five years when deciding which years of publications and citations to use in order to measure research impact (Pendlebury, 2010). It is evident that the time span chosen for analysis resonates with the suggestion that methodological approaches tend to stabilise within a period of five years (Hutchinson and Lovell, 2004).

The article-type classification or the descriptors used by the *Journal of Knowledge Management* were not used, because in some cases it did not meet the requirements of our definition and framework. Articles were first classified as empirical and non-empirical. Building on Bolivar, Munoz and Hernández (2014), Chu (2015) and Ngulube and Ngulube (2015) editorials, letters to the editor, book reviews, brief communications and commentaries were excluded from the analysis. Those articles that did not report data were considered to be non-empirical as suggested by Bergh, Perry and Hanke (2006), Hanson and Grimmer, (2007), Myers (2009) and Ngulube and Ngulube (2015).

After identifying the empirical articles, the abstract was checked to determine if the methodology was mentioned. The methodology section was then checked to determine if there was an explanation of the methodology used. Data collection and analysis methods were also checked. Finally, the analysis section was checked to find out whether the analysis was aligned with the methodology. Checking the alignment between the research design and the data analysis methods enhanced the validity of the coding. The study focused on these variables because they have been used before to show research trends in various fields (Bolivar, Munoz and Hernández, 2012; Ngulube and Ngulube, 2015). Bolivar, Munoz and Hernández (2012) analysed 157 articles published from the year 2000 to 2008, while Ngulube and Ngulube (2015) evaluated 332 articles published between 2003 and 2011 (inclusive).

A trained research assistant undertook the initial coding; and the author of this article checked for coding accuracy, and there were no significant disagreements. Following Hanson and Grimmer, (2007), another researcher independently coded a sample of 10% of articles to achieve "investigator triangulation" (Denzin, 1989). Inter-coder reliability is considered as one of the ways of assuring quality in content analysis (Kolbe and Burnett, 1991). Explaining the content analysis approach is beyond the scope of this article. Suffice to point out that content analysis is the most commonly used strategy for analysing the content of journals (Jordaan, Wiese, Amade and De Clercq, 2013; Ngulube and Ngulube, 2015).

Results and Discussions

The discussion section is based on the research questions posed above. The trends in the research procedures used in knowledge management research are discussed followed by commonly utilised paradigms in knowledge management research and the most frequently deployed research methodologies to analyse knowledge management matters. The discussion then turns to the recurring research approaches employed in knowledge management research, and the data collection techniques often exploited in knowledge management research including triangulation. We conclude this section by looking at the implications of the research procedures for knowledge management research.

Trends in the Use of Non-Empirical and Empirical Research Procedures

Results from the current study revealed that 27.1 % of the 303 articles that were analysed used non-empirical methods as compared with 72.9% which deployed empirical ones. Researchers who published in the *International Journal of Advertising* between 1992 and 2006 had 70% of the articles using empirical procedures (West, 2007). In public administration, Bolivar, Munoz and Hernández (2012) observed that 15.29% were non-empirical and 84.71% empirical. From the analysis of articles on e-government published in public administration, information science and library science journals, Bolivar, Munoz and Hernández (2012; 2014) revealed that 15.29% to 12.23% of the articles were non-empirical.

The ratio of empirical to non-empirical articles in KM research is not drastically different from trends in other cognitive subject fields. Table I shows that the number of non-empirical studies dropped from 28 articles in 2009 to 14 in 2013. Serenko, Bontis,

Booker, Sadeddin and Hardie (2010) revealed that non-empirical studies were declining between 1994 and 2008 without giving figures. In that regard, there is no basis for comparison between the results of their study and ours except to say that the current study confirms a gradual downward trend. The other trends are depicted in table 1 and explained in the subsequent sections.

Table 1	**Research trends in KM research (N=303)**				
Year	**Non-empirical**	**Empirical**	**Qualitative**	**Quantitative**	**Mixed methods research**
2009	28	45	19	26	-
2010	15	44	12	30	2
2011	10	48	19	28	-
2012	15	42	19	26	-
2013	14	42	17	23	-
Total	**82**	**221**	**86**	**133**	**2**

Commonly Utilised Philosophical Assumptions in Knowledge Management Research

Social research is guided by ontology, epistemology and methodology (Cecez-Kecmanovic and Kennan, 2013; Creswell, 2013; Sarantakos, 2013). Although it is not the convention that philosophical assumptions are mentioned in research articles (Platt, 1996), we checked on the philosophical position of the researchers. In fact, one becomes "a better researcher by considering assumptions and being explicit about them" (Neuman, 2011). It cannot be ruled out that some researchers do not make their philosophical positions clear because they are not "aware of the philosophical assumptions underlying their knowledge claims" (Piekkari, Welch and Paavilainen, 2009). Acknowledgement of knowledge claims helps the researchers to avoid inconsistencies in their research. For instance, some researchers use a variable-oriented language, employ qualitative designs to conduct their research, and present their data in a primarily quantitative manner (Piekkari, Welch and Paavilainen, 2009).

By declaring their philosophical claims upfront, researchers become ethically accountable for their choices and make the whole research enterprise transparent. Furthermore, such declarations give context to the researcher's scholarly work (Lowery and Evans, 2004). A handful of researchers in the sampled articles made their philosophical assumptions explicit. For instance, Chen, Sun and McQueen (2010) and Parboteeah and Jackson (2011) mentioned in the abstract and methodology sections of their articles that their research approaches were interpretive case studies. These were among the 23 articles that made their interpretivist philosophical assumptions explicit as compared to six positivist ones. The failure of researchers to disclose philosophical assumptions is not peculiar to the field of KM. In public administration, Lowery and Evans (2004) found that, "[e]xplicit linkages that tied the respective paradigms, theoretical perspectives, research methods, and techniques together were generally lacking and were also distinguishable by their absence as well."

Despite the fact that many researchers did not acknowledge their philosophical assumptions, it was apparent from the research design to the analysis and writing up of the findings that the research procedures deployed in the *Journal of Knowledge Management* were dominated by positivistic assumptions during the period under review. The same situation was reported by (Schultze and Leidner, 2002). Perhaps, this is not surprising, given that that positivism has dominated research in social sciences as pointed out by Sarantakos (2013).

Most Frequently Deployed Research Methodologies

The methodology is mainly concerned with how knowledge is understood, described, explained, verified, judged, evaluated, tested, explored, investigated and interpreted. First, we checked if the abstract or methods and material sections explicitly described the research methodology and explained

the choice of a specific methodology. Numerous scholars who use bibliometrics (Bolivar, Munoz and Hernández, 2012), informetrics (Ngulube 2013), scientometrics (Bolivar, Munoz and Hernández, 2014; Serenko and Bontis, 2013) and content analysis (Piekkari, Welch and Paavilainen, 2009) are interested in determining the trends and patterns in scholarly communication in a scientific community using such classifications as research methodologies employed in a study, which means that it is important that the authors of research pay attention to reporting on these matters.

Acknowledging the type of methodology used by researchers makes the categorisation of the research procedures used in the field easier and more accurate instead of relying on the various typologies that have been suggested by various authors. In fact, "[u]nderstanding and categorising the various research methods can be a daunting task if they are no explicit explanations of the research methodology" (Ngulube, 2012).

The findings show that 29 (33.7%) of articles were acknowledged by KM researchers as qualitative and 17 (12.8%) were recognised as quantitative. It would be worthwhile to use other research approaches to determine the reasons behind this trend. It is apparent from figure 2 that 38.9% of the studies used qualitative methodologies while 60.2% used quantitative ones.

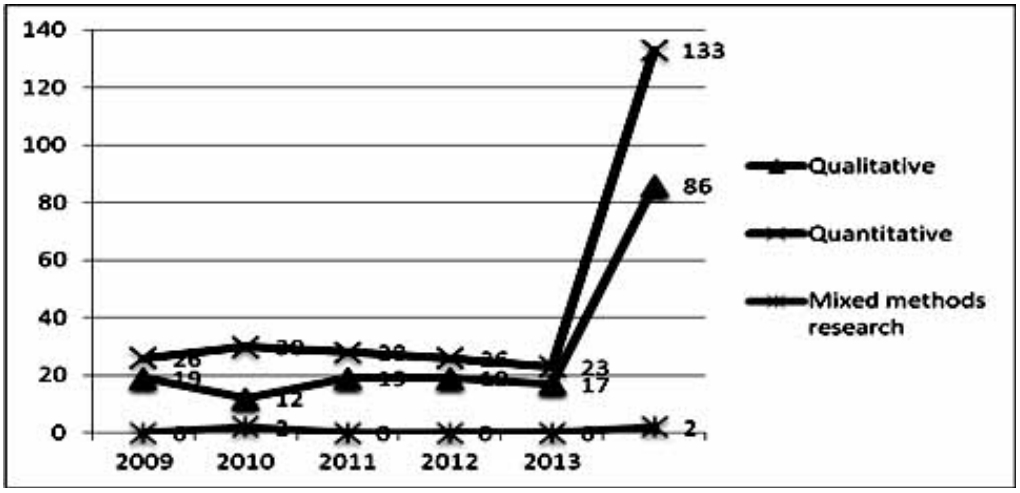

Figure 2: Prevalent research methodologies (N=221)

In marketing, Svensson (2006) revealed that 80% of researchers used quantitative methodologies. In the field of economic and management sciences, Ngulube and Ngulube (2015) discovered that 89% of studies used quantitative methodologies and 9% employed qualitative ones. In the analysis of international business journals, Piekkari, Welch and Paavilainen (2009) found that 56.5% used quantitative methodologies. Matayong and Mahmood (2013) reviewed methodological perspectives used in knowledge management systems studies between 2003 and 2013 and revealed that 15% of researchers used qualitative methodology as against 85% who used quantitative methodology. It is evident that the dominance of quantitative methodologies is not unique to KM research since other fields suffer the same methodological trap.

While quantitative studies are useful to support testing and enriching existing theories from a deductive perspective, they are poor in developing theory and explaining why there might be differences between the variables influencing a phenomenon under study. Furthermore, quantitative studies have a limited capacity to produce surprising research results (Lukka, 2010) and new insights. There is a need to strengthen the use of qualitative approaches in KM research.

The limited use of qualitative approaches in KM cannot be attributed to the difficulty of getting qualitative research articles published in top journals as claimed before (Myers, 2009), because some qualitative articles were accepted by the *Journal of Knowledge Management*. Maybe, it is a lack of "adequacy of the researcher's grasp of the tools and craft associated with qualitative methodology" as

claimed by Perry and Kraemer (1994) in the case of public administration. The use of qualitative methodologies may lead to the development of theory and acceleration of the maturity of the field of KM as suggested by Mendenhall, Beaty and Oddou (1993) and Ngulube and Ngulube (2015).

A total of 0.9% of the articles used MMR. The incidence of MMR in economics and management finance was 2% (Ngulube and Ngulube, 2015), while Alise and Teddlie (2010) found the prevalence rate in social sciences to be 5%. The incidence of MMR articles seems to be very low despite MMR being touted as a paradigm whose time has come (Johnson and Onwuegbuzie, 2004). The frequency of qualitative and quantitative methodologies was relatively higher than MMR.

Recurring Research Approaches Employed in the Studies

The worldview assumptions inform the research approaches used by researchers to understand a phenomenon (Creswell, 2014). It is evident from figure 3 that the survey design dominated research approaches in the quantitative tradition. About half the total number of articles in marketing journals used survey methods (Bush and Grant, 1994). Ngulube and Ngulube (2015) found a prevalence rate of the utilisation of survey in the subject of economics and management science to be 42%. Serenko and Dumay (2015) discovered that case studies and surveys were dominant. Leedy and Ormord (2005) averred that the survey design is a common approach used in business. That may partly explain why researchers in the KM field are trapped in the positivist cage.

Many social scientists do not use the experimental method (David and Sutton, 2011). Bolivar, Munoz and Hernández (2012) in their study of research methodologies used by e-government researchers revealed that 0.64% of the studies used an experimental research design. In KM research, Serenko, Bontis, Booker, Sadeddin and Hardie (2010) pegged the experimental design at 0.33%. Figure 3 illustrates that the occurrence rate of experimentation is 2.3%, which confirms the limited use of the experiment method by social scientists.

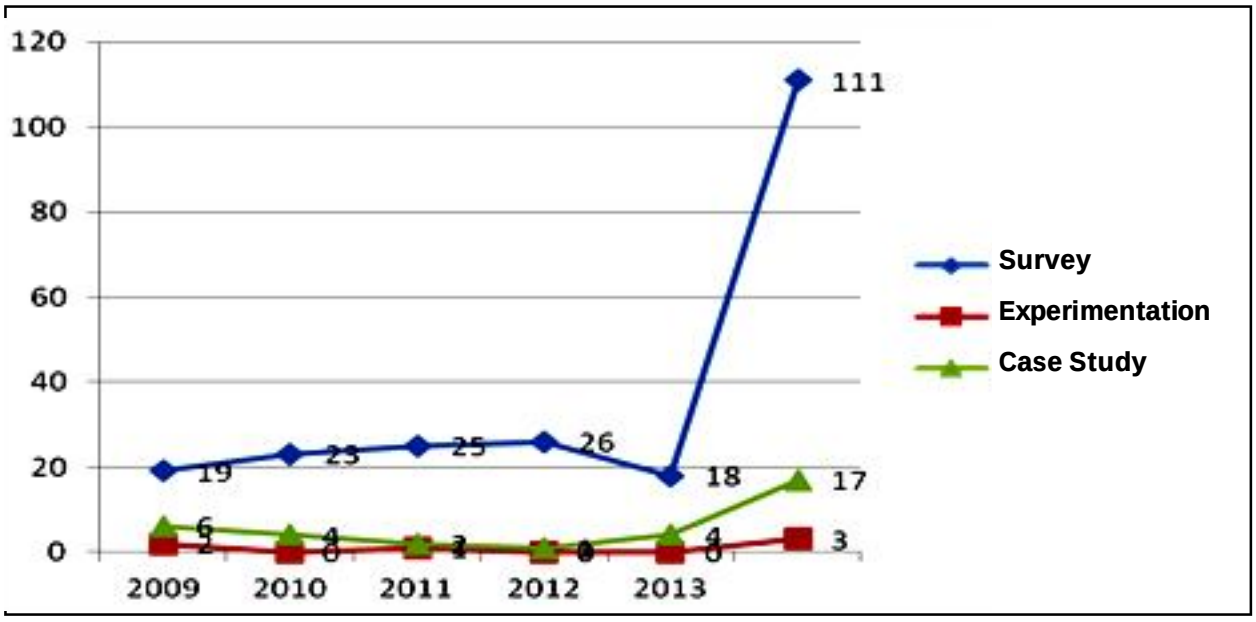

Figure 3: Quantitative approaches used in KM (N=133)

The case study approach is "an increasingly popular and relevant research strategy'' (Eisenhardt and Graebner, 2007). Case studies were the most frequently used research design with a score of 48.31% (Bolivar, Munoz and Hernández, 2012). Contrary to these trends, Ngulube and Ngulube (2015) found the prevalence rate of case studies in the field of economics and management sciences to be 30%. In the current study, case study approaches are less popular than survey design with a score of 37% as compared to the latter which accounted for 50% of all the research designs used by researchers in the field of KM.

Case study research assists in providing a description of phenomenon, testing theory, or generating theory (Eisenhardt, 1989). From the perspective of theory, the findings of a qualitative case study may bridge the gap between inductive and deductive research (Eisenhardt and Graebner, 2007). Theory development from case study approaches is traditionally associated with multiple case studies rather than single cases. There is no agreement as to the optimum number of case studies that may offer "analytical generalization". However, Eisenhardt (1989) and Yin (2009) are of the opinion that multiple case studies are better than one. Theory is developed as the cases are replicated. Out of the 64 articles that used the qualitative case study approach, 19 (30%) employed multiple case studies. We did not determine whether the 19 studies developed theory. This may be the subject of another study that is focused on the use of theory in KM research.

A case study is relevant to all research traditions because it is transparadigmatic and transdisciplinary (VanWynsberghe and Khan, 2007). Therefore, we classified the case study approach into quantitative and qualitative research traditions. Seventeen quantitative studies used the case study approach as compared to the 64 (79%) studies that used the design in the qualitative tradition (see Figures 2 and 3). Many studies do not seem to make this categorisation when classifying case studies (Piekkari, Welch and Paavilainen, 2009; Ngulube and Ngulube, 2015). In our categorisation, we did not distinguish between variable-oriented and case-oriented utilisation of case studies as Ragin (1997).

Our focus was to trace the trends of using the case study approach in KM research through the qualitative and quantitative traditions as a lens rather than on how each article theorised the case study design. We suffice to point out that the major advantage of a case-oriented approach over variable-oriented one is that the former provides the possibility of getting a comprehensive context-specific understanding and explanation of the nuances of the case under study (Piekkari, Welch and Paavilainen, 2009).

There are various classifications of qualitative research designs or research strategies (Creswell, 2013; Mills, 2014; Silverman, 1993). In spite of the various classifications suggested in the extant literature, Creswell (2013) and Leedy and Ormord (2005) identified common qualitative research designs, including case study, ethnography, phenomenology, grounded theory, content analysis and narratives.

We mainly used the classification of Creswell (2013) and Leedy and Ormord (2005) to categorise the qualitative approaches used in KM research. The attraction of these approaches in evaluating qualitative studies in knowledge management research was that they have systematic procedures of inquiry as suggested by Creswell (2013). There were two exceptions to the classification as shown in figure 4. Four (4.8%) articles used discourse analysis and participatory action research with the research designs split equally between the four articles.

Although 86 studies used a qualitative methodology (see table 2), three articles could not be categorised under any qualitative approach in the schema because it was not clear what design was used. Two pointed out that they used qualitative interviews without mentioning the approach used; and a third one pointed out that interviews were used without mentioning the methodology or research design. One can only guess that the studies were qualitative because the interview protocols used were open-ended and the samples that were studied were very small – the independent coder concurred. These three studies were dropped from the analysis of the findings reported in this section. This underscores our plea that researchers should elaborate on their choice of research for the sake of easy categorisation, transparency and accountability. Scholars must be transparent and accountable to their readers; it is an ethical responsibility.

Figure 4 summarises the results for 83 out of the 86 qualitative articles.

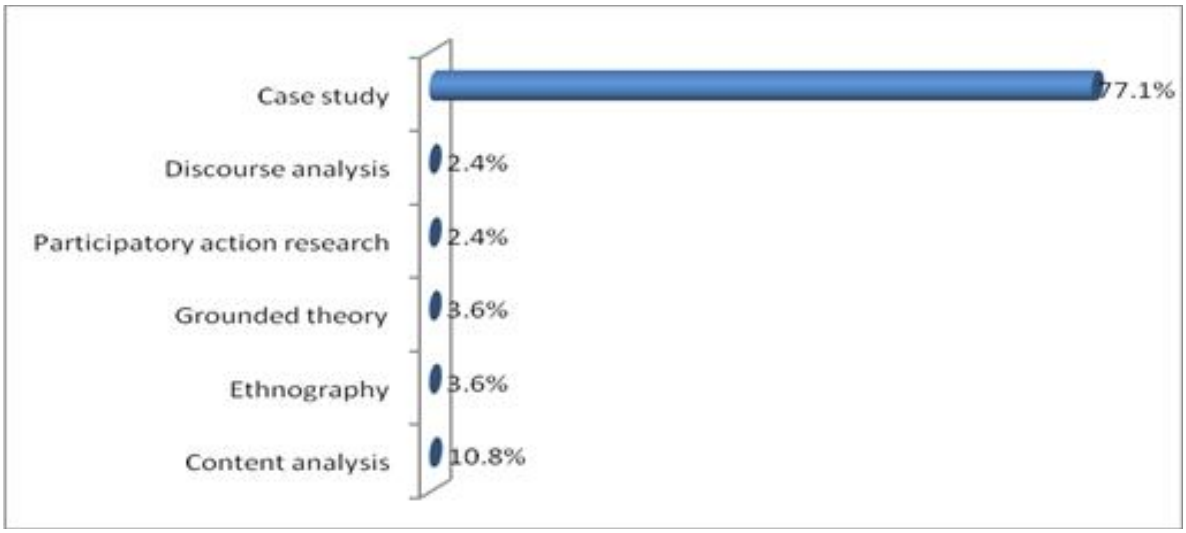

Figure 4: Qualitative approaches used by KM researchers (N=83)

The case study approach was dominant with 64 (77.1%) articles out of 83 studies using qualitative approaches. A total of 29.7% of case studies were multiple case studies. Nine of the qualitative articles used content analysis design. Bryman (2012) and Graneheim and Lundman (2004) differentiate between latent and manifest content analyses, since they are both quantitative and qualitative respectively. We did not distinguish between studies that focused on manifest content and those that dealt with latent content, because both qualitative and quantitative researchers use latent and manifest content analysis to interpret a phenomenon in varying degrees in relation to depth and abstraction (Graneheim and Lundman, 2004). Although, infometric studies appear to be more quantitative than qualitative, they were categorised under this approach. One could have easily categorised them under quantitative case studies, but following Bolivar, Munoz and Hernández (2014), we classified them under qualitative designs. In essence, the use of numeric data does not necessarily make a study quantitative and we need to move beyond these arbitrary proscriptions when defining the boundaries of research approaches.

Ethnography and grounded theory approaches were at equilibrium in three articles. The low uptake of ethnography designs partly explains why Serenko, Bontis, Booker, Sadeddin and Hardie (2010) suggested the need for an increased use of qualitative methods such as ethnography which seemed to be underrepresented in the repertoire of KM researchers. The low use of the grounded theory approach may be attributed to the fact that researchers in management and organisation studies that practise grounded theory are "a minority and generally loosely coupled group" (Locke, 2015).

At the tail-end of the articles that were analysed were participatory action research and discourse analysis with a score of two each. It is evident that phenomenology and narratives were not that common in the field of KM as articulated by Creswell (2013) and Leedy and Ormord (2005).

Romm and Ngulube (2015) identified and described some major MMR designs, including explanatory, exploratory, convergent, embedded and multiphase designs. The two studies that used mixed research methods employed exploratory and explanatory mixed method approaches. Levy, Hadar, Greenspan, and Hadar (2010) employed an explanatory MMR design as they collected quantitative and qualitative data concurrently, and explained quantitative data using qualitative data. Gururajan and Fink (2010) used the exploratory MMR approach, since they explored major attitudes of academics to transferring knowledge to colleagues using qualitative methodology and then initiated a quantitative phase in a sequential manner. It is evident that the use of MMR was limited.

Data Collection Techniques Exploited and Triangulation

Figure 1 illustrates a repertoire of data collection techniques available to researchers. The

questionnaire is included among the qualitative data collection methods. It is noteworthy that Creswell (2013) described four basic types of data collection, including observations, interviews, documents, and audiovisual materials, but excluding questionnaires. Romm (2013) demonstrated that questionnaires can be used "without operating from an epistemological position". This implies that questionnaires may be used by both qualitative and quantitative researchers in varying degrees of fluidity and rigidity.

All the KM empirical studies that were analysed explained data gathering techniques. A study on methods used in e-government research by Heeks and Bailur (2007) found that 60% of researchers did not explain how data had been gathered. Some of the papers had no heading on research methods employed by the study.

Survey designs used the questionnaire as the primary instrument of data collection in quantitative studies. Qualitative studies used in-depth interviews, questionnaires, focus group discussions, semi-structured interviews observation and document analysis. The use of questionnaires was not prevalent among qualitative studies.

There were also other less prevalent data collection methods such as the Delphi technique used by McNichols (2010) and the vignette method used by Geiger and Schreyögg (2012). The Delphi technique can be used through both interviews and questionnaires with a panel of experts. Vignettes, which are complete stories about hypothetical scenarios, are useful for studying sensitive topics and topics where participants lack personal experience and knowledge about the matter (Braun and Clarke, 2013).

Thirty-one (14%) KM studies that were analysed used triangulated data collection methods. This implies that 86% of researchers did not use strategies to overcome the deficiencies of using a single method. However, some researchers were aware of the problems of using one method and underscored the limitations of the procedure. Serenko, Bontis, Booker, Sadeddin and Hardie (2010) found that 76.3% of researchers used one method and 23.7% used triangulated methods. This implies that studies that used triangulation have relatively declined. The triangulation of methods was also not prevalent in other fields such as e-government (Heeks and Bailur, 2007).

The articles that used triangulated methods were analysed using the triangulation mix of Cohen, Manion and Morrison (2007) as a lens. Triangulation is important to qualitative and quantitative research. It is one of the ways of enhancing rigour and trustworthiness in qualitative studies, and the validity and reliability of quantitative studies. Triangulation also allows researchers to thoroughly deal with aspects of a phenomenon and increase the amount of research data collected (Sarantakos, 2013).

Building on Denzin (1989), Cohen, Manion and Morrison (2007) outlined six different types of triangulation:

- Time triangulation employs cross-sectional and longitudinal designs.
- Space triangulation uses comparative or cross-cultural approaches instead of researching one culture.
- Combined levels of triangulation involve more than one level of analysis (individual level, group level and organisational level).
- Theoretical triangulation uses multiple theories to explain research findings.
- Investigator triangulation utilises more than one observer independent of the other.
- Methodological triangulation entails multiple methods.

The articles that used more than one technique of data collection only used methodological triangulation or what Patry (2013) refers to as critical multiplism, which is rooted in 'multi-trait, multi-method matrix' and was conceptualised by Campbell and Fiske (1959).

Another form of methodological triangulation identified was in the form of deploying multiple approaches within the same methodology and philosophical assumptions. An example of a study that used multiple approaches in the field of KM research is that of Chua and Banerjee (2013) who used multiple qualitative approaches, namely case study and netnography which is some kind of online ethnography to understand customer knowledge management. This example is used to demonstrate that although the study used multiple approaches, it is different from those of Gururajan and Fink (2010) and Levy, Hadar, Greenspan and Hadar (2010) which used specific MMR designs. Christ (2010) recently

discussed a combination of more than one qualitative approach in one study in the context of MMR, but it should technically be discussed from the perspective of methodological triangulation.

Conclusions and Recommendations

This article holds implications for research methodologies in the *Journal of Knowledge Management*. The results showed that mentioning the paradigms, methodology, approaches and data collection methods add to the quality of an inquiry. It raises awareness of developments in the field and points towards directions for future engagement with research methodologies. The number of non-empirical studies was declining. Researchers in knowledge management field are in a positivistic methodological trap. The incidence rate of triangulation and MMR is low. A limited range of qualitative research approaches was used. The use of qualitative approaches is key to developing home-grown theories that may assist in explaining the intricacies of KM.

Methodological pluralism will enhance the validity of the results and enrich the research while providing KM researchers with an opportunity to have a deeper and balanced understanding of the complex KM phenomenon. In turn, they will be able to deal with the broader issues of KM that are relevant to society.

This study has two major limitations that merit discussion. Firstly, a lack of agreed "operational definitions for the codes associated with methodological indicators" was an obvious handicap (Alise and Teddlie, 2010). The reliability of the coding schema should be evaluated in the context of the description of the research procedures that were used. Secondly, the content analysis approach used gives a partial picture and did not triangulate data collection methods. For instance, the use of multiple methods may actually explain why, for example, the use of qualitative research procedures is lower than quantitative ones. It may even establish whether or not the trend is due to the fact that the KM subject field is more amenable to quantitative methods than qualitative ones, and partly explain why KM researchers are in the methodological positivist cage.

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Trends, Patterns, Challenges and Types of Archival Research in Sub-Saharan Africa

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Abstract

In a study by Onyancha and Minishi-Majanja (2009), it was reported that throughout the entire period from 1971 to 2007, research in library and information science (LIS) in sub-Saharan Africa (countries south of the Sahara desert) largely focused on topics such as information technology, information resources management, knowledge management, library science, the Internet, and information retrieval. In fact, most of the topics fell within the scope of library science. Archives, including records management, was a less researched area, although the topic featured among the top 30 subject terms between 1981 and 2007. The study also noted that among the LIS schools in sub-Saharan Africa, only a few placed emphasis on the provision of courses/ programmes in archives and records management (ARM), particularly at an undergraduate level. Built on two studies conducted by Onyancha and Minishi-Majanja (2009) and Onyancha and Mokwatlo (2011), this study presents the status of archives and records management education, training and research in sub-Saharan Africa. It aims to help formulate ARM research agendas and university curricula that address grand societal challenges such as a lack of accountability, e-government service delivery and preservation of archival heritage. This study focuses on informetrics analysis of the nature, patterns and trends of ARM research in sub-Saharan Africa. The informetrics method was chosen as it is unobtrusive and focuses on the products of human activity (reports, books, articles, web pages and so on). Data was extracted from the Library, Information Science and Technology Abstracts (LISTA) database. The search query combined the name of the country in sub-Saharan Africa and the topics 'Archives' and/or 'Records – Management' as subject terms. Data was analysed quantitatively using computer-based analytical technologies and software developed specifically for informetric analyses, namely UCINET for Windows, Bibexcel and Microsoft Excel. The results suggest that ARM research is lagging behind in sub-Saharan Africa. Given the challenges of technological developments, the study surmises that there is a need for change or a paradigm shift in not only the perceptions, but also the research into archives and records management so that the profession can keep up with modern societal needs. It is hoped that the study would establish a baseline in terms of the paucity and scope of ARM research in sub-Saharan Africa, and the inter-related need for more and stronger archival education and research training activities, as well as research collaboration in the region.

Introduction and Background to the Problem

The need for education, training and research in archives and records management cannot be over-emphasised, particularly in this era of technological developments. Indeed, as Katuu (2009) would attest, education, training and research can help to empower archivists and records managers in taking on the challenges of governance in electronic environments.

Research agendas can be formulated to help address grand societal challenges such as a lack of accountability, high rates of litigation, bad audit results, and a lack of or poor service delivery emanating from a breakdown in records systems. For example, a study by Ngoepe (2012) found that records management functions in most governmental bodies in South Africa were teetering on the brink of collapse and were essentially on a life-support machine, as they were unable to contribute positively to the auditing process. Mantla and Khayundi (2013) attributed all these challenges to a lack of capacity and the appointment of unqualified archivists and records managers in governmental bodies. In Botswana, Keorapetse and Keakopa (2012) found that records management systems in the public sector are in a state of disarray. The situation is the same in Kenya, Namibia, Tanzania, Uganda, and Swaziland, to mention just few sub-Saharan countries (Nengomasha, 2013).

As scholars such as Mnjama (1996), Thurston (1996), and Yusof and Chell (1998), Ngoepe (2008), Keakopa (2009), Kemoni (2009), Khayundi (2011) would argue, in many sub-Saharan African countries education, research and training in archives and records management have been given little attention. Unlike the training programmes in librarianship and other areas, structured archival and records management education and training programmes in Africa can be said to be still struggling to establish themselves amid several handicaps (Khayundi, 2011). The problem of a lack of training and research is compounded by the fact that "among the LIS schools in sub-Saharan Africa, few have laid emphasis on the provision of courses/programmes in archives and records management, and more particularly at the undergraduate level" (Onyancha and Minishi-Majanja, 2009). For example, a study commissioned by the Department of Arts and Culture (2010) in South Africa revealed that only nine universities in South Africa offer archives and records management as ancillary courses within the schools of LIS at diploma or certificate level. This is also emphasised by Ngoepe (2011a) when he stressed that in South Africa, archives and records management modules are encapsulated as an insignificant part of degrees and diplomas in information science/studies. As a result, most archivists and records management practitioners have not received any formal training in these fields. Other countries in sub-Saharan Africa can also empathise with the situation in South Africa. A study by Keakopa (2006) revealed that there was a shortage of fully trained archivists and records managers in South Africa, Namibia and Botswana. Botswana has gone as far as sending archivists overseas to study archives and records management before the master's programme was developed at the University of Botswana in the late 1990s. Due to a lack of resources, the situation is worse in other sub-Saharan Africa countries such as Zambia, Tanzania, Uganda, Zimbabwe, Malawi, Lesotho and Mozambique, to mention just a few (Katuu 2009).

In the area of research, Keakopa (2009), Kemoni (2009) and Challa (2013) contended that very little outputs have been published on archives and records management in the Eastern and Southern African region, especially in the area of electronic records management and digitisation of archives. Indeed, as observed by Thurston (1996) more than a decade ago, the status quo still remains as there is a dearth of professional literature in Africa as a whole. As indicated in this study, little research has been done into archives and records management in sub-Saharan Africa. This is evident from a study by Onyancha and Minishi-Majanja (2009) which found that between 1971 and 2007, research in library and information science in sub-Saharan Africa largely focused on information technology, information resources management, knowledge management, library science, the Internet and information retrieval, as compared to archives and records management. A study by Keakopa (2009) concludes that the limited literature in the region, especially in the area of electronic archiving and records management, may be as a result of the slow pace of automation in the area of archives and records management or a paucity of mainstream journals to publish research output. The African Journal Online[1] website reveals a listing of only three mainstream journals (out of 15 journals on LIS) for archives and records management in sub-Saharan Africa, which are also not always produced on time, i.e. *Journal of the Eastern and Southern Regional Branch of the International Council on Archives, Journal of the South African Society of Archivists,* and the *African Journal of Archives, Library and Information Science.* Two of these journals are currently (as at 2015) produced in South Africa, while

the third journal is produced in Nigeria. This paucity of research and platform to publish in sub-Saharan Africa has also impacted on the education of archivists and records managers in the region. As a result, unskilled people are employed in the archives and records management field, especially in government, which results in professionals in these fields being relegated to the periphery of public sector administration (Ngoepe, 2012). Without adequate research and training, archives and records management programmes are bound to fail. It should be noted that governmental bodies in sub-Saharan Africa are the major employers of archivists and records managers, followed by institutions of higher learning. However, private sector organisations such as banks, audit firms and non-governmental bodies employ archives and records management professionals. If the current scenario in terms of research and teaching persists, organisations will continue to employ unqualified people as archivists and records managers, who will not have the skills needed to support e-government initiatives and accountability measures (Ngoepe, 2011b). Therefore, training institutions need to follow the example of universities in the global hubs to establish research partnerships with practitioners. For example, academics and practitioners in sub-Saharan Africa can be involved in international projects such as InterPARES. There is also a need to collaborate on research nationally and regionally. In this way, curricula will be based on practical solutions to the problems identified.

In view of the above, this study provides an informetrics analysis of the nature, patterns and trends of archival science research, including records management and training in sub-Saharan Africa. Primary data was extracted from the Library, Information Science and Technology Abstracts (LISTA) database. It is hoped that this study would stimulate academics and archivists in sub-Saharan Africa to develop training programmes and formulate research agendas that can equip professionals in this field to take on the challenges of technological developments such as the preservation of authentic electronic records, especially in national archives repositories. Furthermore, other countries might benefit from learning more about the material and the intellectual realities that archivists and records management practitioners face in sub-Saharan Africa.

Literature Review

There is consensus among scholars such as Mnjama (1996), Ngulube (2001), Katuu (2009) and Khayundi (2011) that the training of archivists and records managers in Africa is still travelling on the long journey without direction as compared to countries from "global hub such as Australia and Canada". While Jimmerson (2001) acknowledged the growth of graduate programmes in archives and records management in European countries, Mnjama (1996) identified a need for training for the vast majority of African records managers and archivists. Khayundi (2011) argued that most of the current practising archivists and records managers in Africa cannot be assumed to have had the necessary archives education and training. This was also confirmed by a study commissioned by the Department of Arts and Culture in South Africa (2010) that found that a number of archivists and records managers have learnt on the job or have attended short courses which barely provided them with the required educational background and competencies. All these affect policy formulation and advocacy, hence the perilous state of archives and records management in sub-Saharan Africa. For example, during the recent ESARBICA conference in Nairobi, Kenya, the ESARBICA Board (2013) noted that countries such as Uganda and Sudan do not have basic archival buildings. This implies that archival heritage of these nations is scattered all over the country, or even abroad, without proper care. Furthermore, of all the countries that were represented at the ESARBICA conference, none had reported that they had an infrastructure to ingest electronic records into archival custody.

An analysis by scholars such as Jimmerson (2001), Katuu (2007; 2009) and Duranti (2012) indicated that the traditional education of archivists and records managers worldwide has been associated with history and diplomatics. For the last 25 years or more, archival and records management education at many universities throughout the globe has resorted under Departments of Library and Information Studies. An assumption is that this was as a result of similarities in the function of the two disciplines as they deal with the nature of information phenomena. As LIS schools are fully-fledged, it was appropriate for archives and records management to find a home there. The universities in the global hub have included

studies in all aspects of archives and records management programmes with many emphasising digital records and archives. For example, at the University of British Columbia, archives and records management education encompasses modules such as Records Forensics and Digital Preservation, Classic and Digital Archival Diplomatics, Information Assurance and Administrative Law (Duranti, 2012). According to Duranti (2012):

- Records managers and archivists are called to act as forensics experts, e.g. ensuring the identity and integrity of digital records through time and attesting to it, and acquiring such records, often from obsolete systems or portable media, without altering them in the process.
- Digital forensic experts are called to act as records managers, e.g. identifying what digital materials fall under the definition of business records, and keeping them intact for as long as needed. They are also called to attest to and sometimes provide quality assurance for digital systems that produce and/or contain records, to assess whether spoliation has occurred, to fulfil e-discovery requirements.

Duranti (2012) suggested a number of archives and records management streams to be included in the university's curriculum. This curriculum might be particularly relevant to some institutions in sub-Saharan Africa, especially those that have already embraced training in electronic records management.

In contrast, developments regarding ARM education and training in the 'global periphery' countries such as sub-Saharan Africa have been moving at a snail's pace, if not regressing. Most archivists in sub-Saharan Africa who practised before the mid-1980s either had not received any training or had been trained overseas (Khayundi, 2011). Early training for archivists in sub-Saharan Africa, excluding South Africa, can be attributed mostly to efforts by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the International Council on Archives (ICA). It was under the auspices of UNESCO and the ICA that two centres were established in the early 1970s to train archivists in Africa. The school in Accra, Ghana was to cater for the 'Anglophone' Africa while the one in Dakar, Senegal catered for the 'Francophone' Africa. However, due to the discontinuation of the UNESCO support, the centres became white elephants. This left most African countries with few options for the training of archivists and records managers. Katuu (2009) called for an overhaul of education and training systems in sub-Saharan Africa so that archivists and records managers could be on par with their European and American counterparts. Currall and Moss (2008) challenged archives and records management educators to align their curriculum with contemporary needs. Perhaps the University of Liverpool, which has been training archivists since 1947 and included records management elements since 1968, could serve as a model for universities in sub-Saharan Africa. To imbue students with a research culture at the start of their career, Westwood (1998) suggested that students should be forced to complete a master's or doctoral dissertation. Courses offered can be tailored to enable students engage in scholarly enquiry of various kinds. The most obvious example is the writing of dissertations and theses. Borrowing from the InterPARES model, students can be given the opportunity to conduct research on a small scale through a supervised research project or a directed study involving in-depth investigation of a specific issue or problem. Students may work closely with academic staff on an ongoing research project through a collaborative research endeavour, or they may work as paid research assistants on research projects (Duranti, 2012). In trying to address the issue of research and education in sub-Saharan Africa, educators in Eastern and Southern Africa tried to convene twice, first at the South African Society of Archivists conference in Pretoria in 2010, and later at the ESARBICA conference in Maputo in 2011, but without success. These attempts failed due to non-attendance of the conference by most LIS educators in the region, as only a few educators from the University of South Africa and the University of Botswana attended.

Ngulube (2001) posited that research is a fundamental underpinning for improving archives and records management in Africa. Yet, there is a paucity of research in archives and records management in most countries in sub-Saharan Africa. For example, Keakopa (2009) argued that research in archives and records management received a lot of attention in developed countries such as Australia, Canada and

the United States as compared to Africa. She cited that the high cost of conference participation was a possible reason for the low numbers of archival and records management articles in the literature. Indeed, research needs resources, which are not always abundant in developing states. As a result, ARM researchers from sub-Saharan Africa publish their works in international journals. It is also difficult to access archival literature from other countries due to high subscription costs to publish journals outside sub-Saharan Africa. This has impacted negatively on research output, as well as on training of archivists and records managers. While other countries are tackling the challenges raised by electronic records, sub-Saharan African countries are still struggling to manage paper-based records.

Objectives of the Study

The general purpose of this study was to investigate the nature, patterns and trends of ARM in sub-Saharan Africa in the period 1910 – 2012. The study also attempted to answer the question: "Is ARM marginalised in sub-Saharan Africa?" The specific objectives were to:

(i) trace the trends of archives and records management research in sub-Saharan Africa.

(ii) identify the number of articles indexed in the LISTA database on archives and records management.

(iii) investigate contributions by countries in sub-Saharan Africa to research into archives and records management.

(iv) identify the authors and the institutions in sub-Saharan Africa that are involved in research in archives and records management.

(v) determine the content of archives and records management research in sub-Saharan African countries.

(vi) identify sources publishing sub-Saharan African archives and records management research.

Scope and Research Methodology

The study adopted an informetrics approach to explore archival and records management research in sub-Saharan Africa from 1910 to 2012. Informetrics is a quantitative analysis of patterns that show up not only in publications, but also in many aspects of life, as long as the pattern deals with information (Diodato, 1994). Informetrics methods can be grouped into two broad categories, namely descriptive (publications count) and evaluative (citations analysis based). This study adopted the publications count and analysis technique, wherein publications were used as the indicator of research output in sub-Saharan Africa (De Bellis, 2009).

The choice of informetrics as a research method to conduct the current study was based on the fact that, in informetrics, there is no need to control the experimenter, the interactional investigator or other similar effects arising from the influences of researchers and human subjects on each other (Beck and Manuel, 2008). Furthermore, informetrics data sources pre-existed in the study, and they were usually readily accessible as was the case with the current study. This is data that has been generated for purposes other than those for which the researcher was using them (Singleton and Bruce Straits, 2010). Available data research often avoids reactive measurement error because the data are used without the knowledge or the participation of those who produced them. Prominent among such data sources would be written records, letters, diaries and reports. All of these factors make informetrics one of the more straightforward ways to get started in research.

The study covered all records published and indexed in the LISTA database from 1910 to 2012. The search query combined the name of the country in sub-Saharan Africa and the topics 'Archives' OR 'Records – Management' as subject terms. For example, documents published by South Africans were searched as follows: (AF "South Africa" AND ("Archiv* OR Records – Management"). The Boolean operator OR was used to combine searches for different countries. A total of 2 814 articles published in sub-Saharan Africa since 1966 were obtained. The data extracted from the LISTA database was analysed using Bibexcel, UCINET for Windows and Excel Computer Applications in order to demonstrate the level of archival and records management research in sub-Saharan Africa.

Research Findings

The results of this study are presented as per the objectives indicated.

Trends of Archives and Records Management Research in Sub-Saharan Africa

The findings of this study revealed that the world total of 44 280 archival and records management publications listed in LISTA database were published between 1910 and 2012. As indicated in figure 1 and table 1, the African LIS publications, totalling 2 814, and as indexed in the same database, were published between 1966 and 2012 while the ARM publications totalled 124. Worldwide, the first ARM article was published in 1910 while the first ARM article in sub-Saharan Africa was published in 1986.

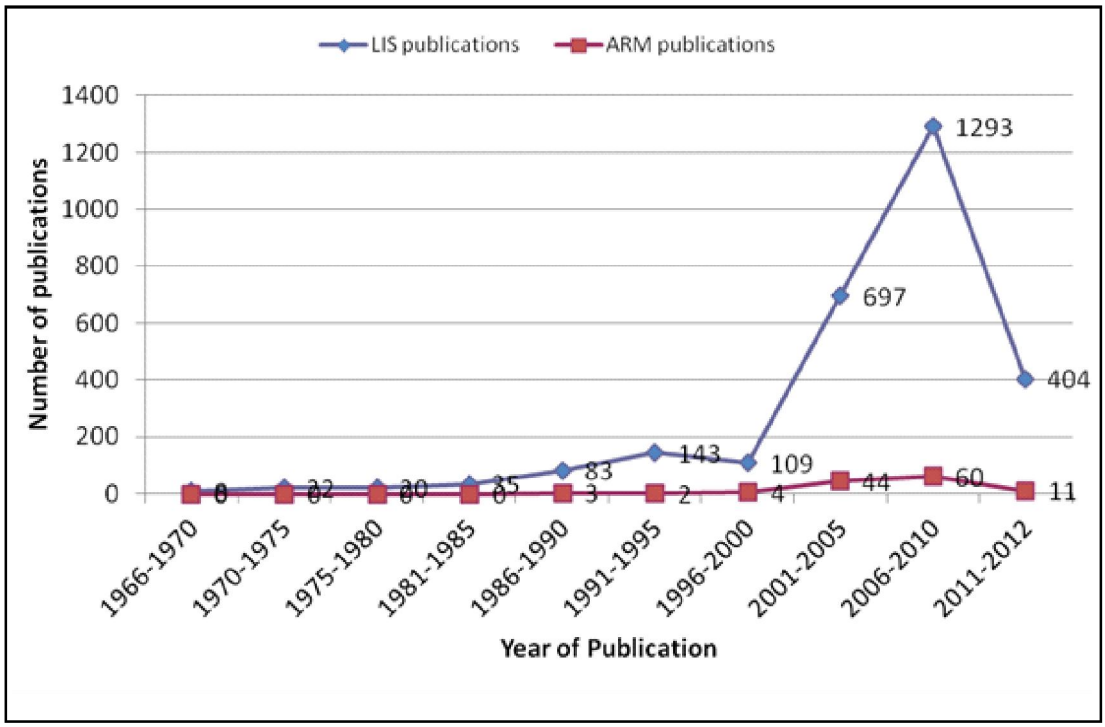

Figure 1: Trends in Archives and Records Management Research

The trend analysis of the publications in figure 1 shows that although the number of LIS publications has increased steadily since 1970, ARM publications remained below 10 until 2000. The publications on ARM increased from just four in 1996– 2000 to 44 in 2001– 2005, a percentage growth of 1 100%. Thereafter, the ARM publications increased to 60. There was a decline from 60 publications in 2006-2010 to 11 in 2011– 2012. This pattern is typical in any discipline because the indexing time lag is normally between 3 and 5 years in social sciences (Onyancha, 2008).

Table 1 shows the contribution of ARM research to LIS research in sub-Saharan Africa between 1966 and 2012. The table indicates that ARM research contributed zero publications to LIS research between 1966 and 1985. Whereas LIS research output stood at 83 publications in 1986-1990, ARM's total publications were only eight, accounting for a mere 3.61% of the total publications in LIS research. In 1991-1995, the total number of ARM publications dropped to two while that of LIS increased from 83 in the previous period to 143 in 1991-1995. In general terms, ARM's research contribution to LIS research output in sub-Saharan Africa is low, accounting for a maximum of 6.31% in a period of five years. Overall, the percentage contribution is 4.41% for the entire period of study.

Table 1: ARM versus LIS Articles in sub-Saharan Africa, 1966– 2012

	LIS publications	ARM publications	Percentage
1966-1970	8	0	0,00
1970-1975	22	0	0,00
1975-1980	20	0	0,00
1981-1985	35	0	0,00
1986-1990	83	3	3,61
1991-1995	143	2	1,40
1996-2000	109	4	3,67
2001-2005	697	44	6,31
2006-2010	1 293	60	4,64
2011-2012	404	11	2,72
TOTAL	2 814	124	4,41

ARM Publications Output in Sub-Saharan Africa according to Contributing Countries

An analysis of the number of publications according to the country of the author's affiliation produced the results reflected in table 2. The table provides the publication output of the countries in descending order of publications count. The most productive country was South Africa, which produced a total of 52 publications on ARM, accounting for 4.21% of the total number of LIS publications published by authors affiliated to institutions in the country. The second most productive country was Botswana, which yielded a total of 21 ARM publications, which contributed 11.29% of the total LIS publications in Botswana. Out of the 838 LIS publications produced by Nigeria, 17 were published on ARM while Kenya's 94 LIS publications included 12 ARM publications, thereby the latter contributed 12.77% of Kenya's total LIS publications. The highest percentage contribution of ARM to a given country's LIS research was witnessed in Namibia wherein ARM's six publications accounted for 21.43% of the country's total LIS publications. The percentage contribution of ARM to LIS publications output, in the other countries of the authors' institutional affiliation, in descending order, was as follows: Zimbabwe (15.38%), Kenya (12.77%) and Cameroon (15.50%).

Table 2: ARM's Contribution to LIS Research by Country

	LIS records	ARM records	Percentage
South Africa	1234	52	4,21
Botswana	186	21	11,29
Nigeria	838	17	2,03
Kenya	94	12	12,77
Ghana	123	8	6,50
Zimbabwe	39	6	15,38
Namibia	28	6	21,43
Uganda	84	2	2,38
Tanzania	52	2	3,85
Zambia	40	1	2,50
Cameroon	8	1	12,50
Benin	28	0	0,00
Niger	20	0	0,00
Burkina Faso	6	0	0,00
Cape Verde	2	0	0,00
Angola	1	0	0,00

Distribution of Publications by Authors

There were a total of 126 individuals who authored at least one article on archives and records management between 1966 and 2012. Table 3 reveals the 20 most productive authors in ARM research in sub-Saharan Africa. Topping the list was P. Ngulube who produced a total of 13 papers, which constituted 10.48% of the total number of publications produced in sub-Saharan Africa (i.e. 124). In the second position was N. Mnjama with eight (6.45%) publications, followed by H. N. Kemoni (six -– 4.84%), P. J. Lor (five – 4.03%) and V. Harris (four – 3.23%), to name just the top five authors. In another study by Ngoepe, Maluleka and Onyancha (2014), in which a different database was used, Ngulube also topped the list as the most productive researcher, followed by Kemoni. It was not surprising to find out that apart from P. J. Lor, all the top five authors' subject specialisation is archives and records management. A number of authors whose subject

specialisation or focus is in other sub-fields of library and information science and not in archival science featured prominently among the leading authors. These include P. J. Lor, S. Mutula, A. S. A. Du Toit, and I. Fourie. These authors' presence can be attributed to this study's focus on 'records management' as one of the topics investigated. It has been observed that records management is becoming increasingly multi-disciplinary (Onyancha and Mokwatlo ,2011) and, hence, the presence of researchers from other disciplines in table 3.

Institutions behind ARM Research in sub-Saharan Africa

Institutional affiliations of authors were analysed in order to find out what the institutions are contributing to ARM research in sub-Saharan Africa. It was found that a total number of 65 institutions contributed to research in ARM in sub-Saharan Africa during the period under study. Leading among these institutions was the University of Botswana, Botswana which produced 20 publications, followed by the University of KwaZulu-Natal, South Africa (15), University of South Africa, South Africa (10), University of Pretoria, South Africa (9), University of Ghana, Ghana (8), Moi University, Kenya (7), National Archives of Zimbabwe, Zimbabwe (6) and the University of Johannesburg, South Africa (6), to name just the institutions with more than five publications each. It was noted that majority of the leading institutions are situated in South Africa. Table 4 also shows that most institutions contributing to ARM research are universities. There were nevertheless some non-academic institutions which featured among the top 20 institutions that contribute to ARM research in sub-Saharan Africa, namely the National Archives of Zimbabwe and the World Health Organisation.

Table 3: Archives and Records Management Researchers in sub-Saharan Africa (N=124)

No.	Author	Publications	Percentage
1	Ngulube, Patrick	13	10,48
2	Mnjama, Nathan	8	6,45
3	Kemoni, Henry N	6	4,84
4	Lor, Peter Johan	5	4,03
5	Harris, Verne	4	3,23
6	Adjei, Emmanuel	3	2,42
7	Akussah, Harry	3	2,42
8	Garaba, Francis	3	2,42
9	Mutula, Stephen M.	3	2,42
10	Namhila, Ellen Ndeshi	3	2,42
11	Nengomasha, Cathrine T.	3	2,42
12	Ngoepe, Mpho	3	2,42
13	Wamukoya, Justus M.	3	2,42
14	Ayernor, Edwin Tetteh	2	1,61
15	Du Toit, A. S. A.	2	1,61
16	Fourie, Ina	2	1,61
17	Kgosiemang, Rose Tiny	2	1,61
18	Kufa, J. C.	2	1,61
19	Olatokun, Wole Michael	2	1,61
20	Onyeji, Christian	2	1,61

Table 4: Institutions behind ARM Research in sub-Saharan Africa

No.	Institutions	Publications
1	University of Botswana	20
2	University of KwaZulu-Natal	15
3	University of South Africa	10
4	University of Pretoria	9
5	University of Ghana	8
6	Moi University	7
7	National Archives of Zimbabwe	6
8	University of Johannesburg	6
9	University of Ibadan	6
10	University of Namibia	4
11	University of Nigeria	4
12	University of Cape Town	3
13	University of the Witwatersrand	3
14	World Health Organization	2
15	University of Zululand	2
16	Delta State University	2
17	Canterbury Christ Church University College	2
18	IFLA	2
19	Regenstrief Institute	2

Subject Areas of Research on ARM in sub-Saharan Africa

In order to determine the subject areas in ARM that researchers focus on in sub-Saharan Africa, an analysis of both the author-supplied keywords and database-supplied subject terms was conducted. Table 5 provides the author-supplied keywords that featured prominently in the literature while table 6 reveals the top to subject terms under which ARM research in sub-Saharan Africa is indexed in the LISTA database. It was found that the most researched area according to the author-supplied keywords was records management, which yielded 13 publications, followed by Nigeria (5), preservation (5), e-government (4), South Africa (4) and academic libraries (4). Strangely, the keyword "archives" did not feature among the top 20 keywords supplied by authors, although the 'national archives' was listed number 14 as shown in table 5.

The EBSCO thesaurus, which provides a controlled vocabulary for purposes of indexing the literature in the company's databases, yielded a total of 353 subject terms which were used to index publications on ARM in sub-Saharan Africa. Unlike table 5 which revealed 'records management' as the highest ranking term under which ARM literature in sub-Saharan Africa is indexed, table 6 places 'records management' in position two with 34 publications after 'archives' which yielded 40 publications. In the third position is 'electronic records' which posted 22 publications, followed by 'information resources management' (18), 'information science' (14) and 'information technology' (11). 'Archival resources' and 'documentation' yielded nine publications each. Although it was not possible to determine the geographic scope of investigation of some of the papers, it can be deduced that the majority of the papers focused on archival and records management research in sub-Saharan African countries. For instance, the presence of Nigeria, South Africa, Botswana, Kenya, Namibia, Southern Africa and East Africa is indicative of the countries investigated in the researches.

Table 5: Content of ARM research – Author Supplied Keywords

No.	Author-supplied Keyword	Publications	Percentage
1	Records management	13	10.48
2	Nigeria	5	4.03
3	preservation	5	4.03
4	e-government	4	3.23
5	South Africa	4	3.23
6	Academic libraries	4	3.23
7	electronic records	3	2.42
8	Botswana	3	2.42
9	Kenya	3	2.42
10	University libraries	3	2.42
11	Namibia	2	1.61
12	Public Service Delivery	2	1.61
13	United Nations	2	1.61
14	National Archives	2	1.61
15	Southern Africa	2	1.61
16	Conservation	2	1.61
17	Deconstruction	2	1.61
18	electronic document delivery	2	1.61
19	East Africa	2	1.61
20	E-records	2	1.61

Table 6: Content of ARM Research – Database Supplied Key Terms

No.	Subject terms	Publications	Percentage
1	Archives	40	32,26
2	Records Management	34	27,42
3	Electronic Records	22	17,74
4	Information Resources Management	18	14,52
5	Information Science	14	11,29
6	Information Technology	11	8,87
7	Archival Resources	9	7,26
8	Documentation	9	7,26
9	National Archives	8	6,45
10	Archival Materials – Conservation and Restoration	7	5,65
11	Public Records	7	5,65
12	Library Science	7	5,65
13	Information Services	7	5,65
14	Archivists	7	5,65
15	Management	7	5,65
16	Universities and Colleges	7	5,65
17	Academic Libraries	7	5,65
18	Freedom of Information	6	4,84
19	Archives – Collection Management	6	4,84
20	Government Information	6	4,84

Sources Publishing sub-Saharan African ARM Research

The question on where ARM researchers in sub-Saharan Africa publish their research was addressed through an analysis of the sources in which the researchers publish their papers. ARM researchers in sub-Saharan Africa published their research in 43 journals between 1986 and 2012. Topping the list was the *African Journal of Library, Archives and Information Science* which published a total of 21 papers, accounting for 16.94% of the 124 ARM papers published by researchers in sub-Saharan Africa between 1986 and 2012. The other journals that featured among the top sources included *Information Development* (12), *IFLA Conference Proceedings* (7), *Mousaion* (7), *South African Journal of Information Management* (7), *SA Archives Journal* (6), *Archival Science* (5), *Electronic Library* (5), and the *South African Journal of Library and Information Science* (4). Table 7 reveals that most of the top-ranking journals focused on the broad discipline of library and information science. However, it is worth noting that the *ESARBICA Journal*, where most ARM research conducted in sub-Saharan Africa is published, is not indexed in LISTA; hence its absence from the list of journals in table 7. Therefore, the overview given in this study has some limitations as it has not taken into account journals not covered by the LISTA database. Future research needs to use databases that cover such journals.

Table 7: Sources Publishing sub-Saharan African Research on ARM

No.	Journal	Publications	%
1	African Journal of Library, Archives and Information Science	21	16.94
2	Information Development	12	9.68
3	IFLA Conference Proceedings	7	5.65
4	Mousaion	7	5.65
5	South African Journal of Information Management	7	5.65
6	S. A. Archives Journal	6	4.84
7	Archival Science	5	4.03
8	Electronic Library	5	4.03
9	South African Journal of Library and Information Science	4	3.23
10	Innovation	3	2.42
11	Journal of the American Medical Informatics Association	3	2.42
12	Journal of the Society of Archivists	3	2.42
13	African Research and Documentation	2	1.61
14	Alexandria	2	1.61
15	Archives	2	1.61
16	Fontes Artis Musicae	2	1.61
17	IASA Journal	2	1.61
18	IFLA Journal	2	1.61
19	International Journal of Information Management	2	1.61
20	International Preservation News	2	1.61
21	Library and Archival Security	2	1.61
22	Library Philosophy and Practice	2	1.61
23	Annals of Library and Information Studies	1	0.81
24	Archives and Manuscripts	1	0.81
25	Bottom Line: Managing Library Finances	1	0.81

Discussion of Results

The findings of this study concur with several authors' findings such as Katuu (2009), Keakopa (2009), Kemoni (2009) and Khayundi (2011) which have revealed that there is paucity of research in archives and records management in the continent of Africa. The trend analysis in figure 1, as well as table 1, reveals that ARM research output in sub-Saharan Africa constitutes a small percentage of the total LIS research throughout the period under investigation in this study. The results indicate that whereas LIS research is progressing, the sub-discipline of ARM is less researched. Possible reasons for this pattern include the following:

- There are very few researchers in sub-Saharan Africa whose research focus areas include archives.
- There are few mainstream journals that publish ARM research in Africa. Onyancha (2008) identified 16 LIS journals published in sub-Saharan Africa, with the majority originating from South Africa. Of these, only seven featured among the top 20 leading journals that published ARM research in sub-Saharan Africa between 1986 and 2012 (see table 7).
- Few institutions offer ARM education and training in sub-Saharan Africa – for example, in South Africa, out of 23 universities, 10 offer LIS education and training; and out of the 10, only four offer ARM education and training. These are the University of South Africa, University of Fort Hare, University of Zululand and the University of KwaZulu-Natal.
- Lack of skills in scientific writing on the part of some of the researchers.
- Insufficiency of financial and material means required for publishing.

In terms of the countries in sub-Saharan Africa that participated in the publication of ARM literature, the study revealed that, whereas 16 countries published at least one paper in LIS, only 11 of these published at least one paper on ARM. South Africa led in both cases. The pattern witnessed in table 2 indicates a better performance of those countries in which ARM is a subject of tuition and research in universities. For instance, the presence of ARM in institutions of higher learning in South Africa, Botswana, Nigeria and Kenya is strong. This is also evident in tables 3 and 4 which reveal the most productive institutions and authors, respectively. The majority of the leading institutions and authors are affiliated with the countries that performed relatively well in the ARM research output.

This study revealed that, with regard to content, ARM research in sub-Saharan Africa is moving towards records management. Although 'archives' was the most common subject term according to the controlled thesaurus vocabulary, the authors' preference for the term 'records management' attests to that pattern. The fact that the keyword 'archives' was not supplied by the authors implies a shift of focus or mindset of the researchers from archives to records management, although the database still indexes the literature on records management under archives. We believe that the sub-field of records management therefore requires sufficient records management practitioners who will develop the relatively young but vibrant sub-field. We have noted, however, that the curriculum in most universities in sub-Saharan Africa focuses mostly on archival science, leaving out records management. Just as the term librarians is less preferred to knowledge managers or information scientists, the concept of archives seems to follow suit; hence, the preference for records management.

As expected, institutions of higher learning were the most active in ARM research, a situation that implies that academics are the most productive researchers in ARM. This begs the big question: "Where are the practitioners?" Records offices and archivists are conspicuous in their absence in the research process in sub-Saharan Africa. Perhaps, it is this pattern that has led Duranti (2012) to advise the southern African audience that "Archivists and records managers should become a locus of research by establishing a partnership with academics involved in international research, professionals involved in standards development, experts in law and information technology and, mostly, with the creators of the records under their jurisdiction. This would results in 1) the production of new knowledge, 2) the achievement of action-oriented research outcomes, 3) the education of all participants, 4) results that are relevant to the local setting, 5) appropriate research and development methodology, and 6) and

the empowerment of the archives."

Although journals published in Africa featured prominently in the top 20 leading journals that published ARM research in sub-Saharan Africa, it was also noted that journals published outside Africa were equally used as channels of dissemination of the research. The preference of authors in developing countries to publish in foreign journals has been observed by various authors (e.g. Onyancha and Ocholla, 2004). Onyancha (2008) explained such a pattern of the authors' preference for foreign journals over local or regional journals by attributing it to the foreign journals' superior quality, as well as the databases' selection criteria of journals. The majority of the electronic databases select journals based on the journals' quality, which is measured by the average number of citations received by the journal over a given time period, the credentials of the editors and editorial boards, the inclusion of local and international academics on the boards, and the percentage of submitted papers published. This has partly influenced some scholars' perception that foreign electronic databases are biased in their coverage of journals whereby they index only those journals published in the developed countries and, more specifically, those that are published in the USA and the United Kingdom.

We believe that the following can bring about increased focus not only on ARM as a discipline but also as a field of research:

- Schools offering ARM programmes may have to apply best practices on ARM offerings and research, just as they have done for other LIS sub-fields/disciplines.
- Student and staff exchange programmes with institutions that have performed relatively well in ARM research may result in a better research performance in sub-Saharan Africa.
- Multi-disciplinary and inter-disciplinary research involving ARM researchers and those from other related disciplines/sub-disciplines may help to improve ARM research in sub-Saharan Africa.
- ARM research in sub-Saharan Africa should be promoted through subject-specific conferences such as ESARBICA (Eastern and Southern Africa Regional Body of the International Council on Archivists).
- Grooming and mentoring students will ensure sustainability of future research in ARM.
- Research collaboration with practitioners in ARM should be encouraged.
- There is also a need to offer relevant training on research, especially in respect of the young and upcoming researchers who may be lacking fundamental skills to conduct research. Research collaboration, which has been recommended above, may also assist to impart the necessary skills.

Conclusions

In conclusion, given the challenges of technological developments, there is a need for a paradigm shift not only in research into archives and records management so that the profession can keep up with modern societal needs. Informetrics provided an effective method that enabled the study reported in this article to achieve its aim of establishing a baseline in terms of the paucity and scope of ARM research in sub-Saharan Africa, and the interrelated need for more and stronger archival education and research training activities, as well as research collaboration in the region.

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Access to and Use of Electronic Journals in Selected Federal University Libraries in the Federal Capital Territory and North Central Zone of Nigeria

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Abstract

The study investigated the extent of access and use of electronic journals by the academic staff of federal universities in North Central Nigeria and the Federal Capital Territory from the different E-journal sources available. The study adopted the quantitative research methodology and used cross sectional survey research design. Findings from the study revealed that personal access through open/free source was the most used source of e-journals for their academic activities. E-journals were also most frequently used in academic activities related with research and teaching. No statistically significant difference was established between demographic variables and the most used source of access of E-journals (open/free access) and also the extent of use for academic activities. The study recommended that academic libraries take advantage of the open access policies of some publishers and databases to add to their e-journal holdings. Nigerian Library Association should organise more training and workshops for librarians on E-resources search and retrieval skills; modules should include effective search strategies, designing appropriate metadata and subject headings to enable easy retrieval. In addition, university libraries should retrieve usage statistics that follows recognised standards (such as COUNTER's (Counting Online Usage of Networked Electronic Resources) Code of Practice) and mined data from the publishers or distributors of E-Journals to assess their e-journal services.

Introduction

The advent of information and communication technologies (ICTs) has changed the sophistication and pattern of information needs of users. These developments in information technology have made powerful changes in the collection, storage, retrieval, distribution and access process of information. One of the products of these developments which have become indispensible for academic activities worldwide is electronic information resources. These resources in recent times represent an increasingly important component of academic library collections. "Electronic resources" according to Johnson et. al (2012) refer to those resources that require computer access, whether through a personal computer, mainframe, or handheld mobile device. They may either be accessed remotely via the Internet or locally and they include e-journals, e-books, e-images and e-audio/visual resources.

Electronic journals are said to be the most sought after by academics of all the electronic information resources available to them. An electronic journal as defined by Panda and Mohanta (2008) is any

journal, magazine, newsletter or serial publication available over the Internet in electronic format. Borrego, Anglada, Barrios and Cormella (2007) attested to this fact when they reported an increasing preference for electronic journals to the detriment of the printed format amongst the teaching and research staff of the universities under the Consortium of Academic Libraries of Catalonia in Spain. The reason for this was attributed to the fact that research which is one of the cardinal points of academic activity had been identified as an important indicator for evaluating academics in all areas of accomplishments traditionally regarded as 'indices of academic excellence' (Ajegbomogun, 2011). In turn, academics all over the world now place emphasis on research and publications, not only because it is presumed that research enriches both the teaching and the learning process, as well as contributing to the body of knowledge, but also because it is a major determinant of institutional prestige. This implies that there is the need for faster access to areas where new knowledge could be acquired and used. With the different types of e-journals available ranging from free to fee-based, e-journals provide that needed platform.

With evidence from literature, it has been established that the general awareness of electronic journals to academic staff or even the academic libraries is not in doubt. However, the drive for access to and prompt transmission of electronic journals has become an important issue for academic libraries with the wide acceptance and importance of electronic journals to academic staff. Yasir (2004) citing Agnolu opined that many people, especially in developing countries, fail to exploit information even when materials were available for free as in the libraries. This situation is further worrisome with the roles of libraries evolving significantly over the last few decades from an emphasis on service based on physical repositories (Gall, 2005) to a focus on facilitating access to electronic resources (Vasileiou, Rowley and Hartey, 2012). This indicates that libraries are moving towards access instead of ownership, which means they would give up the power that ownership had given them in the past. Individual academic staff can now access electronic journals by subscribing personally to publishers and from open access. The implication is that academic libraries now have competitors as regards access, and so it can be inferred that users of electronic journals would mostly use 'sources of access' that can give them less challenges and offer more advantages, especially for the academic activities of teaching, research and learning. This is particularly important for academic libraries because in recent times, according to Waldenberg (2006), publishers, academics, scholarly associations and independent scholars have begun to create electronic-only journals, which have no print versions; and there are also speculations from e-journal publishers that in the nearest future, journals would only come in electronic format to cut cost of duplication. Therefore, if there are no improved e-journal user service provisions by the academic libraries in Nigeria, they might lose their users as print journals may no longer be available in the nearest future. Thus, the decisive measure of improved access and use service for academic libraries is user feedback as regards the sources of access of electronic journals and the extent of use of these journals from such sources by academic staff that are the major users of e-journals in order for libraries to meet up the challenges the paradigm shift from 'ownership' to 'access' comes with.

Statement of the Problem

Electronic journals are important library resources for any academic library, and as such, efforts have been put in place by the libraries of federal universities in Nigeria to enable access to these resources. National Universities Commission (NUC) has also been in the forefront of these efforts for federal university libraries in Nigeria. One of the Commission's major achievements was the aggregation of E-journals in the Nigerian Virtual Library for easy access (NUC News Bulletin, 2010). The main goal according to Tarpel (2012), was to ensure that users had the latest publications of the highest authority in their respective fields to facilitate teaching, research and learning. However, despite these efforts to improve access, research studies on the use of electronic resources have reported low use of e-journals from the University library (Isah, 2010; Egberongbe, 2009). Corroborating these research studies, the usage statistics of e-resources subscribed to via the Electronic Information for Libraries (EIFL), as reported by the EIFL country licensing coordinator posted on the NLA online forum, stated that the usage statistics in 2014 for databases

subscribed to are underutilised with over 50% of the subscribing institutions including federal universities in North Central zone having only 0-5% click to access any of these resources. The low access and use could then be attributed to the fact that academic staff were accessing e-journals from other sources that are yet to be empirically verified. In addition, there was also the need to find out the extent of use of e-journals to further emphasise the importance of e-journals for academic activities. Thus, for these reasons, this study was carried out to answer and test the following questions and hypotheses.

Research Questions

1. Which type of electronic journal is mostly accessed by the academic staff of federal universities in North Central Nigeria?
2. To what extent does the academic staff in the area under study use electronic journals for academic activities?
3. Which source of access to electronic journals is mostly used by the academic staff under study?

Research Hypothesis

The following null hypotheses were tested in the study at 0.05 level of significance

H_{01} – There is no statistically significant difference between the demographic variables and the most used source of access of E-journals by the Academic staff in the area under study.

H_{02} – There is no statistically significant difference between the demographic variables and the extent of use of electronic journals by the academic staff in the area under study

Review of Related Literature

Electronic journals are grouped as online journals and off-line journals. Online journals are paid e-journals that are available on 'cost-per-access' bases via online databases while off-line journals are journals published on CD-ROMs or other medium which does not require Internet access. Both types of e-journals may be bibliographical or full-text. Electronic journals are accessed through a number of sources which include consortium, open access, exclusive fee-based purchase, etc. According to Cook and Jones (2000), electronic journals are provided to subscribers through the following types of medium which includes free access, exclusive subscription, selective access, fee-based access and consortium-based access. They also stated that E-journals were predominately distributed through subscription from the publishers or through aggregator databases. Subscriptions through publishers were made either through vendors or directly from e-journal publisher's websites. However, open access is another channel of distribution, as stated in Harman and Koohang (2006) when they revealed that academic open access e-journals were gaining widespread acceptance in most, if not all, disciplines and fields of study.

Research studies on the extent of use of electronic journals around the world indicated disparity based on some demographic variables which included but not limited to age, discipline and gender. The eJUST Standford (2002) study found out differences in the extent of e-journal usage by the age of readers. Younger scholars were frequent e-journal users than are older readers, and older scholars believed e-journals decreased the quality and rigour of research literature searches. Researchers across all faculties in Loughborough University e-journal study (2007) commonly used e-journals, viewing them either daily or weekly. The Loughborough study however differed from Renwick's study because it only stated the frequency of use and not what electronic journals were used for. In Nigeria, academics at Obafemi Awolowo University, Ile-Ife, used electronic resources mostly for literature search in their research and professional growth (Omotayo, 2010). Adegbore (2010) concluded that databases and electronic journals are used by academics for both teaching and research, among many other uses.

The sources of access of e-journals available from literature are university library subscription and personal subscription/purchase. The Stanford e-journal study (eJUSt), a two-year project funded by the Mellon Foundation in 2000, reported that majority of the life scientists and medical professionals relied more on institutional subscriptions than on personal

subscriptions for their research. A large majority (79%) reported accessing journals through institutional library subscriptions, while having a few personal fee-based subscribed e-journal databases and free online access. Khan (2012) research study also revealed that the institutional online subscription was the major source for accessing journals for research scholars and students in Aligarh Muslim University, India. His study investigated the usage level when accessing e-journals through institution subscription. From these studies, it was inferred that scholars with access to institutional journal subscriptions used e-journals more frequently.

Research Methodology

This study adopted a quantitative research methodology using the cross sectional survey research design. The population of the study was 1,271 lecturers from the five faculties in the University of Ilorin, Federal University of Technology, Minna and University of Abuja. The sample size of the study was 300 based on stratified sampling technique and values from Louis, Lawrence and Keith (2007) table. From the table, for a population of 1,300, a confidence level of 95% and confidence interval of ±5%, a sample size of 225 is sufficient. Confidence level (usually expressed as a % of 95 or 99 or 90) according to Louis, Lawrence and Keith (2007) is an index of how sure one can be (95% of the time or 99%) that responses lie within a given variation range. The variation range also known as confidence interval is the degree of variation range (±1%, ±2% etc) that one wishes to ensure. For this study, a confidence level of 95% and a confidence interval of ±5% were used. However, to make up for non-response error or attrition or the likes, the sample size was rounded up to 300.The sample was distributed proportionately using 50%, 30% and 20% respectively amongst the selected universities based on the population of academic staff in each university. Frequencies, Percentages and Kruskal-Wallis analysis of variance were used to analyse the results.

Research Analysis and Discussion

Response Rate

A total of three hundred (300) copies of the questionnaire were administered to the academic staff in the sampled universities. Out of this number, two hundred and seventy five (275) copies of the questionnaire representing 91.6% were properly filled, returned and found useful for the analysis while twenty-five (25) representing 8.3% were either not returned or were found unusable. The overall response rate was 91.6% with the respondents from FUT Minna returning 82 (91.1%) of the questionnaires, University of Ilorin, 143 (95.3%) and University of Abuja, 50 (83.3%). The demographic breakdown of the respondents is indicated in table 1.

Table 2 indicated that 234 (85%) of the respondents accessed free Access e-journals, a good number of the respondents 200 (73%) accessed free-Access with print fee-based subscription. This was followed closely by 172 (63%) respondents that accessed exclusive fee-based subscribed e-journals and 141(51%) respondents that accessed trial subscription/access e-journals. Only 70 (25%) of the respondents accessed Consortium Based E-journals. Results on this table indicated that majority of the academic staff (85%) accessed free access e-journals than the other types of e-journals available.

Table 3 revealed that over half 155 (56.3%) and 154 (56.0%) of the academic staff in North Central federal universities used e-journals frequently to find relevant information in area of study and for research (Dissertations and Thesis). Similarly, 150 (54.5%), 140 (50.9%), 137 (49.8%) and 102 (37.1%) of the respondents also frequently used e-journals for extensive literature review, article publishing and seminar presentation, to keep up to date in their fields of study and search for factual information respectively. Most of the respondents sometimes used e-journals to prepare lecture notes for teaching and for routine study 87 (31.6%) and 84 (30.5%) respectively. A sizeable number of the respondents rarely used e-journals for higher and professional examinations, 113 (41.1%). The results from table 3 indicated that the respondents used e-journals more for academic activities that are closely related to

Table 1: Demographic Variables Breakdown

Discipline	**No.**	**%**
Sciences	74	27
Agriculture	54	20
Education	47	17
Engineering	50	18
Management	50	18
Total	**275**	**100%**
Gender	**N**	**%**
Male	217	79
Female	58	21
Total	**275**	**100**
Age	**N**	**%**
21-30	36	13
31-40	106	39
41-50	110	40
Over 50	23	8
Total	**275**	**100**
Teaching Experience	**N**	**%**
less than 1 year	29	11
1-5 years	106	39
6-10 years	50	18
over 10 years	90	33
Total	**275**	**100**

Table 2: Electronic Journal Type Mostly Accessed

S/N	**Types of E-journals**	**(Frequency) N**	**Percentages (%)**
1.	Trial Subscription /Access E-journals	141	51
2.	Consortium Based E-journals	70	25
3.	Exclusive fee-based subscribed E-journals	172	63
4.	Free access E-journals	234	85
5.	Free-access with Print fee-based subscription	200	73

Table 3: Extent of Use of E-Journals for Academic Activities (N=275)

S/N	Academic activities	Never	Rarely	Sometimes	Frequently	Remarks
	N=275	Number (Percentage)	Number (Percentage)	Number (Percentage)	Number (Percentage)	
1.	Lecture notes for teaching	19 (6.9%)	63 (22.9%)	106 (38.5%)	87 (31.6%)	Sometimes
2.	Research (Dissertations and thesis)	4 (1.4%)	40 (14.5%)	77 (28.0%)	154 (56.0%)	Frequently
3.	Keep myself up to date in my field of study	12 (4.3%)	43 (15.6%)	81 (30.1%)	137 (49.8%)	Frequently
4.	Routine study	19 (6.9%)	78 (28.3%)	9 4(34.1%)	84 (30.5%)	Sometimes
5.	Find relevant information in area of study	15 (5.4%)	29 (10.5%)	76 (27.6%)	155 (56.3%)	Frequently
6.	Article Publishing and seminar presentations	15 (5.4%)	31 (11.2%)	85 (30.9%)	140 (50.9%)	Frequently
7.	Extensive literature review	10 (3.6%)	43 (15.6%)	71 (25.8%)	150 (54.5%)	Frequently
8.	Search for factual information and answers to specific questions	14 (5.1%)	58 (21.09%)	101 (36.7%)	102 (37.1%)	Frequently
9.	Professional /higher degree examinations	51 (18.5%)	113 (41.1%)	64 (23.2%)	47 (17.1%)	Rarely

Table 4: Source of Access of E-Journals Mostly Used (N=275)

S/n	Sources of Access N=275	Not Used	Moderately Used	Highly Used	Very Highly Used
	N=275	Number (Percentage)	Number (Percentage)	Number (Percentage)	Number (Percentage)
1.	University Library Access	142 (51.6%)	77 (28.0%)	27 (9.8%)	29 (10.5%)
2	Personal Fee-based Access	28 (10.1%)	78 (28.3%)	105 (38.1%)	64 (23.2%)
3.	personal Open Access	6 (2.1%)	57 (20.7%)	93 (33.8%)	119 (43.2%)

Table 4 revealed that majority [93 (33.8%) and 119 (43.2%)] of the respondents highly and very highly used 'personal open access' as a source of access of e-journals. A substantial number of the respondents [105 (38.1%) and 64 (23.2%)] respondents highly and very highly used 'personal fee-based access' as a source of access of e-journals. Only a very low [27 (9.8%) and 29 (10.5%)] of the respondents highly and very highly used the university library as a source of access of e-journals. The results in the above table indicated that open access was the most used source of e-journals for academic staff of North Central federal universities. Another important finding to note was that access to this source was by personal effort and not through the university library.

Hypothesis 1: There is no statistically significant difference between the demographic variables and the most used source of access of E-journals by the academic staff in the area under study.

Table 5: Statistically Significant Difference between the Demographic Variables of the Academic Staff and the Most Used Source of E-Journals.

Ranks			
	Demography	N	Mean Rank
Open Access	Experience	126	126.92
	Discipline	112	141.41
	Age	37	165.42
	Total	275	

Test Statistics[a,b]	
	Open Access
Chi-Square	8.130
Df	2
Asymp. Sig.	0.17
a. Kruskal Wallis Test,	
b. Grouping Variable: Demography	

Rankings and significance level for Hypothesis one

research.

From table 5 above, (Chi-square value = 8.130, α = 0.17), the significance level 0.17 is greater than 0.05. This meant that no statistically significant difference was established between the demographic variables and the use of e-journals personally through Open Access. The null hypothesis 'There is no statistically significant difference between age, teaching experience, discipline and the personal access from open source by academic staff of North Central federal universities' was therefore supported.

Hypothesis 2: There is no statistically significant difference between the demographic variables and the extent of use of electronic journals by the

Table 6: Statistically Significant Difference between Demographic Variables and the Extent of Use of E-Journals

Ranks			
	Demography	N	Mean Rank
Extent of use for Academic activities	Experience	126	140.90
	Discipline	112	126.61
	Age	37	162.58
	Total	275	

Test Statistics[a,b]	
	Extent of use
Chi-Square	6.052
Df	2
Asymp. Sig.	0.690
a. Kruskal Wallis Test	
b. Grouping Variable: Demography	

Rankings and significance level

Academic staff in the area under study.

From table 6 above, (Chi- square value = 6.052, α = 0.690), the significance level 0.690 is greater than 0.05. This indicated that no statistically significant difference was found between the demographic variables and the extent of use of e-journals for academic activities. The null hypothesis which states that 'there is no statistically significant difference between age, teaching experience, discipline and the extent of use of e-journals for academic activities by academic staff of North Central federal universities' was therefore supported.

Discussion

Table 2 revealed that free access e-journals were the most used e-journal by the academic staff. This means the academic staff in North Central Nigeria used free access e-journals more than the other types of e-journals available. It should be noted however that some free e-journals available on the Internet change often as websites/pages that are available today may not be tomorrow. Attesting to this, Sherman and Price (2001) stated that most of the authoritative information accessible over the Internet is virtually invisible to search engines. According to Oladele (2013), the many pages returned from a typical GOOGLE search are visible web pages that present their contents in static HTML

or ASP and are capable of being fully indexed by crawlers that follow links on static web pages. Libraries should incorporate more fee-based e-journals to improve access since free access can be gotten outside the university libraries.

Table 3 showed that academic staff 'frequently' used electronic journals for academic activities related to research (dissertation/thesis, article publishing and seminar presentations, extensive literature review) and sometimes for academic activities related to teaching (Prepare lecture notes for teaching and for routine study). These further buttressed the importance of electronic journals for academic activities and thus the pertinence for academic libraries to re-strategise their access mediums.

Table 4 revealed that personal access (Open Access) was the most used source of access while the university library access was the least used source of accessing E-journals. This indicated that the academic staff in North Central federal universities used the different types of e-journals available to them through personal access. The implication of this situation is that the university libraries were not prompt in meeting the electronic information resources needs of their users which may be a reason why alternative sources of access of information resources are always sought after in developing countries like Nigeria when compared to developed countries where the university libraries were usually the first point of call (Khan, 2012). This finding is attested to by Oyedum (2011) in her study where she stated that 'the low use of university library resources can be attributed to the ready availability of alternative sources of information accessible outside the library through the Internet and other on-line sources'. Aina (2013) opined that Google has attempted to bypass the library by its 'GOOGLE SEARCH' as any user can perform a simple key word search and return the content that best matches the query. This situation can be said to be peculiar to developing countries as the Stanford eJUST study negates these findings when it stated that majority of life scientists and medical professionals drawn from Europe and the United States relied more on institutional access than personal access for their e-journal use. Khan (2012) study also corroborated the eJUST study as institutional online subscription was the major source of accessing journals for research scholars and students in Aligarh Muslim University, India. An important point to note however was that having personal access to e-journals does not mean it is the most preferred source of access for them. Okiy (2010) citing Covi and Cragin corroborated this fact when they stated that in the last couple of years, students and lecturers in Nigerian tertiary institutions have increasingly demanded and preferred access to electronic sources delivery and networked information from their respective libraries. This implied that personal access as a source of access of e-journals is just an alternative mainly because of the inabilities of the university libraries to provide these resources.

Table 5 suggested that the nominal characteristics (age, teaching experience and discipline) of the academic staff of North Central federal universities made no difference in the use of e-journals personally from open access. Bashorun, Isah and Adisa (2011) study reported low usage and null significant difference across the faculties in the University of Ilorin Library subscribed E-journals. This meant that across the faculties in University of Ilorin, academic staff least use the university subscribed e-journals.

Table 6 showed that the nominal characteristics (age, teaching experience and discipline) of the academic staff of North Central federal universities made no significant difference to the extent of use of e-journals for academic activities. This further buttressed the importance of e-journals for academic activities and corroborated the study of Alhassan (2011) that found out in his research that there was no significant difference in the mean ratings of academics of agricultural sciences across age, gender and experience in the use of ICT for research in Nigerian federal universities. The implication of this is that over the years, e-journals had gradually become useful resources for their research needs for academic staff, irrespective of their nominal characteristics. This is particularly true for academic staff in developing countries like Nigeria as access to print journals, especially international journals, has become a challenge. This made E-journals a readily available alternative.

Conclusion and Recommendations

The study discovered that there was high access and

use of personally subscribed e-journals as against the library subscribed e-journals. It is thus imperative on university libraries to provide more flexible platforms of access of their subscribed e-journals as e-journals have gradually become the main source of research information for academic staff.

Based on the findings of the study, the following recommendations are suggested:

1. Academic libraries should also take advantage of the open access policies of some publishers and databases to add to their e-journal holdings.
2. Nigerian Library Association should organise more training workshops for librarians on search and retrieval skills; modules may include effective search strategies, designing appropriate metadata and subject headings to enable easy retrieval, etc.
3. University libraries should retrieve usage statistics and mined data from the publishers or distributors of e-journals. These statistics should be studied in order to understand how well their e-journals are used and where researchers were focusing their researches. The statistical reports should follow recognised standards such as ICOLC (International Coalition of Library Consortia)'s Guidelines For Statistical Measures of Usage of Web-Based Information Resources and/or COUNTER (Counting Online Usage of Networked Electronic Resources)'s Code of Practice.

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A Tracer Study of Master of Science in Library and Information Science Graduates from the National University of Science and Technology, Bulawayo, Zimbabwe

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Abstract

The purpose of this study was to investigate the job market of Master of Science in Library and Information Science (MSc-LIS) graduates from the National University of Science and Technology (NUST), Zimbabwe between the period of 2006 and 2013. The study sought to establish where the graduates worked, what they did, their competencies, whether their education and training met the employers' expectations and how they impacted on the existing curriculum. Quantitative and qualitative methods were used to collect data through a questionnaire and literature review. Data were analysed using the Statistical Package for Social Sciences (SPSS) software, and content analysis. A total of 33 responses were received and used for the study. The majority of respondents were employed in universities. Although satisfied with the curriculum, more of ICT related and Knowledge Management courses were recommended by the majority of respondents.

Introduction and Background to the Study

An essential aspect of quality in higher education is the quality of the outcomes achieved. Higher education adds value by developing job-related skills and competencies that prepare students for the workplace (Ojedokun and Moahi, 2005). Haider (2008) and Burnnet (2013) opined that institutions of higher education have the primary responsibility for equipping individuals with advanced knowledge and skills required for positions of responsibility in government, industry and other sectors. It is essential for any programme of study to constantly evaluate its curriculum to ensure that its content remains relevant, of high quality and is in tune with the demand of the job market and one of the ways institutions do this is through tracer studies (Zainab, Edzan and Rahman 2004; Shongwe and Ocholla, 2011). According to Schomburg (2003), tracer studies, also known as graduate studies, alumni research or follow-up studies, target graduates of an institution of higher education to get information that indicates possible deficits in a given educational programme and to serve as a basis for future planning activities. Schomburg (2003) further asserts that the information on the professional success (career, status, income) of the graduates are needed as well as information on the relevance of knowledge and skills, for example, relationship between knowledge and skills and work requirements, area of employment professional position, etc.

At its independence in 1980, Zimbabwe had one university campus – the University of Zimbabwe (UZ). Ten years into independence, the UZ had been positively responsive to the development needs of the country and was playing a vital role in the development of human capital. However, there were

important gaps in the provision of university education in Zimbabwe. Consequently, there was a need for further expansion (Williams, 1989). The establishment of National University of Science and Technology (NUST), therefore, was occasioned by the urgent need to expand university provision in the country. This need for expansion of university education was chiefly informed and influenced by the increased "output of qualified people from the education and training system" (Williams, 1989).

The Department of Library Science and Archives (later renamed the Department of Library and Information Science) came into being in 2000, the same year it enrolled its first undergraduate students. The Department was surrogated to the Faculty of Commerce. In 2004, the Faculty of Communication and Information Science was established, and it comprised two departments, namely: Journalism and Media Studies and Library and Information Science. Later in 2004, the Department of Records and Archives Management was added. The Department of Publishing Studies was later added in 2008.

The Faculty envisions itself as an academic centre of excellence. Its mission is to contribute towards the economic and social advancement of humanity through the provision of knowledge-based solutions to national, regional and global challenges through:

- exercising excellence in teaching and learning in order to produce innovative and entrepreneurial graduates;
- engaging in excellent theoretical and applied research in order to solve national, regional and global challenges; and
- creating linkages with communities, industry and commerce, local and central government, and, civil society in order to collectively attend to social and economic challenges (National University of Science and Technology, Faculty of Communication and Information Science 2015)

The MSc-LIS programme commenced in 2006, with the first group of 15 students graduating in the same year. Since then, 94 students have graduated from the programme as at the time of this study. The major objectives of the Programme are to train information personnel in libraries, archives, records departments and information centres in order for them to acquire and master information management skills and to produce graduate personnel capable of teaching information science at various tertiary and higher education institutions.

In addition to the major objectives mentioned above, the programme is also designed to:

i) prepare students to develop an in-depth level of scholarship through the provision of opportunities for staff development at graduate level;

ii) produce high quality graduates who can competently facilitate the satisfaction of the information needs of various clientele in all of the segments of the information services industry; and

iii) enable students to understand, articulate and master the information phenomenon and apply it to national information needs (National University of Science and Technology, 2012).

This study sought to ascertain the relevance of the current MSc Library and Information Science programme from the perspective of past graduates in order to continue improving the quality of graduates. The objectives were to:

i) establish where the destination graduates after leaving the LIS School (are they employed, type of institutions/employer?);

ii) establish what the graduates were doing in the work environment (job specifications, title, responsibilities);

iii) find out whether the training they had received had helped them meet the employers' expectations and job requirements; and

iv) ascertain the challenges experienced by graduates and their implications on the curriculum.

Related Studies

Various tracer studies with the objective of ascertaining among other issues the relevance of the curricula to the job market, employment prospects, as well as graduate satisfaction with the academic programmes undertaken. Lutwama and Kigongo-

Bukenya (2004) focused on first degree and master's LIS graduates in Uganda, establishing that the most common employers were academic, government, banking and NGOs libraries. Lutwama and Kigongo-Bukenya (2004) established that employers were not satisfied with the calibre of students, with the Uganda Library Association being called to have a say in the training of information professionals. Students were generally found to have limited ICT skills due to the poor infrastructure within the LIS schools. Kavulya (2007) assessed the status of the job market of LIS professionals in Kenya and the relevance of the curricula and appropriateness training resources. The study found that the LIS programmes did not adequately address the job market requirements, with shortcomings in the areas of ICT content, inappropriate course content, as well as insufficient length of industrial attachment.

Shongwe and Ocholla (2011) looked at the employability of LIS graduates, relevance and their perceptions of the curriculum. The study established that the graduates were mainly employed by government and were generally satisfied with the knowledge and skills learnt at university. The respondents however had reservations on the overall curriculum, particularly information science graduates who had studied mostly ICT modules but found themselves employed in libraries; even though their course content had not covered this area in depth. Noko and Ngulube (2013) traced records and archives management (RAM) graduates from the NUST for the purpose of establishing where they were and the relevance of skills acquired during university to the requirements of the job market. The study established that most graduates were employed in parastatals and were satisfied with the programme except in areas of industrial attachment and training and limited ICT focus/coverage in the curriculum.

In Malaysia, Zainab, Edzan, and Rahman (2004) traced LIS graduates in order to ascertain curriculum relevance to the job market and their satisfaction about the programmes. Unlike in most literature highlighted in this section, the study revealed that graduates were satisfied with the courses, particularly those with more practical orientation, including ICT related modules like information retrieval, and computer applications in library and information systems. Library and information science curricula in the context of the Indian job market was the focus of the study by Baruah and Hangsing (2012), and they established an immediate need to restructure the curriculum across LIS schools in order to align course contents with the job descriptions/requirements of the job markets. Baruah and Hangsing (2012) observed that unless ICT was made an integral part of the LIS curricula, there was a risk of LIS professionals being replaced by IT professionals, particularly in library IT related jobs.

Aina and Moahi (1998) looked at the relevance of training to employment tasks and the perceptions of LIS graduates from the University of Botswana. The study established that The National Library Service of Botswana and the university libraries in the region were the major employers. As with the study by Shongwe and Ocholla (2011), the training was considered to be relevant to the required job skills, although there was need to reinforce/ strengthen the ICT component of the curriculum. Kamba (2011) observed that due to the demand for ICT competencies in the job market, LIS schools in Nigeria had responded through considerable efforts in integrating ICT courses in their traditional curriculum. Efforts in implementing these modules were however hampered by poor ICT infrastructure (including Internet) in the majority of the LIS schools.

Warraich and Ameen (2011) explored the perceptions of LIS graduates about their learning and employment outcomes in Pakistan, establishing that the majority had joined LIS programmes through encouragement from family and better job prospects. In contrast to the studies mentioned above, the graduates were satisfied with ICT related modules, with less satisfaction in the areas of cataloguing and classification, hence the need to bridge the gap between theory and practice. Mahmood (2012) indicates that LIS curriculum review in Pakistan has largely been in response to concerns from large universities and special libraries who felt that LIS schools were not keeping in touch with technological developments as reflected in the graduates' competencies. Using focus group interviews of employers in Pakistan, Mahmood (2012) established that ICT, leadership and communication skills were the most needed competencies the employers expected the graduates to possess. Chikonzo, Bothma, Kusekwa and Mushowani (2014) conducted an assessment of the changing needs of information

professionals in Zimbabwe observing that ICTs had greatly influenced LIS profession and the expected roles of librarians. The study also established that the current LIS curriculum in LIS schools fell short of the work/market expectations as the graduates lacked ICT skills.

Noh and Ahn (2014) compared the views of both students and librarians on desired employment and employment readiness, job market, and employment prospects in Korea. The study observed that cultural programing (library cultural events) and electronic information services were ranked highest as subjects needed in the university curriculum while internship or fieldwork training was considered the most important employment requirement. Mentoring and internships were considered vital in bringing practical knowledge and experience into the curricula.

What is however worrying from literature is that from early studies such as Aina and Moahi (1999), Kavulya (2003), Lutwama and Kigongo-Bukenya (2004), Aina (2005), through to recent studies by Shongwe and Ocholla (2011), Kamba (2011), Noko and Ngulube (2013), and Chikonzo, Bothma, Kusekwa and Mushowani (2014) among others, ICTs competencies have been reportedly found wanting among the major findings. Are LIS schools failing to be responsive to these findings?

Research Methodology

The survey method was applied in the study. The instrument for data collection was the questionnaire. Copies of the questionnaire were sent to 91 students who had graduated between 2006 and 2013. Four graduates reportedly passed on after their studies. The research instrument was modified from the study by Shongwe and Ocholla (2011) and Schomburg (2003). Details of the students' contacts were obtained from the NUST LIS Dean's Office. Owing to the changing nature of contacts, the study also utilised social media (Facebook), namely the Zimbabwe Library Association and the Progressive African Library and Information Activists (PALIAct -Zimbabwe) to announce the study and updated contact details of potential respondents. In the study by Shongwe and Ocholla (2011) for example, additional contact details of graduates were obtained from relatives, friends and from anyone who could provide such information (snowballing). A total of 33 copies of the questionnaire were completed and returned, giving a response rate of 36%. Data was then analysed using Statistical Package for the Social Sciences (SPSS).

Findings and Discussion

The following section presents the findings and the discussion of the study.

Characteristics of the Respondents

Out of the 33 respondents, 23 (70%) were male and 10 (30%) were female. Table 1 below indicates the number of graduates enrolled in a particular year and the number who responded (frequency). Low response rates have been observed in studies by Shongwe and Ocholla (2011), Noko and Ngulube (2013). Schomburg (2003) indicates that quite often the response rate is less than 50%, at sometimes below 25%.

Table 1: Annual Distribution of Graduates and Returns N=33

Year	Number of graduates	No. of Respondents	Percentage
2006	14	6	18.2
2007	14	2	6.1
2008	14	8	24.2
2009	7	4	12.1
2011	13	5	15.2
2012	11	6	18.2
2013	18	2	6.1
Total	91	33	100

Employment Status, Sector and Type of Organisation of Respondents

All the 33 respondents indicated that they were employed, which was a contrast to Noko and Ngulube (2013) who had previously carried out related studies on Records and Archives Management graduates from the same Faculty at NUST. The majority of respondents (28; 84.8%) were employed in universities, One graduate was employed in the public sector in a government ministry, three respondents were employed in the private sector- being the aviation industry, a private school, and a private financial institution. One did not indicate the organisation.

Employment Movement after Graduating

Corresponding with the period of employment, 20 (60.6%) respondents mentioned that they had been promoted since attaining the MSc qualification with 13 (39%) indicating in the negative. Table 2 shows the graduates' year of completion and whether they have been promoted.

The study indicates that 2 (6.1%) graduates who completed their studies in the first output (2006) were yet to get promoted, and 2 (6.1%) who completed studies in 2008. Four (12.1%) graduates who had not been promoted however indicated that they had assumed additional responsibilities to which they got financial allowance. The number of respondents who had not been promoted highlights the plight of LIS graduates, as 3 senior library assistants who mentioned that despite attaining their MSc-LIS, they still found themselves in the same job grade before the masters' degree which they were appointed with a National or Higher National Diploma.

Table 2: Job Promotion Trends among Graduates

Year of completing MSc programme	Promotion since attaining postgraduate (MSc LIS) qualification N=33					
	Yes	%	No	%	Total	%
2006	4	12.1	2	6.1	6	18.2
2007	2	6.1	0	0	2	6.1
2008	6	18.2	2	6.1	8	24.2
2009	3	9.1	1	3	4	12.1
2011	2	6.1	3	9.1	5	15.2
2012	3	9.1	3	9.1	6	18.2
2013	0	0	2	6.1	2	6.1
Total	20	60.6	13	39.4	33	100

Eighteen (54.5%) respondents further indicated that they had changed organisations/jobs since attaining the MSc-LIS qualification while 15 (45.5%) indicated that they had not done so. In terms of how the respondents found their new jobs, 18 (54.5%) respondents indicated that they had applied for the advertised vacancies.

Table 3: Reasons for Changing Employer/Organisations

Reasons for changing employer/employment N=18	Frequency	%
In order to use the qualification acquired (MSc)	12	36.3
To perform desirable professional tasks	11	33.3
In order to get a better position	10	30.3
In order to obtain a higher income	9	27.2

*Table indicates multiple responses

The graduates indicated that their change of organisations was motivated by the reasons stated in table 3. A sizeable number of respondents changed their jobs (36.3%) in order to use qualification of M.Sc. already acquired and another 33.3% claimed that they did in order to be able to perform professional tasks.

Job Titles and Leadership Levels

A variety of job titles were mentioned by the respondents. On the academic side, five (15%) respondents indicated that they were lecturers, one was a department chairperson. Two (6%) respondents mentioned that they were university librarian/director of library services; three (9%) respondents were deputy university librarians, while two (6%) indicated that they were systems analysts/ librarian. Other titles mentioned were acquisitions librarian , information resources manager, knowledge and communications manager, library manager–client services, head of technical services, faculty librarian, assistant librarian, client services librarian, bibliographic librarian, librarian, senior librarian, senior assistant librarian, and special collection librarian. Only one respondent was involved in archives and records management as a principal archivist. The lowest ranked title was the senior library assistant. As observed by Shongwe and Ocholla (2011), Kamba (2011), Baruah and Hangsing (2012), among other authors, the advent of the Internet led to the creation of new job titles such as: LAN administrator, webmaster, knowledge manager, systems librarian and technology librarian.

In terms of managerial and leadership levels, the majority of respondents (16; 48.5%) were in the middle management, 11 (33.3%) were in the top management, and 5 (15.2%) were in lower management. One respondent mentioned no management and leadership role.

Major Tasks Performed by the Respondents

The majority of respondents worked in university libraries. Others were employed as lecturers and archival workers. The library tasks are reflective of the "traditional duties" that revolved around library administration, technical services, client services, library acquisition and library IT administration. In bibliographic and technical services, the respondents were involved in all aspects of library acquisition and processing of materials (cataloguing and classification), dealing with gifts and exchanges, as well as identifying material for repairs. Client services ranged from user education, SDI, marketing of library resources, Information literacy training circulation and collecting usage statistics. Library administration involved managerial duties like finance and budgeting, strategic planning, human resources, and attending meetings. Graduates were also involved in systems analysis. Responsibilities included managing the IT department of the university, coordinating institutional repositories, database management and website design, managing electronic resources, among other duties.

Appropriateness of Professional Position and Qualification

The graduates were asked whether they considered that their professional positions to be adequate/ aligned to their qualifications. Twelve respondents mentioned that they were quite appropriate, 11 (33.3%) indicated that it just appropriate, while 10 (30.3) % graduates were not satisfied with their positions given their qualifications. Further analysis showed that of the 10 (30.3%) who were not satisfied, 7 (21.2%) graduates had indicated that they had not been promoted since attaining the postgraduate qualification.

Satisfaction with LIS Profession

The respondents were further asked to indicate their level of satisfaction with LIS profession, in particular, work environment, income, and other variables as shown in table 4.

Table 4: Level of Satisfaction with LIS Profession N=33

Attribute	Very high extent	%	Satisfactory	%	Not satisfied	%	Undecided	%
Contents of work and professional tasks	12	36.4	17	51.5	3	9.1	1	3
Working atmosphere/environment	6	18.2	20	60.6	7	21.2	0	0
Possibility to use qualifications acquired during studies	13	39.4	14	42.4	6	18.2	0	0
Amount of income	3	9.1	12	36.4	18	54.5	0	0
Prospects of promotion	8	24.2	14	42.4	11	33.3	0	0
Chance to obtain further professional qualification	17	51.5	9	27.3	3	9.1	4	12.1
Professional position achieved	8	24.3	11	33.3	13	39.4	1	3

*Table denotes multiple responses

The graduates expressed satisfaction with LIS profession with regards to content of work and professional tasks. The possibility to use qualifications acquired and chances of obtaining further professional qualifications were considered very high. Eighteen (54.5%) of the graduates were not satisfied with their job remuneration.

Study Conditions

The learning environment could influence the performance of learners in terms of availability of resources, quality of content and teaching staff among other factors. The study sought to establish how the graduates rated the study provision and study conditions experienced. Computer and Internet access were rated the poorest by 19 (57.6%) respondents. This was followed by equipment and library services, mentioned by 16 (48.5%) respondents. Postgraduate students generally require access to these facilities in order to use e-resources and other databases to support their studies. The NUST library provides on and off-campus access to a variety of e-resources. These resources need to be marketed widely to this category of students. Table 5 provides a summary of the findings.

Table 5: Rating of Study Provisions and Conditions N=33

Attribute	Very good	%	Good	%	Poor	%	Undecided	%
Academic advice offered in general	14	42.4	14	42.4	4	12.1	1	3
Assistance/advice for final examinations	6	18.2	24	72.3	3	9.1	0	0
Course content	6	18.2	23	69.7	3	9.1	1	3
Variety of courses offered	5	15.2	18	54.5	5	15.2	5	15.2
Design of degree programme	3	9.1	22	66.7	3	9.1	5	15.2
Testing/grading system	9	27.3	18	54.5	3	9.1	3	9.1
Opportunity to choose courses and areas of specialization	6	18.2	10	30.3	14	42.4	3	9.1
Practical emphasis on teaching and learning	4	12.1	20	60.6	7	21.2	2	6.1

Teaching quality	6	18.2	23	69.7	3	9.1	1	3
Research emphasis of teaching and learning	4	12.1	25	75.8	2	6.1	2	6.1
Provision of work placements and other work experience	2	6.1	13	39.4	10	30.3	8	24.2
Opportunity for out of class contact with teaching staff	8	24.2	19	57.6	5	15.2	1	3
Research project guidance	12	36.4	19	57.6	2	6.1	0	0
Contact with fellow students	13	39.4	17	51.5	3	9.1	0	0
Equipment and library services	2	6.1	14	42.4	16	48.5	1	3
Computer and internet access	1	3	11	33.3	19	57.6	2	6.1
Supply of teaching materials	4	12.1	17	51.5	9	27.3	3	9.1

*Table denotes multiple responses

The graduates also felt that opportunity to choose courses and areas of specialisation was poor due to limited options available. Areas of specialisation in LIS may include medical librarianship, public libraries, academic, children's libraries, etc. As mentioned above, within the Faculty of Communication and Information Science, the Department of Records Management also offers a postgraduate programme. Provision for work placements/industrial attachment was rated poorly by 10 (30.3%) respondents. This concern has also been raised in studies by Kavulya (2007), Shongwe and Ocholla (2011), Noko and Ngulube (2013), Burnett (2013), among others. Industrial attachment helps the students to put theory into practice and acquire work experience during their training period. This may also entail being attached to a different institution from one's current workplace, given that some are already employed when they enrolled for this programme, while others may need to be rotated within their organisations. Academic advice offered, contact with other fellow students, and research project guidance were highly rated by the graduates, while examination advice, course content, design of degree programme, practical emphasis on teaching and learning, and research emphasis of teaching and learning were also found to be good.

Perceptions of LIS Career Choice

Given all the responses provided by the graduates and in terms of career choice, the study sought to find out if the respondents were to choose again, their likelihood of making choices with regards to: choosing the same course, the same area of study, and the same institution. The majority of respondents were unanimous in indicating that they would likely

Table 6: Likelihood of graduates to repeat career choice: N=33

Attribute	Very likely	%	Likely	%	Very unlikely	%	Undecided	%
Choose the same course of study	10	30.3	18	54.5	5	15.2	0	0
Choose the same area of major	7	21.2	18	54,5	4	12.1	4	12.1
Choose the same institution of higher education	16	48.5	11	33.3	5	15.2	1	3

choose the same course of study and area of major, and NUST as the institution of study. As shown in table 6 some would rather engage in a totally different career and at a different institution.

Additional comments from the respondents

From the qualitative data the following were the findings:

- MSc taught courses give graduates an added advantage when looking for employment.
- The MSc programme will enable one to register for PhD studies in future.
- Information and knowledge sectors are constantly changing and department needs to be responsive to change.
- MSc programme at NUST is good but needs to focus on current trends in the development of libraries.
- NUST is the university to be but management should help their students in securing good jobs
- Some of the teaching staff during my period of study were not serious in supervising projects.
- The programme needs to be reviewed to meet the needs of information industry in line with new trends.
- Very grateful for being a pioneer of MSc LIS programme.
- The study environment was not very encouraging.
- The Department should introduce a doctoral programme in LIS.

The above issues by the respondents need to be seriously attended to.

Conclusion and Recommendations

Despite the low response rate, the study has highlighted the positive areas andthe limitations of the MSc-LIS programme that could help guide further developments of the programme courses. The study has shown that the graduates were employable and capable of assuming senior positions and responsibilities in the various sectors. Some of them are: university librarian/director-library services, deputy directors, knowledge and communications manager, information resources manager, among others. The graduates were also able to diversify into ICT positions, for example systems analyst/ librarian.

ICT application is so prevalent in the job environment, thus the graduates need to be equipped with such skills when they leave university. These tasks have also redefined the job titles on the market. The study points to the inadequacy of the curriculum and the need for a review of content to be aligned with the job market. The graduates had learnt some new skills on the job which were not taught at the library school, and they felt that these should be incorporated in future curriculum reviews. The study environment, particularly computer and Internet access and library services, were found to be inadequate. Curriculum evaluation is necessary in order to align the LIS programmes with the job market requirements. The programmes should fuse theory and practice by incorporating hands-on exercises, as well as promoting internship during the training period.

This study contributes to the LIS curriculum policy and development. By sharing the results of the study with the university authorities at NUST, it is hoped that some of the findings will, in the long term, be considered. The findings of this study will also buttress the findings of an earlier study by Noko and Ngulube (2013). The study recommends an all stakeholders' involvement in the curriculum review of which should include the employers, the past students and the national library association.

The study recommends that further research which reflects market-driven demands through job advertisements be undertaken periodically in order to validate the findings of this study. Despite these challenges, the positive aspect is that some of the graduates have enrolled for doctoral programme, which shows that the MSc-LIS programme indeed prepared Students for higher degrees.

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Editorial Feature

Reference Services in Research and Knowledge Production

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During the 2015 IFLA RISS (Reference and Information Services Section) Satellite Conference held on 13 August 2015 at the University of Botswana in Gaborone as part of the build-up activities to the main IFLA conference that took place from 15 to 21 August 2015 in Cape Town South Africa, I was invited to deliver a key note address. The address was titled: *Ethical Obligations and Dilemmas in Providing Reference Services in the Information Society.* In preparing for this keynote and during its presentation, the inextricable link between reference services on one hand and research and knowledge production on the other dawned upon me. Reference service activity revolves around the reference librarian interacting with users during the reference interview, searching and retrieving information for them; formatting the information in appropriate formats and may sometimes interpret the information for them to ensure they meet their information needs**.** The universities, the research institutes, and to some extent, the industry (triple in a triple helix relationship) are the citadels where most knowledge production takes place. The academia, the researchers and the postgraduate students in these environments are the individuals upon whose shoulders the responsibility of research and knowledge production is bestowed. The reference librarian then becomes a key factor and catalyst in the research and knowledge production helix.

The role of the reference librarian in research and knowledge production is derived from the interdisciplinary origin of information and the virtues and ethos attached to it. The interdisciplinary origin and value of information is underscored by Capurro (2008) who traces its etiology and development in the medieval age where the concept was used in two contexts – tangible *and intangible.* Earlier use of the term "information" is attributed to Varro (116-27 B.C) cited in Capurro (2005) when he made reference to '*informo'* – how the fetus is being " informed" i.e. 'molding' or creating. The intangible context is attributed to Augustine when he used the term "information" to refer to the forming of virtues in pedagogical and moral perspective. During the Middle Age, the concept of information was placed in three contexts: the epistemological/ontological – creation of scientific knowledge (Schütz 1958 cited in Capurro 2005); the pedagogical – educating, instructing, communicating; and the methodological – how information is measured. Capurro asserts that in the modern age in which we now live, information is used in the context of communicating something to someone (Capurro, 2008).

The role of reference librarian therefore becomes central to knowledge production process with lots of ethical ramifications, especially given the continuous evolution of new technologies (Bunge, 1999). This role is not made any easier by the fact that the information society dispensation brings with it more complex ethical issues in information intermediation and knowledge production, especially with regard to the responsible use of ICT, with regard to privacy, freedom of access to information, protection of user rights, inclusive access and accessibility of clients to information, intellectual freedom, confidentiality and trust, human dignity, tolerance and diversity; quality and integrity of the

reference services; and the right of access to information.

Therefore, the reference librarian faces several ethical dilemmas in executing their obligations and mandate to clients. In this role, the reference librarian must desist from among other things, – revealing the identity and the clients' information without their permission; conflict of interest that prejudice judgment; discriminatory tendencies towards different clients; personal philosophies or attitudes that influence the quality of reference services; financial conflict of interest and dishonest tendencies. The reference librarian must also exercise fiduciary responsibility to client and practice ethics of proximity (Logstrup, 1997); demonstrate honesty, candour, courtesy and respect; balance between utilitarian and ethical practice. The reference librarian must also recognise and take pre-emptive action against the influence of paternalism and censorship (Broderick, 1982), power relations, shared responsibility and societal interests.

The academics and the postgraduate students who are the key drivers of research and knowledge production must on their part be cognisant of critical role played by reference librarians in serving them and demonstrate good ethical conduct. They must recognise that they are partners and allies of the reference librarian in the knowledge production process. Familiarity by academics and postgraduate students with the ethos of research and knowledge production as well as their understanding of ethical traditions such as deontology, utilitarian, as well as the World Summit on Information Society principles of declaration (particularly action line 10 on ethical dimension of information society) would be helpful in fostering a culture of good ethical conduct in the research and knowledge production process.

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