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Factors influencing research collaboration in LIS schools in South Africa

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Abstract The study sought to explore the underlying factors that influence research collaboration in Library and Information Science (LIS) schools in South Africa. The population for the study consisted of 85 academic teaching staff employed by LIS schools in South African universities. A survey design was used to obtain data for the study, through a questionnaire containing open- and close-ended questions. A total of 85 teaching staff in 10 LIS schools in South Africa were alerted, through email, to the location of the Web-based questionnaires, developed using the Stellarsurvey software. A total of 51 questionnaires were completed and returned for analysis. The findings suggest that factors such as networking, sharing of resources, enhancing productivity, educating students, overcoming intellectual isolation, and accomplishments of projects in a short time as well as learning from peers influenced research collaboration in LIS in South Africa. Factors that are likely to hinder effective collaboration in LIS research include bureaucracy, lack of funding, lack of time, as well as physical distance between researchers. The findings further suggest that even though there are drawbacks to collaboration, majority of LIS researchers thought that collaboration is beneficial and should be encouraged.

Keywords Research · Library and Information Science · Universities · South Africa

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Introduction

In today's global economy, there is an increasing importance of collaborative relationships between individuals, organisations, and even countries. Collaboration, defined as a "process where two or more individuals or organizations deal collectively with issues that they cannot solve individually" (Ocholla 2008:468) and "the working together of researchers to achieve the common goal of producing new scientific knowledge" (Katz and Martin 1997), can be found in all the spheres of human life; for example in politics, economics or even in religion. Katz and Martin (1997) are of the opinion that research collaboration has significant benefits such as intellectual championship, joint development of skills, effective transfer of knowledge and the improvement of potential visibility of researchers. For example, collaboration can build partnerships and help empower researchers to accomplish projects that were never going to be easy to do individually. Collaboration brings together experiences, skills, knowledge and the know-how of different researchers into one particular project. By way of research collaboration, researchers from different countries come together for different purposes, among which are sharing of information, knowledge and technological transfer as well as finding solutions to specific problems (Onyancha 2009). Onyancha and Ocholla (2007), too, note that securing research grants is to a large extent becoming increasingly pegged on whether the intended research would be conducted collaboratively. Collaboration can be important especially in developing countries where there might be a lack of scientists and resources in certain fields. The few available researchers in developing countries can collaborate with those in developed countries for the former to be active in research as well as flourish as scientists.

Further, a review of the published literature reveals that there are several factors that influence research collaboration. According to Merlin (2000), Katz and Martin (1997), and Bozeman and Corley (2004), some of the factors that may influence research collaboration—and more particularly on whether one can enter into a collaborative venture or not as well as whether or not a collaborative venture succeeds—include:

- *Access to expertise*—Collaboration with experts may allow access to a specialised knowledge and expertise in a particular area.
- *Access to instruments*—partnerships allow the sharing of resources from different institutions. Partners from smaller institutions or institutions that are not so well endowed with resources will benefit from those institutions which are well endowed with resources, especially in terms of research instruments.
- *Cross-fertilization across disciplines*—Multidisciplinary research is a buzzword across university circles and as such some institutions have openly advocated for multidisciplinary research thereby necessitating collaboration across disciplines.
- *Access to funds*—There are more chances of getting funds from institutions that collaboration partners are affiliated to. As mentioned above, research organisations (such as the National Research Foundation in South Africa) are increasingly focusing on awarding grants to collaborative research ventures.
- *Obtaining prestige or visibility*—some authors would go for collaborative research to obtain prestige or visibility, especially in situations where research is conducted between researchers in developing and developed countries.
- *Learning tacit knowledge about a technique*—One of the characteristics of tacit knowledge is that it is difficult to write down or to formalize (Nonaka, as cited by Ambrosini and Bowman 2001:812). Developing researchers believe that they will benefit more by learning directly from the experts.

- *Enhancing productivity*—there is a belief among some scholars that collaboration among scientists influences scientific productivity.
- *Educating students*—During collaboration, students learn to solve problems in a group setting; the skills acquired will later be used to solve individual problems. Scholars around the world would collaborate in student supervision at Masters and Doctoral levels with the main purpose of developing the students into researchers.
- *Fun and pleasure*—Engaging with other colleagues and working together in a team can be more fun and rewarding than working alone in one's office corner.
- *Overcome intellectual isolation*—Working alone in a particular project can get very lonely at times and researchers run the risk of feeling lonely and isolated. Personal interaction in the form of collaboration in this regard becomes very important.

Just like in every situation, it is important to note that as much as there will be factors influencing collaboration, equally there will also be barriers to collaboration. According to Ocholla (2008:469), barriers to collaboration arise from lack of time, lack of funding, bureaucracy, cultures, financial systems, ethics, clash of values, the distance between researchers, policies, and psychological that borders on willingness to share among other things. Katz and Martin (1997), too, mention some of the limitations that are associated with collaboration as follows:

- Funding costs in the form of travel and subsistence—Researchers and equipment may need to be transported from one place to another and such an activity has its own added financial implications. Once moved, the instrumentation may need to be carefully set up again, perhaps requiring the assistance of technicians from the original institution, incurring further costs
- Collaborative studies brings certain costs in terms of increased administration—With more people and perhaps several institutions involved, greater effort is required to manage the research
- There is often the problem of reconciling different management cultures, financial systems, rules on intellectual property rights and so on especially where two institutions are involved

Rationale for the study

According to Katz and Martin (1997), collaboration among scholars in both natural and social sciences has been steadily increasing for decades, covering different disciplines, development categories, institutions, geographic regions and countries. The increasing attention on research collaboration in LIS has also been pointed out by Onyancha and Maluleka (2011). Sugimoto (2011) argues that research in the field of LIS has followed similar patterns of increased collaboration as in other fields. According to Ocholla (2008), collaboration and partnerships could be forged amongst LIS institutions in a country and internationally or regionally in areas such as teaching, research, student and staff exchange, conferences and workshops, curriculum development, publications, research supervision and examination and distance teaching/research. An examination of the published literature reveals that several studies have been conducted to examine research collaboration in different fields or disciplines including LIS. The focus of these studies includes the following:

- Identifying the collaborating authors, institutions, and/or countries (e.g. Sun 2006; Onyancha and Ocholla 2007).
- Measuring the strengths of research collaboration (e.g. Yamashita and Okubu 2006).
- Examining the nature of collaboration (e.g. Katz and Martin 1997; Smith and Katz 2000).

There are several other studies that have been conducted in line with the aforementioned studies, which have majorly focused on answering the question 'who' or 'what' of collaboration. Generally, studies that have been conducted previously on research collaboration have largely focused on the frequency of collaboration between the authors, the nature of collaboration and the strength of collaboration across disciplines. To the best of the researchers' knowledge, little has been done to answer the question 'why?' The current study therefore aims to investigate those factors that may influence collaboration in LIS schools in South Africa. The main objective of this study is to find out the underlying reasons and/or factors that influence collaboration, a situation that may explain the quantitative results (e.g. trends, patterns, nature, and type of research collaboration) reported in previously published works.

Research questions

The following research questions were posed in order to fulfil the study's main objective;

- What factors hinder and/or would hinder effective research collaboration in LIS schools in South Africa?
- What factors do and/or are likely to foster effective research collaboration in South African LIS schools?
- To what extent do the enhancers and inhibitors of collaboration influence research collaboration in LIS schools in South Africa?

Methodology and materials

The study adopted a survey design to seek for the LIS academics' views on factors that influence research collaboration in LIS research in South Africa. Neuman (2006:273) argues that survey research is developed within the positivist approach and it is the mostly and widely used design in the social sciences. Similarly, Leedy and Ormrod (2010:187) argue that survey research *involves acquiring information about one or more groups of people—perhaps about their characteristics, opinions, attitudes, or previous experiences by asking them questions and tabulating their answers.* According to Neuman (2006:162), surveys and more specifically survey questionnaires are the most common quantitative method used for collecting quantitative data. Neuman further mentions that survey questionnaires especially self-administered questionnaires have an advantage of allowing respondents an opportunity to anonymously respond to questions at their own pace. However Neuman (2006:162) acknowledges that that same advantage can create a disadvantage for researchers in the sense that completing a survey questionnaire may take longer than planned. It is important to note that, even though survey research is mainly viewed as a quantitative method, Zechmeister and Zechmeister (2006:145) argue that it can also be used to collect qualitative data. Zechmeister and Zechmeister (2006) are of the

opinion that open-ended questions produce qualitative data, while close-ended questions produce quantitative data.

In this study, the survey involved all academic teaching staff employed by LIS schools in South African universities. They include teaching assistants, junior lecturers, lecturers, senior lecturers, associate professors, and professors. Honorary professors, research fellows, extraordinary professors, or any other scholars who are linked to a particular department but not fulltime in that department were excluded from the population as they appeared to have more than one institutional affiliation. With only ten (10) LIS schools offering LIS education in South Africa, there was no sampling conducted as all schools were included in the study. The total number of the teaching staff was also small, leading us to include all academics in the target population for this study. Table 1 shows the number of staff in the LIS departments by the parent University.

The instrument of data collection for the study was a questionnaire, which was deemed to be the most appropriate. The questionnaire contained both closed-ended and open-ended questions, the former category of questions being the majority. There were a total of 20 questions focusing on specific items that were linked to the research questions. We used the *Stellarsurvey* online survey software as a platform for the questionnaires because it appeared to be easy to use and very economical when compared to its competitors. The software is available at: http://stellarsurvey.com/. We then sent emails to all the identified LIS researchers in South African LIS schools. The emails contained a link directing them to the website which invited them to participate in the study. Respondents were given three weeks to complete the questionnaire online. After 3 weeks a reminder was sent to participants again reminding those who had not responded to do so.

Results and discussion

This section provides and discusses the research findings according to the set out research questions for the study.

Table 1 LIS schools in South Africa

School name	Acronym	Number of teaching staff
University of South Africa	UNISA	19
University of Pretoria	UP	24
University of KwaZulu-Natal	UKZN	6
University of Zululand	UZ	7
University of Fort Hare	UFH	4
University of Cape Town	UCT	8
University of the Western Cape	UWC	6
Durban University of Technology	DUT	5
University of Limpopo	UL	4
Walter Sisulu University	WSU	2
Total		85[a]

[a] The number of the teaching staff was retrieved from the LIS departments' websites

Profile of the respondents

Out of the 85 teaching staff members that were approached to participate in the study, only 51 completed the questionnaires, leading to a response rate of 65.6 %. It was found that 43 % (i.e. 22) of the respondents were male while 29 (57 %) were female. All respondents had a university qualification ranging from a bachelor's degree to doctoral degree. As 1 shows, the majority of the respondents (i.e. 21 or 41 %) had a master's degree as their highest qualification, followed by those with a doctoral degree (i.e. 19 or 37 %) and then those with honours (11 or 22 %) (Fig. 1).

Figure 2 illustrates that majority of the respondents were employed as lecturers (27 or 54 %), followed by junior lecturers (9 or 18 %) and full professors (5 or 10 %) while senior lecturers and associate professors stood at 3 (3 %) respondents each. The results show that most respondents are actively involved in research either as masters and doctoral students or as supervisors and mentors for these students.

It will be interesting however to investigate the collaboration patterns among the LIS academic staff by the various categories depicted in Fig. 2. We however aver that in view of the fact that most of the publications were co-authored and whereas there are very few professors in LIS schools in South Africa, research collaboration within the LIS schools takes place between senior and junior academics as opposed to collaboration among senior academics only. This observation is reiterated in Table 3, which shows that majority of the teaching staff in LIS schools in South Africa collaborated with senior researchers or mentors.

The status of collaboration in LIS research in South Africa

It was found that 43 (84 %) of the respondents collaborated in the conduct of research while only 8 (16 %) indicated that they never collaborated before. This pattern seems to be in line with the data indexed in key bibliographic databases, namely the *Library and*

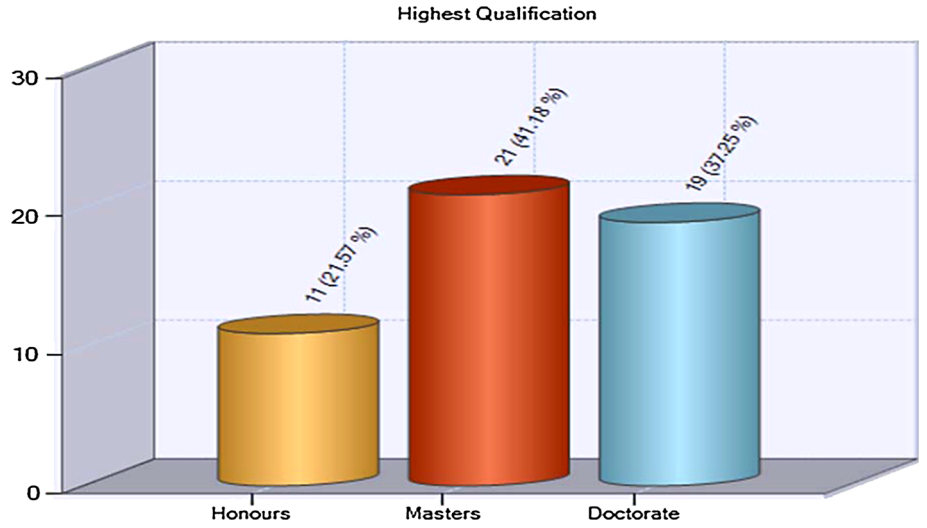

Fig. 1 Respondents' level of education

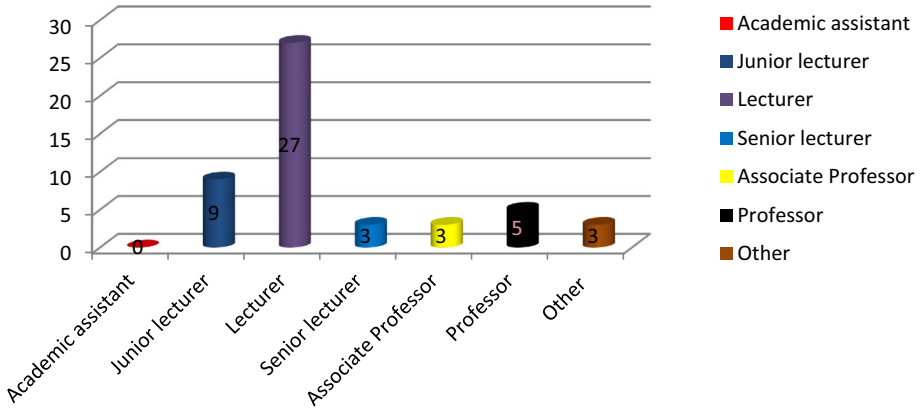

Fig. 2 Rank or position of teaching staff in LIS schools in South Africa

Information Science Abstracts (LISA), the *Library, Information Science and Technology Abstracts* (LISTA) and *Library and Information Science Source* (LISS).

A search within these databases for articles published between 1991 and 2012, using the variations of the authors' names, yielded the data in Table 2. The Table shows that approximately 53 % of the total number of publications LIS academics in South Africa published between 1991 and 2012 were multi-authored. Although the figures in Table 2 does not necessarily prove that most LIS scholars in South Africa collaborate, they nevertheless provide an indication to support the finding from the questionnaire survey which showed that a big number of the teaching staff in LIS schools in South Africa conduct their research through collaborations. It was not therefore surprising to note that 45 (88 %) respondents believe and agree that collaboration in research is important while 2 (4 %) were neutral with only 4 (8 %) saying collaboration in research is not important (see Fig. 3).

It was however strange to note that while 84 % of the respondents indicated that they collaborated, there was a sizable number that may have included the ones who reported that they collaborated, who might have felt that collaboration is not important. This group could include researchers who are forced, by circumstances (e.g. institutional policies on co-supervision of students or mentorship of junior colleagues). When we looked at collaborative projects already completed, 32 (62 %) respondents had already completed 3 or

Table 2 Single versus multi-authored papers between 1991 and 2012

Year of publication	Single authored	Multiple authored	Total
1991–1993	12	1	13
1994–1996	15	3	18
1997–1999	26	7	33
2000–2002	33	18	51
2003–2005	25	41	66
2006–2008	41	53	94
2009–2012	53	109	162
Grant total	205	232	437

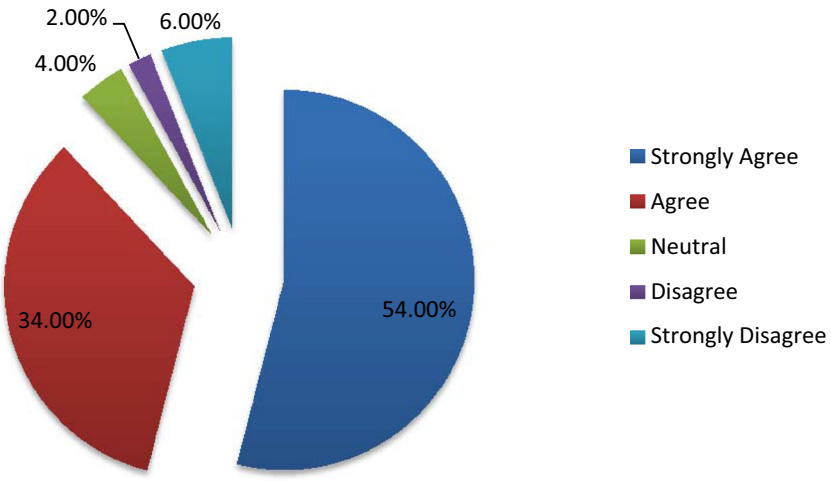

Fig. 3 Importance of collaboration ($N = 51$)

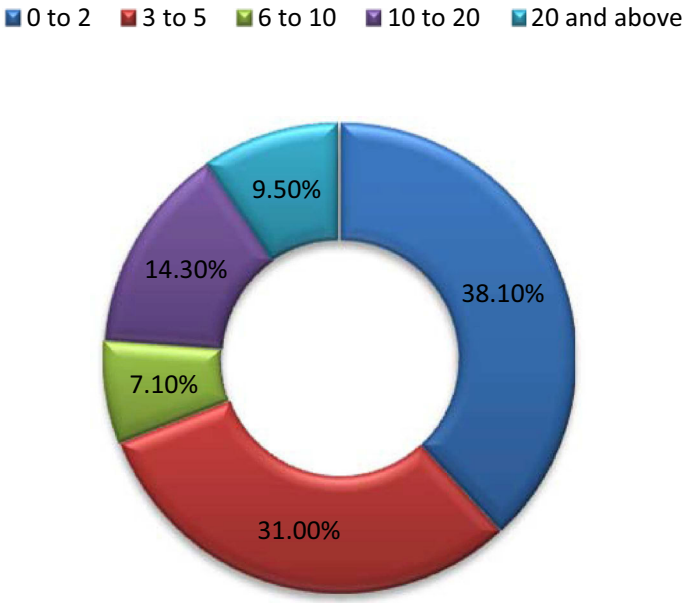

Fig. 4 The number of collaborated projects that are already published ($N = 51$)

more projects collaboratively while only 19 (38 %) had completed between 1 and 2 projects collaboratively.

It was worth noting that the current generation of researchers are actively engaged in collaborative research. Results tend to imply that the researchers prefer sharing and working together as compared to the past where the degree of collaboration among researchers has been reported to be low.

Another issue that we sought to investigate in the current study is the number of projects that the researchers have completed through collaboration. From all responses received as shown in Fig. 4, 38.10 % indicated that they had completed between 0 and 2 projects; 31 % had completed 3–5 projects; 7.10 % had completed 6–10 projects; 14.30 % had completed between 10 and 20 projects; while 9.50 % had published over 20 projects collaboratively.

When asked if they have any projects that they are conducting singly, a huge number of respondents indicated that they are busy with 1 or 2 projects on their own. Results indicate that 74 % of the respondents are busy with 1 or 2 projects, 14 % are busy with between 3 and 4 projects, 10 % are not conducting any projects alone, and 2 % are busy with over 6 projects as shown in Fig. 5. This pattern seems to agree with the general observation made by Sooryamoorthy (2009) to the effect that research collaboration in South Africa has increased tremendously in the previous decade (i.e. 2001–2009).

There are a number of reasons that may have influenced this pattern on collaborative research. Universities in South Africa have realised that they are losing their most experienced researchers who were approaching retirement age before the young and developing researchers were fully equipped in the area of research. In some universities such as UNISA, huge funds have been invested into the development of young researchers through initiatives such as the mentorship programmes. This is done in view of Liebowitz's (2009) suggestion that formal mentoring programmes are popular techniques used for knowledge sharing, knowledge retention, knowledge transfer, and also to enhance worker skills. In this programmes, senior researchers are assigned mentees who learn from them on a daily basis for a specific period of time. Research funding organisations such as the National Research Foundation (NRF) of South Africa are also making funds available for collaborative and multidisciplinary research. Doctoral students are also funded to conduct post-doctoral research in collaboration with their mentors. The responses from the questionnaire also suggest that other universities have made it compulsory for supervisors to publish at least one article collaboratively with their students from the latter's theses and dissertations. The above is evident from the feedback from the respondents and it may be the reason why

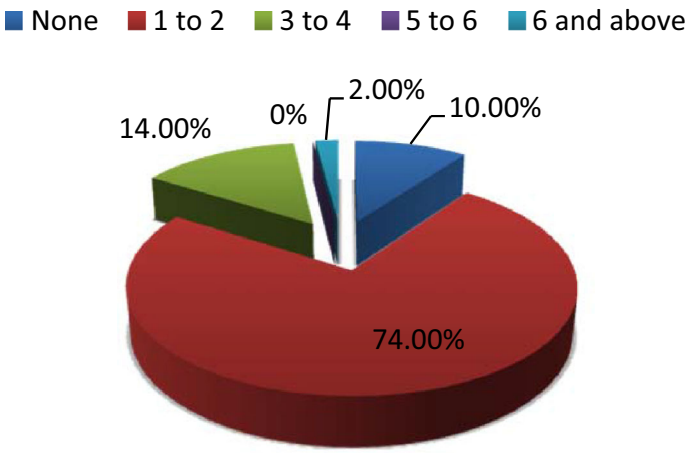

Fig. 5 Number of projects conducted singly by LIS academics in South Africa

majority of the respondents in the survey indicated that they are engaged in collaborative research, although some of them also indicated that collaboration is not important.

Looking at the group of people that the respondents mostly collaborated with, it was noted that the researchers in LIS schools in South Africa largely collaborate with fellow researchers when taking the occasional, often and most often times of collaboration into account; the three account for 80 % (see Table 3). This suggests that LIS researchers prefer collaborating with fellow researchers, preferably in their own field of interest. The main reason could be that working on a project with someone who understands one's subject area and the methodologies involved may result in the project being completed at a faster pace than if the opposite had to happen.

Another point worth highlighting is the results on collaboration with international researchers which was very low, with over 70 % of the respondents indicating that they never collaborated at this level. This pattern is contrary to previous studies' findings, which revealed that most research in Africa is published in collaboration with international researchers (see Narvaez-Berthelemot et al. 2001). It is therefore unfortunate to find that researchers in LIS schools largely collaborate locally as opposed to engaging in international collaboration as researchers collaborating at the international arena have a competitive advantage over their peers because they have a chance of using resources from both institutions to which they are affiliated. The other notable advantage worth mentioning regarding international collaboration is the fact that it allows researchers a chance to publish in international journals, share international experiences which will allow them an opportunity to gain international visibility. Narvaez-Berthelemot et al. (2001) note that researchers in developing countries would also benefit from their peers in developed countries in terms of publication of their research in international journals. The authors opine that "*the less productive the developing country, the greater the dependence on international co-authorship for mainstream publication*". Katz and Martin (1997) observe that most governments have been keen to increase the level of international collaboration engaged in by the researchers whom they support in the belief that this will bring about cost-saving or other benefits. The main reason given by respondents for not collaborating at this level was distance and logistical problems that exist when working with someone from another country. The other reason worth noting is the fact that researchers from bigger institutions or developed countries may undermine the contribution of the other researchers from poorer countries or smaller institutions. The opposite may also happen where researchers from smaller institutions may lack self-belief, contribute less and end up not playing an equal role in the whole collaborative venture.

Table 3 Group of persons that the respondents collaborated with ($N = 51$)

	Never (%)	Rarely (%)	Occasionally (%)	Often (%)	Most often (%)
Students	33.3	7.7	25.6	23.1	10.3
Mentor	24.3	18.9	13.5	16.2	27.0
Mentees (other than students)	50.0	14.7	20.6	11.8	2.9
Fellow researchers	5.0	15.0	30.0	45.0	5.0
Senior researchers	28.2	15.4	15.4	20.5	20.5
International researchers	45.9	24.3	10.8	13.5	5.4

It seems like there is need for institutions to initiate programmes geared towards supporting the researchers in overcoming problems faced during international collaboration. The researchers also need to take advantage of the latest technologies that can easily allow them to work together without having to travel between countries. For LIS researchers in South Africa to remain at par with their international counterparts, they need to engage with them and work with them collaboratively so that they don't work in isolation.

Enhancers and impact of collaboration

Respondents were asked to indicate the extent to which factors such as networking, sharing of resources, enhancing productivity, educating students, overcoming intellectual isolation, accomplishment of projects in a short time, learning from peers, and incentives influence them (researchers) to engage in collaborative research (Table 4).

The results in Table 5 indicate that over 44 (86 %) respondents engage in collaborative research to strengthen their networks with other scholars. The respondents reported that networking helps to bring these scholars who happen to have common interests together and create partnerships that often last for longer. Researchers usually work alone on their projects which leaves them isolated. Networking or coming together with fellow researchers to work on a project together may help overcome that isolation. The importance of networking was also highlighted by 37 (73 %) respondents who indicated that they collaborate in research to overcome intellectual isolation. Another patch of respondents numbering 38 (75 %) also agreed to be collaborating with an aim of sharing resources. This can be very significant to researchers from smaller institutions and underdeveloped countries with little resources. Such partnerships can allow them to take advantage of the available resources in both institutions, some of which may not be available in their smaller institutions.

Learning from peers was also one of the most common factors among respondents on why they collaborate in research. The results show that 43 (84 %) respondents collaborate in research to learn from their peers. This usually happens where two or more scholars with different expertise come together to solve a research problem. Each researcher brings a special skill that may not be known by the others and that brings an opportunity for all to learn from one another. There were mixed feelings among respondents when it came to having to collaborate to get incentives. In South Africa, a number of institutions usually attach incentives to publications published in selected peer reviewed journals, book chapters, peer reviewed conference proceedings and books that earn subsidy from the Department of Higher Education and Technology (DoHET). Only 24 (47 %) respondents

Table 4 Groups of people the LIS researchers are likely to collaborate with in the future ($N = 51$)

	Never (%)	Rarely (%)	Occasionally (%)	Often (%)	Most often (%)
Students	2.6	7.9	23.7	39.5	26.3
Mentor	24.3	16.2	16.2	21.6	21.6
Mentees(other than students)	25.7	14.3	34.3	20.0	5.7
Fellow researchers	0.0	12.2	22.0	43.9	22.0
Senior researchers	12.5	20.0	10.0	35.0	22.5
International researchers	12.5	20.0	30.0	20.0	17.5

Table 5 Factors that influence collaboration in LIS research in South Africa ($N = 51$)

	To a great extent (%)	Somewhat (%)	Very little (%)	Not at all (%)
Networking	54.90	31.37	1.96	1.96
Sharing resources	37.25	37.25	7.84	7.84
Enhancing productivity	56.86	19.60	9.80	1.96
Educating Students	31.37	41.17	11.76	3.92
Overcoming intellectual isolation	39.21	33.33	9.80	7.84
Accomplishment of projects in limited time	37.25	25.49	19.60	5.88
Learning from peers	62.74	21.56	5.88	0
Incentives (e.g. financial)	15.68	31.37	25.49	15.68

indicated that incentives may influence them to collaborate with 21 (41 %) saying incentives have very little influence on them when it comes to collaborating. It has been informally noted by researchers at some forums of discussion that some researchers at times choose not to collaborate so that they don't share incentives made available and opt to work alone. This can have serious implications because those who are skilled enough will work alone and continue getting incentives while they are not leaving anyone to take over from them when they retire which will create a knowledge gap. Having incentives for research in an academic setting is motivating and encouraging for researchers but it has negative implications for the future.

Reasons for collaborating

Respondents were requested to give specific reasons that are likely to foster collaborative initiatives with particular groups such as, students; mentors; mentees (other than students); colleagues in the same department; fellow researchers; and international researchers (Table 6).

Table 6 Barriers to collaboration ($N = 51$)

	To a great extent (%)	Somewhat (%)	Very little (%)	Not at all (%)
Bureaucracy	42.2	33.3	22.2	2.2
Lack of funding	43.5	28.3	19.6	8.7
Intellectual property rights	9.1	29.5	36.4	25.0
Lack of time	43.5	28.3	15.2	13.0
Clash of values	9.1	31.8	34.1	25.0
Ethics	15.9	18.2	27.3	38.6
Distance between researchers	15.2	19.6	23.9	41.3

- Reasons for collaborating with students and mentees (other than students)
  The responses received for this question were not that surprising considering the population for this study. Respondents indicated that they collaborate with students to impart knowledge and help the latter to obtain their qualifications. Some respondents indicated that collaborating with students is part of their jobs.
  A number of promoters feel that it takes a lot of time to do postgraduate supervision and as a result, they make sure that they get an article out of the whole project so that their efforts do not go to waste. It was also interesting and encouraging to note that some supervisors feel that students bring fresh perspectives on themes and ideas that they may be having at the time. This means that such supervisors give students a platform and opportunity to participate in the whole project while taking their ideas into consideration. Furthermore, respondents indicated that they would like to share their experiences on a particular subject and help capacitate their mentees while strengthening their relationships with their students at the same time exploring areas outside their subject specialisation.
- Reasons for collaborating with mentors and managers
  There was a general consensus among those respondents, who are being mentored by senior colleagues, that it is important to tap into the mentor's experience and knowledge in order to develop skills and research avenues. Mentorship of young researchers where the latter learns from the senior and experienced colleagues is again at the centre stage. Field (2001:270) is of the opinion that a mentor should play an important role in the career development of mentees, by providing them with background information and support for individual growth, as well as making them aware of opportunities available.
  The other important thing about having a mentor is the creation of an opportunity to connect with the mentor's professional networks. This allows the mentee to grow and expand his/her professional boundaries. Mentorship can either be formal or informal. The best example of a formal mentorship is that of a supervisor working with a post graduate student. Informal mentoring may happen between the experienced and the less experienced through a personal connection. One respondent mentioned that mentors know their mentees best, and it is advantageous to work with someone who knows and understands his/her mentee well. Having worked with someone before gives the mentee an advantage of knowing how the mentor does things and what the latter expects of him/her. This is important during collaboration where responsibilities are shared because it will be helpful in deciding which role should be played by whom. Other respondents indicated that a natural consequence of being a young researcher and wanting to learn definitely motivated them in the conduct of collaborative research with their mentors.
- Reasons for collaborating with colleagues in the same department
  Being in the same department will most likely mean that one knows and understands each other's strengths and weaknesses. Respondents indicated that they collaborate with colleagues with the aim of producing high quality papers in a short space of time to enhance their productivity. Some respondents mentioned a desire to pursue niche areas in their departments as a reason for collaborating with fellow researchers. They indicated that such collaborative research has the potential to generate income for them and increase their research output. Some respondents indicated that they work on departmental joint projects and they have no choice or can't avoid them as they are in the same department. This group may not yield desired results because collaboration is not conducted between willing partners who are committed to seeing the project through to the end.

Other respondents mentioned that co-supervision of students' work automatically gets them to work together and eventually they publish together with the students. In view of the fact that some LIS schools in South Africa have closed down or changed focus to non-LIS disciplines, the onus is left to the few available LIS schools to ensure the survival of the profession. The closing down of LIS schools has put too much pressure on the few academics left in LIS as they are expected to service the increasing student numbers and also conduct research so they stay relevant. This situation encourages collaboration where researchers will share responsibilities and reduce the time and effort required to complete a task.

- Reasons for collaborating with colleagues from other departments
  The respondents indicated that collaborating with someone from another department in the conduct of research widens their horizons. The respondents further mentioned that such collaboration is very important because it helps with the establishment of interdisciplinary networks and exposure to a wide variety of research methods. The other notable reason mentioned by the respondents is the cross-pollination of ideas that will result from collaborating with someone from a different department or discipline.
- Reasons for collaboration with International Researchers
  This type of collaboration as discussed in the sections above enables researchers to share international experiences, foster international networks, and can help researchers do comparative studies with peers from other countries. Respondents who indicated that they have collaborated at the international level believe that global perspective is key to providing comprehensive research studies. Researchers can never work in isolation and the same should happen in LIS. International collaboration according to some respondents can increase researchers' chances of accessing funds and publications as well as get international visibility.

Table 7 Personal traits or characteristics that may be a barrier to research collaboration ($N = 51$)

	To a great extent (%)	Somewhat (%)	Very little (%)	Not at all (%)
Gender	6.7	15.6	20.0	57.8
Level of education	31.1	44.4	20.0	4.40
Competencies	70.5	29.5	0.0	0.0
Honesty	72.7	13.6	6.8	6.8
Respect	80.0	11.1	6.7	2.2
Self-discipline	72.1	23.3	4.7	0.0
Work ethic	75	20.50	4.5	0.0
Mutual intent	75	20.50	4.5	0.0
Attitude	70.5	25.0	4.5	0.0
Interpersonal skills	47.7	45.5	2.3	4.5
Reliability	74.4	23.3	0.0	2.3
Nationality	4.7	2.3	20.9	72.1

Barriers to collaboration

This section explores the issues that LIS scholars perceive to hinder effective research collaboration in LIS schools in South Africa. Katz and Martin (1997) gave a summary of the following barriers to collaboration:

- Financial implications in the form of travel costs, moving of equipment's and so forth
- Increased administration resulting from more people/institutions involved,
- Lack of time from some collaborators, or additional time required as different parts of the research will be done in different locations
- Different management cultures, financial systems and rules on intellectual property rights

For this study, respondents were first asked to indicate the extent to which barriers such as bureaucracy, lack of funding, intellectual property rights, lack of time, clash of values, ethics, and distance between researchers may have prevented them or are likely to prevent them from engaging in collaborative research. Secondly respondents were requested to indicate the extent to which a number of personal traits and characteristics may be a barrier/s to research collaboration. Table 7 provides the extent to which some factors act as barriers to effective collaboration.

A good majority of respondents (i.e. 39 or 76 %) indicated that bureaucracy may be a barrier to collaboration. We believe that academics work under tight deadlines and the pressure to deliver is high and therefore too much red tape may sometimes delay their progress. Again over 36 (71 %) respondents indicated that lack of funding maybe a barrier to collaboration. It should be noted that many institutions make funds available for research but if access to those funds is a problem then little research will be done. If a project does not receive funds then it will never get off the ground. It was interesting and surprising to note that 34 (66 %) respondents indicated that ethics has very little impact on whether they collaborate or not. We opine that ethics is very important in research and perhaps that is why institutions around the world have adopted specific ethical principles when it comes to research. Only 17 (34 %) respondents indicated that ethics may be a great barrier and influence their decision to collaborate. The distance between researchers also seem not to be a problem among respondents with 33 (65 %) respondents indicating that it will not stop them from collaborating. The latest computer technologies such as Skype make it possible to work with someone who is in another country as if one were in the same room, so the issue of distance is increasingly becoming a thing of the past.

The majority of the respondents (i.e. 29 or 57.8 %) did not see gender as barrier to collaboration. However someone's level of education was considered very important by the respondents. Over 38 (75 %) respondents indicated that someone's level of education may be a barrier to collaboration. This may be influenced by the fact that researchers collaborate to accomplish goals that they cannot accomplish on their own; as a result, someone who is not academically capable may not be a good partner to have especially when one is under pressure to deliver. This was supported by the fact that all respondents suggested that somebody's inadequate competencies is definitely a barrier to collaboration. Personal characteristics such as honesty, respect, self-discipline, as well as attitude had over 46 (90 %) respondents strongly indicating that the attributes will definitely block them from collaborating. Everybody wants to be associated with a well-mannered and respected person as well as someone who is not troublesome.

Reasons for not collaborating

Just like in the study by Katz and Martin (1997), this study investigated those underlying reasons that may hinder collaboration in LIS in South Africa. Respondents were asked to provide reasons that best describe why they may not collaborate with the following groups: students, mentors, Mentees other than students, colleagues in the same department, fellow researchers, seniors or managers and international researchers. The following were results as obtained from the survey.

- Reasons for not collaborating with students and mentees
  There was a general feeling amongst respondents that they will never work with students who are lazy and not prepared to work. This factor cannot be overemphasized as respondents mentioned issues like, lack of competencies, poor work ethic, and not following instructions on the students' side as main reasons they may not collaborate with students. Students who are repeating the same mistakes or not considering any advice or guidance given to them may be left without mentors. The respondents feel that such students may delay them at times as they do not stick to deadlines and agreements. Senior researchers may want to share their knowledge and skills but if the partner is not willing to learn then it defeats the whole purpose. Senior researchers are rated and evaluated according to their output and therefore wasting time on someone who does not want to learn or not willing to learn may be costly for them. Other responses included lack of mutual understanding, lack of commitment, time constraints as well as if the two parties do not share common research goals.
- Reasons for not collaborating with mentors and managers
  There were no surprises when it came to reasons why researchers will not collaborate with their seniors or managers in the conduct of research. A number of respondents were concerned about the fact that their mentors or seniors make them do all the work but equally share the credit which is somehow discouraging to them. Even though this is obviously unethical, it is common knowledge that some mentors abuse their positions and take advantage of their mentees. Young researchers will be expected to do all the work with little contribution from their more senior collaborating partner. Respondents further mentioned that mentors always demonstrate authority, lack empathy and never listen to their suggestions. Ignoring the contribution made by the more junior researchers may be demoralising and may result in the young researchers losing interest in conducting research because of the lack of self believe. Managers or mentors have an obligation to build as any form of advice or feedback is supposed to build as opposed to being too harsh. Many masters and doctoral students never complete their studies as some mentors give poor feedback or criticism that is aimed at breaking the students. Some of the respondents mentioned a lack of work ethic, lack of time, and not getting valuable advice or input from their mentors as other reasons for not collaborating with their mentors. Mentors normally have a lot of commitments, and a collaborative project with a student may not be a priority to them, while the student's development and growth will be depending on it. This can therefore discourage students from wanting to collaborate with mentors.
- Reasons for not collaborating with colleagues in the same department
  This was a very interesting question and some of the responses given were somehow unexpected. Respondents mentioned that some colleagues have drawn their own conclusions about others which affect or influence their decision to collaborate. This is again a question of underestimating others and having one's own biased perceptions of

others before they get to know them. That is a personal problem and has to do with everybody's personality and can only be solved over time, even though it poses challenges. Other respondents indicated that they will never collaborate with colleagues in their department because some colleagues never give their ideas a chance. This is a problem everywhere; colleagues who are mostly quiet may keep their ideas to themselves in such partnerships. Others are not good in expressing themselves and will mostly keep to themselves. This may result in ideas that end up being used although they are not the best, just because they came from the most vocal participants. One respondent indicated that in some instances, the most vocal colleagues may have a good command of the English language, while their ideas lack substance. Some of the other reasons raised include selfish colleagues, clash of ideas, competencies, attitude; lack of work ethic, and professional jealousy which was really unexpected. Some colleagues may feel that involving others in projects and working together may improve their profile and maybe become a threat to them in the work environment. Such colleagues end up being selfish and holding on to information and blocking their fellow colleagues. Others indicated they are so busy to an extent that they do not have time to do any other extra work, including collaborative research. Issues relating to office politics and intellectual property rights were also highlighted as possible reasons why some respondents do not enter into collaborative initiatives with fellow colleagues in the same department.

- Reasons for not collaborating with fellow researchers
  This question aimed to get responses on why LIS researchers are not collaborating or may not collaborate with fellow researchers in other departments as well as those in other universities. Many responses given were similar to the ones given in the immediate question above. However the issue of different research interests came out ahead of others. Even though many universities encourage multi-disciplinary research, researchers seem to prefer working with scholars who understand their area of interest and methodologies involved in the research, just to name but a few. Other reasons that were mentioned by the respondents include unethical behaviour, time and distance between researchers, and different agendas among collaborating researchers.
- Reasons for not collaborating with international researchers
  Most of the barriers already indicated in the preceding questions were also mentioned here. Other reasons which were given by respondents regarding this question and are worth mentioning include distance and logistical problems, lack of communication, and topical issues, just to list a few. There is a general feeling from many local researchers that it is really not easy to work with someone who is very far especially in another country, even though the technologies available today make this possible and better than before.

Conclusions

A study that was conducted by Sooryamoorthy (2009) revealed that collaboration in research in South Africa has been growing steadily over the years. Indeed that observation has also been made in the current study whereby LIS researchers in South Africa are mainly focusing in all the benefits that come with such partnerships and therefore engaging in collaborative research. It is important to mention that, even though the benefits of collaboration are evident, the drawbacks cannot be ignored. A re-look at the enhancers and

inhibitors of research collaboration suggests that the distance between researchers, past relationships and the institution of affiliation most influenced who collaborated with whom. The results imply that LIS researchers prefer partnering with colleagues who are nearer, mainly from the same institution. The collaboration networks suggest that drawbacks to collaboration discussed above have had a major impact on the current status of collaboration in LIS research in South Africa.

Collaboration links between supervisors and students are very much evident and seem to be the most influencing factor on research collaboration among LIS researchers in South Africa. It is also very encouraging to see some partnerships between senior researchers from different schools which is crucial for the growth and development of research in the field. Ocholla (2008) has observed that collaboration of LIS schools is weak and largely informal. This was very evident in the current study, too. Collaboration mainly happened between individuals while departments rarely collaborate hence there is no evidence of students from a particular university collaborating with their peers from other universities. This finding concurs with the views of Ocholla and Bothma (2007) who indicated that collaboration among LIS schools and researchers in such areas as "teaching, research, student and staff exchange, conferences, workshops, curriculum development, publications, research supervision, examination is very important yet very minimal.

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