Изменение научно-исследовательского ландшафта в области библиотечно-информационных наук: Анализ научно-исследовательской деятельности высших учебных заведений Южной Африки в сфере библиотечно-информационных наук за последнее десятилетие (2007–2016)

The changing library and information research landscape. An analysis of Library and Information Science Research in South Africa by LIS academics in the last decade (2007–2016)

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Сфера научно-исследовательской деятельности в области библиотековедения и информатики в Южноафриканской Республике претерпевает значительные изменения. Приводя результаты исследования 2007 г., авторы рассматривают научно-исследовательскую деятельность южноафриканских ученых в данной сфере в 2007–2016 гг. на основе анализа научных публикаций, внесенных в базы данных LISTA и SCOPUS. Данный метод позволяет оценить публикационную активность авторов, университетов и организаций, их взаимодействие, определить тематику работ и тенденции публикационной деятельности, а также источники научно-исследовательской информации. Отмечается, что большое количество ученых и исследователей не печатается в журналах, индексируемых в LISTA и SCOPUS, двух базах данных, которые отражают наибольшее число научных публикаций в области библиотечно-информационных и смежных с ними дисциплин. Большая часть публикаций появляется в местных южноафриканских научных журналах, аккредитованных правительством и получающих субсидии. В указанный период количество научно-исследовательских публикаций в библиотечно-информационной сфере выросло незначительно. Доминирующей по-прежнему являются традиционная для нее проблематика, но также все большее внимание исследователей привлекают новейшие технологии. Научное сотрудничество в области библиотековедения и информатики выросло более чем на 50%, хотя сотрудничество осуществляется, в основном, в рамках отдельных институтов. Среди проблем, влияющих на эффективность научно-исследовательской деятельности в области библиотечно-информационных наук, называется недостаточное присутствие факультетов библиотековедения и информатики на веб-сайтах университетов и организаций, а также связанные с некорректным индексированием лакуны в базах данных, затрудняющие поиск информации. Исследование еще не завершено, тем не менее, доклад позволяет взглянуть на состояние научной деятельности в области библиотековедения и информатики в Южной Африке. Результаты его могут представлять интерес для ученых за пределами региона.

Library and Information Science, along with research in the domain, is changing in South Africa. Building on a previous 2007 study, this paper explores Library and Information Science (LIS) research in South Africa by LIS academics from 2007–2016 through the analysis of research publications indexed in the LISTA and SCOPUS databases. This particular analysis focuses on author and university or institutional productivity, collaboration, subject, publication trends, and sources. It is noted that a large number of LIS academics do not appear in journals indexed by LISTA or SCOPUS, two databases that are known for indexing the largest number of scholarly research in LIS and all its respective categories. Most publications occur in local South African (SA) scholarly journals that are accredited by the government for research subsidies. LIS research publication trends over the course of the decade reveal an insignificant increase during this period. While traditional LIS research subjects are still dominant, emerging technology driven domains are growing increasingly popular. Research collaboration in LIS in South Africa has grown beyond 50% and is steadily expanding, although most collaborations occur within institutions. Challenges relate to LIS research capacity building, poor visibility of LIS academics/ faculties on university or institutional websites, and some indexing omissions in the databases which make searching cumbersome. Although this research is still in progress, the paper provides some insight for LIS research development in South Africa. The findings may also interest research in LIS outside the region.

1. Introduction

Quality research in all disciplines is encouraged and supported in South Africa (DHET, 2015) and evaluating research performance based on research publications plays a significant role (Diko, 2015). Research in LIS in South Africa is reported in several recent studies (Ocholla & Ocholla, 2007; Ocholla, Ocholla & Onyancha, 2013) with different conclusions. Most relevant to this study (Ocholla & Ocholla, 2007) observed that: 1) South African LIS researchers and authors largely publish in local journals (46.3%), led by the South African Journal of Library and Information Science – SAJLIS (25.1%), Mousaion (11.9%), and the South African Journal of Information Management (9.3%); 2) Publication in Thompson Scientific/ ISI and International Bibliography of Social Sciences (IBSS) indexed journals is low; 3) Although South Africa publishes most of Africa's LIS research, it receives comparatively less citations for its articles (Onyancha, 2007) because most publications that appear in South African LIS journals are not indexed by the Web of Science (WoS) where citation counts originate; 4) Subject orientation shows an impressive diversification and research focus on core areas of LIS education; and 5) Research collaboration, as observed through co-authorship (69%), is encouraging and increasingly occurs between the research supervisor and postgraduate student (M&D), although inter–institutional research collaboration within South Africa is average (51.2% of 45), and more or less similar between South African and non-South African institutions (44.4%). Both studies (Ocholla & Ocholla, 2007; Onyancha, 2007) concluded that since South Africa still leads in research and publication output in Africa, the rapidly growing research and publication output and support in the country offers promising opportunities for research and professional collaboration that could be explored and utilised beyond South Africa's borders.

A more recent study (Ocholla, Ocholla & Onyancha, 2013) focused on research by academic librarians in Southern Africa. Although the study did not focus on LIS educators or faculties, some relevant observations in this paper were made, such as that: 1) Both LISTA and LISA are important for searching LIS research; 2) Searching Google Scholar through 'publish or perish' yielded desirable results; 3) In the absence of Authority Name Files, searches in all four of the databases for research output by author name were found to produce misleading results, especially where common names were involved; 4) Electronic publications that are accessible through open access are the most accessed and used publications; and 5) Visibility (such as of an LIS faculty) can be obscured if university departmental databases are poorly constructed.

Based on our knowledge of related studies (Ocholla, Ocholla & Onyancha, 2012; Ocholla, Ocholla & Onyancha, 2013) and the fact that a decade has passed since the last study (Ocholla & Ocholla, 2007) which focused on LIS research publication output in South Africa, this study takes a longitudinal approach by analysing Library and Information Science research output in South Africa indexed in LISTA and SCOPUS from 2007 to 2016. The study attempts to answer the following five research questions: 1) How is LIS research output reflected among the twelve LIS schools in the universities? 2) Where do LIS academics publish? 3) Has the output of research publications over the course of the decade increased or declined? 4) What is the subject coverage of LIS research? And 5) What is the nature of research collaboration?

2. Research method

The study confined its scope to publications produced between 2007 and 2016 indexed by two databases: LISTA, which is internationally popular for its coverage of peer refereed research publications in Library and Information Science, and SCOPUS, a multidisciplinary peer refereed database. Qualitative content analysis through bibliometrics was used as the primary research method. Twelve LIS schools in South Africa were identified and a list of their academic staff obtained from their websites. A list of 132 academics/faculty was obtained through the websites. While the titles of academic staff differed in some cases, the dominant titles were: Professor, Emeritus Professor, Associate Professor, Senior Lecturer, Lecturer and Junior Lecturer. The publications of the academics/ faculty affiliated with the universities on a contractual basis were captured, but only when the affiliation was indicated in the address field. There were also other titles, such as Extraordinary Professor and Research Fellows, which are held by professors or academics affiliated to the universities.

The study covered the following universities in South Africa: University of Cape Town (UCT); Durban University of Technology (DUT); University of Kwa Zulu Natal (UKZN); University of South Africa (UNISA); University of Pretoria (UP); University of Limpopo (UL); University of Fort Hare (UFH); University of Western Cape (UWC); University of Zululand (UNIZULU); University of Stellenbosch (US); University of Johannesburg (UJ); and Walter Sisulu University of Technology (WSUT). Author search was used to collect data from LISTA and SCOPUS. Data analysis was achieved largely by using Microsoft Excel.

3. Results

3.1. How is LIS research publication output reflected among the twelve LIS schools in the universities?

The South African higher education landscape is complex (Cloete, 2014) and changing rapidly due to transformation. The 26 public universities are categorised into three groups: 9 universities of technology, which are focused on vocationally oriented education; 6 comprehensive universities, which offer a combination of academic and vocational diplomas and degrees; and 11 traditional universities, which offer theoretically oriented university degrees[1]. The report indicates that for the period in question, the student population exceeded one million, with some universities, such as the University of South Africa (UNISA), recording 400,000 students.. The LIS academics selected for this study were from 12 universities that varied in terms of the student population, number of academics, budgets, and other factors. Evidently this could affect a proportional number of publications, but should not justify the non-existence of publications. Figure 1 shows that the University of Pretoria (UP) recorded the highest number of publications (411), followed by the University of South Africa (226), the University of KwaZulu Natal (160) and the University of Zululand (128), while the Durban University of Technology (2) and Walter Sisulu University (0) were at the bottom of the list. This could be explained by the size, budget, student intake and the staff component of the universities. Some institutions (such as the University of Pretoria) have special positions (e.g. Extraordinary Professor, Research Fellow, etc.) that mainly generate research for the department, pushing up institutional research productivity. The use of research output through per capita and other variables would obviously change the rankings to some degree, and so this data must be treated cautiously.

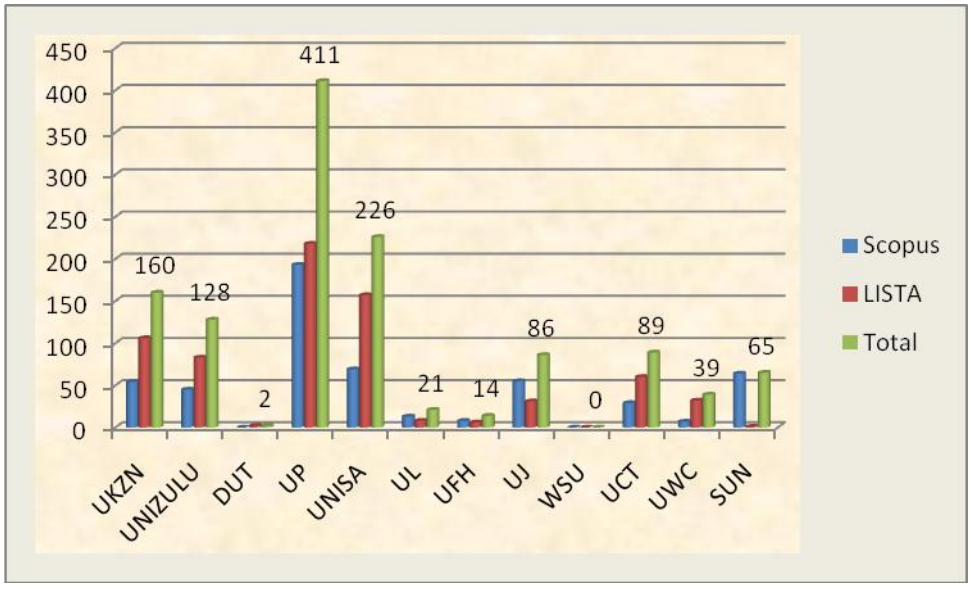

Figure 1: LIS academics' Publications by Institution, 2007–2016

[1] https://businesstech.co.za/news/general/101412/here-are-south-africas-26-universities/

3.2. Where do LIS academics publish?

LIS academics are encouraged to publish in scholarly publications that are approved by the government (DHET, 2015) which includes publications in SCOPUS, TR-WoS/ISI, Scielo, the Norwegian list, as well as a list of DHET approved South African scholarly journals normally indexed by SABINET. Qualifying books or book chapters and peer refereed conference proceedings are also considered. LIS academics publish in peer refereed national and international journals, which are well represented by LISTA and SCOPUS. Table 1 shows that of the 30 top journal titles, 19 (63%) were indexed by both databases, LISTA and SCOPUS, although the number of publications was sometimes different (e.g. AJLAIS – 48 in LISTA and 21 in SCOPUS, as SCOPUS discontinued indexing AJLAIS in 2015). At the top of the list in LISTA were three South African journals: Mousaion (116), South African Journal of Libraries & Information Science (109), and Innovation (84), followed by the African Journal of Library Archives & Information Science (48) which is also indexed by TR-WoS. These four top journals are listed in the DHET list of journals (DHET, 2015). In SCOPUS, the top three journals were international: Information Development (37), Library Hi Tech (32) and Libri (31), followed by the African Journal of Library Archives and Information Science (21). Evidently, SCOPUS does not index the top South African LIS journals, which is a pity.

Table 1: Top Journals in LISTA and SCOPUS

N	Source (LISTA)	Number	Source (Scopus)	Number
1	Mousaion	116	Information Development	37
2	South African Journal of Libraries & Information Science	109	Library Hi Tech	32
3	Innovation	84	Libri	31
4	African Journal of Library, Archives & Information Science	48	African Journal of Library Archives and Information Science	21
5	Library Hi Tech	45	International Information and Library Review	15
6	Information Development	33	ACM International Conference Proceeding Series	13
7	Libri: International Journal of Libraries & Information Services	33	Library Review	13
8	South African Journal of Information Management	31	Electronic Library	11
9	International Information & Library Review	13	Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)	10
10	Information Research	11	The Electronic Library	10
11	IFLA Conference Proceedings	10	Digital Solutions for Contemporary Democracy and Government	9
12	Library Trends	10	Journal of Information Ethics	8
13	Journal of Academic Librarianship	8	Communications in Computer and Information Science	7
14	Electronic Library	7	Information Research	7
15	Library Collections, Acquisitions, & Technical Services	7	Journal of Academic Librarianship	7
16	IFLA Journal	6	Scientometrics	7
17	Aslib Proceedings	5	Tydskrif vir Geesteswetenskappe	7
18	Cape Librarian	5	Aslib Proceedings: New Information Perspectives	6
19	Scientometrics	5	Digital Access and E-Government: Perspectives from Developing and Emerging Countries	6
20	Australian Library Journal	4	Lexikos	6
21	Education for Information	4	Mediterranean Journal of Social Sciences	6
22	Journal of Information Ethics	4	12th International Conference on Scientometrics and Informetrics, ISSI 2009	5

N	Source (LISTA)	Number	Source (Scopus)	Number
23	Proceedings of the European Conference on Knowledge Management	4	Communication	5
24	Collection Building	3	Handbook of Research on E-Government in Emerging Economies: Adoption, E-Participation, and Legal Frameworks	5
25	LIBRES: Library & Information Science Research Electronic Journal	3	IFLA Journal	5
26	Malaysian Journal of Library & Information Science	3	Information Technology for Development	5
27	New Library World	3	Online Information Review	5
28	Proceedings of the International Conference on Information Management & Evaluation	3	Proceedings of the European Conference on Knowledge Management, ECKM	5
29	Records Management Journal	3	CEUR Workshop Proceedings	4
30	School Libraries Worldwide	3	Education for Information	4

3.3. Has the output of research publications increased or decreased during the decade?

The output in the course of the last decade shows (Figure 2) the most and the least productive years respectively: 2015 – 210 publications, and 2010 – 77 only. For some reason, the most recent year (2016) is also low, but we expect this data to change when the full indexing cycle is complete.

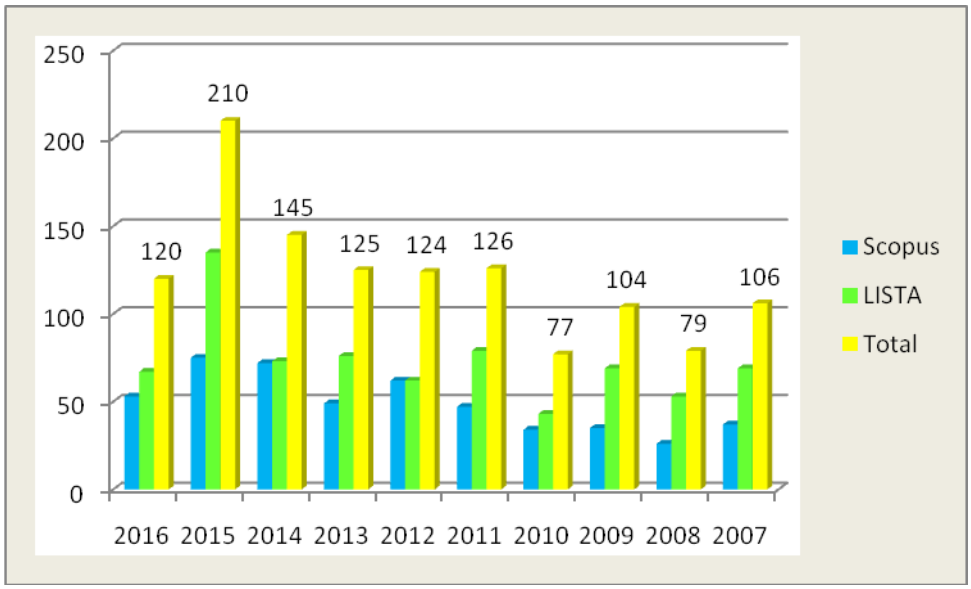

Figure 2: Total publications per year: LISTA and SCOPUS, 2007–2016

3.4. How is the research output represented by LIS subjects?

Author keywords were analysed from both databases (SCOPUS and LISTA). In the event that the author keywords were not indicated, the titles were used for the creation of keywords. In both databases, 'South Africa' was on the top, suggesting a significant focus on case studies, followed by e-government, libraries, Africa, Botswana, and Information Literacy in LISTA, and Information Literacy, Africa, and ICTs in SCOPUS. The topics were very diverse, from the traditional (e.g. school libraries, records management, Internet, ethics, public libraries, information behaviour, etc.) to more current (e.g. knowledge management, information management, informetrics, open access, digitization and research data management, to name a few).

Table 2: Top Author keywords – SCOPUS and LISTA

Scopus: Author Keywords	Count	LISTA: Author Keywords	Count
South Africa	86	South Africa	96
e-government ;	34	Information Literacy	33
Libraries	27	Editorial	29
Africa	26	Africa	28
Botswana	21	information and communication technologies;	27
Information Literacy;	21	Reviews	26
Sub-Saharan Africa	20	school libraries;	25
Records management	19	Information behavior	23
Internet	18	Informetrics	23
Information and communication technologies (ICT);	18	public libraries;	23
Knowledge management	17	knowledge management	22
Ethics;	14	Information seeking	21
Information management	14	Libraries;	21
Public libraries	14	information needs;	20
HIV/AIDS;	13	Information Management;	19
eSchool;	12	information;	19
Information science	12	Sub Saharan Africa;	19
Information seeking	12	academic libraries	18
Kenya	12	Records management;	18
E-learning;	11	university libraries	16
Information behavior	11	Librarians;	15
Information services;	11	Universities	15
Librarians	11	research;	14
Academic libraries;	10	Collaboration;	13
Information;	10	Internet	13
Informetrics	10	Knowledge society.	13
Digital divide;	9	HIV/ AIDS;	12
government;	9	Information services;	12
Information retrieval;	9	Legal deposit	12
Open access;	9	Open access;	12

3.6. What is the nature of research collaboration?

Research collaboration by LIS academics has been well reported in recent studies (Maluleka & Onyancha, 2016; Maluleka, Onyancha & Ajiferuke, 2016; Ocholla, Ocholla & Onyancha, 2013) and noted its significant growth, dimensions and complexities. Similar trends are observed in an Australian study (Wilson et al., 2011). The findings of this study revealed that the majority of the researchers within the stated time frame preferred to publish collaboratively (Table 3). The most popular way in both databases was through collaboration between two authors, followed by single authorship, and publications with three authors. The highest number of collaborators in LISTA was 16 authors, and 26 authors in SCOPUS.

Table 3: Number of authors in SCOPUS and LISTA

Authorship	Scopus	LISTA
1 Author	137	219
2 Authors	189	306
3 Authors	118	128
4 Authors	36	13
5 Authors	7	2
6 Authors	1	0
8 Authors	1	0
16 Authors	0	1
26 Authors	1	0

South African LIS collaborations (based on authors' affiliations provided in SCOPUS) are reflected in Figure 4, which shows that the University of Pretoria's (UP) biggest collaborator for the given time frame was the University of Cape Town (UCT) with 26; followed by the University of Zululand (UNIZULU) with 5 and other organizations with 4 respectively. Stellenbosch University (SU) collaborates effectively with University of Pretoria (UP) and other organisations (8) University of Zululand (UNIZULU) – with University of South Africa (UNISA) with 7 and University of KwaZulu Natal (3). Most collaboration occurred within the LIS department or inter-departmentally within the same institution.

Table 4: South African LIS collaborations, 2007–2016

University	UP	UKZN	UNIZULU	UNISA	UL	UFH	UJ	UCT	UWC	SU
UP	**95**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**19**
UKZN	1	17	3	0	0	1	3	0	1	0
UNIZULU	5	3	16	4	0	0	0	0	0	0
UNISA	1	2	7	28	0	0	0	0	0	1
UL	0	0	0	0	7	0	0	0	0	0
UFH	0	0	0	0	0	6	0	0	0	0
UJ	0	4	0	0	0	0	21	0	0	0
UCT	26	0	1	0	0	0	0	18	2	0
UWC	0	1	0	0	0	0	0	1	4	0
SU	2	0	0	0	1	0	0	0	0	18
NWU	1	0	0	0	0	0	0	0	0	0
TUT	0	0	0	0	0	0	1	0	0	0
Other	4	0	0	1	0	0	0	3	0	8

International collaborations (Figure 5) seem to be scarce, with only a few institutions having done so from 2007 – 2016. The collaborations mainly occurred because of employing special personnel in their departments (e.g. Extraordinary Professor), or sometimes collaborating with academics from foreign institutions. The University of Pretoria (UP) topped the list of international collaborations, such as with the USA (29), Netherlands (8), and Denmark (6).

Table 5: SA LIS International collaborations 2007–2016

Country	UP	UKZN	UNIZULU	UNISA	UL	UFH	UJ	UCT	UWC	SU
Argentina	0	0	0	0	0	0	0	0	0	1
Austria	0	0	0	1	0	0	0	0	0	1
Belgium	0	0	1	0	0	0	0	0	0	0
Botswana	1	5	1	0	0	0	25	0	0	0
Canada	0	0	0	4	0	0	0	0	0	1
China	0	0	0	0	0	0	0	0	0	1
Czech Republic	0	0	0	0	0	0	0	0	0	1
Denmark	6	0	0	0	0	0	0	0	0	0
France	1	0	0	0	0	0	0	0	0	0
Germani	1	0	0	0	0	0	0	0	0	5
Ghana	2	0	0	3	0	0	0	0	0	0
Greese	0	0	0	0	0	0	0	0	0	1
Hungary	0	0	0	0	0	0	0	0	0	1
Italy	0	0	0	0	0	0	0	0	0	1
Kenya	0	3	4	0	0	0	0	0	0	0
Namibia	2	0	3	0	0	0	0	0	0	0
Netherlands	8	0	1	0	4	0	0	0	0	7
New Zealand	0	0	1	0	0	0	0	0	0	0
Nigeria	0	1	2	13	0	0	0	0	0	0
Oman	1	0	0	0	0	0	0	0	0	0
Poland	0	0	0	0	0	0	0	0	0	1
Portugal	0	0	0	0	0	0	0	0	0	1
Senegal	0	0	0	3	0	0	0	0	0	0
Serbia	0	0	0	0	0	0	0	0	0	1
Slovakia	0	0	0	0	0	0	0	0	0	1
Slovenia	0	0	0	0	0	0	0	0	0	1
Spain	0	0	0	0	0	0	0	0	0	0
Swaziland	0	0	0	0	0	0	0	1	0	0
Sweden	1	0	0	0	0	0	0	0	0	4
Tanzania	0	1	0	3	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	1
Uganda	0	0	1	2	0	0	0	0	0	0
UK	0	0	0	0	0	0	0	1	0	0
USA	29	0	2	1	0	0	0	0	0	1
Zimbabwe	1	0	0	0	0	0	0	0	0	0

Conclusion

LIS research publication output among the universities is influenced by several understandable factors (Cloete, 2014) such as transformation that inform quality research/education, policy and capacity building. While this may be true, it doesn't stand to explain why of the 132 names of LIS academics from the twelve SA universities found on the university websites, only 62 (47%) (SCOPUS) and 71 (53%) (LISTA) research publications were indexed in the databases. This may suggest that half of them do not publish in scholarly journals indexed by these databases at all among other unknown reasons. Most South

African LIS academics publish their work in SA peer referred government (DHET) approved journals. Unfortunately, some of these journals are not indexed in the international databases. It was noted that LISTA indexes more SA LIS peer referred journals than SCOPUS, which is understandable as it is dedicated to LIS research. South African LIS academics publish in both local and international LIS scholarly journals, with most publications in local journals such as Mousaion, South African Journal of Libraries and Information Science, Innovation, and the South African Journal of Information Management. SAJLIS (the oldest and top LIS journal in South Africa) topped the list in our previous study as well (Ocholla & Ocholla, 2007). The top international journals were: Library High Tech (LISTA – 45; SCOPUS – 31), Information Development (LISTA – 33; SCOPUS – 37), African Journal of Library Archives and Information Science – AJLAIS (LISTA – 48; SCOPUS – 21); and LIBRI (LISTA – 33; SCOPUS – 31).

The LIS research publication trend from 2007 – 2016 showed an insignificant increase in publications, with minor ups and downs in the course of this period. We noticed a surge in publications indexed by LISTA in 2015 for reasons that are not known to us at this time, but expect more SCOPUS indexed publications in the future due to changes in the research publication subsidy policy (DHET, 2015). The subject coverage of LIS publication is diversifying and shifting slowly from traditional LIS research subjects to emerging technology driven domains, which is encouraging. However, further analysis of the research areas, revealed that while a number of traditional library topics were still popular (such as school libraries, public libraries, etc.), there was less exploration of new domains (e.g. research data management, digital duration, open access). This needs to be improved, as LIS academics should be leading in identifying and exploring new Library and Information Science research areas. It was also noted that case studies seem to be common.

LIS research collaboration in South Africa has received significant attention recently (Maluleka & Onyancha, 2016; Maluleka, Onyancha & Ajiferuke, 2016). Related studies agree that co-authorship does lead to higher academic productivity (Ductor, 2015). As noted in Figure 3, most LIS researchers publish collaboratively. This includes institutional collaboration (e.g. within a department, or with other departments such as Computer Science), national collaboration (with other SA universities), and international collaboration. Institutional collaborations are at the top of the list, followed by national collaboration. Some institutions (such as University of Pretoria) have very strong international ties, which can be explained by the employment of special categories of staff (e.g. Extraordinary Professor from another country) or international postgraduate students studying at those institutions. Internal collaboration is largely between Masters and PhD students and their research supervisors, which appears to be encouraged for capacity building or research development (Maluleka, Onyancha & Ajiferuke, 2016). Inter-institutional (Table 4) and international (Table 5) collaboration is minimal, although other types of collaboration, such as between LIS academics and practitioners (Chang, 2016), does exist.

Notable challenges include the fact that institutional websites are not updated regularly, and a great deal of important information is missing. Some institutions do not even have a list of currently employed staff and their positions (including categories such as Research fellow, Emeritus Professor, Extraordinary Professor, etc.). It is important not to lose touch with retired academics who are still actively involved in supervision, research and publishing (especially those who are using institutional affiliation), as this gives a university better visibility and research output. This would also clarify the issue of the number of publications by specific departments/schools. Searching LISTA for authors' names was difficult (sometimes up to 6 entries for one author), and without browsing an author index first, it would not be possible to identify and search all the names correctly. Often, a number of important details in the bibliographic records were missing, such as the affiliation of the authors, author keywords, and complete names – it should not be an issue for LIS academics to provide all this information correctly. Some authors use double affiliation, often with other countries, which generates further confusion.

We recommend that all researchers should have one researcher ID (e.g. Orchid ID) that should be linked to all the databases. Unfortunately a number of service providers use their own researcher ID, which confuses the researchers. LISTA needs to improve the flexibility with data selection and import. Furthermore, South African publishers and editors should pursue the inclusion of their journals in international databases such as SCOPUS to improve the visibility of authors and institutional research output on the international arena. This study provides an agenda for discussions regarding LIS academics' research

development and capacity building, quality research, indexing, and LIS schools' visibility. We have reported only part of the data collected thus far for this paper.

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