

**STATUS OF INFORMATION SCIENCE FACULTY AND LIBRARIANS  
COLLABORATORY RESEARCH IN SELECTED KENYAN UNIVERISTIES**

**BY**

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**E83/25168/2012**

**A THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS FOR  
THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY (LIBRARY  
AND INFORMATION SCIENCE) IN THE SCHOOL OF EDUCATION,  
KENYATTA UNIVERSITY**

**JULY 2018**

## **DECLARATION**

I confirm that this thesis is my original work and has not been presented in any other university/institution for certification. The thesis has been complemented by referenced sources duly acknowledged. Where text, data (including spoken words), graphics, pictures or tables have been borrowed from other sources, including the internet, the sources have been specifically accredited through referencing in accordance with anti-plagiarism regulations.

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## **DEDICATION**

*To My Parents, Anthony & Beth*

## **ACKNOWLEDGEMENTS**

My gratitude goes to the Almighty Father for this far he has seen me through. I wish to acknowledge the scholarly guidance I have continuously received from my supervisors Dr. Daniel Wambiri Muthee and Dr. Charles Kamau Maina. You have been a source of inspiration and this has gone a long way in bringing me this far.

I am also greatly indebted to my colleagues in the department particularly Dr. Peter Wamae for the great support and encouragement as I strived to get on with this demanding task. I thank my parents for their prayers and encouragement and my wife and kids for perseverance whenever duty called in pursuit of this noble task.

To all of you, and those I have not mentioned by names, may the God almighty shower you with enormous blessings.

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## **ABBREVIATIONS AND ACRONYMS**

ALA	American Library Association
ALISE	Association of Library and Information Science Education
ASIST	American Society for Information Science and Technology
BAILER	British Association for Information and Library Education Research
C&RL	College & Research Libraries
EUCLID	European Association for Library and Information Education and Research
KLA	Kenya Library Association
KLISC	Kenya Library and Information Services Consortium
ICT	Information and Communication Technology
IFLA	International Federation of Library Associations and Institutions
INASP	International Network for the Availability of Scientific Publications
LIASA	Library and Information Association of South Africa
LIS	Library and Information Science
LISA	Library and Information Science Abstracts
LISNET-ECSA	Library and Information Schools Network of Eastern, Central and Southern Africa
LISR	Library Trends and Library and Information Science Research
LQ	Library Quarterly
LRTS	Library Resources and Technical Services
MLA	Medical Library Association
NACOSTI	National Council for Science and Technology
SLA	Special Library Association

SOC	Science of Collaboratories
SPSS	Statistical Package for Social Scientists
SWT	Strength of Weak Ties
RETIG	Research Education and Training Interest Group

## ABSTRACT

Collaboratory research concept is close to two decades old and it entails researchers working together on research projects irrespective of their geographical location resulting in co-authored publications. Collaboratory research could help address teaching, professional and industry based issues facing a host of disciplines. However, despite its potential, collaboratory research in the field of library and information sciences (LIS) is insignificant. This study therefore sought to examine the perception of this concept by LIS professionals in universities in Kenya. The current trends and collaboratory research practices were examined including the priority areas for LIS research. The opportunities and the challenges of collaboratory research were also investigated. The study was informed by Social Capital Theory fronted by Putnam (2000). This theory is about links, shared values and understandings in society that enable individuals and groups to trust each other and work together. A total of 143 respondents comprising of 61 faculty members, 6 chief librarians and 76 librarians from six Kenyan universities offering LIS degree programs constituted the informants for this study. Questionnaires, interview schedules and bibliometrics were used for data collection. A pretesting of the research instruments was conducted targeting respondents from two universities offering LIS programs but were not participating in the study. This helped to ensure validity and reliability of the instruments and data. Descriptive statistics were used for analysis. The key findings from the study were that research productivity in LIS is still at low levels, that majority of the faculty members and the librarian are familiar with concept of collaboratory research and they believe it can provide a solution to a number of challenges facing LIS profession. The study also found out that collaboratory research practice is still low and where it has happened, this has been to a large extent between colleagues that is between faculty and faculty and between librarians and fellow librarians. The study found low interaction levels between faculty and librarians, absence of working forums, absence of university support and lack of individual commitment as the major bottlenecks to collaboratory research. The study concluded that the uptake of the collaboratory research practice in the LIS profession in Kenya is significantly low. The study recommends that faculty members need to reach out to librarians to share ideas and experiences besides trying their hands in library practice. Librarians should shift from just being custodians and disseminators of information to creators through research besides engaging in teaching. The universities on their part need to come forth and provide support in terms of funds, necessary training and incentives for research. Professional organizations such as the Kenya Library Association (KLA) need to do more in bringing together members of the LIS profession in workshops, seminars and conferences besides helping to maintain links amongst the LIS professional. The individual players on their part need to demonstrate commitment and mutual trust for collaboratory research to flourish. The study proposes a three

phase model to provide a framework for collaboratory research. The model comprises of the engagement phase, action phase and the conclusion phase that can guide collaboratory research practice now and in the future.

# **CHAPTER ONE**

## **INTRODUCTION AND CONTEXTUALIZATION OF THE STUDY**

### **1.1 Introduction**

This chapter provides an overview of the research problem and the gaps that necessitated this study. It comprises background to the study, statement of the problem, purpose, objectives and research questions, assumptions of the study, significance of the study, limitations and delimitations of the study, theoretical and conceptual frameworks and operational definition of terms.

### **1.2 Background to the Study**

The concept of collaboratory was coined by William Wulf in 1989 by combining two terms, collaboration and laboratory, in his description of a “center without walls, in which the nation’s researchers can perform their research without regard to geographical location – interacting with colleagues, accessing instrumentation, sharing data and computational resource, and accessing information in digital libraries” (Sonnenwald, 2003, p.150).

Collaboratory research can take various forms ranging from offering general advice and insights to active participation in a specific piece of research (Ponti, 2008). Ponti further states that contributions of collaboratory research can vary in levels from the very substantial to the almost negligible. Researchers from different organizations may collaborate by sharing data or ideas through correspondence or

discussions at conferences, by visiting each other, or by performing parts of a project separately and then integrating the results.

According to Berman and Brady (2005), the vision for the next generation of collaborations includes students, teachers, researchers and librarians using advanced, secure multi-media information and communications technology. They further state that such vision enables effective and reoccurring access to colleagues and other experts, research data, publications, research instruments, services and tools across geographic distances and organizations.

According to European Union Commission New Working Environment Unit (2006), most collaboratories to date have focused on supporting research in natural sciences, engineering, education and business. Notably however, there is growing and unmatched need to support the social sciences as well (Berman and Brady, 2005). Subsequently, a number of governments (USA and Europe) have also started considering supporting social sciences as well but focusing more on collaboratory approaches (Lee, 2005).

Library and Information Science (LIS) is multi-disciplinary in nature and plays a critical role in the discovery of knowledge, in education, democracy and promotion of cultural heritage (Axelsson, Sonnenwald, & Spante, 2006). However, LIS as a profession could face challenges as a result of the rapid changes in information and communications technology, government policies and regulations and patrons'

expectations which have a large impact on the discipline (Axelsson et al., 2006). This subsequently calls for increased efforts in LIS research in order to improve the services, assist planning and help the development of the profession (Mcnicol, 2004).

Many of the LIS professionals are not engaging in research as indicated by Erfanmanesh, Didegah and Omidvar (2010) study on global LIS research productivity. The study found a global decrease in the number of LIS publications and so was the number of citations per paper. Similar sentiments had been brought forth by Powell, Baker and Mika (2002) whose examination of research productivity among members of American Library Association (ALA), the American Society for Information Science and Technology (ASIST), the Medical Library Association (MLA), and the Special Libraries Association (SLA) indicated that only 42% of the members either occasionally or frequently performed research related to their job or to the LIS profession. On the working relationship between LIS faculty and librarians, Ponti (2008) found out that knowledge sharing and collaboration between these two groups is still limited. She attributed this to their different interests and commitments.

Collaboration levels among LIS schools in Africa is also of great interest to this study. Collaboration can occur in areas such as teaching, research, student and staff exchange, conferences and workshops, curriculum development, publications,

research supervision and examination and distance teaching/research. As Ocholla (2008) found out, collaboration of LIS schools in the region is weak and largely informal. The formally constituted collaborative initiatives hardly take off or go beyond the initiation stage for instance of Library and Information Schools Network of Eastern, Central and Southern Africa (LISNET-ECSA). Those existing are battling for survival because of lack of commitment and leadership, adds Ocholla (2008).

There is not much literature on LIS collaboration in Kenya. However, as observed by Ocholla (2012) in his study on research visibility, publication patterns and output of academic librarians in Kenya and other countries in sub-saharan Africa, LIS research productivity is significantly low. Ocholla found out that librarians from the region do not publish in visible scholarly outlets, such as those indexed by Library and Information Science Abstracts (LISA), and even less in peer-refereed journals, as attested to in the LISA indexed journals. Further evidence from a study by Onyancha (2007) shows that collaborative research output in Kenya and the rest of sub-saharan Africa is relatively low in the library and information profession. Onyancha also found that most publications (63%) were single-authored while the rest had two, three or four authors.

Another key issue as far as LIS development is concerned is the curriculum development and review. The state of the LIS curricula has a direct impact on the

level of professionalism exhibited by both the faculty and librarians as well. Evidence from a number of studies as cited by Burnett (2013) in the International Network for the Availability of Scientific Publications (INASP) report, is that LIS schools in many developing countries are not keeping abreast of the rapidly changing digital environment and are facing new knowledge and skills demands from employers. He continues to state that “faculty members have to move away from their traditional comfort zones and ensure that they keep up-to-date with developments, thus enabling quality in teaching and research” (Burnett, 2013, P. 12).

In the light of the above, Axelsson et al. (2006) argue that LIS faculty and librarians’ collaboration has the ability to support the involvement of librarians in research. Such collaboration would also enable on-demand and personalized knowledge sharing. Further such collaboration would grant LIS faculty and the librarians an opportunity to identify research gaps, the demand for new knowledge, modern information and knowledge management practices while at the same time allow for continuous professional development. This would have a positive impact on LIS training, practice and growth and this would lead to an enhanced LIS profession.

The researcher therefore sought to unearth the issues surrounding LIS faculty and librarians collaboratory research efforts in Kenya. The study focused on the

perception, practices, potential and the challenges of collaboratory research between LIS faculty and librarians in selected institutions.

### **1.3 Statement of the Problem**

As it is the case with other disciplines, growth in LIS profession depends on amount of research conducted and on the dissemination and use of the research findings. There is also evidence of increased demand for new knowledge and skills by employers from the LIS graduates in the light of the ever changing digital environment (Burnett, 2013).

Evidence available from previous research in library and information science indicates research is largely an untapped resource with its potential to help the development of the profession going unrecognized (Powell et al., 2002, Mcnicol, 2004, Erfanmanesh et al., 2010 & Ocholla, 2012). Collaboratory research output among LIS professionals globally and locally is equally low (Onyancha, 2007 & Erfanmanesh et al., 2010).

It is worth noting however that a number of existing collaboratories have been concerned with large-scale industry-wide collaborations in the fields of engineering, physical sciences and life sciences (Finholt, 2002). However, the LIS professionals can borrow from the experience of the nursing collaboratory at the University of Iowa between the College of Nursing and its corresponding Department of Nursing Services (Dreher et al., 2001). This collaboratory has

proved that bringing together perspectives and inputs from both teaching staff and the industry practitioners can foster problem solving. This collaboratory has helped to bring together the College of Nursing, the Department of Nursing and hospitals and clinics. The aim of the collaboratory is to create, disseminate and promote the application of knowledge for the improvement of the entire nursing practice. Thus a collaboratory between LIS faculty and librarians has the ability to provide an incubating environment for fostering ideas and creativity. This would, in return, help develop innovative products and services that would go a long way in improving library practice while at the same time help enhance public satisfaction (Ponti, 2008).

With low research output and minimal collaboratory research, LIS professionals continue to experience insufficient literature, inadequate innovative methods and minimum scientific findings. This poses huge training, managerial and operational challenges to the LIS profession. Continuity of this situation is likely to lead to low professional development, lack of professional mentorship, and other issues surrounding LIS practice.

In view of the above, the researcher sought to empirically analyze the existing collaboratory research between LIS faculty and librarians. The aim is to find out the potential and challenges bedeviling this important aspect of research. The

researcher intended to fill the literature strategies and operational deficiency gaps existing in collaboratory research.

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

The purpose of this study was to investigate collaboratory research between LIS faculty and librarians in selected universities in Kenya with a view to proposing strategies to improve it.

#### **1.5 Research Objectives**

The specific objectives that guided this study included:

1. To determine the perception about collaboratory research among LIS faculty and librarians
2. To explore the existing collaboratory research practices between LIS faculty and librarians
3. To establish the potential of collaboratory research in enhancing the LIS profession in Kenya
4. To establish priority areas for collaboratory research
5. To determine the challenges of collaboratory research between LIS faculty and librarians Kenya

6. To formulate an appropriate collaboratory research framework among LIS faculty and librarians in Kenya

### **1.6 Research Questions**

The research questions that guided this study included:

1. What is the common perception about collaboratory research in Kenya and the rest of the world?
2. Are there existing collaboratory research linkages among LIS faculty and librarians in Kenya? If not, is there collaboratory research among other disciplines?
3. Does collaboratory research has the ability to enhance the LIS profession in Kenya?
4. Are there areas in the LIS profession that would require preference for collaboratory research?
5. Are there existing bottlenecks in LIS faculty and librarians collaboratory research endeavors in Kenya?
6. What is the appropriate sustainable collaboratory research framework between LIS faculty and librarians in Kenya?

### **1.7 Assumption of the Study**

The researcher worked on the assumption that by assuring anonymity and confidentiality treatment of the responses and allowing voluntary participation in the study, the participants will be honest, truthful and candid in answering all the research questions.

The researcher also assumed that by conducting a pretesting of the research instruments, it will be possible to get to the heart of the research problem and enable the researcher to answer the research questions in the most profound manner.

The researcher worked on the assumption there is a positive perception about collaboratory research among LIS faculty and librarians in Kenya.

The researcher also worked on the premise that there is potential and benefits in collaboratory research.

### **1.8 Significance of the Study**

Collaboratory research would assist LIS faculty to gain knowledge about practical problems facing LIS practice. This would be useful for teaching, curriculum design, review and implementation.

Collaboratory research would help the librarians to gain access to intellectual knowledge and creative thinking within the academic environment. This would help them solve specific product/service design problems including production of

new products and services. Such collaboration would also enable the players in the LIS profession work towards the continuous improvement of the quality of the products and services. This would go a long way in boosting public satisfaction.

Collaboratory research can help faculty to test practical application of their research and theory while the librarians will have access to new research. This would help create an ongoing relationship and network between the university and the industry thus producing holistic LIS professionals. Such relationship would also provide opportunities for student internships and even job placement.

Findings from the study would serve as a guide for planning of collaboratory research by LIS professionals. It will also provide new knowledge on priority areas for LIS research in growing economies like Kenya.

A collaboratory between LIS faculty and librarians can help develop innovative products and services that would go a long way in improving library practice while at the same time help enhance public satisfaction.

Findings from this study will also act as reference literature for students carrying out research in this field. Currently literature in this area is quite scarce.

### **1.9 Limitations and Delimitations of the Study**

The subjects of the study were drawn from six universities in Kenya that have well-established LIS programs and targeted LIS faculty and the library staff in the

universities' respective main campuses. This is because they are the only universities that have been offering LIS programs for the last five years or more. These universities also have well established LIS schools or departments and have engaged full time LIS faculty members. The same universities have ultra-modern academic libraries. For the librarians, only those who possess a relevant master degree and above were considered for participation in the study for they are the ones who are more likely to engage in scholarly research.

The researcher also conducted a bibliometrics to assist in establishing research practices and collaboration patterns. However, only the active LIS journal in Africa, *African Journal of Library, Archives and Information Science*, was considered. This was preferred for it would help the researcher contextualize the local scenario since it draws contributors from the African researchers.

This study focused on collaboratory research between LIS faculty and librarians. However, other practitioners in the information science profession among them archivist, record managers, media personnel among others were not considered. There researcher recommends further insight on collaboratory research between information science faculty and other practitioners as well.

## **1.10 Theoretical and Conceptual Framework**

### **1.10.1 Theoretical Framework**

Theories are formulated to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions (Tavallaei, & Mansor, 2010). The theoretical framework is the structure that can hold or support a theory of a research study. The theoretical framework introduces and describes the theory that explains why the research problem under study exists (Ravitch & Mathew, 2017). According to Abend (2008), a good theory helps to explain the meaning, nature, and challenges associated with a phenomenon, often experienced but unexplained in the world in which we live, so that we may use that knowledge and understanding to act in more informed and effective ways.

Currently there exists no consolidated, general theory of collaboration. Such a theory could provide a common language and framework for those seeking to better understand and expand the collaborative aspects of any given field of human endeavor. According to Swanson (2013), any comprehensive theory of collaboration must address: the meaning of collaboration itself; the auspices under which a collaboration is convened and the role of intervention in directing social change; the implications of collaboration for environmental complexity and organizational control over the environment; and the relationship between

organizations' self-interests and the collective interests present in a collaborative alliance.

In summary however, the researcher reviewed a few existing theories in search of a theory that would inform the current study. Among them is the Cooperative and Collaborative Learning Theory redefined by Mark Arthur May and Leonard William Doob in 1937. The theory focuses on a learning situation that involves two or more individuals who are attempting to have a shared educational experience. In these environments, students are able to learn from each other, utilize each other's skill sets and resources, and share experiences that may benefit the entire group. The theory suggests that learners who are educated in a group setting and cooperate in order to achieve a set of common goals are more likely to be successful in doing so, while those who work autonomously are more likely to exhibit competitive behaviors. Cooperative and collaborative learning benefits not only the academic, but also the learner's social persona, since it emphasizes on teamwork and team spirit. In a classroom this means higher levels of achievement, potential cross-ethnic friendships, life-long interaction, enhanced communication and cognitive skills, and critical thinking. The researcher however found this theory not very suitable to inform the current study whose focus is more on collaborative discovery of solutions to problems affecting a specific discipline rather than a learning process.

Another theory that may have relevance to this study is the Strength of Weak Ties (SWT) theory coined by Granovetter in 1973. The SWT theory is organized as a set of explicit premises and conclusions. The first premise of the theory is that the stronger the tie between two people, the more likely their social worlds will overlap - that they will have ties with the same third parties. The second premise of SWT is that bridging ties are a potential source of novel ideas. A bridging tie is a tie that links a person to someone who is not connected to his or her other friends. The idea is that, through a bridging tie, a person can hear things that are not already circulating among his close friends. While the researcher acknowledges the benefits that can be obtained from bridging ties, this theory was found not very suitable. This is because the emphasis in this study is about reaching out to those outside our precincts, faculty or librarians, and form ties that would assist in joint identification of the problems affecting the profession and collectively seek for viable solutions through collaborative research endeavors.

Having reviewed the above mentioned theories amongst others, the researcher subsequently settled on Robert Putnam's Social Capital Theory fronted in the year 2000 in his study entitled *Bowling Alone*. Putnam got concerned with the Americans' changing behavior and being increasingly disconnected from one another. He thus fronted the idea of social capital. This refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that

arise from them (Putnam, 2000). Social capital creates value for the people who are connected and the quality of our existence comes from the quality of social capital.

Enemark (2012) argues that the theory of social capital has spread from sociology to political science, economics, and across the social sciences. Social capital has been claimed as a driving force behind voter turnout, bureaucratic efficiency, policy performance in public health and education, wealth at the local and national level, and even disease rates, further notes Enemark.

Modern research is increasingly complex and demands an ever widening range of skills. Often, no single individual will possess all the knowledge, skills and techniques required. If two or more researchers collaborate, there is a greater probability that between them they will possess the necessary range of techniques (Slotte & Tynjälä, 2003). Such collaboration would bring about new products and service innovations that would improve LIS practice and enhance the satisfaction levels amongst members of the public.

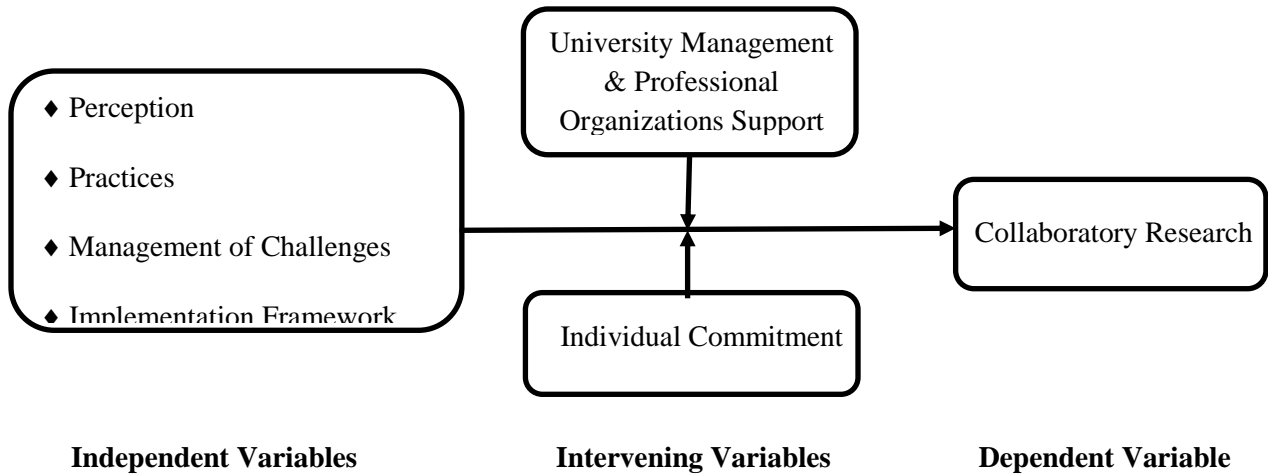
Collaborative interaction requires a certain amount of trust between the collaborators because research is an inherently risky endeavor that is prone to failure (Hara, Solomon, Kim, & Sonnenwald, 2003). Consequently, a mechanism to filter potential collaborators is necessary. One such mechanism is social capital that can serve to facilitate the establishment of collaborative partnerships. Social capital serves to enable interactions that would otherwise be difficult or impossible

to coordinate within the group in its absence. It is the “sum of actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit (Nahapiet & Ghoshal, 1998).”

Social capital theory therefore proves to be of great significance to this study in the sense that for collaboratory research to occur, thrive and grow, different players in the LIS profession must embrace the norms advanced by social capital proponents. This is because social capital focuses on trusting relationships that add value, opportunities and possibilities, which help in promoting a quality life. Embracing social capital would therefore enable LIS faculty and librarians to come together and resolve collective problems more easily making them better off with each doing their share.

### **1.10.2 Conceptual Framework**

This study used the conceptual framework shown in Figure 1.0 to illuminate the important variables in the study. The arrows show the relationship between the independent and dependent variables.



**Figure 1.0: Conceptual Framework**

*Source: Researcher, 2015*

The independent variables in this study included the faculty and librarians’ perception of collaboratory research, the existing practices, management of challenges associated with collaboratory research and collaboratory research implementation framework. These variables are believed to have a direct effect on the levels of collaboratory research between faculty and librarians. University management support, professional organizations support and individual commitment are presented as intervening variables since they can influence the uptake level of collaboratory research practice. Collaboratory research between faculty and librarians is presented as the dependent variable which comes as a result of the interplay between the independent and dependent variables.

### **1.11 Operational Definition of Terms**

**Collaboration-** Association for Information and Image Management (AIIM) defines collaboration as is the act of working together to produce a piece of work, especially a book or some research.

**Collaboratory-** is defined as a center without walls, in which the nation's researchers can perform their research without regard to physical location, interacting with colleagues, accessing instrumentation, sharing data and computational resources, and accessing information in digital libraries (Wulf, 1989).

**Collaboratory Research-** organizational entity that spans distance, supports rich and recurring human interaction oriented to a common research area, and fosters contact between researchers who are known and unknown to each other, and provides access to data sources, artifacts and tools required to accomplish research tasks (Bos et al. 2007)

**Faculty-**This refers to the teaching and administrative staff and those members of the administration having academic rank in an educational institution

**Librarian-**is a person who works professionally in a library and usually holds a graduate degree in librarianship (known either as library science or library and information science)

**Professional Competence-** The capability to perform the duties of one's profession generally, or to perform a particular professional task, with skill of an acceptable quality

**Social Capital-** refers to the collective value of all "social networks" [who people know] and the inclinations that arise from these networks to do things for each other ["norms of reciprocity"] (Putnam, 2000)

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.1 Introduction**

This section provides an overview of major theories and ideas that have guided previous collaborative researches. The review aimed at establishing the literature gap in collaborative research between LIS faculty and librarians and the challenges being encountered. The literature was reviewed according to the themes that are guided by the objectives and research questions covering the following: Research productivity in LIS, collaboration in library and information sciences, LIS perception of collaborative research, collaborative research benefits, challenges and trends in LIS, priority areas for research in LIS, collaborative research process, collaborative research success factors, promoting collaborative research and social capital.

#### **2.2 Research in Library and Information Sciences**

According to Aina & Mooko (1999) the static nature of knowledge makes research a critical component of any profession. Research helps in exploration of new areas, refining and improvement of existing practices. Research in any field provides an opportunity to explore solutions to the day-to-day issues affecting the practice. Ocholla (2012) however feels that besides being a recipe for generating solutions, research is done to fulfill learning, domestic and career needs. The author further

notes that research would help satisfy curiosity and help realize egoistic desires such as recognition and visibility. Ocholla concludes by adding that other people conduct research for career related rewards, such as promotion, securing tenure or permanent appointment and this particularly applies in a university environment. Ultimately this therefore means that research would provide for self-development or growth.

Aceto (2005) was more interested with the benefits accrued by an organization from conducting research. Aceto asserts that conducting research provides for an increased ability to attract highly qualified and motivated members of staff besides having greater advantage over competitors in gaining and maintaining research funds. The author further notes that through research, an organization stands better chances of “rubbing shoulders” with the very best and the same time get an opportunity to create a more stimulating working environment for all involved. This therefore serves as an encouragement particularly to the members of the LIS profession as they all strive to uplift the status of the profession in an increasingly competitive digital environment.

According to Sife & Lwoga (2014), LIS research contributes to problem-solving and decision-making in libraries and information centers. LIS research also enhances management and provision of information services and creates new knowledge for the continued development of LIS as a profession. The authors

further reiterate that LIS research adds value to librarianship by improving the management and provision of information services, contributes to the body of scholarship and professional knowledge and helps uplift the academic status of librarians. This therefore justifies the increased need for librarians to continue embracing the paradigm shift and stop seeing themselves just as custodians of knowledge but also knowledge creators. This school of thought is similarly shared by Kennedy & Brancolini (2011). They indicate that librarians' research is critical for it contributes to their career advancement and foster their growth. Librarians' research would enhance their curiosity, awareness and promote new learning. This, according to the researcher, would subsequently allow effective interaction between research and practice that can produce a strong theoretical framework within which a practitioner community can develop and thrive.

McNicol & Nankivell (2003) assert that the value of any research findings is deeply pegged on level of contribution to knowledge in that particular field. They further note that research has the ability to open-up horizons and offer individuals a host of development opportunities, a view shared by Ocholla (2012). They authors further note that research can greatly contribute to the practice through the exploration of new ideas. This would, in return, have an impact on the growth of the profession. In the LIS specifically, McNicol & Nankivell (2003) observe that research helps libraries and information services to give more attention to the users rather than the collection. It is also possible for University libraries to boost their

profiles both internally and externally by conducting research. Within the academic community, research would greatly raise the profile of the LIS discipline and also enhance the standing of LIS departments within their institutions. This increases the visibility of the LIS profession in general.

LIS research productivity is also a continued concern. Adkins & Budd (2006) in their study on scholarly productivity of US LIS faculty, concluded that LIS is maturing as a field of study and developing a larger body of research. They concluded this by comparing results from this study with the previous studies and noted the increase in publication and citation. They further noted some bit of bias towards certain sub-specializations of the profession. Among the highly researched areas included libraries, library professionals, LIS education, issues on librarianship collection development, cataloguing, library automation and library services. This raises the concern on the LIS research coverage including priority areas for LIS research. Areas touching information services in digital environment seem not to have received much attention.

Wilson et al. (2012) in their study on research productivity and visibility of LIS educators in Australia concluded that Australian LIS educators need to publish in international journals (indexed in international databases) to gain visibility in the global research arena. Conspicuous in Australia is relative dominance of journal material (articles and book reviews) and an increase in the average number of

authors of journal articles over the years pointing to an increase in research collaboration. They also noted heavily skewed productivity distribution with longer-serving academics dominating the publications. Overall, Wilson et al. (2012) noted an increase in research productivity amongst Australian LIS professionals. Such increase serves as an indicator that Australian LIS, like its contemporaries in LIS elsewhere, is maturing as a field of study and developing a larger body of research. This trend, to the researcher, helps LIS profession establish its foundations.

Yazit & Zainab (2007) studied publication productivity of Malaysian authors and institutions in LIS. They concluded that the field of LIS in Malaysia is evolving into a developed discipline and Malaysian publication contribution in this field is on an upward trend. However the study revealed that few highly productive authors contributed to most of the publications and that collaboration encourages author productivity and enhances the quality of articles. They were however quick to note that collaborative efforts among researchers were still at minimal levels though there were signs of change with the gradual increase in multi-authored works. While this is no different from other parts of the world, the potential of such collaboration cannot be underestimated.

Onyancha (2007) in his study on LIS research in Africa concluded that LIS is not a highly prioritized area of research. This is more so in countries where governments

influence research output through commissioning and funding of research. He further found out that LIS researchers may be fewer than other well performing researchers in other disciplines. LIS research, he noted, is largely conducted at institutions of higher learning, unlike research in pure sciences which is conducted at both industry level and within institutions of higher learning. LIS research is largely basic research while research in pure sciences is mainly applied or action research. Finally he found out that LIS research is mainly published in local journals, thus affecting international visibility. Sife & Lwoga (2014) carried out a scientometric analysis in Tanzania on LIS research productivity. They concluded that LIS research and publication is still low with an average of about 14 publications per year. They further established low level teamwork among LIS scholars in Tanzania. This is a worrying situation though there are signs of hope owing to the upward trend in LIS publications in the region.

While librarians they have a clear understanding of the research process and provide support to library patrons in pursuit of research agendas, librarians generally do not conduct and publish research (Apolinario et. al., 2014). This is so despite the fact that research not just improves the provision of service to patrons, but the practice of librarianship in general, the authors further note. Kennedy & Brancolini (2011) investigated the reasons behind low levels of librarians' research. Top on the list was lack of time to complete a research project whereby librarians get more preoccupied with service provision hence leaving them with less time to

conduct and complete research projects. Unfamiliarity with the research process was equally cited a major bottleneck in librarians' research. This tied closely with lack of confidence, inadequate education in research methods and discouraging jargon. Others cited lack of support for research (both emotional and monetary). This therefore calls for a lot of support and encouragement for librarians if the efforts to enhance the LIS are to be realized.

Out of the growing concern on low research productivity among Kenyan librarians, Kwanya, Stilwell & Underwood (2012) created a competency index for research librarians in Kenya. They used the index to analyze the skills, attitudes and personality traits that are essential to research librarians. They reiterated the importance of interpersonal, management, information communication technology, and research skills as being essential for research. It is therefore paramount that such skills are enhanced through training and retraining.

### **2.3 Collaboration in LIS**

Collaboration has been defined as “active partnerships with resources being shared or work being done by multiple partners in coordinated effort for the common good” (Lin, 2007, p. 2). From a regional perspective, Ocholla & Bothma (2007), have fronted collaboration as a viable strategy for addressing specific problems and issues facing LIS education. The benefits accrued from such collaboration include the ability to pool knowledge and expertise, optimal utilization of resources, cost

minimizations and reduction of duplication (Kigongo\_Bukenya & Muske, 2011). Any collaborative efforts would therefore mean good for the LIS profession by providing a forum where emergent issues and demand can be collectively addressed.

Collaboration can take several forms, ranging from informal networks of professionals to highly structured programs, sponsored by governments and other organizations. Among such collaboration efforts include joint research programs, quality control initiatives, faculty and student exchange programs, conferences and workshops, shared online resources, online forums and joint development of textbooks and other learning materials (Ocholla & Bothma, 2007 & Sulistyobasuki, 2006). Such collaborative activities have come in handy in the recent years that many changes have been witnessed in LIS environment. Among such changes are the transition from print-based to digital and electronic collections and also the shift towards user-centered approach to information delivery (Al-Suqri, Saleem, & Gharieb, 2012). This has resulted to an increased demand for LIS continuous curricula review and additional funding for LIS programs for both developed and developing regions.

In response to the new demands within LIS profession, large scale collaborations in the form of professional associations have been established. In the U.S., the Association of Library and Information Science Education (ALISE) conducts

various professional development activities and knowledge sharing forums such as annual conference and Special Interest Groups (Lin, 2007). This is geared towards promoting excellence in LIS teaching, research and services. In Europe, the European Association for Library and Information Education and Research (EUCLID) has been on a mission to promote collaboration between LIS schools in curriculum development and research adds Lin (2007).

In Africa, a number of collaboration initiatives have been jump-started though they have been struggling to prosper (Ocholla, 2008). Among them is the Library and Information Association of South Africa (LIASA) that has an interest group named the Research Education and Training Interest Group (RETIG). The aims and objectives of RETIG are to foster collaboration amongst LIS Schools in Africa. Other issues of interest for RETIG include formulation of LIS standards, analysis of the job market of LIS graduates including issues regarding the duration of LIS education and training/programmes. RETIG also focuses on LIS curriculum development and review and government subsidy for LIS education.

Another African collaboration initiative was a workshop of Library and Information Schools Network of Eastern, Central and Southern Africa (LISNET-ECSA) (Ocholla, 2008). This was aimed at forging cooperation/collaboration amongst LIS Schools in the region. According to LISNET-ECSA (2004) this initiative aimed at establishing a network of LIS Schools and Departments in the

East, Central and Southern African (ECS) region. Besides this, the initiative was trusted with the assessment of the training needs of LIS educators including existing LIS Schools'/Departments' curricula review demands. Further mandate included assessing the IT requirements of LIS Schools/departments to provide e-learning and assessing the possibilities of staff and student exchange programmes. The work of the initiative could not end there without focusing on issues on joint research and publication and working out methods for establishing a database/web page for LIS Schools and Departments in the ECS. Finally the initiative was entrusted with the election of a steering committee and hold discussions on matters affecting LIS education in the region. Such great initiative if well pursued would have formed a critical basis towards positive revolution of the LIS profession in the ECS region but so far not so much has been realized.

At an international level, the International Federation of Library Associations and Institutions (IFLA) has, as one of its functions, a section that deals with education and training (Abdullahi, Kajberg & Virkus, 2007). Through this function, IFLA encourages international cooperation among academic LIS departments in areas such as curriculum, accreditation and continuing professional development. However despite these great initiatives, collaboration in LIS globally and locally remains weak thus calling for immediate interventions from the stakeholders.

## **2.4 Collaboratory Research**

The Science of Collaboratories (SOC) project from the University of Michigan has played an extensive role in the definition of collaboratory research (Dormans, 2009). This project had a number of goals among them providing the vocabulary, defining the associated principles, and the design of methods for developing and sustaining collaboratories. A publication by SOC, as quoted by Bos, et.al. (2007) defined collaboratories as follows:

“A collaboratory is an organizational entity that spans distance, supports rich and recurring human interaction oriented to a common research area, and fosters contact between researchers who are both known and unknown to each other, and provides access to data sources, artifacts, and tools required to accomplish research tasks” (Bos, et.al., 2007 p. 652).

Dormans (2009) further argues that collaboratories would go a long way in allowing encounters and interactions, enabling discussions and interrogations, and promoting the sharing of ideas. Hence besides being a place where scientists can access instruments and data independent of time and location, a collaboratory is also “an organizational entity that supports rich and recurring interaction around a common research focus among researchers who are both known and unknown to each other” (Dormans, 2009 p. 3).

Sonnenwald (2005) looks at collaboratory as “an interaction taking place within a social context among two or more scientists that facilitates the sharing of meaning and completion of tasks with respect to a mutually shared, superordinate goal” (p. 646). He continues to argue that collaboration has the potential to provide solutions to complex scientific problems. Collaboration also can be instrumental in advancing political, economic, and social agendas. This can subsequently have an impact on aspects like sustainable development, democracy, cultural understanding and integration.

It is therefore emerges that collaboratory research first and foremost demands the existence of a common research agenda. It is necessary for the participants to identify a common research area in which they can collaborate. Execution of the collaborative effort means that the participants would have access and be able to share research instruments, data and ideas independent of time and geographical dispersion. This is largely made possible by the existence of technology-based communication tools like electronic mail, discussion forums, chat services and other social media platforms that allow for seamless interactivity.

Lunsford and Bruce (2001) in their study interrogated the characteristics of collaboratory research. They argued that besides participants having a common goal, they also have identifiable problems that they all consider worth to be worked on. In collaboratory research therefore, the authors saw the existence of shared

inquiry. Also present in collaboratory research is what the authors referred to as intentionality. This is where participants feel and get involved in a mutual project. Subsequently, a collaboratory then becomes an all-inclusive generative space. In such arrangements, people feel that they are sure of earning as much as they give from taking part in this form of an exchange. A collaboratory further would not be complete without active participation and contribution. Lunsford and Bruce indicate that the participants are constantly involved in joint series of activities and continuous negotiation of the project deliverables. This is further supported by the fact that participants have access to shared resources. These include working tools, reference documents, and other information available within the collaboratory. Collaboratory research would also never be a reality, according to the authors, in the absence of technologies which are dependent on the field of research, task nature, the purposes, and the prevailing goals. The equipment include observatories, satellites and large-shared databases. Other technologies include e-mail; file transfer community websites, video and teleconferencing and transcription software. Finally the authors indicate that collaboratories always cross some kinds of boundaries that can either geographical, different in terms of time, varying institutions and inter-disciplinary. Emerging from these arguments is the mutual nature of collaboratory research. Participants in a collaboratory need not to be spectators but they should have their contribution well spelt out and be of value

to the overall process. This is the only way the spirit of a collaboratory would be realized.

Ponti (2008) argues that collaboratory research provides room for joint research projects involving librarians, students and faculty. To bring together the efforts in achieving a common research problem, however, both faculty and librarians need to build common ground. The participants would be expected to reciprocate and allow for mutual understanding so that their concerns and obligations are taken into account. Bos, et.al. (2007) say that collaboratory research brings about the ability to tackle research questions which may not be easy to address in an ordinary work environment. Existence of questions which may not be easy for individual researchers to address further brings about the need for researchers to work together, the authors add. Particularly with the emergent of digital tools for managing information, there will always issues that would demand constant address in the LIS profession. A collaboratory amongst the professionals would provide an easier option to explore practical-based solutions.

From a practical point of view, collaboratory research provides a working space whereby research and learning would intersect. Collaboratory research has the ability to bring together teaching, learning and research. This would then form an integral part of LIS academic curricula which in most cases tends to be theoretically inclined (Lunsford and Bruce, 2001). In due course faculty and librarians can have their network of contacts extended. Also it is possible to have their opportunities

enhanced including their informal communication channels. This would subsequently provide the necessary support for long-term personal and organizational goals (Sonnenwald, 2003).

While there appears to be a lot of potential in collaboratory research in the growth of any discipline, this is not without some huddles. Lassi & Sonnenwald (2010) identified a number of factors that appear to impact the design, adoption and use of a collaboratory. They include career factors that impact a researcher's career advancements. This is followed by personal factors concerning aspects of doing science which affect researchers on a personal level other than their career. Cost of participation factors come in third, focusing on whether the benefits of being active actors in a collaboratory outweigh the costs for the individuals. Disciplinary and scientific advancement factors are also forces to reckon with including community factors that affect the community of researchers. Finally, according to the authors, there are also costs associated with the development and sustenance of a collaboratory for a discipline. But all in all with the proper management of these impediments through individual and organizational commitment collaboratory research will remain an option towards the enhancement of the LIS profession.

### **2.5 Collaboratory Research Benefits, Challenges and Trends in LIS**

Research can be defined as a way of finding answers to unknown problems emerging from natural and artificial phenomena in nature through systematic,

logical and verifiable ways (Ocholla, 2012). Owing to the significance attached to research and publication in all sectors, LIS librarians as well are expected to engage in research activities as this would add value to the LIS profession (Verzosa, 2007). Research and research publications complement each other meaning that the librarians should not only engage in research, but they should also publish the outcome of their research for others to gain access. Publication should be of high quality, published through peer-review process and accessible in the form of recorded sources in print and electronic formats (Ocholla, 2012).

Powell et al. (2002) echo similar sentiments that there is need to create new knowledge and thereby contribute to the growth of LIS and this would only be possible through research. Librarians' involvement in research would enhance problem solving and decision making in the workplace, increase uptake of research literature and better equip librarians to provide optimal information services to researchers in other fields. Ocholla (2012) notes that reading and conducting research can also contribute to career advancement for librarians. Also associated with research is improvement on individual's ability to think critically and analytically, improvement of staff morale and enhancement of the library status within its community, further notes, Ocholla (2012). Thus it is imperative that members of any give profession need to dedicate time and energy to conduct research on issues affecting their profession. And as eluded earlier in this chapter

collaboratory research comes in handy for it provides an opportunity to share ideas and abilities independent of time and geographical dispersion.

## **2.6 Collaboratory Research Benefits**

Numerous scholars have researched and published substantive literature on the perceived benefits of collaboratory research amongst LIS faculty and industry practitioners. Axelsson (2006) says that collaboratory research would serve as an incubator for professional development. He further argues that collaboratory research would for a basis for problem solving; providing access to new and innovative ideas or practices by practitioners. He further concludes that collaboratory research in LIS provides access to network of people from a wide range of LIS related organizations.

Middleton (2005) on his end says that collaboratory research in the LIS discipline would provide a basis for curriculum development and teaching. He argues that through collaboratory research, it is possible to find intellectual companionship within practicing communities while enabling the creation of a common point of reference. Middleton also sees collaboratory research as an opportunity for cross-fertilization of ideas resulting to new insights or perspectives that sole individual would not grasp. He concludes by arguing that collaboratory research allows sharing of skills and techniques thus enabling transfer of tacit knowledge. This view

is also shared by Katz & Martin (1997) who in addition, feel that collaborative research would go a long way in enhancing the productivity of the participants.

McNicol & Dalton (2004) in their study on priority areas for LIS research were quick to bring out the potential gains associated with collaborative research in the LIS profession. They felt that collaborative research helps informing practice which is a recipe for growth in the profession including enhancement of service delivery. They further argue that collaborative research would help in raising the profile for LIS as a discipline including advancing the professional practice and enhancing professional standing within the academic community. Since teaching and research are intrinsically linked, the authors indicate that since teaching and research are intrinsically linked would help maintain a mutual relationship. Finally they see collaborative research as a key contributor to knowledge. This it does by not only adding onto the general fund of human knowledge, but also extending the boundaries of knowledge.

Tijssen (2012) carried out a review of co-authored research publications. He identified motivating factors behind university-industry collaborative research. First he argued that collaborative research would allow access to key research staff particularly by the practitioners and offer an opportunity for complementary research activity. Collaborative research would help avoid wasteful experimentation while offering an understanding of novel directions on inventions

and technological innovations. He concludes that collaboratory research has the capacity to solve complex problems.

D'este & Perkmann (2011) in their study on what motivates academics to engage the industry, they identified the following factors among them commercial exploitation of technology or knowledge. This is followed by learning that involves informing academic research through engagement with industry. Finally collaboratory research would allow access to funding and in-kind resources that involves use of industry-provided equipment, materials and data for research.

Winston & Williams James F. (2003) in their study on the collaboration between LIS faculty and practitioners have fronted a list of probable benefits. They argued that collaboratory research would provide the opportunity to increase the level of practitioner research while enhancing research and leadership competencies of practitioners. Collaboratory research would encourage research and publication in areas that are relevant to professional practice and finally it would enhance the nature of the relationship between those in LIS education and their practitioner colleagues.

McNicol (2002) says that joint research involving practitioners and academics is the most viable, efficient and effective way for transferring research into practice. She further notes that a collaborative approach is a good way to achieve a balance between practitioners, who may have a tendency to be inward looking, and academics, who,

sometimes appear divorced from the real world. Collaboratory research, the author further adds, can help practitioners to appreciate the potential benefits of research and act as a means to ensure that academic researchers have a good feel for development needs on the ground. This way, all players would have a chance to engage in research that is actually relevant to the needs of practitioners. The author finally notes that the involvement of both academics and practitioners gives research a new dimension. This however requires both academics and the practitioners to have high levels of confidence in each other and always maintain seamless and effective communication. And from a practitioner point of view she asserts that such collaboration gives practitioners' research an academic standing thus giving it more weight in the research field. Such collaborative projects could also be thought of as a way of disseminating research deeper into the practitioner community.

In addition, the researcher argues that pursuant of collaboratory research would enable universities better understand the practical problems facing the LIS profession. Collaboratory research would also enable universities test practical application of research and theory. The industry on the other hand will have an opportunity to seek solutions to technical and design problems while enhancing the production of new products and services. The practitioners will also have a chance to continuously embark on quality improvement. And overall, such a collaboratory would ensure an on-going relationship and network between the university and the industry and vice-versa.

However, in spite the wide range of benefits associated with LIS librarians' engagement in research, a good number are still not doing it (Powell et al., 2002, Onyancha, 2007, Ocholla, 2012 & Erfanmanesh et al., 2010). LIS librarians are devoting less and less time for research. Some of the reasons behind as shared by the aforementioned authors include poor communication between active researchers and librarian. They also noted that librarians are at times overwhelmed by practical professional work and great amount of research jargon that discourage them from reading the research literature. It has been further argued that librarians have all they can handle keeping up with emerging information technology and service responsibilities and have inadequate education in research methods for librarians. There is also a perception that research lacks practical applications or mission orientation accompanied by lack of research funding and natural resistance to change or new research ideas. McNicol (2002) further identified a number of problems associated with collaboratory research between faculty and practitioners. First she talked of difficulties that can occur if academics and practitioners do not follow the same agenda whereby practitioners might have more immediate concerns, while academics prefer to work on longer-term goals. Another potential barrier is that day-to-day concerns, such as management demands, may mean practitioners are not able to devote as much time to the work as a dedicated researcher would. Bos, et.al. (2007) identify three types of barriers. First, it is not easy to amass knowledge. Transferring knowledge still remains an uphill task

compared to information that has been easy to transmit and store over great distances. Secondly, it is not easy to aggregate researchers' labor. This is because researchers enjoy a high degree of independence as they engage in their day-to-day work including their larger directions of their work. Thirdly, there are issues related to cross-institutional working. Institutional-related problems can arise when all of the researchers are ready to proceed particularly legal issues that may be difficult to resolve.

In light of these challenges, Powell et al. (2002) offers some solutions in that librarians may need assistance in identifying ideas for research and be mentored by experienced researchers. Financial support would also come in handy and creation of time to do and complete research. Finally she recommends assistance in matching research projects with personal development and encouragement to apply research results. McNicol (2002) suggests that members of the academic community need to simplify their research and make them straightforward and ensure that their expectations of practitioners are reasonable. This, she argues, this might encourage more people to become involved in research. To encourage research among LIS librarians, the researcher proposes collaboratory research with LIS faculty. This, according to Rebmann (2012), "has the potential to provide faculty and librarians the opportunity to bring in their respective knowledge, expertise and connections, as well as expand participation of librarians in research projects" (p. 322). Collaboratory research aims at including geographically

distributed students and new professionals in collaborative efforts with faculty and established professionals opening up a new avenue for research. Collaboratory research subsequently allows bringing together of teaching, learning and research a combination that constitutes an integral part of LIS academic curricula.

### **2.7 Collaboratory Research Challenges**

From the fore going discussion it is evident that collaboratory research is a viable way of connecting to and exchanging resources amongst LIS faculty and industry practitioners. Nevertheless, there are many challenges that must be addressed to help ensure success and they have been extensively explored by a number of authors.

Axelsson (2006) identified a number of issues regarding LIS collaboratory research among them difficulties in bringing about the exchange of ideas between organizations and individuals with different core activities, organizational size, experiences and knowledge. High costs in terms of time, time needed to maintain well-functioning collaboratory and time needed to participate in a collaboratory is another major issue according to Axelsson. There is also reluctance by the participants particularly the practitioners on the fear of information overload and overburdening. The author also identifies difficulties in making visible and possible to share intangible resources like experiences, perspectives and tacit knowledge. The author finally argues that it is difficult to make a collaboratory focused enough

to be interesting to participate in and still wide enough to promote new collaborations across organizational and disciplinary barriers.

A similar exploration was done by Onyancha (2007) and his sentiments are equally echoed by McNicol & Dalton (2004) and they enumerated the barriers towards LIS collaboratory research to include lack of willingness amongst the participants to collaborate and poor networking. Lack of collaborative research funding has also been cited accompanied by insufficient joint research network between faculty and industry practitioners. The issue of prioritization amongst faculty and practitioners is prevalent and also the absence of practically focused projects. Also prevalent is isolation coupled with lack of support from senior managers and inadequate personnel.

Middleton (2005) in his study on applying research in LIS practice identified a number of concerns. First he found out that motivators for research sometimes may not be within the framework of the grants awarding procedures which at times may not fit the practitioners concern. Secondly, he found out that many of the immediate problems of practice may be addressed through consultancy and project management work. Subsequently, practitioners prefer to draw researchers on a consultancy basis rather than research agenda. Thirdly, he established that practitioners wish to see research into areas such as staffing, application of information technology or improvement of procedures and services. This

essentially requires application of management procedures rather than application of new knowledge emanating from research. Similar sentiments are shared by Olson et al. (2008). They are of the view that it can be even more challenging to manoeuvre institutional barriers than even working at a distance. These, they attribute to organizational problems ranging from legal, social and political issues. Powell et al. (2002), Ocholla (2012) and Short et al. (2006) independently shared their views on some of the reasons behind low involvement in research by LIS practitioners and more so collaborative research to include. Top on the list is the existence of weak communication links between faculty and practitioners followed by the overwhelming of practitioners feeling with research literature. They also established that there is great amount of research jargon that discourages practitioners from reading research literature. Practitioners were found to have all that they can handle while trying to keep up with emerging information technologies and service responsibilities. Finally they have cited inadequate education in research methods and natural resistance to change or new research ideas as other barriers to LIS practitioners' research.

It is clear that while research holds the key to the development of any discipline, there are still a myriad of issues revolving LIS research. However it is important to note that majority of the impediments are personal and therefore can easily be mediated through sensitization and encouragement. Therefore all is not lost and the potential for LIS growth through research remains uninterrupted.

## 2.8 Collaboratory Research Trends

Globally, most existing collaboratories have been common in physical and life sciences. Such collaboratories have been more concerned with inter and intra-institutional collaboration while others have spanned into different disciplines. In business for example, collaboratory research is intended to encourage sharing of expertise and perspectives. This would allow integration of university research in products and service development.

It is important to note however that development of collaboratories in social sciences and humanities has been slow. This has been attributed to insufficient funding opportunities, low requirement for expensive scientific instrumentation, and different perspective, opinion and attitude towards collaboration (Winston & Williams, 2003; Ponti, 2010). However the situation is now changing and funding agencies and universities in Europe and the USA are now encouraging and supporting collaboratory research in social sciences as well.

Collaboratory research in LIS globally has not been encouraging either. A study by Amabile et. al. (2001) on LIS research publications as quoted by Winston & Williams (2003) reported that only 4% of the articles published in *Academy of Management Journal* and less than 1% of the articles published in *Administrative Science Quarterly* listed academics and librarians as co-authors.

Winston and Williams (2003) studied collaborative research practices in LIS by analysing five leading library and information science journals. These are *College & Research Libraries (C&RL)*, *Library Quarterly (LQ)*, *Library Resources and Technical Services (LRTS)*, *Library Trends*, and *Library and Information Science Research (LISR)*. Of all the articles reviewed, only 39% had been co-authored. A further analysis on the positions held by the second authors revealed that over 85% held similar positions. They also further noted that vast of the existing collaborative output came from colleagues in similar positions. Conclusively therefore, the level of collaborative research, culminating in publication in highly cited LIS journals, is not extensive due to limited collaboration with colleagues in different areas.

According to Onyancha (2007) and Ocholla (2012) research collaboration in Africa is equally weak thus collaborative research output is relatively low. This has been attributed to lack of willingness to collaborate by members of the LIS profession accompanied by poor networking. In Africa there also lacks collaborative research funds and sufficient joint research work between post-graduate students and supervisors that should normally culminate in research publications. Ocholla (2012), while evaluating publication patterns and output in Africa, found out that a huge percentage of the publications have been single-authored with only about a third with two, three or four authors. Also noted in the same study was the fact that a good number of academic librarians did not collaborate with any other authors. It is only in very rare instances where an academic staff member co-authored a

publication with an academic librarian. This continues despite the fact that collaborative approach is an effective way to bring about a balance between librarians who most of the times tend to inward looking, and faculty on the other hand, who sometimes are divorced from real world (McNicol & Dalton, 2004).

### **2.9 Priority Areas for LIS Research**

LIS research has the potential to fulfill a range of functions as found out by the British Association for Information and Library Education Research (BAILER) and as quoted by McNicol and Dalton (2004). Among the functions include ability to advance professional knowledge while enabling librarians to relate more effectively to their working environment. LIS research also provides librarians with direction and guidance, enables them to accomplish their purpose and promote progress of the profession.

From a practical perspective, Powell et al. (2002), argue that LIS research would: help create knowledge and thereby contribute to the growth of LIS as a profession or discipline. LIS research is equally essential in problem solving and decision making in the workplace. Finally LIS research makes professional librarians critical consumers of the research literature and better equip them to provide optimal information to researchers in other fields.

In the light of the above, a number of scholars have explored some of the gray areas within the LIS profession that researchers can give priority in their research

endeavors. For instance, McNicol and Dalton (2004), in their study on priorities for LIS research, found an overlap of interests in areas such as user information needs, learning and information skills, social inclusion and information technology support. Specifically they suggested research focus on electronic information services and management of libraries and information centers. Issues touching on staff development, user needs and also non users were also identified. Also in their list was the social impact of LIS, social inclusion to allow wider participation investigation on LIS networks/links. Health information studies are also critical as well as ICT and its support for information services.

McNicol (2004) while studying the potential of LIS research further identified areas such specific user groups, acquisition policies, and language audit. Library management system, web site usage and use of e-journals should equally be considered. Also of importance is focus on e-information literacy skills, digital video content indexing and retrieval, mobile learning, web skills and journal usage.

Buckland (2003), after analyzing the specific problems identified by LIS librarians, noted that adding meaning to library services, intellectual history of the library and digital libraries from a user point of view required attention. Also issues touching on library values and how neutral they can be and library communities and how they differ need equally to be considered.

It is worth noting however at this juncture that composing a good research agenda involves more than the listing of significant problems and uncertainties as suggested by the aforementioned authors. As Mcnicol (2004) contends, “the questions to be researched should be non-trivial, intriguing to whoever is to work on them, and expected to have significant consequences for practical decisions for and/or our understanding of our field, LIS” (p.170).

### **2.10 Collaboratory Research Process**

Co-authorship of publications has for decades now been used as a unit of measure for collaborative activities (Katz & Martin, 1997). However, “Nothing short of a complete description of the kinds of relationships and activities of all persons concerned in the final product would give an approximation of the amount of group effort going into the papers presented” (Katz and Martin, 1997, p.2). This means that the precise nature and magnitude of collaboration cannot be easily determined by the usual methods of observation, interview or questionnaire. This is because of the complex nature of human interaction that takes place between or among collaborators over a period of time.

It is important to note that the need to collaborate continues to increase. Ponti (2008) interrogated the reason behind this phenomenon and associated this with changing patterns or levels of funding and the desire by researchers to increase their scientific popularity, visibility and recognition. Ponti also found that there is

advancement of scientific disciplines which means that a researcher requires more and more knowledge in order to make significant advances a demand which often can only be met by pooling one's knowledge with others. Also compelling is the need to gain experience or to train apprentice researchers in most effective ways possible. She also recognized the need to work in close proximity with others in order to benefit from their skills and tacit knowledge as a motivator for collaborative efforts. Worth noting however is the fact that collaboration is naturally a social process and therefore there may be at least as many contributing factors as there are individuals involved (Katz & Martin, 1997).

Melaville et.al. (1993) in their study concluded that a collaborative process should comprise of six stages. At the very beginning, a collaborative process is sparked off by the existence an issue, problem, concern, or need that ignites people to act. Once a decision to act is made, potential partners must be chosen, recruited, and brought to the table. Basically, anyone who has a stake or role in the call for action, or who can be part of the solution, is a potential partner. This is followed by the creation of a climate of mutual respect, acceptance, and trust all which are crucial to getting the collaboration off to a good start. Partners accomplish this when they take enough time to learn about each other and the individual organizations, and have opportunities to disclose self-interests - to discuss what is important to them and what they need from the collaborative. To sustain the collaborative effort, it is critical to have a shared vision. The vision focuses on future possibilities - not

current problems - and leads partners toward actions and desired results. A shared vision generates energy, motivates partners, and tells everyone where the collaborative effort is going. Critical thereafter is the development of a strategic plan which provides the framework for collaborative action. This encompasses defining the collaborative mission, assessment of the environment and the collaborative capacities and establishment of well-formed goals. The planning is concluded by exploring and selecting strategies and the development of an action plan. A collaborative process would not be complete without continuous evaluation. Such evaluation is essential for it enlightens the participants on how effective their strategies have been. The evaluation also provides a guide on decisions to and changes or modifications to the collaborative effort. The evaluation however should be simplified so that it assists and it can allow the participating groups to measure their efforts, evaluate their effectiveness, and examine the efficiency of the collaboratory practice.

According to Shamoo & Resnik (2003), collaboratory research involves a number of clearly spelt out tasks that can be grouped and organized into separate 'stages'. There is a tendency however to find certain activities extending from one stage to another. These stages are outlined by Morse (1995) and they include:

*Conceptualization* -During the conceptualization of the research, the principal investigator may seek the participation of the collaborators. At this level,

agreements are researched on the research goals, specific objectives and appropriate methodologies. This would enable them to draw on findings from relevant literature and have them organized into one meaningful document. Also critical at this level is the spelling out of the rationale behind the need to undertake the study (Conceptualizing Communication Research, 2005). This would help answer a number of questions. First it is about the outcome of the proposed collaboration measured against the anticipated demand for resources. Secondly, the question of the relevance and the significance of the outcome to the society must be addressed. Thirdly is the ability of the collaborative effort to address the goal and objectives of the project. Finally is the issue on whether the research investigation can proceed without a partnership. These are pertinent questions whose answers would shape the direction upon which collaboration takes.

Being able to contemplate these issues at the conceptualization stage would help researchers gain clarity, proactively address areas of conflict with fellow collaborators and enhance the responsible conduct of research (Conceptualizing Communication Research, 2005). How well the conceptualization is coordinated enhances the effort to partition the research project appropriately and provision for the incorporation of each contributors' inputs into the overall research project.

*Proposal Preparation and Submission*-This process progresses together with the conceptualization. Morse (1995) recommends that it is important to adopt a

framework that is essential in providing guidelines in all the facets of a study. This would range from the evaluation of the philosophical ideas behind an inquiry to the data collection and analysis of the results. This should specifically address: the knowledge claims being made by the research including theoretical perspective, strategies of inquiry that would inform the procedure, and the methods of data collection and analysis to be adopted according to Shamo and Resnik (2003).

The anticipated quality of research would be largely dependent on the extent to which investigators collaborate and cooperate during the proposal development stage. Valuation of individual researcher inputs can work towards developing a higher sense of ownership in the proposed study. This would also help increase the individual researcher commitment to achieving the desired goals and objectives (Shamo & Resnik, 2003).

*Management*-The principal investigator is expected to account for all that goes on in the study. The leader is therefore expected to have a clear understanding of research scope and be in a position to organize the priorities of the participants. Also critical for the leader is the proper allocation of resources, maintenance of the timetable and allocation of roles and responsibilities (Morse, 1995).

A key to success in collaboratories is the setting up of an effective system of communication. This would allow for rapid response to problems as they arise and reliable dissemination of critical information to all participants. Regular meetings

are equally critical. In such forums, project status, advances and impediments can be discussed as well as sharing of information and data. Reviews on the other hand would focus on performance evaluation with the aim of providing recommendations for improvement whenever appropriate. Budget and finance issues can also pose a huge impediment (Conceptualizing Communication Research, 2005). The principal investigator must therefore ensure collaborative projects are professionally managed. This way, it will be possible to ensure that all expenditures are in compliance with the rules and regulations on the expenses that can be allowed and those that are unallowable. It is critical to have well formalized agreements on material and technology transfer. Also important are issues touching on data ownership while copyright and patent issues need to be well established. This is important for the protection of the collaborators' best interests (Shamoo and Resnik, 2003). Such agreements are important as they clearly specify the rights of ownership to research material, specify how the material can be used and what individual obligations are incurred. The agreements should also clearly stipulate the benefits enjoyed and the importance of providing proper acknowledgements to the various sources in an effort to avoid conflicts during or after research. Finally, the leadership must oversee the conduct of each collaborator. The code of conduct could be guided by guidelines drawn from institutions, states, nations and even existing international guidelines related to the research (Morse, 1995).

*Implementation*-This focuses on overall task coordination during the implementation of the agreed upon research design. All the collaborators are expected to heed to the tasks assigned to them and adhere to the research protocol and keep to the established timetable. They should also aim at maintaining an open line of communication (Morse, 1995). Successful implementation of the staff protocol demands that all the staff involved be adequately prepared to implement the research procedures in an appropriate manner. Staff with little experience may require substantive training. It is important for the collaborators to agree on what 'data' will be collected. Also important is how the data will be collected and the people responsible for the data collection. Subsequently, issues about data storage and management must be addressed including the sharing aspects on what should be shared and not (Conceptualizing Communication Research, 2005).

*Evaluation*-This is a critical stage as the collaborative process tends towards completion. It involves assessing how valid the research process was including the review and analysis of the data that was collected. This is a continuous activity that helps in the identification of any deviations or breaches of the research protocol (Conceptualizing Communication Research, 2005). While collaborating researchers may not understand each of all the procedures followed during evaluation and analysis by their colleagues, they should however be ready to describe how the interpretation of the findings was reached (Shamoo and Resnik, 2003).

*Dissemination*-This entails the circulation and distribution of research findings inside the collaborative group or outside the group (Morse, 1995). It is therefore necessary for the collaborators to agree on how the information to be disseminated shall be approved. Also critical is the identification of the spokesperson for the collaborative team. It is also important to identify the target audience and any form of restrictions to the free flow of information within the group. For submission to professional journals, it is important to agree on acceptable criteria for contributing as an author and a standard for acceptability regarding format and content of disseminated findings. Also issue on how credit for specific research findings will be allocated (authorship position) need to be deliberated and agreed upon (Shamoo and Resnik, 2003).

*Conclusion or Continuation*-In the course of the research process, the collaborators have the opportunity to decide on the conclusion, continuation or the modification of the collaborative relationship.

At conceptualization, decision can be made to conclude the collaboration once the research goals and objectives are met. Another option would be a situation whereby collaborators may have intended that the collaborative research project was a phase one of a series of planned research activities. In this case, the direction of the subsequent investigations would be guided by the initial findings. Morse (1995) however adds that during implementation, the researchers can change their mind if

they discover incompatibilities amongst the working groups despite having had an initial intention of proceeding with the research activities beyond the initial study. On the hand, the interactions between the collaborators may be so positive accompanied with productive outcomes hence pushing the collaborators to continue with the collaboration (Shamoo and Resnik, 2003). During post implementation, unanticipated findings may guide the research into newer directions. Thus the collaborators may reconsider maintaining the configuration of team. Alternatively they may decide to modify the team or just conclude and wrap up the effort (Conceptualizing Communication Research, 2005).

Some other authors have also thrown in towels in collaborative research process discussions. Some have focused on influencing factors while others have developed models and frameworks. Amabile et. al. (2001) explored the success factors in academic practitioner collaboration. They concluded that successful collaboration would be determined by collaborative team characteristics (skills, knowledge, attitude and motivation), collaboration environment characteristics (organizational support), and collaboration processes (use of member capabilities).

Sargent and Waters (2004) have developed an academic research collaboration framework. Their framework comprises of the collaboration process, interpersonal processes and contextual factors. The collaboration process has four phases namely initiation, clarification, implementation and completion. The interpersonal

processes within the team focus on management and social issues. Finally the contextual factors touch on the national and institutional climate, the institutional support and available resources.

Stokols et. al. (2005), have developed a conceptual framework to enable better analysis of collaborative research. Their framework considers: antecedent conditions (interpersonal, social and environmental conditions) that influence one's readiness to collaborate. This is followed by intervening processes (behavioral, affective, interpersonal and intellectual) that are active through the collaboration. Finally there are research products and outcomes (novel ideas, new models, institutional changes and innovative policies).

Sonnenwald (2007) equally developed a model to serve as a guide for the collaboration process. He looks at research collaboration in four phases: foundation phase where researchers decide their views on collaboration followed by the formulation phase where researchers come together and prepare a plan for the research task. Sustainment phase comes in third and entails maintaining the collaboration in an effort to realize the set research goals. Lastly is the conclusion stage where the results are realized and disseminated.

According to Campbell, Ellis & Adebajo (2011), creation of a research collaborative process may involve a number of activities. First and foremost is the understanding, by the potential collaborators, of the research environment at their

institution and understanding their faculties' work habits. This should be followed by the promotion of a formal or an informal structure to proceed with projects. As the writing of the article proceeds, the group can develop a more formal structure with regular weekly meetings. It normally begins as a means to encourage writing and produce one article, yet as that article reaches completion, the purpose of the group can be expanded to that of fostering creativity and following creative leads to a publishable (or presentable) conclusion.

Allen-Meares et. al (2005) proposed that collaboratory research should comprise of three stages. The process should begin with the engagement of partners in the collaboration. This should be followed by continuous support of the partners in their efforts and finally the definition of the project. Stage one entails exploring an approach to bring about and engage the partners in the collaboration. It is, prior to the establishment of a collaboratory, important to demonstrate respect for the partners. This will demand building of trust on their instincts particularly on what they want to do and what they know. Establishing a successful collaboratory requires keen listening of the partners concerns and ideas about how those concerns could be addressed. The second stage entails the support provided to partners to ensure their successful and continued participation in the collaboratory. It is important to identify the best way communicate with each member. Also of critical importance is the recognition of the fact that the collaborators have competing job responsibilities hence it becomes essential to respect other demands on their time.

Challenges associated with the absence of face-to-face or verbal contact also need not to be ignored either. The third stage entails elaborative definition of the project, proper description of the nature of the project and appropriate definition of the project goals. All collaboratory members must play a role in defining the collaboratory. Enough time is necessary to reach consensus. The participatory nature of collaborative work helps to overcome challenges. However, success will not be realized if partners are not adequately engaged. Also necessary for the success is the provision of participation support through effective communication and initiation of an all-inclusive and open process for defining the goals of the project (Allen-Meares et. al, 2005).

Thus despite the varying views by different researchers on the nature of the collaborative process, a number of issues are eminent and critical in this process. The importance to clearly identify the goals for collaborative research task cannot be underestimated before the commencement of the process. This is necessary because it provides a road map upon which the collaborative process will take. Identification of potential partners depending on their abilities then follows suit. Agreement on the methodology and assignment of tasks follows closely. The partners thereafter embark on the research task and preparation of the report. This task will not be complete without a comprehensive review of the entire research process to confirm adherence to the set guidelines before official dissemination of the findings. Critical also in the entire of this process the researcher notes, is the

setting up and maintenance of an effective system of communication which continuously allows for rapid response to problems as they arise.

### **2.11 Collaboratory Research Success Factors**

Proper management of collaboratory research projects holds the key to its success (Barnes et. al., 2006). In their study, Barnes and others concluded that collaboratory research factors fall into two categories namely universal success factors and project management related factors. Universal success factors include mutual trust, commitment, good personal relationships, continuity, flexibility and leadership. Project management success factors include definition of objectives, project milestones and responsibilities. There is also emphasis on the development of a mutually agreed project plan with realistic aims and simple collaborative agreements. Finally, regular progress monitoring and effective communication are also key to the success of project management task. These views are supported by Mann (2006) who also notes that it is critical to understand each other's abilities if collaboratory research is going to work.

Campbell, Ellis & Adebonojo (2011), suggest that success in collaborative activities would be pegged on the identification of compatible people and the identification of appropriate projects for conferences or papers. Also necessary is the identification of potential venues for the submission and the development of a writing style that is appropriate for the publication. Finally the authors insist on

regular meetings, adherence to deadlines and continued use of available technological tools.

Weck (2006) feels that commitment and leadership would play a great role in the success of collaboratory research. Top managers, according to Weck, need to demonstrate total commitment and avail adequate resources to support the collaboratory process. Participants must be active enough and be ready to provide complementary knowledge and expertise to each other. A dedicated leader too needs to be identified and agreed upon to spearhead the process.

Mora-Valentin et. al (2004) talk of transparency and clarity as the forces behind the success of collaboratory research. They emphasize on the need to set up of common goals and they insist on clear understanding of each other's responsibilities and tasks. Mora-Valentin et al. (2004) further underline the importance of maintaining regular contacts with partners, effective communication, ensuring collaborators deliver and regular monitoring of projects progress against project milestones.

Hara et. al. (2003) identified four key factors that would influence the success of collaboratory research. First and foremost is the demonstration of personal compatibility. This calls for partners to employ a complementary type of collaboration with respect to work and the writing style. Fully integrative collaboration also requires compatibility of personality, often including personal friendship and the trust that comes with friendship. Secondly is the creation of

research work connections whereby collaborators look for correspondence in work interests and skills, expertise, and perspectives, regardless of collaboration levels. Thirdly is the identification of incentives or motivation to collaborate. These exist externally (e.g., prestige, funding, and publications), and internally (e.g., personal motivation). Finally is the identification of the socio-technical infrastructure embedded in research organizations. This is necessary because it provides for the continuous access to each other's work.

Bukvova (2010) divides success factors to collaborative research into internal and external influence factors. Internal influence factors include issues touching on credit assignment to participating collaborators and coordination levels particularly in geographically dispersed teams. Preparation levels and alignment to the project goals, effective and regular communication amongst participants and other stakeholders are also key internal influence factors. Others include awareness levels amongst participants, differences and conflict handling criteria and familiarity levels amongst team members. Bottom on the list are leadership, boundaries setting and legitimate authorization particularly for large projects. Bukvova (2010) further discusses the external influence factors that include academic culture touching on both national and institutional culture on collaboration. Funding, group size and resources availability also form the list of external influence factors. Lastly institutional support, existence of research centers and level of collaboration either national or international also influence the success of collaborative efforts.

Mattessich et. al (1992) identified a number of factors influencing the success of collaboratory research and grouped them into six categories among them environment (both political and social climate). This is followed by membership characteristics (mutual respect, understanding, trust and self-interest). The process structure comes third spelling out individual roles and policy guidelines. This is followed by communication emphasizing on the establishment of informal and formal communication links and emphasis on regular contacts. It is also critical to define the purpose which spells out concrete and attainable goals and objectives including a shared vision. Finally is the focus on resources emphasis being on the availability of sufficient funds and able human capital to provide necessary leadership.

Axelsson et al. (2006) in their study on establishing LIS collaboratories indicated that exploration of each other's backgrounds and interests thoroughly before agreeing to proceed is critical to the success of a collaborative effort. Also necessary is external funding to allow at least some personal interactive contact through travel, to facilitate the valuable exchange that cannot occur easily through other methods, such as voice or electronic media. They also indicated the importance of learning about the other researcher's culture, structure of educational institutions, language, and general expectations for recognition. Also of importance according to the authors is the establishment of a process for regular and frequent communication through whatever mode. The telephone is an awkward and

expensive tool for international research because of serious time-zone differences. The Internet becomes an extremely valuable tool, but researchers must supplement it. With the advent of increasing opportunities for videoconferencing, this technology will in some ways replace the use of the telephone for the important "live" communication situations. Finally, as with other forms of human cooperation, each partner must try to be empathetic about the other person's needs, including each collaborator's responsibilities outside the research project itself.

It is therefore evident that successful collaborative efforts would not come with undue effort. The overall management process with clearly defined leadership roles is key to the success of a collaborative effort. Also necessary is the proper definition of a workable project plan with appropriate task definition and assignment coupled with the provision of the necessary financial and human resources. Throughout the process, regular progress monitoring and review is critical to correct deviations from the plans. Finally of importance for the success of the collaborative process is the individual commitment and trust amongst all partners.

### **2.12 Promoting Collaboratory Research**

Finholt (2002) suggests that building and sustaining collaboratory research requires thorough knowledge of the working practices and working environment. Also necessary is the appreciation of the professional values and commitments, including the expectations of the overall participants. This is important because it

allows the different expertise of the participants, their experiences and knowledge to be valued. This view is shared by Joint (2005), who further reiterates that before embarking on collaboration, it is important that both faculty and librarians familiarize themselves with their respective concerns and obligations. This gives the participants a chance to successfully exploit the opportunities of such collaboration. Librarians need to build a dimension of reflective practice into their administrative processes from the very start. This they can do through creation of a regular assessment framework within libraries for evaluating research opportunities or proposals, and the integration of permissions for repurposing of administrative data into core procedures, Joint (2005) further notes. Faculty members on the other hand need to anticipate librarians' concerns about confidentiality, data re-purposing, workload issues, and project control from the very start, and should deliver reassurances about these concerns proactively, to underline their awareness of the impact of practice-based research on working library services, concludes Joint (2005).

McNicol & Nankivell (2003) feel that funding organizations should go an extra mile in promoting research opportunities which bring together practitioners and academics. They observed, in their study, that there lacks an understanding of priorities and working methods of researchers and the practitioners involved in collaborative projects. To overcome this, McNicol & Nankivell (2003) propose the need for better communication and creation of more opportunities for the sharing

of ideas between practitioners and academic researchers. This could be achieved through organization of conferences and continuously updated mailing lists. The academics on the other hand need to ensure that their research methodologies are well simplified. They should also ensure that the methodologies are straightforward and easy for practitioners to adapt and use in their day-to-day work.

Ponti (2008) reiterates the need for both faculty and librarians feeling part of the collaborative project right from the beginning in order to build and realize a common research agenda. She continues to add that the practice of collaboration raises a number of challenges that may either be at personal level, politically inclined or professional oriented. It is therefore important that they are carefully considered at the very initial stages. This serves as an assurance that the collaboration process would be sustained over time and would enhance the realization of the shared goals. Ponti (2013) in her continued research on promotion of LIS faculty-practitioner research practice, found scarcity of resources as a major bottleneck and it is not getting any better. In the light of this, she has proposed the idea of peer-production. She notes peer-production has the potential to open windows for practitioners, academics and students. These would help create academic-practice networks and help maintain interpersonal relationships even after project completion. Peer-production would also help constitute a social capital from which to draw to initiate new projects.

Smith (2009) felt that professional associations could have a role in establishing the LIS collaboratory research agenda in each country. The author further notes that it would be highly desirable that if this process were undertaken, that it be done collaboratively with all members of the LIS profession in the country. The responsibility of encouraging a collaboratory research agenda for these countries will rest either with the academics at the teaching institutions, and with significant, energetic and committed library practitioners. However this would only happen if there is a perceived need for a concerted research effort in one or more aspects of LIS in each particular country, adds Smith (2009).

Montiel-Overall (2005) discusses the existing challenges in understanding how well collaboratories would be made to work. The challenges notwithstanding, the author has identified reciprocity, congeniality and partnerships as key ingredients to the promotion of collaboratory research. Also critical to this process is the interaction between coequal parties, cooperation and information sharing. Collaboratory research will still not thrive in the absence of a shared vision, joint negotiation of common ground, dialogue, joint construction of knowledge and joint planning. The author further emphasizes the need for complementation of skills, efforts and roles, joint ventures and creation of new value together. Montiel-Overall further explains that collaboration is a philosophy of interaction in which an underlying premise of consensus building is critical for it to work.

Virkus (2007) feels that trust is an important attribute for promoting collaborative research. However, it takes time to build trust and it may be rapidly destroyed. The author further notes that collaboration needs shared thinking, respect to others and cultural sensitivity. Unfortunately, a lot of people who frequently talk about it are quite dominant about their own interests. International collaboration also requires good leaders who want to make a difference and can build teams and integrate the interests of many people with different backgrounds. This is the only way such leaders would be able to commit to the success of others and to the overall success of the project. This however requires intercultural competencies and an understanding of players' abilities to put these into practice, concludes Virkus (2007).

Chen et. al (2013) in their study on sustainable collaborative research dialogue between practitioners and academics observed that conflicts do arise during collaborative processes particularly on issues of scheduling and article formatting. Also hindering the collaborative process are work-styles, distance and cultural differences. To overcome these, the authors suggest creation of effective communication channels that would help improve knowledge transfer and process sharing. They further suggest that the collaborative process can be improved by the use of simple collaborative tools, including e-mail and cloud technology, groupware, and project management tools for co-writing and co-scheduling. And, on the dissemination of research findings, Chen et. al (2013) suggest availing of more forums and platforms for collaborative publishing,

including journals, special issues and books. Team teaching, part-time teaching for practitioners, part-time consultant jobs for academics and projects supported by government or business would also go a long way in promoting collaborative research.

Rosenstein (2014) was concerned with the faculty-librarian communication. The author explored ways in which such communication would be improved. To begin with the author is of the view that librarians must not wait for faculty to originate ideas about how to collaborate, but rather should actively seek out ways to work together. It is important for them to learn about what has worked elsewhere, and see how it can be applied. Librarians should go further and take the initiative in showing how their skills apply beyond the four walls of the library and all through remain open-minded. The spelling out of the purpose of the collaboration is equally critical. This ensures that collaboration and communication are used not for their own sake (librarians and faculty), but for the ultimate purpose of successful student learning. Academic libraries are in the business of human learning rather than in the information business. It's not necessarily a matter of librarians vs. faculty in who is viewed as more important by students and others. Nonetheless, there exists potential marginalization for librarians unless they can clearly articulate the value they add to teaching and research. Finally, the importance of breaking down silos cannot be ignored. This provides for a common understanding between librarians and faculty that silos are dangerous and can obstruct success. Librarians and faculty working together represent a productive way to break out for the benefit of students.

There is therefore need for a path for ensuring a vibrant and robust collaborative environment

Onyancha & Maluleka (2011) suggest that research that is conducted in collaboration with scholars from foreign countries will have higher citation impact than that conducted among scholars resident in sub-Saharan Africa. However, they add, the citation impact may also be affected by the language of publication, journals in which the research is published, and databases used for data extraction and analysis.

In conclusion therefore it is important to appreciate the fact that collaboratory research between LIS faculty and practitioners is still facing many bottlenecks from resource scarcity to management issues. However, this should not be a deterring element in pursuit of collaboratory research. Funding organizations and professional bodies in LIS should be in the forefront in prioritizing and promoting collaboratory research efforts. Information sharing amongst all stakeholders in the LIS profession is equally critical. Finally the players in the collaborative efforts need to always uphold professional values and commitment throughout the collaborative processes.

### **2.13 Social Capital**

The concept of social capital became fashionable only relatively recently, but the term has been in use for almost a century while the ideas behind it go back further

still. “Social capital” may first have appeared in a book published in 1916 in the United States that discussed how neighbors could work together to oversee schools. Author Lyda Hanifan referred to social capital as “those tangible assets [that] count for most in the daily lives of people: namely goodwill, fellowship, sympathy, and social intercourse among the individuals and families who make up a social unit” (Hanifan, 1920 p.79).

In simple terms, however, social capital can be thought of as the links, shared values and understandings in society that enable individuals and groups to trust each other and so work together (Putnam, 2000). Putnam got concerned with the changes in the American society. He argued that while Americans have become wealthier, their sense of community has withered. Cities and traditional suburbs have given way to “edge cities” and “exurbs” – vast, anonymous places where people sleep and work and do little else. As people spend more and more time in the office, commuting to work and watching TV alone, there’s less time for joining community groups and voluntary organizations, and socializing with neighbors, friends and even family.

Brian (2007) defines social capital as networks together with shared norms, values and understandings that facilitate co-operation within or among groups. These networks refer to real-world links between groups or individuals. They comprise

networks of friends, family networks and networks of former colleagues. Put together, these networks and understandings engender trust.

Putnam (2000) brings across the importance of social capital. First, social capital allows citizens to resolve collective problems more easily. People often might be better off if they cooperate, with each doing his/her share. Second, social capital greases the wheels that allow communities to advance smoothly. Where people are trusting and trustworthy, and where they are subject to repeated interactions with fellow citizens, everyday business and social transactions are less costly. Thirdly, the networks that constitute social capital also serve as conduits for the flow of helpful information that facilitates achieving our goals. Social capital finally operates through psychological and biological processes to improve individual's lives hence making enormous difference to our lives.

The present study is on collaborative research which provides for an interaction among two or more researchers. This interaction facilitates the sharing of meaning and completion of tasks with respect to a mutually shared goal. Thus the study borrows heavily from the Social Capital Theory which advances the importance of people working together. The theory further reiterates the importance of goodwill, trust, mutual support, shared language, common beliefs, sense of mutual obligation, shared norms and values for social capital to thrive. The same norms apply to collaborative research whereby people from diverse orientations come together

physically or virtually to find solutions to a common problem through research. Collaboratory research helps build an all-inclusive space where people feel that they get as much as they give from taking part in the exchange of ideas and opinions. Collaboratory research also allows for active participation by the all the concerned players. The use of modern information and communication technologies provides a great recipe for the growth of collaboratory research. The Internet, for example, may help people to connect in the virtual world. The Internet also facilitates social interaction in the real world by providing easy access to relevant information and reducing transaction costs to meet other people in such places as boardrooms and restaurants.

#### **2.14 Research Gaps**

While there exists literature on collaboration between universities and the industry, there is limited mention of existing collaboratory research between LIS faculty and librarians. The challenges encountered in collaboratory research for growing economies like Kenya is also lacking in the reviewed literature. Also, despite the existence of collaboratory research frameworks and models, there is no universally agreed framework. In view of the above, this research aims at exploring the issues surrounding collaboratory research between LIS faculty and librarians in order to determine the existing collaboratory practices, challenges, potential areas of research collaboration and formulate a sustainable collaboratory research framework.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

This chapter explains the methods applied in carrying out this research in-line with the research questions and the stated objectives. It is organized under the following sections: research design, variables, study location, target population, sampling technique and sample size, research instruments, pre-testing, data validity and reliability, data collection techniques, data analysis and logistical and ethical considerations.

#### **3.2 Research Design**

Research design refers to the overall strategy that one can choose to integrate the different components of the study in a coherent and logical way. This ensures that one effectively addresses the research problem. Research design constitutes the blueprint for the collection, measurement, and analysis of data (de Vaus, 2001).

For purposes of this study, a descriptive research design was adopted. Descriptive research design provides the best methods for collecting information to demonstrate relationships and describe the world as it exists (de Vaus, 2001). It presents an opportunity to fuse both quantitative and qualitative data as a means to reconstruct the "what is" of the issue under study. This design therefore enabled the researcher to establish the current status of collaboratory research between faculty members

and librarians in Kenyan universities. Variables relating to the prevailing situation also were analyzed. Descriptive design also helped the researcher to analyze the faculty and librarians' behavior, attitudes, opinions, expectations and perceptions towards collaboratory research.

Data was gathered from sampled informants in the selected institutions using questionnaires, interviews and a bibliometrics analysis of the *African Journal of Library, Archives and Information Science* on collaboration practices and trends between 2012 and 2015. The researcher, together with the research assistants, visited the purposively selected universities and distributed the questionnaires to the intended participants. Face to face interviews were conducted with the chief librarians of the selected universities by the researcher. Finally, the researcher carried out a statistical analysis of all articles published in the above journal for the 2012-2015 period. Data was analyzed by use of quantitative techniques such as percentages. Qualitative techniques were also used.

### **3.2.1 Variables**

In this study, a dependent variable, intervening variables and an independent variable were investigated and their interactions are illustrated in Figure 1.0. They include:

*The Dependent Variable*-This is the variable that depends upon or is a consequence of the independent variable (Kothari, 2004). The dependent variable for this study

is collaboratory research between faculty and librarians. Collaboratory research practice would assist in generation of solutions to problems associated with LIS training and practice. Improvement of LIS training and adoption of the best practices would culminate to an enhanced LIS profession.

*Intervening Variables*-This is a control variable that follows an independent variable but precedes the dependent variable in a causal sequence (Kothari, 2004). The intervening variables in this study include first, the university management support in terms of resources among them research funds, necessary trainings and time-off to conduct research. Second is the professional organizations support through the formation of both local and international networks for LIS professionals. Such networks would provide for joint working forums and interactivity amongst the professionals and this serves as an incubator for collaborative opportunities. The third intervening variable is the individual commitment. The individual players must demonstrate full commitment to the entire process if the collaborative effort is to thrive and grow. This includes commitment to adhere to timelines, sharing of knowledge and willingness to undertake responsibility among others. All these together have the ability to influence the uptake levels of the collaboratory research practice.

*Independent Variables*-These are the variables that are antecedent to the dependent variable (Kothari, 2004). In this study, independent variables included:

*Faculty and librarians perception of collaboratory research*-This describes the perceptions amongst faculty and librarians on the collaboratory research ability to provide solutions to some of the challenges affecting the LIS profession

*The existing practices amongst faculty and librarians*-This describes the collaboratory research practice amongst LIS faculty and librarians focusing the nature in which these members of the LIS profession have been going about their research agendas including the efforts they have put in place towards collaboratory research practice.

*Management of challenges associated with collaboratory research*-This describes the strategies that have been put in place to deal with the handles encountered in pursuit of collaboratory research. How well these challenges are perceived and dealt with have a great influence on the collaboratory research practice.

*Collaboratory research implementation frameworks*-This describes the strategies being put in place in the implementation of collaboratory research. The comprehensiveness and inclusivity of the adopted strategies has a great impact on collaboratory research practice.

### **3.3 Location of the Study and Inclusion Criteria**

According to the Commission for University Education, there are 32 public and private universities operating in Kenya (<http://www.cue.or.ke/>, 2015). Out of these,

12 (10 public and two private) of them offer degrees in library and information science as indicated by Kenya Universities and Colleges Central Placement Service (<http://kuccps.net/>, 2015). For the purposes of this study, only six institutions namely Moi University, Kenyatta University, University of Nairobi, Technical University of Kenya, Egerton University and Kenya Methodist University were studied. These universities qualified for selection for they have been running library and information science programs for over five years. Those universities whose charters were awarded recently or have been satellite campuses for the selected universities were excluded from the study.

### **3.4 Target Population**

The target population constituted 61 LIS faculty members, 6 chief librarians and 76 librarians in the selected universities giving a total of 143 subjects. LIS faculty only included full-time teaching staff members from the level of an assistant lecturer/tutorial fellow and above based at the respective main campuses of the selected universities. Librarians comprised practitioners based at the selected universities main campuses' libraries in possession of graduate degrees and above. Holders of graduate degrees undergo mandatory training in research methodology to equip them with adequate skills to conduct research. The population profile is indicated in Table 3.1.

*Table 3.1: Target Population Profile*

S/No.	University	No. of LIS Faculty (Main Campus)	No. of Librarians (Main Campus)	Chief Librarian (Main Campus)	Total
1.	Moi University	27	17	1	45
2.	Kenyatta University	12	11	1	24
3.	University of Nairobi Technical	7	18	1	26
4.	University of Kenya	5	4	1	10
5.	Egerton University	5	15	1	21
6.	Kenya Methodist University	5	11	1	17
	<b><u>Total</u></b>	<b><u>61</u></b>	<b><u>76</u></b>	<b><u>6</u></b>	<b><u>143</u></b>

*Source: Universities' Current Strategic Plan Documents, 2015*

### **3.5 Sampling Technique and Sample Size**

Considering the small size of the population, the geographic distribution of the institutions and their accessibility, all the identified faculty members and the librarians in the selected institutions in Table 3.1 were considered as informants in this study.

### **3.6 Research Instruments**

The researcher made use of questionnaires, interview schedules and bibliometrics analysis as the key research instruments in this study.

### **3.6.1 Questionnaires**

Questionnaires have been defined as “devises for securing answers to questions using a form which the respondent fills in himself or herself” (Dwivedi, 2001). A standard questionnaire was designed to be filled by the faculty members and the librarians of the selected universities (Appendix II). This was necessitated by the fact that the researcher sought for the same information from these two categories of staff in the LIS profession. This questionnaire, comprising both open and close-ended questions, helped gather information about the perception and collaboratory research practices among LIS faculty and librarians. The questionnaire also helped gather information on the potential and challenges of collaboratory research, the priority areas for research and helped probe the way forward. Making follow-ups/reminders using phone calls and actual visits (providing other copies of the questionnaire) greatly increased the response rates.

Questionnaires were preferred for this study because they are familiar to most people and are less intrusive than telephone or face-to-face surveys. According Panton (1990), nearly everyone has had some experience completing questionnaires and they generally do not make people apprehensive. The researcher hence found the questionnaire to be an appropriate and effective tool for this study.

A total of 137 questionnaires were distributed. This comprised 61 questionnaires distributed to faculty members and 76 questionnaires distributed to the librarians.

### **3.6.2 Interviews**

Interviews are conducted orally either face-to-face or through telephone conversations. They are essentially conversations between the evaluators and their respondents (Patton, 1990). The researcher had targeted to conduct interviews with the six chief librarians of the selected universities using a predefined schedule (Appendix III). The schedule was meant to enhance consistency and enable the researcher to adequately cover all the desired areas of interest in the study. The researcher managed to interview four of the six chief librarians. This was because two chief librarians were away from the universities during the time of study and efforts to organize for interview sessions with the duo were futile. The interviews with the chief librarians of the selected universities helped the researcher explore the librarians' research trends as well as establish the overall feeling and attitude of the librarians in regards to collaboration with their faculty colleagues.

Interviews were found equally appropriate for this study for they enhance interpersonal contacts. Interviews also gave the researcher an opportunity to follow-up on interesting comments, establish rapport with the respondents, observe as well as listen, while allowing more complex questions to be asked.

### **3.6.3 Bibliometrics**

Swain et al., (2013) define bibliometrics as a study of the process of information use by analyzing the characteristics of documents and their distribution by

statistical methods. Bibliometrics is therefore promising research area for the role it plays in the areas of research evaluation, study of scientific publications' output, and scientific research assessment through quantitative studies on research publications. Bibliometrics also promise to divulge scholarly communication trends and publication traits of an individual journal. The researcher found this tool important particularly in establishing the collaboratory research practices, patterns and trends between LIS faculty members and librarians in Kenya. The researcher therefore sought for a publication outlet within the region and settled on *African Journal of Library, Archives and Information Science* which has been in existence since the year 2002. The journal is published twice a year, in April and October.

African Journal of Library, Archives and Information Science was established mainly to provide a forum for librarians, archivists, documentalists, information scientists and other information related professionals in Africa to report their research findings but with emphasis on African setting. The journal is refereed by distinguished scholars. Emphasis is on empirical research; however, manuscripts of high quality on theoretical aspects of the three information related disciplines are also considered for publication.

The researcher conducted a bibliometrics analysis of 55 articles appearing in the journal's eight issues between 2012 and 2015. The aim of the analysis was first to establish the research publication output in the region. Secondly, the researcher

analyzed the authorship and classified single-authored and multiple-authored publications within the period. Finally the researcher analyzed the author affiliations for the multiple-authored publications in order to establish the collaboration levels between the different members of the LIS profession.

### **3.7 Pretesting**

Prior to the main data collection, the researcher conducted a pretest of the research instruments and the methods of analysis. This, according to Leddy (2001), serves as an excellent way to determine the feasibility of a study. A total of 12 respondents (1 chief librarian, 6 librarians and 5 lecturers) from two universities offering LIS degree programs and have libraries at their main campuses were considered. These included the Massai Mara and the Laikipia universities. Data collected from the pretesting exercise was then analyzed using descriptive statistical analysis.

Results from the pretesting helped to test vagueness in the questions, helped to find out how long it would take to fill in the questionnaire/conduct the interview and helped establish the usefulness of the contents. Analysis of the responses to the question on the number of times one has participated in collaboratory research in the initial questionnaire proved not to be of additional value due to the fact that there is another question on the frequency of collaboratory practice. The researcher subsequently removed the question from the final questionnaire. Also introduced in the questionnaire after pretesting was the question on the reasons for non-

participation in collaboratory research. The researcher found this necessary after it emerged that a significant percentage of the pretested subjects confirmed non-participation. The question helped to identify the areas that require improvement for collaboratory research to thrive. The data collection instruments were then adjusted accordingly.

### **3.7.1 Validity**

According to Cooper and Schindler (2003), there are two forms of validity: external validity and internal validity. External validity refers to the ability of the research findings data to be generalized across persons, institutions, settings and even times. Internal validity refers to the ability of the research instrument to measure what it is purposed to measure. For this study, the researcher was concerned with research instruments validity. The researcher was able to achieve internal validity by ensuring that the data collection instruments adequately covered all the areas under study. This was further affirmed through evaluation and scrutiny by experts in the fields of information sciences and research methodology from the LIS department of Kenyatta University. The research instruments were further improved by pretesting them at Massai Mara and Laikipia universities.

### **3.7.2 Reliability**

Reliability of a measurement instrument refers to the extent to which it's capable of yielding consistent results when characteristics being measured have not

changed (Leddy, 2001). Reliability testing can take various forms among them inter-rater reliability, internal consistency reliability, equivalent forms reliability and test-retest reliability (Leddy, 2001).

This study adopted inter-rater method to measure the similarity of responses from the pretest. A simple similarity percentage index was computed after a random comparison of the pairs of responses. A similarity index of 92% was achieved and this is acceptable.

### **3.8 Data Collection Techniques**

The data for this study was collected from the identified subjects listed in Table 3.1. The researcher, with the help of two research assistants, visited the said institutions' main campuses for the administration of the questionnaires. The researcher worked with the departmental administrative staff to contact and even the distribute the questionnaires to the faculty members. The administrative staff in the chief librarians' offices helped to identify and contact the librarians within their libraries besides helping in the distribution of the questionnaires. The researcher although maintained contacts via email and telephone conversations with the administrative staff members in all the selected universities for the sake of monitoring the progress. This monitoring went on until the researcher got satisfied that all the subjects have been reached or a substantive percentage of them to ensure reliability

of the research results. Thereafter, the same channels used to distribute the questionnaires were followed during the collection of the filled-in questionnaires.

A total of 121 out of 137 questionnaires were filled in and returned reflecting 88% overall response rate. This comprised 51 questionnaires out of 61 distributed to faculty members reflecting 83% response rate and 70 questionnaires out of 76 distributed to the librarians reflecting a 92% response rate.

During the visits, the researcher further organized and booked interviews with the chief librarians. As indicated earlier in this report, this was only possible with four chief librarians out of the six initially targeted. Two chief librarians were away from their work stations during the study period and efforts to organize for interview sessions with the duo were futile. This therefore gave 66% response rate. Two of the chief librarians allowed the researcher to do an audio recording of the interview. The researcher took notes in the other two interview sessions.

The researcher further conducted a bibliometrics analysis of 55 articles appearing in *African Journal of Library, Archives and Information Science* eight issues between 2012 and 2015. This information was found critical to supplement the information provided by the respondents particularly on collaborative research practice, trends and patterns.

### **3.9 Data Analysis**

Prior to analysis of the data collected, all the questionnaires were scrutinized for completeness. This was followed by coding and recording of the data by themes as reflected in the questions. Descriptive statistical analysis method was adopted in order to describe the results obtained. Descriptive statistics were useful in summarizing groups of data using a combination of tabulated description (i.e., tables), graphical description (i.e., graphs and charts) and statistical commentary (i.e., a discussion of the results). For qualitative data from the interviews and the open ended questions in the questionnaires, content analysis was carried out. This involved categorization of verbal data for purposes of classification, summarization and tabulation. This helped to make sense of the data collected and to highlight the important messages, features or findings. Microsoft Excel and Statistical Package for Social Scientists (SPSS, Version 21) were used to aid in the analysis.

### **3.10 Logistical and Ethical Considerations**

Conducting research of this nature required authorization from the relevant bodies. The researcher first sought permission to collect data from the Graduate School of Kenyatta University, a request that was granted through the letter appearing as appendix VI. The researcher then sought permission to carry out research from the National Council for Science and Technology (NACOSTI). This was done through an official application as provided for in the NACOSTI official website, provision of the necessary documentation and payment of the requisite fees. The research

permit was granted forthwith and appears as appendix VII. Subsequently, the researcher went further to seek for permission to conduct research from all the selected universities by writing to the authorized university officials. The permission was also granted by the six universities and the requisite approvals appear as appendix VIII.

Ethics in research spell out the principles of academic integrity and honesty, and respect for other people (Leddy, 2001). To realize this, the researcher has, throughout this document, continued to acknowledge the use of other peoples' works to maintain academic honesty and integrity.

The researcher, through a consent/introduction letter (Appendix I) provided all the information about the research to the subjects. This letter clearly explained why and how they have been chosen to participate, before seeking their consent to participate in which case they were free to decide. The participants were also informed of their right to withdraw from the study at any time. The researcher informed the participants of his intention to share the research results with the participating institutions for implementation purposes.

The researcher ensured that the responses from all the participants were treated with utmost confidentiality. At no circumstances were the research findings presented in such a way that others may become aware of how any of the participants responded or behaved. Lastly, the researcher herein reports the findings in a complete and

honest way. This is without misrepresenting what was found out, or intentionally misleading others as to the nature of the findings. Under no circumstances has the researcher fabricated data to support any conclusion no matter how seemingly noble that conclusion may be.

## **CHAPTER FOUR**

### **FINDINGS, INTERPRETATION AND DISCUSSIONS**

#### **4.1 Introduction**

In this chapter, research findings were presented, interpreted and discussed. The analysis was guided by the research objectives including: the respondents' perception of collaboratory research, collaboratory research practices, potential and challenges of collaboratory research. Also studied were priority areas for collaboratory research in Library and Information Science (LIS) and an exploration of most viable way in which collaboratory research in the LIS profession can be promoted now and in future. Descriptive statistical analysis method was adopted in order to describe the results obtained. Descriptive statistics were useful in summarizing groups of data using a combination of tabulated description (i.e., tables), graphical description (i.e., graphs and charts) and statistical commentary (i.e., a discussion of the results). For qualitative data from the interviews and the open ended questions in the questionnaires, content analysis was carried out.

#### **4.2 Response Rates**

The study targeted a total of 143 respondents among them 61 faculty members, 6 chief librarians and 76 librarians from six selected universities. 137 questionnaires therefore were distributed to the 61 faculty members and 76 librarians. The overall response to the questionnaires is presented in Table 4.1.

*Table 4.1: Questionnaire Response Rate*

<b>CATEGORY</b>	<b>DISTRIBUTED</b>	<b>RETURNED</b>	<b>PERCENT</b>
Faculty	61	51	84
Librarian	76	70	92
<b>OVERALL</b>	<b>137</b>	<b>121</b>	<b>88</b>

*Source: Field Data*

A total of 121 out of 137 questionnaires were filled in and returned reflecting 88% overall response rate. This comprised 51 questionnaires out of 61 distributed to faculty members reflecting 83% response rate and 70 questionnaires out of 76 distributed to the librarians reflecting a 92% response rate. Four of the six chief librarians were interviewed giving a 66% response rate.

The researcher considered the overall response rate to be acceptable for it exceeds the 52.7% response rate recommended by Baruch & Holtom (2008).

For the purposes of this study, the 51 faculty members and the 70 librarians who responded to the questionnaires are identified using code F1-F51, and code L1-L70 respectively while the four chief librarians who were interviewed have been assigned code CL1-CL4.

### **4.3 General and Demographic Information**

The researcher sought to establish the academic positions of the faculty members from the selected universities. The details are presented in Table 4.2.

**Table 4.2: Academic Positions-Faculty**

<b>ACADEMIC POSITION</b>	<b>FREQUENCY</b>	<b>PERCENT</b>
Professor	0	0
Associate Professor	2	4
Senior Lecturer	6	12
Lecturer	35	69
Assistant Lecturer	8	16
<b>Total</b>	<b>51</b>	<b>100</b>

*Source: Field Data*

From those who responded, two (4%) were associate professors, six (12%) hold the position of senior lecturers, 35 (69%) were lecturers while 8 (16%) hold the position of assistant lecturers. The researcher found this information pertinent particularly in the establishment of the research practices amongst the LIS professionals in Kenya.

The researcher also sought to establish the education levels of the respondents. The results are presented in Table 4.3.

**Table 4.3: Education Levels**

<b>CATEGORY</b>	<b>EDUCATION LEVEL</b>				<b>Total</b>	
	<b>PhD</b>		<b>Master Degree</b>			
	Count	%	Count	%	Count	%
Faculty	25	49	26	51	51	100
Librarian	3	4	67	96	70	100

*Source: Field Data*

For the faculty members, 25 (49%) of them were PhD holders while 26 (51%) processed master degrees. For the librarians, 3 (4%) possessed doctorate degrees while 67 (96%) possessed master degrees. Research skills are to a large extent acquired at graduate levels and therefore the researcher considered information on the levels of education of the respondents critical for this study. As evident from results, all the respondents according to the researcher got the skills necessary to conduct scholarly research. Also, all the chief librarians interviewed hold doctorate degrees.

#### 4.4 Contribution of Research to LIS Discipline

The researcher also sought to establish the respondents' opinion on the contribution of research to the development of the LIS discipline. When asked "research is critical for the development of any discipline LIS not an exception", the responses were as presented in Table 4.4.

*Table 4.4: Importance of Research to LIS Discipline*

CATEGORY	RESEARCH IMPORTANCE						Total	
	Strongly Disagree		Agree		Strongly Agree			
	COUNT	%	COUNT	%	COUNT	%	COUNT	%
Faculty	10	20	14	27	27	53	51	100
Librarian	8	11	10	14	52	74	70	100

*Source: Field Data*

As evident from the results, 27 (53%) of the faculty members strongly agreed and 14 (27%) agreed that research is critical for the development of the LIS discipline.

However 10 (20%) of the faculty members strongly disagreed with the sentiment that that research is critical for the development of the LIS discipline. For the librarians, 52 (74%) strongly agreed and 10 (14%) agreed that research is critical for the development of the LIS discipline while 8 (11%) of the librarians strongly disagreed with the sentiment that that research is critical for the development of the LIS discipline.

All the chief librarians interviewed were of the opinion that research is critical to the development of the LIS discipline. One of the chief librarians (CL2) indicated that *“research is a key ingredient to the growth of our profession”* while another (CL2) one said *“it is the only way out of the persistent challenges facing the LIS profession”*. This is consistent with views of Verzosa (2007) who did a study on *Research in Librarianship: Challenges, Competencies, and Strategies* in the Philippine. She concluded that research has an important role in understanding the needs to which LIS professionals should be responsive and noted that librarians need to conduct research in order to better assess the effectiveness of their approaches to delivering library services. She further added that librarians and other LIS professionals, including the agencies responsible for educating them, and their employing institutions, should be more attentive to such a critical activity as library research.

It is therefore evident from this findings that faculty members and librarians as well are cognizant of the value of research to any discipline, LIS profession not an exception. This means that both at individual and institutional levels, efforts should be geared towards promoting research activities for the benefits of the development of the LIS profession.

The researcher further probed the respondents on the frequency at which both faculty and librarians in the selected universities conduct research and publish the findings. The results are presented in Table 4.5.

**Table 4.5: Research Frequency**

Category	Participation in Research										Total	
	Never		Rarely		Not Sure		Often		Very Often		Count	%
	Count	%	Count	%	Count	%	Count	%	Count	%		
Faculty	3	6	17	33	1	2	24	47	6	12	51	100
Librarian	0	0	22	31	2	3	46	66	0	0	70	100

*Source: Field Data*

As evident from the results, 6 (12%) and 24 (47%) faculty members confirmed that they conduct research very often and often respectively. However, 3 (6%) and 17 (33%) confirmed that they never or rarely conducted research respectively while 1(2%) faculty member was not sure that they conduct research or not. For the librarians, none of the respondents said that they conduct research very often. However 46 (66%) confirmed they often conduct research. While none of the

librarians has never conducted research, 22 (31%) rarely conduct research while 2 (3%) were not sure if they ever conduct research or not.

Overall, only 63% of the faculty members and librarians in the selected universities often conduct research while the remaining 37% never, rarely or are not sure if they conduct research or not. This raises a red flag on the LIS research productivity in the region although there seems to be some slight improvement compared to what Erfanmanesh, Didegah and Omidvar (2010) had earlier found out. In their study on *Research productivity and impact of Library and Information Science in the Web of Science* the authors concluded that many of the LIS professionals do not engage in research. They found a decrease in the number of LIS research publication in three consecutive years.

The researcher further found it necessary to examine the research output particularly in the African region by conducting bibliometrics of the *African Journal of Library, Archives and Information Science* eight issues published between 2012 and 2015 shown in Table 4.6.

*Table 4.6: LIS Research Output*

<b>AFRICAN JOURNAL OF LIBRARY, ARCHIVES AND INFORMATION SCIENCE PUBLICATION ARTICLES 2012-2015</b>				
<b>S/NO.</b>	<b>ISSUE</b>	<b>NO. OF ARTICLES</b>	<b>SINGLE AUTHORED ARTICLES</b>	<b>MULTIPLE- AUTHORED ARTICLES</b>
1	VOL. 22 NO. 1/2012	7	4	3
2	VOL. 22 NO. 2/2012	6	5	1
3	VOL. 22 NO. 1/2013	6	2	4
4	VOL. 22 NO. 2/2013	7	3	4
5	VOL. 22 NO. 1/2014	8	2	6
6	VOL. 22 NO. 2/2014	8	3	5
7	VOL. 22 NO. 1/2015	7	3	4
8	VOL. 22 NO. 2/2015	6	3	3
<b>TOTAL</b>		<b><u>55</u></b>	<b><u>25</u></b>	<b><u>30</u></b>
<b>% OF THE TOTAL</b>			<b>45%</b>	<b>55%</b>

*Source: African Journal of Library, Archives and Information Science*

Overall there were only 55 articles that were published during the period. These statistics further serve as indicators of the low LIS research output even at local levels. This serves as a wake-up call for the members of the LIS profession to reconsider their positions as far as LIS research is concerned else the future prospects of the profession may be compromised.

#### **4.5 Familiarity with Collaboratory Research**

The researcher sought to establish the respondents' familiarity levels with the concept of collaboratory research. These results are presented in Table 4.7.

**Table 4.7: Familiarity Levels with Collaboratory Research**

Category	Familiarity with Collaboratory Research										Total	
	Completely Unfamiliar		Unfamiliar		Not Sure		Familiar		Very Familiar			
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Faculty	5	10	5	10	2	4	28	55	11	21	51	100
Librarian	2	3	4	6	0	0	47	67	17	24	70	100

*Source: Field Data*

As evident from the results, 11 (21%) and 28 (55%) of the faculty members confirmed they are very familiar and familiar with the concept of collaboratory research respectively. 5 (10%) and another 5 (10%) said they are completely unfamiliar and unfamiliar with this concept respectively. Two (4%) of the faculty members said they were not sure of what collaboratory research is all about. Seventeen (24%) and 47 (67%) of the librarians said they are very familiar and familiar with the concept respectively. 2 (3%) and 4 (6%) of the librarians said they were completely unfamiliar and unfamiliar with this concept respectively.

Overall it is evident that the concept of collaboratory research is not new amongst the LIS professionals in Kenya. This was important to the study as unfamiliarity with the concept would have made it difficult for the researcher to unravel the issues of interest in this study, which revolve around collaboratory research. All the chief librarians interviewed also confirmed that they are their familiar with the concept of collaboratory research.

With an overwhelming familiarity with the concept of collaboratory research amongst faculty and librarians, the question that arises is about the individual and institutional efforts being put in place to promote the practice. These are the issues being pursued in this study.

#### 4.6 Perception of Collaboratory Research

The researcher sought to find out the respondents opinions on the ability of collaboratory research to address some of the challenges facing the LIS profession. When asked whether “Collaboratory research has the ability to address some of the many challenges facing LIS profession”, the results were as presented in Table 4.8.

*Table 4.8: Collaboratory Research as a Solution to LIS Challenges*

Category	Collaboratory Research as a Solution to LIS Challenges								Total	
	Strongly Disagree		Not Sure		Agree		Strongly Agree			
	Count	%	Count	%	Count	%	Count	%	Count	%
Faculty	11	22	2	4	23	45	15	29	51	100
Librarian	6	9	3	4	33	47	28	40	70	100

*Source: Field Data*

As evident in the results, 15 (29%) and 23 (45%) of the faculty members strongly agreed and agreed respectively that collaboratory research has the ability to provide solutions to some of the many challenges facing the LIS profession. Eleven (22%) of the faculty members however strongly disagreed with the sentiment that collaboratory research has the ability to provide solutions to some of the many challenges facing the LIS profession while 2 (4%) were not sure if collaboratory

research can help solve problems facing the LIS profession. Twenty eight (40%) and 33 (47%) of the librarians strongly agreed and agreed respectively that collaboratory research has what it takes to address some of the many challenges facing LIS profession. Six (9%) of the librarians strongly disagreed that collaboratory research has the ability to provide solutions to some of the many challenges facing the LIS profession while 3 (4%) were not sure whether collaboratory research has the ability to provide solutions to some of the many challenges facing the LIS profession.

The researcher also sought the chief librarians' opinion on the collaboratory research's ability to address some of the many challenges facing LIS profession. All the four (100%) chief librarians interviewed were in agreement with the sentiment. One of them (CL2) was quoted as saying "*this is long overdue, it ought to have been embraced since the beginning of time*". Another chief librarian (CL4) said "*the members of the faculty need to come out of their hiding dens and join us in this effort*". This chief librarian went further to state that at personal level he has been trying to reach out to the faculty members in their university though the response and the progress has been slow.

This finding is consistent with Sonnenwald (2005) who observed that collaboration has the potential to solve complex scientific problems and promote various

political, economic, and social agenda such as democracy, sustainable development, and cultural understanding and integration.

A positive perception by both faculty and librarians on the ability of collaboratory research to address some of the challenges facing the LIS profession serves as an indicator of the value these members of the LIS professionals have on cooperative efforts. This finding demonstrate that by reaching out to colleagues it is possible to deal with any of the problems affecting the profession and hence boost the profession’s prospects. The concerned institutions therefore have a duty to provide an enabling environment for collaboratory research to thrive.

#### 4.7 Collaboratory Research Practices

The researcher also sought to establish the existing collaboratory research practice between LIS faculty and librarians. The results are presented in Table 4.9.

**Table 4.9: Collaboratory Research Practice**

CATEGORY	Participation in Collaboratory Research				Total	
	NO		YES		COUNT	%
	COUNT	%	COUNT	%		
Faculty	24	47	27	53	51	100
Librarian	24	34	46	66	70	100

*Source: Field Data*

Only 27 (53%) of the faculty members said to have participated in collaboratory research while 24 (47%) said they have not. Forty six (66%) of the librarians on the

other hand said to have participated in collaboratory research while 24 (34%) are yet to be involved in any form of collaboratory research.

Overall, about 60% of the respondents have so far participated in collaboratory research. Also all the four (100%) of the chief librarians interviewed confirmed that they have engaged in some form of research collaboration.

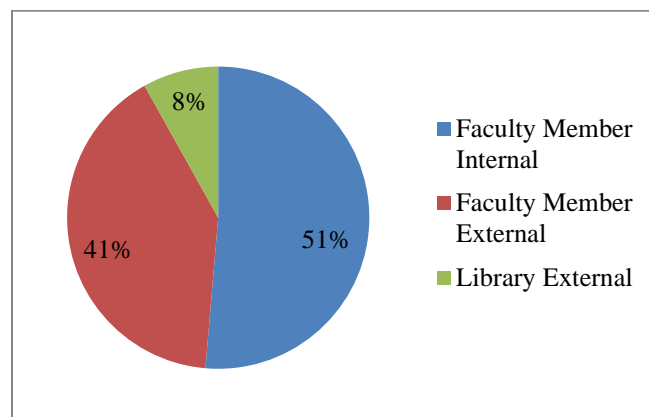
The researcher carried out a further probe on collaboratory research practice particularly in Africa. This was done through bibliometrics of the *African Journal of Library, Archives and Information Science* articles between 2012 and 2015 and the results presented in Table 4.6. Of the 55 articles, 25 (45%) were single authored while 30 (55%) had multiple authors emanating from collaborative research efforts. The findings from this study therefore indicate some slight increase in collaboratory research output from 55% to 60%. There is also evidence of an upward rise in collaboratory efforts when compared with the research findings by Onyancha (2007) which showed that collaborative research output in Kenya and the rest of sub-saharan Africa being relatively low in the library and information profession. Onyancha had found out that, of the sampled publications, 63% had been single-authored while 37% had two, three or four authors.

Though the collaboratory research practice among faculty and librarians is still at considerably low levels, this study can confirm that there is gradual improvement compared to the situation there before as evident from a number of studies cited

above. This could be attributed to the continued realization by the members of the LIS profession of the value of collaboratory research and also the increased and changing demands for LIS teaching and practice.

#### **4.8 Collaboratory Research Partners**

The researcher went further to probe on the collaboratory research partners from those who have participated in collaboratory research. Figure 4.1 provides the collaboratory research partners for the 27 faculty members who have participated in collaboratory research as indicated in Table 4.9 earlier in this report.



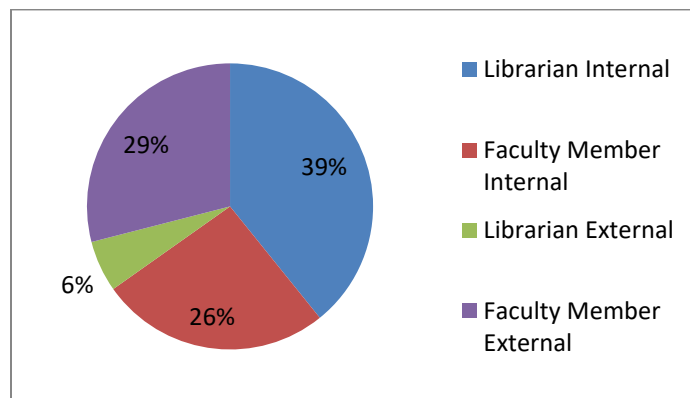
***Figure 4.1: Collaboratory Research Partners-Faculty***

*Source: Field Data*

Fourteen (51%) members of the faculty indicated fellow faculty members as their collaboratory partners while 11 (41%) said to have collaborated with faculty members outside their universities. Only 2 (8%) members of the faculty said they

have had librarians as their collaboration partners who in this case happen to be from libraries outside their universities. Overall, 92% of the faculty members who have engaged in collaboratory research have done so with fellow members of the faculty.

Figure 4.2 provides collaboratory research partners for the librarians. As indicated in Table 4.9, only 46 librarians have participated in collaboratory research.



**Figure 4.2: Collaboratory Research Partners-Librarians**

*Source: Field Data*

Of these, 19 (39%) of the librarians indicated that they have engaged fellow librarians within their libraries for collaboratory research projects. 12 (26%) said they have collaborated with members of the faculty within their universities for research and 13 (29%) have collaborated with faculty members outside the universities. Only 3 (6%) of the librarians have engaged librarians outside their universities in collaboratory research. Overall, 55% of the librarians confirmed that

they have engaged faculty members for collaborative research projects while 45% have only collaborated with fellow librarians.

While there have been considerable efforts by librarians to engage faculty members for collaborative research, there has been minimal efforts by faculty members to reach out to librarians for collaborative work as it is evident from this study. A further probe done through bibliometrics of the *African Journal of Library, Archives and Information Science* articles between 2012 and 2015 revealed significantly low collaborative efforts between faculty and librarians as evident in Table 4.10.

*Table 4.10: Collaboratory Research Partners*

AFRICAN JOURNAL OF LIBRARY, ARCHIVES AND INFORMATION SCIENCE 2012-2015							
YEAR	ARTICLE	NO. OF AUTHORS	FACULTY ONLY	LIBRARIANS ONLY	PRACTITIONERS ONLY	FACULTY & LIBRARIAN	FACULTY & PRACTITIONER
2012	1	3	YES				
	2	2	YES				
	3	3		YES			
	4	2			YES		
2013	1	2				YES	
	2	2				YES	
	3	3	YES				
	4	2		YES			
	5	2	YES				
	6	3				YES	
	7	2				YES	
	8	2			YES		
2014	1	2	YES				
	2	3	YES				
	3	2	YES				
	4	3				YES	
	5	2	YES				
	6	3	YES				
	7	2	YES				
	8	2	YES				
	9	2					YES
	10	3		YES			
	11	2		YES			
2015	1	3		YES			
	2	2		YES			
	3	2		YES			
	4	2				YES	
	5	4	YES				
	6	2	YES				
	7	2				YES	
<b>TOTAL</b>	<b>30</b>		<b>13</b>	<b>7</b>	<b>2</b>	<b>7</b>	<b>1</b>
<b>%</b>	<b>100%</b>		<b>43%</b>	<b>23%</b>	<b>7%</b>	<b>23%</b>	<b>3%</b>

Of the 30 multiple authored publications 13 (43%) have been a collaboration between members of the faculty alone while 7 (23%) were as a result of collaborative efforts between librarians alone. Only 7 (23%) of the articles were found to have been authored by faculty members in collaboration with librarians, while 2 (7%) had been authored by practitioners alone and 1 (3%) had been authored by a faculty member in collaboration with a practitioner. These results demonstrate on slight improvement compared with the results of a study by Amabile et. al. as quoted by Winston and Williams (2003). They had found out that only 4% of the articles published in *Academy of Management Journal* and less than 1% of the articles published in *Administrative Science Quarterly* listed academics and librarians as co-authors. Similar sentiments were echoed by Ponti (2008) while studying the working relationship between LIS faculty and librarians. Ponti found out that knowledge sharing and collaboration between the faculty and librarians is still insufficient owing to their different areas of interests and professional commitments. On the one hand, faculty members are often required to work within the framework that guide on the ward of grants and these may have political inclinations that may not benefit the librarians. On the other hand, librarians may have research preference in areas touch on staff, use of ICT, and procedure and service improvements which can be solved using general management procedures without need for new knowledge generated through research.

While this finding acknowledges existence of collaboratory research efforts within the LIS profession, it is worth noting however that collaboration has to a great extent only happened amongst colleagues. The researcher established during the study while interacting with some of the librarians that there exists wide gaps between these two groups to an extent that they feel like they belong to different professions. This therefore serves as a wakeup call particularly to the LIS professional organizations to upscale their efforts in bringing together and unifying the members of their profession. Such interactions would serve as incubators for collaborative efforts.

#### **4.9 Non-Participation in Collaboratory Research**

The researcher also went further to establish the probable reasons behind non-participation in collaboratory research. The results are presented in 4.11 for faculty members.

**Table 4.11: Reasons for Non-Participation in Collaboratory Research-Faculty**

Reasons for Non-Participation	YES		NO		TOTAL	
	Count	%	Count	%	Count	%
Little awareness of the practice	8	33	16	67	24	100
Low interaction levels between faculty and librarians	15	63	9	38	24	100
Feeling that research is a reserve for the faculty	1	4	23	96	24	100
Absence of working forums among faculty and librarians	15	63	9	38	24	100
Cost implications	2	8	22	92	24	100
Lack of time	4	17	20	83	24	100
Absence of willing partners	5	21	19	79	24	100
Intellectual ownership	2	8	22	92	24	100
Absence of university support	14	58	10	42	24	100

*Source: Field Data*

Faculty members cited low interaction levels between faculty and librarians and absence of working forums among faculty and librarians as major hindering factors to collaboratory research both of which they gave a 63% rating. Absence of university support received a 58% rating while little awareness of the practice got a 33% rating. Absence of willing partners received a 21% rating; lack of time received a 17% rating while cost and intellectual ownership issues received 8% rating each. Feeling that research is a reserve for the faculty only received a 4% rating. A certain faculty member (F23) indicated that “*there is lack of commitment amongst the two groups* while another (F2) one said “*that there is pesistent lack of incentives for research*”.

The same question on the reasons for non-participation in collaboratory research was posed to the librarians and the results are presented in Table 4.12.

**Table 4.12: Reasons for Non-Participation in Collaboratory Research-Librarians**

Reasons for Non-Participation	YES		NO		TOTAL	
	Count	%	Count	%	Count	%
Little awareness of the practice	6	26	17	74	23	100
Low interaction levels between faculty and librarians	15	65	8	35	23	100
Feeling that research is a reserve for the faculty	3	13	20	87	23	100
Absence of working forums among faculty and librarians	9	39	14	61	23	100
Cost implications	6	26	17	74	23	100
Lack of time	7	30	16	70	23	100
Absence of willing partners	6	26	17	74	23	100
Intellectual ownership	2	9	21	91	23	100
Absence of university support	11	50	11	50	22	100

*Source: Field Data*

Librarians also on the other hand cited low interaction levels between faculty and librarians as a major hindering factor to collaboratory research with a 65% rating. This was followed by absence of university support that received a 50% rating while absence of working forums among faculty and librarians received a 39% rating. Lack of time received a 30% rating. Little awareness of the practice, absence of willing partners and cost received 26% rating each while feeling that research is a reserve for the faculty received a 13% rating. Intellectual ownership issues only received 13% rating. The results are presented in. A certain librarian (L6) added that “*librarians always bear heavy workloads*

*hence leaving them with no time to conduct research”* while another librarian (L64) complained that *“there lacks formal structures for collaborative research”*.

These results are in tandem with what a number of authors including Bos, et.al. (2007), Powell et al., 2002, Mcnicol, 2004, Erfanmanesh et al., 2010 & Ocholla, 2012 have fronted as the probable reasons behind non-participation in collaborative research in the LIS profession. Their conclusions point to low interaction levels and absence of working forums.

It is worth noting that despite high familiarity levels and a positive perception on the abilities of collaborative research, there still exists major individual and institutional bottlenecks that have contributed to the low uptake of the practice. It is important therefore for the key players in the LIS profession in this case, the universities, the libraries and the professional organizations such as the Kenya Library Association to upscale their efforts in allowing for increased interaction, increased working forums and resource support to enable collaborative efforts to thrive amongst all members of the LIS profession.

#### **4.10 Benefits of Collaboratory Research**

The study also sought to establish the potential benefits of collaborative research to the LIS profession. Respondents were given an opportunity to indicate the extent to which they agreed or disagreed with statements describing the benefits of

collaboratory research. The results are presented in Table 4.13 for faculty and Table 4.14 for the librarians.

**KEY: SD-Strongly Disagree, D-Disagree, M-Moderate, A-Agree & SA-Strongly Agree**

**Table 4.13: Benefits of Collaboratory Research-Faculty**

Benefits of Collaboratory Research	SD		D		M		A		SA		TOTAL	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Basis for curriculum development, review and teaching	2	4	2	4	7	14	23	45	17	33	51	100
Provides intellectual companionship within practicing communities	0	0	0	0	6	12	17	33	28	55	51	100
Allows cross-fertilization of ideas	0	0	0	0	4	8	14	27	33	65	51	100
Enables sharing of skills and techniques	0	0	0	0	2	4	20	39	29	57	51	100
Enhances the productivity	0	0	0	0	2	4	15	30	33	66	50	100
Intellectual growth	0	0	0	0	1	2	18	37	30	61	49	100
Discovery of new knowledge and new areas of applied research	0	0	0	0	7	14	18	36	25	50	50	100
Boost librarians' research	0	0	0	0	9	19	19	40	20	42	48	100
Enhances the research and leadership competencies of librarians	0	0	0	0	12	25	17	35	19	40	48	100
Encourages research and publication	0	0	4	8	2	4	15	30	29	58	50	100
Building cohesive relationships between faculty and librarians	0	0	0	0	5	10	23	47	21	43	49	100

*Source: Field Data*

A significant majority of the faculty members strongly agreed and agreed that collaboratory research can provide a basis for curriculum development and teaching, allows for intellectual companionship, allows cross-fertilization of ideas, enables sharing of skills and techniques, serves as an incubator for professional development, serves as a basis for problem solving, provides access to new and innovative ideas, provides access to network of people from a wide range of LIS related organizations besides contributing to knowledge. Only a few of the faculty members moderately, disagreed and strongly disagreed with the above statements. A certain faculty member (F16) added that “*collaboratory research has the ability to bring about collaborative learning*” While another one (F1) indicated that “*collaboratory research can be ideal for benchmarking*”. Also coming from another faculty member (F23) was a view that “*collaboratory research would go a long way in the identification of the areas of improvement particularly in service delivery*.”

**Table 4.14: Benefits of Collaboratory Research-Librarians**

Benefits of Collaboratory Research	SD		D		M		A		SA		TOTAL	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Basis for curriculum development, review and teaching	0	0	4	6	10	16	40	63	10	16	64	100
Provides intellectual companionship within practicing communities	0	0	0	0	8	12	22	32	38	56	68	100
Allows cross-fertilization of ideas	0	0	0	0	4	6	22	32	42	62	68	100
Enables sharing of skills and techniques	0	0	0	0	2	3	23	34	43	63	68	100
Enhances the productivity	0	0	0	0	4	6	30	43	35	51	69	100
Intellectual growth	0	0	0	0	1	1	23	33	45	65	69	100
Discovery of new knowledge and new areas of applied research	0	0	0	0	3	4	29	43	36	53	68	100
Boost librarians' research	0	0	0	0	4	6	25	36	40	58	69	100
Enhances the research and leadership competencies of librarians	2	3	0	0	5	7	22	32	40	58	69	100
Encourages research and publication	0	0	1	1	3	4	30	43	35	51	69	100
Building cohesive relationships between faculty and librarians	1	1	3	4	6	9	25	36	34	49	69	100

*Source: Field Data*

Majority of the librarians strongly agreed and agreed that collaboratory research can provide a basis for curriculum development and teaching, allows for intellectual companionship, allows cross-fertilization of ideas, enables sharing of skills and

techniques, serves as an incubator for professional development, serves as a basis for problem solving, provides access to new and innovative ideas, provides access to network of people from a wide range of LIS related organizations besides contributing to knowledge. Only an insignificant number of the librarians moderately, disagreed and strongly disagreed with the above statements. A particular librarian (L44) argued that *“collaboratory research would enhance visibility of both faculty and librarians through increased number of publications”*. Another librarian (L2) said that *“collaboratory research would provide mentorship for upcoming researchers”* while another one (L37) said that *collaboratory research would bring about mutual respect between librarians and the faculty members*. For another librarian (L14), *“collaboratory research serves as the key to partnership and collaboration in other areas like grants, sourcing, workshops, curriculum and co-teaching”*.

One of the chief librarians (CL2) interviewed was of the view that *“collaboratory research would serve as bridge to the ever widening gap between faculty and librarians”* while another one (CL1) noted that *“collaboratory research would serve as an incubator for professional growth in LIS”*.

#### **4.11 Challenges of Collaboratory Research**

The study further sought to establish from the respondents, some of the challenges associated with collaboratory research. The respondents were given a chance to rate

the effects of different challenges and the results are presented in Table 4.15 for faculty and Table 4.16 for librarians.

**Table 4.15: Challenges of Collaboratory Research-Faculty**

Challenges of Collaboratory Research	Lowest Rating		Low Rating		Moderate		High Rating		Highest Rating		TOTAL	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Time Consuming	2	4	4	8	17	34	17	34	10	20	50	100
Reluctance by the participants	2	4	8	16	15	30	24	48	1	2	50	100
Difficulties in sharing intangible resources like explicit & tacit knowledge	4	8	7	14	17	34	20	40	2	4	50	100
Inability to maintain focus and attention on research	1	2	6	12	26	53	11	22	5	10	49	100
Lack of collaboratory research funding	2	4	1	2	13	26	25	50	9	18	50	100
Few joint research network between faculty and librarians	2	4	0	0	19	39	17	35	11	22	49	100
Lack of prioritization	5	10	9	18	14	29	12	24	9	18	49	100
Little support from management	5	10	6	12	8	16	18	37	12	24	49	100
Institutional barriers and politics	7	14	12	24	15	30	9	18	7	14	50	100
Inadequate education in research methods	5	10	14	28	17	34	9	18	5	10	50	100
Intellectual ownership	6	13	14	29	22	46	5	10	1	2	48	100
High costs of coordination	8	16	17	35	8	16	14	29	2	4	49	100

*Source: Field Data*

For the faculty members, lack of collaboratory research funding received the highest rating of 68%, followed closely by lack of support from senior managers that received a 61% rating. The faculty further gave few joint research networks

between faculty and librarians a 57% rating and time constraints got a 54% rating. Lack of understanding of different priorities between faculty and librarians received 41.5% rating. They further gave a 50% to reluctance by the participants, difficulties in sharing intangible resources like explicit & tacit knowledge got a 44% rating and lack of prioritization got a 43% rating. Institutional barriers and politics, inability to maintain focus and attention on research, and high costs of coordination received slightly over 30% rating. Finally inadequate education in research methods received a 28% rating while intellectual ownership issues only received a 13% rating. A faculty member (F26) further asserted that *“there is low level interaction between faculty and librarians hence posing a great challenge to collaboratory efforts”* Another one (F3) said that *“there exists low mutual trust and faculty perception of the librarians hence making collaboration a little bit difficult”*. Another faculty member (F49) talked of *“poor communication between active researchers and librarians”* and *“lack of focus between the two groups”*, while another one (F2) indicated that *“there is a lot of natural resistance to change or new research ideas”*.

**Table 4.16: Challenges of Collaboratory Research-Librarians**

Challenges of Collaboratory Research	Lowest Rating		Low Rating		Moderate		High Rating		Highest Rating		TOTAL	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Time Consuming	3	4	8	12	24	35	20	29	13	19	68	100
Reluctance by the participants	3	4	15	22	32	46	16	23	3	4	69	100
Difficulties in sharing intangible resources like explicit & tacit knowledge	3	4	7	10	26	38	17	25	16	23	69	100
Inability to maintain focus and attention on research	2	3	7	10	43	62	15	22	2	3	69	100
Lack of collaboratory research funding	1	1	7	10	15	22	13	19	32	47	68	100
Few joint research network between faculty and librarians	3	4	4	6	16	23	18	26	28	41	69	100
Lack of prioritization	7	10	9	13	25	36	13	19	15	22	69	100
Little support from management	3	4	14	20	24	35	15	22	13	19	69	100
Institutional barriers and politics	4	6	16	24	23	34	7	10	17	25	67	100
Inadequate education in research methods	6	9	14	21	29	43	13	19	6	9	68	100
Intellectual ownership	13	19	12	18	20	29	15	22	8	12	68	100
High costs of coordination	7	10	12	18	27	40	12	18	9	13	67	100

*Source: Field Data*

Librarians on the other hand also gave lack of collaboratory research funding the highest rating of 67%, followed closely by few joint research networks between faculty and librarians with a 66% rating. Time constraints got a 54% rating while difficulties in sharing intangible resources like explicit & tacit knowledge got a 48% rating. Lack of prioritization and absence of support from senior managers received a 41% rating each. Institutional barriers and politics, intellectual ownership issues and high costs of coordination got slightly above 30% rating each while reluctance by the participants, inadequate education in research methods and inability to maintain focus and attention on research received slightly above 25% ratings each. A certain librarian (L13) further noted

that “*there is unwillingness to share knowledge amongst faculty and librarians*” and also “*there is low motivation amongst librarians as research and publications are not used as a basis for their promotion*”. Another librarian (L67) observed that “*librarians are overwhelmed by practical professional work they engage in every day, and that librarians have all they can handle keeping up with emerging information technology and service responsibilities*. Still another librarian (L53) asserted that “*there exists great amount of research jargon that discourage librarians from reading the research literature and actively conducting research*”

These results receive support from a number of authors including Powell et al., 2002, Onyancha, 2007, Ocholla, 2012 & Erfanmanesh et al., 2010 and serve as a clear indicator on the areas that demand immediate attention. These include funding, management support, establishment of joint networks and time management issues.

#### **4.12 Priority Areas for LIS Research**

To give the study a wider spectrum, the researcher gave a chance to respondents to identify areas which they believe should be given priority for research in LIS. The results are presented in Table 4.16 for faculty and Table 4.17 for librarians.

**Table 4.16: Priority Areas for LIS Research-Faculty**

Priority Areas for LIS Research	Lowest Priority		Low Priority		Moderate		High Priority		Highest Priority		TOTAL	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Electronic information services	1	2	0	0	5	10	18	36	26	52	50	100
Management of libraries and information centers	0	0	2	4	3	6	35	70	10	20	50	100
Staff development	0	0	0	0	9	18	27	55	13	27	49	100
User needs and also non users	0	0	2	4	11	22	24	49	12	24	49	100
Impact of LIS on society	0	0	2	4	11	23	17	35	18	38	48	100
Social inclusion to allow wider participation	1	2	4	8	15	30	18	36	12	24	50	100
Networks and cross sectorial working	0	0	4	8	7	14	18	37	20	41	49	100
Health information	1	2	7	14	11	22	22	44	9	18	50	100

*Source: Field Data*

Faculty members gave an average of 76% rating to electronic information services, management of libraries and information centers, staff development, user needs and also non users, impact of LIS on society, social inclusion to allow wider participation, networks and cross sectorial working and health information as the areas requiring priority for LIS research. A certain faculty member (F7) added that it is also important to *“focus on collaborative open-source software development implementation and management”*. Another one (F1) talked of *“Technological literacy and impact of knowledge on society as other areas requiring attention”*. Another one (F51) talked of *“need to focus on information and law”*.

**Table 4.17: Priority Areas for LIS Research-Librarians**

Priority Areas for LIS Research	Lowest Priority		Low Priority		Moderate		High Priority		Highest Priority		TOTAL	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Electronic information services	1	1	0	0	10	14	22	31	37	53	70	100
Management of libraries and information centers	2	3	7	10	19	28	26	38	15	22	69	100
Staff development	2	3	1	1	17	24	25	36	25	36	70	100
User needs and also non users	0	0	2	3	20	30	20	30	25	37	67	100
Impact of LIS on society	6	9	1	1	19	27	22	31	22	31	70	100
Social inclusion to allow wider participation	4	6	4	6	23	34	24	35	13	19	68	100
Networks and cross sectorial working	2	3	3	4	22	32	24	35	17	25	68	100
Health information	3	4	0	0	28	41	21	31	16	24	68	100

*Source: Field Data*

Librarians on the other hand gave an average of 64% rating to electronic information services, management of libraries and information centers, staff development, user needs and also non users, impact of LIS on society, social inclusion to allow wider participation, networks and cross sectorial working and health information as the areas requiring priority for LIS research. A certain librarian (L4) added “*that it is also important to dedicate energy on issues of digitization and records management*”. Another librarian (L6) talked of “*the need to focus on leadership and democracy*”. Another one (L3) talked of “*the need to give attention to issues pertaining to institutional repositories*”.

One chief librarian (CL1) indicated that *“there is need to prioritize research in information literacy”* while another chief librarian (CL4) talked of *“need to focus LIS research on public relations and strategic planning issues”*. Another one (CL3) talked of the *“need to address issues relating to the development and management of digital collections.”*

These findings also find support from McNicol and Dalton (2004) and Buckland (2003) as reported earlier in this study.

#### **4.13 Collaboratory Research Implementation Strategy**

The researcher gave the respondents a chance to rate the effects of a number of factors to the success of collaboratory research. The results are presented in Table 4.18 for faculty and Table 4.19 for librarians.

*Table 4.18: Factors Affecting Success of Collaboratory Research –Faculty*

Collaboratory Research Success Factors	Lowest Effect		Low Effect		Moderate		High Effect		Highest Effect		TOTAL	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Mutual trust	0	0	2	4	8	16	21	41	20	39	51	100
Commitment	0	0	2	4	0	0	25	49	24	47	51	100
Good personal relationships	0	0	0	0	6	12	26	51	19	37	51	100
Flexibility	0	0	0	0	11	22	32	63	8	16	51	100
Leadership	1	2	0	0	22	43	13	25	15	29	51	100
Clearly defined objectives	0	0	4	8	10	20	18	35	19	37	51	100
Clearly defined responsibilities	0	0	0	0	10	20	21	41	20	39	51	100
Mutually agreed project plan	0	0	2	4	5	10	18	35	26	51	51	100
Realistic aims	0	0	4	8	7	14	28	55	12	24	51	100
Adequate resources	0	0	2	4	11	22	21	41	17	33	51	100
Defined project milestones	0	0	3	6	9	18	30	59	9	18	51	100
Simple collaboratory agreement	4	8	4	8	11	22	22	43	10	20	51	100
Regular progress monitoring	0	0	0	0	6	12	32	63	13	25	51	100
Effective communication	0	0	0	0	8	16	18	35	25	49	51	100

*Source: Field Data*

Over 80% of the faculty members confirmed that mutual trust, commitment, good personal relationship, clear definition of responsibilities, agreed project plan, regular progress monitoring, and effective communication have either high or the highest effect to the success of collaboratory research. Over 70% of the faculty members indicated that flexibility, clear objectives, adequate resources, clearly defined project milestones have either high or the highest effect to the success of collaboratory research. Finally between 50-70% of the faculty members indicated

also that leadership and simple collaboratory agreements have a significant effect to the success of collaboratory research. A faculty member (F12) also added that “collaboratory research success is also dependent on research experience of the collaborators”.

**Table 4.19: Factors Affecting Success of Collaboratory Research -Librarians**

Collaboratory Research Success Factors	Lowest Effect		Low Effect		Moderate		High Effect		Highest Effect		TOTAL	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Mutual trust	1	1	0	0	11	16	26	38	31	45	69	100
Commitment	0	0	0	0	6	9	20	29	44	63	70	100
Good personal relationships	0	0	1	1	11	16	25	36	33	47	70	100
Flexibility	0	0	0	0	11	16	31	46	26	38	68	100
Leadership	5	7	1	1	13	19	29	43	20	29	68	100
Clearly defined objectives	2	3	3	4	6	9	23	33	36	51	70	100
Clearly defined responsibilities	1	1	1	1	7	10	31	46	28	41	68	100
Mutually agreed project plan	1	1	1	1	13	19	25	36	29	42	69	100
Realistic aims	1	1	0	0	15	22	34	51	17	25	67	100
Adequate resources	2	3	0	0	15	21	35	50	18	26	70	100
Defined project milestones	1	1	0	0	27	40	21	31	19	28	68	100
Simple collaboratory agreement	3	4	4	6	15	21	29	41	19	27	70	100
Regular progress monitoring	3	4	2	3	11	16	26	37	28	40	70	100
Effective communication	1	1	0	0	4	6	29	41	36	51	70	100

Source: Field Data

On the other hand over 70% of the librarians confirmed that mutual trust, commitment, good personal relationship, clear definition of responsibilities, clear objectives, agreed project plan, regular progress monitoring, and effective communication have either high or the highest effect to the success of collaborative research. A further 50-70% of the librarians indicated that flexibility, adequate resources, clearly defined project milestones, leadership and simple collaborative agreements have either high or the highest effect to the success of collaborative research. A certain librarian (L13) observed that *“collaboratory research success would also be affected by the complementary knowledge and the expertise of the participants”* while another one (L1) argued that *“university support in terms of staff time and sponsorship would go a long way as far as the success of collaborative research is concerned”*.

These findings agree with what Barnes (2006) and Weck (2006) on the factors affecting the success of collaborative research as alluded earlier in the study.

One of the chief librarians (CL2) interviewed asserted that *“this (collaboratory research) would only work if the faculty agreed to come out of the lecture rooms and join hands with the practitioners (librarians)”* while another one (CL3) lamented *“this (collaboratory research) would not work until the players (LIS faculty and librarians) agreed to embrace each other as members of the same profession. There appears to be a lot of suspicion amongst the two groups and this*

*needs to stop*". Another one (CL1) said "*this (collaboratory research) would only work when the two groups stopped seeing each other as competitors---should instead focus on complementing each other*".

#### **4.14 Suggestion on Promoting Collaboratory Research in the LIS Profession**

The researcher gave the respondents an opportunity, through an open-ended question, to give suggestions on what can be done to promote collaboratory research between faculty and librarians now and in future. A total of 30 (58%) of the faculty members and 43 (61%) of the librarians responded to the question. In order to contextualize the respondents' opinions on this issue, the suggestions were analyzed into 17 broad themes covering areas such as information sharing, research skills training, publication of research findings, funding among others as discussed in the following section.

*Information Sharing*-Both faculty members and the librarians agreed that information sharing between LIS faculty and librarians is very low. Communication between the two is minimal hence minimizing any chance of collaborating. Thus as one faculty member (F34) observed, "*improving information sharing and communication could be a key ingredient in promotion of collaboratory research*".

*Research Skills Training-* A librarian (L2) observed that “*there is need for regular training in research skills/methodology as the skills acquired during formal training are not sufficient enough*”. To this effect, there is call for university management to set aside resources to facilitate such trainings and this would boost particularly librarians’ involvement in collaboratory and individual research.

*Publication of Research Findings-*Both the faculty and the librarians indicated the need for publication of research findings in peer-reviewed journals. A librarian (L6) argued “*that promotion of librarians should be based on the number of articles published in such journals just as it is for the faculty*”. This would go a long way in promoting collaboratory research.

*Cross-sectoral Working-*The librarians suggested that faculty and librarians can work inter-changeably whereby librarians get a chance to teach while the faculty members take turns in running and managing the libraries. This would, according to one librarian (L2), “*allow sharing of experiences and can serve as breeding grounds for collaboratory research endeavors*”. Incorporating faculty members in the library advisory boards would also suffice.

*Funding-*Both the faculty and the librarians expressed the need for the universities and other professional associations to set aside and avail funds necessary for both individual and collaboratory research activities. A faculty member (F3) argued that “*universities and institutions such as the Kenya Library Association (KLA) and*

*Kenya Library and Information Services Consortium (KLISC) should dedicate funds for collaboratory research activities”.*

*Change of Attitude-* Both the faculty and the librarians expressed the need for change of attitude particularly on status differences between these two groups. A librarian (L7) asserted that *“there is need for a paradigm shift amongst the librarians from just being custodians and disseminators of information to creators of information through research”*. This however calls for an extensive awareness creation through workshops, seminars and conferences and would also go a long way in boosting librarians’ research including collaboratory research.

*Competition-* Both the faculty and the librarians indicated existence of competition between faculty and librarians. According to one faculty member (F49) *“there is a lot of competition between these two groups which is quite unhealthy for the profession”*. They expressed the need for the two groups to rather work towards complementing each other and this would boost collaboratory research.

*Formal Networks-* Both the faculty and the librarians expressed the need to create formal local and international collaboration networks between the two groups through policy enactment at the universities or professional association levels. This, according one faculty member (F5), *“would allow for regular meetings that would pave way for creation of teams necessary for collaboratory research”*.

*Curriculum Development and Review*-The faculty members indicated the need for involving librarians' in curriculum development and review. This, according to one of them (F19), "*would help to incorporate the changing needs of the industry into the ever evolving curriculums*". This forms a good basis for identifying new areas for research and can also subsequently boost collaboratory research.

*Management Support*- The librarians unanimously agreed on the dire need of support from the university management in allowing time for research. One librarians (L13) observed that "*allowing staff members time for example through sabbatical leave to conduct or participate in research activities is a good recipe for promoting collaboratory research*". They further argued that recognition of research efforts perhaps through promotion and other rewards would also go a long way in boosting collaboratory research.

*Mentorship*- Both the faculty and the librarians expressed the need for mentorship by the experienced researchers to the young professionals. As a faculty member (F11) observed, "*formal research mentorship programs within the university would go a long way in promoting collaboratory research*".

*Professional Organizations*- Both the faculty and the librarians indicated the need to strengthen the existing LIS professional organizations such as the Kenya Library Association (KLA) and Kenya Library and Information Services Consortium (KLISC). Strengthening these organizations, according to one librarian (L42),

*“would enable them to bring more professionals together”*. Outreach services by such organizations are critical through workshops, seminars and conferences and this, according to one faculty member (F1), *“would provide adequate forums to discuss collaboratory research endeavors”*.

*Social Networks*-Faculty members indicated the need to develop social networks amongst LIS professionals. One faculty member (F39) argued that *“use the modern technological platforms like blogs and online discussion forums is now inevitable if any viable networks are to be realized”*. This would allow for updates, sharing of experiences consultation and sharing of research ideas/problems and this would help promote collaboratory research.

*Selective Dissemination Service (SDI)*-The librarians emphasized on the need to establish a reliable SDI service for the LIS faculty. This, according to one librarian (L14) *“would keep the faculty members abreast of any new developments in their individual areas of interest”*. This would subsequently assist in the identification of research gaps that can promote both individual and collaboratory research activities.

*Collaboratory Research Promotion Strategy*- Both the faculty and the librarians argued that success in collaboratory research is dependent on a number of factors. According to one faculty member (F5), *“initial setting of clear objectives, strict*

*adherence to set timelines, trust and mutual respect would go a long way in promoting collaborative research”.*

A good number of these suggestions concur with Powell et al. (2002) proposals on promoting LIS practitioners’ research. The authors concluded that librarians may need assistance in identifying ideas for research, mentoring by experienced researchers, financial support, time to do research, rewards for completing research in time, assistance in matching research projects with personal development and encouragement to apply research results.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

In this chapter, a summary of the research findings are presented, concluding remarks have been made and policy recommendations including areas for further research have also been drawn.

#### **5.2 Summary of the Main Findings**

##### **5.2.1 Contribution of Research to the Growth of LIS**

Majority of both faculty and the librarians were in agreement that research is critical for the development of the Library and Information Science (LIS) profession and should therefore form an integral part of LIS practice.

##### **5.2.2 Participation in Research Activities**

The study confirmed that on average about two thirds of the faculty members and librarians as well often participate in research and publication of findings which is healthy for any discipline. Notably however the rest rarely or never engage in any form of research activity and this can as well compromise the future prospects of the LIS profession. This therefore means that much more needs to be done in order to boost research productivity in the LIS profession.

### **5.2.3 Familiarity with Collaboratory Research**

The study established that a significant number of both faculty members and the librarians are either familiar or very familiar with the concept of collaboratory research. This therefore implies that it is easier for the members of the LIS profession in Kenya to embrace the practice which can guarantee growth and development of the profession.

### **5.2.4 Perception of Collaboratory Research**

The study established that a good number of the faculty members and the librarians are of the view that collaboratory research has the ability to address some of the many challenges facing the LIS profession. This means that collaboratory research has the potential to positively contribute to the growth of LIS profession.

### **5.2.5 Collaboratory Research Practice**

The study revealed that about half of the faculty members have participated in some form of collaboratory research. The situation is however slightly different amongst the librarians of whom close to two thirds confirmed they have participated in some form of collaboratory research. A bibliometrics of a regional journal also revealed that only slightly above half of the publications are co-authored which is a reflection of collaboratory research efforts. This means that the practice is still yet to be fully embraced in the LIS profession in the region despite a majority of the members

being familiar with the concept. Therefore the LIS profession in Kenya is yet to fully benefit from the potentials associated with collaboratory research.

### **5.2.6 Collaboratory Research Partners**

The study revealed that of those faculty members who have engaged in collaboratory research, it has to a very large extent occurred between themselves and fellow faculty members in and outside their universities. Only an insignificant number has engaged librarians from other universities. For librarians who have participated in collaboratory research, majority of them have only engaged their fellow librarians within their universities and on very rare occasions, it has happened with librarians in other universities. Only a handful of the librarians have engaged faculty members from within and outside their universities for collaboratory research. Also a bibliometrics of the regional journal revealed the similar trends. This finding is a clear indicator of the continued disconnect and low interaction levels between these two critical members of the LIS profession and efforts should be geared, by all players, towards the improvement of the prevailing situation. If the situation persists, the future prospects of the LIS profession remain blurred.

### **5.2.7 Non-Participation in Collaboratory Research**

Low interaction levels between faculty and librarians, absence of working forums among faculty and librarians and absence of university support were found out to be the major factors hindering participation in collaboratory research. Other factors that featured prominently include lack of commitment by faculty members and librarians, heavy workloads and lack of research incentives. This therefore calls for individual initiated efforts and policy interventions in order to improve the working relationship between these two groups.

### **5.2.8 Benefits of Collaboratory Research**

Both the faculty members and the librarians agreed to the fact that collaboratory research has great potential not only to address the teaching challenges, but solving operational and managerial changes facing the LIS profession. This is because collaboratory research would allow continuous interaction between these two groups subsequently enabling sharing of experiences as wells as collaborative approach to issues and problems facing LIS discipline.

### **5.2.9 Challenges of Collaboratory Research**

The study revealed absence of funds, weak networks between faculty and librarians, absence of university management support and high costs in terms of time as the major issues of concern in pursuit of collaboratory research. This also calls for

policy interventions particularly from the institutional perspective in order to improve on the situation.

#### **5.2.10 Priority Areas for LIS Research**

Both the faculty members and the librarians suggested a number of areas that still require some attention by the researchers. They include areas like electronic information services, management of libraries and information centers, staff development, user needs and also non users, impact of LIS on society, social inclusion to allow wider participation, networks and cross sectorial working, institutional repositories, digitization of collections, health information, leadership and information and law.

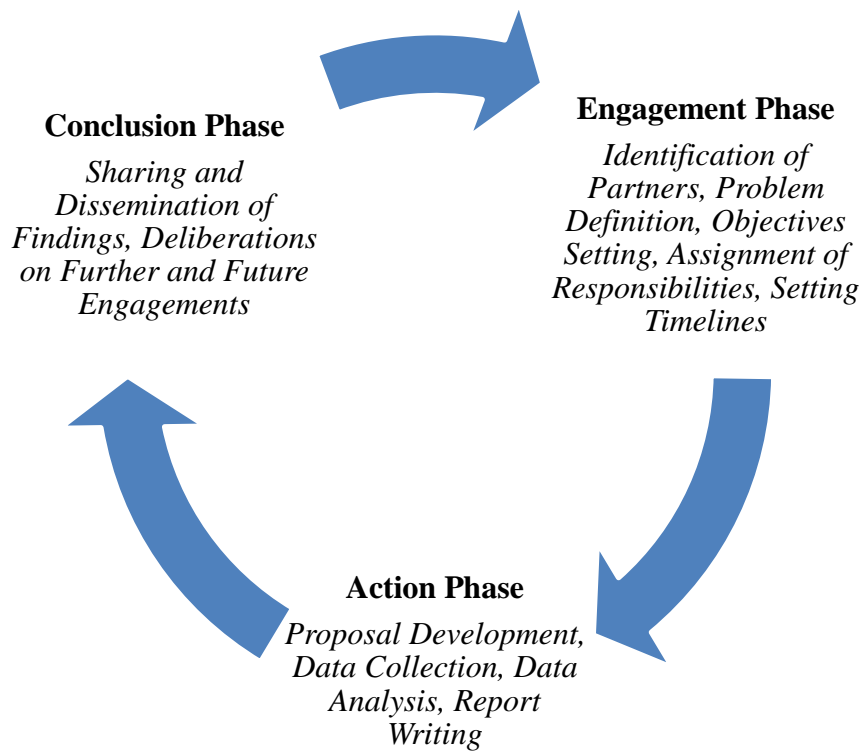
#### **5.2.11 Collaboratory Research Success Factors**

Both the faculty members and the librarians alluded to the fact that success in collaboratory research can only be realized if there is individual commitment, effective communication, clear definition of objectives and responsibilities, mutual trust and regular progress monitoring. These are more of individual characteristics that are within individual participants control and hence achievable.

### **5.2.12 Promoting and Sustaining Collaboratory Research in LIS**

The respondents suggested a number of areas that require to be improved for the growth and sustenance of collaboratory research in LIS. Among the suggestions include: improved information sharing between LIS faculty and librarians, training particularly on research skills, publication of research findings in referred journals and appropriate rewards on the same, cross-sectoral working, funding for research, change of attitude by both faculty and librarians and embracement of each other, minimum or no competition between faculty and librarians, creation of formal local and international networks amongst LIS professionals, university management support, strengthening of professional associations such as the Kenya Library Association (KLA) and Kenya Library and Information Services Consortium (KLISC), creation of social networks on new technological platforms, provision by librarians a robust Selective Dissemination Service (SDI) and individual commitment to set objectives and adherence to timelines.

The researcher went ahead and formulated a collaboratory research framework that if embraced, it would guide and further promote collaboratory research in the LIS profession now and future. The framework takes the form of a three phase model comprising of the engagement phase, action phase and the conclusion phase as shown in Figure 5.1.



**Figure 5.1: Collaboratory Research Framework**

*Source: Researcher, 2016*

The engagement phase will involve identification of collaboration partners through various engagement forums including private networks. This shall be followed by identification of potential research problems/ideas, development of the research objectives, definition of the research methodology, assignment of responsibilities including reporting structures and drawing up and agreement of timelines. The action phase sets the ball rolling with the development of the research proposal,

data collection and analysis and preparation of the final report. The conclusion phase allows the sharing of the results and dissemination through agreed channels. Further engagements are also discussed and agreed upon on the future of the collaboration. It is worth noting however at this juncture that successful implementation of the proposed model solely depends on the communication structure. Lack of effective communication between the various players in the LIS profession has been blamed for the increased disconnect between faculty and librarians. It is therefore paramount that effective communication be maintained for the collaboratory to work. This is further made easy by the fact that the collaborators need not necessarily physically visit each other but can as well take advantage of the availability of accessible and inexpensive communication technology platforms supported by the Internet and the mobile telephone network in the country. Use of Internet technologies like electronic mail (e-mail), discussion forums, chat rooms, blogs and message boards would go a long way in supporting collaboratory research.

### **5.3 Conclusions**

While collaboratory research between LIS faculty and librarians provides great opportunity for addressing teaching, operational and managerial challenges, it was found out from the study that the practice is yet to be embraced in Kenya. Faculty members and librarians who have participated in collaboratory research have only

done so with their colleagues. The situation prevails despite a majority of the players in the LIS profession being very familiar with the concept and strongly believing that collaboratory research between faculty and librarians has the potential to address a number of challenges facing LIS profession. The study confirmed that collaboratory research provides a basis for curriculum development and teaching, allows for intellectual companionship, allows cross-fertilization of ideas, enables sharing of skills and techniques, serves as an incubator for professional development, serves as a basis for problem solving, provides access to new and innovative ideas, provides access to network of people from a wide range of LIS related organizations besides contributing to knowledge. Slow uptake of the practice was however attributed to existing disconnects between the two groups (faculty and librarians), individual characteristics like commitment and attitude, limited funding for research and absence of university management support. The study therefore concludes that the uptake of the collaboratory research practice in the LIS profession in Kenya is significantly low. It is therefore time for a paradigm shift amongst the faculty members and the librarians in Kenya. Faculty members need to get out confines in classrooms and reach out for the librarians to share ideas and experiences as they together identify needy and urgent areas for research focus. They (faculty) should also try their hands in library practice in an effort to fully appreciate the realities in LIS practice. Librarians on the other hand need to shift from just being custodians and disseminators of information and engage in

information creation through research. They should also engage in teaching so as to share the ever evolving industrial experiences with the trainees as they prepare to take up practicing responsibilities. However, for this to be realized, universities need to come forth and provide the necessary support in forms of funds and incentives for research, provide necessary training, allow for cross-sectoral working and grant employees time to participate in and conduct research. LIS professional associations on the other hand need to up their efforts in bringing the faculty and librarians together in workshops, seminars and conferences including maintaining close links amongst the members in order to promote their working relationships. Also worth noting is the fact that while engaging in collaboratory research sounds simple on the face, success and sustenance largely depends on the individual player characteristics. There is high desire for individual commitment, effective communication, clear definition of objectives and responsibilities, mutual trust and regular progress monitoring for any success to be realized.

## **5.4 Recommendations**

### **5.4.1 Policy Recommendations**

- I. Considering that there is a positive perception about collaboratory research and its capabilities, the management of the various universities should consider, implement or review policies in the following areas that were found wanting among them: collaboratory research funding, time off for

librarians to conduct research, cross-sectoral working whereby librarians are allowed to teach while faculty members get a chance to try their hands in library practice and provision of refresher training programs particularly in research skills.

- II. Considering the existence of disconnects between faculty and librarians, the study recommends that faculty members need to reach out to librarians to share ideas and experiences besides trying their hands in library practice. Librarians on the other hand should shift from just being custodians and disseminators of information to creators through research besides engaging in teaching.
- III. In the absence of working forums and low interaction levels among faculty and librarians, professional associations in LIS should endeavor in creation and sustenance of formal local and international networks that were found to be lacking. However, empowerment of such associations by the individual members through enrollment, subscription and support is critical while the associations should go out of their way in mobilizing for membership and support.

### **5.4.2 Recommendations for Further Research**

- I. It is worth noting that librarians only constitute a fraction of the LIS practitioners. Other researchers can examine the potential of collaboratory research between faculty and the rest of the practitioners among them archivists, record managers, publishers, media personnel, registry officers and data and information managers.
  
- II. Also evident from the study was the fact that LIS research productivity in the region is still at low levels. This is not very healthy for any profession. Research on the best way to boost LIS research would go a long way in managing the future prospects of the LIS profession.

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**APPENDIX I: INTRODUCTORY LETTER TO LIS FACULTY AND  
LIBRARIANS**

Martin Uimbia Gichugu,  
Kenyatta University,  
Department of Library and Information Sciences,  
P. O. Box 43844, Nairobi.

Dear Sir/Madam,

**RE: REQUEST FOR INFORMATION**

My name is Martin U. Gichugu. I am a PhD student at the Department of Library and Information Sciences of Kenyatta University. I am conducting a study on collaboratory research between LIS faculty and librarians in selected universities in Kenya as part of the requirements for the completion of this degree program. The participants in this study comprise librarians and LIS faculty of selected universities in Kenya offering LIS degree programs.

The purpose of this letter is to seek your consent to participate in the study and request for data necessary to complete the above mentioned study. I intend to make use of questionnaires and interviews for data collection. The questionnaires shall be availed to the LIS faculty and the librarians through the departmental administrators and chief librarians' offices. The completed questionnaires can be availed back through the same offices or via email to the researcher. The researcher intends to conduct interviews with the chief librarians of the selected universities. Upon completion of the study, findings and recommendations shall be availed to the participating universities. The same results shall be available at the Kenyatta University Library.

I would also wish to assure you that the information provided shall be treated with utmost confidentiality and will only be used for the purposes of the research. In case of any questions or concerns, do not hesitate to contact me.

Yours Sincerely,

Martin U. Gichugu

REG. NO. E83/25168/2012

CELL PHONE-0722-835 768

[EMAIL-gichugu.martin@ku.ac.ke](mailto:EMAIL-gichugu.martin@ku.ac.ke)

## APPENDIX II: RESEARCH QUESTIONNAIRE FOR LIS

### FACULTY AND LIBRARIANS

(Please tick or fill in the spaces provided)

#### Section A: General Information

1) Name of your university-----

2) Tick as appropriate:

a) Faculty Member  b) Librarian

3) Education Level

a) PhD  b) Master Degree

4) For faculty members, please indicate the academic position

a) Professor

b) Associate Professor

c) Senior Lecturer

d) Lecturer

e) Assistant Lecturer

5) Years of service

a) <1Year  b) 1-5 Years

c) 5-10 Years  d) Over 10 Years

**Section B: Collaboratory Research-Perception, Practices, Benefits and Challenges**

1) Research is critical for the development of any discipline LIS not an exception

Strongly Disagree    Disagree    Not Sure    Agree    Strongly Agree

2) How often do you participate in any form of research activity and publication?

Never                      Rarely                      Not Sure                      Often                      Very Often

3) Collaboratory research entails researchers working together on research projects irrespective of their geographical location resulting in co-authored publications. How familiar are you with this emerging concept?

Completely Unfamiliar    Unfamiliar                      Not Sure                      Familiar                      Very Familiar

4) Have you ever participated in collaboratory research?

Yes                                            No                     

**(If your answer is NO, please move to Question 7)**

5) If your answer is YES in question 4 above for **faculty members**, whom did you collaborate with? (Tick all that apply)

- a) Faculty member in the department/school
- b) Faculty member in another university
- c) Librarian in your university
- d) Librarian in another university

Other (please specify)-----  
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6) If your answer is YES in question 4 above for **librarians**, whom did you collaborate with? (Tick all that apply)

- a) Colleague in your Library
- b) Faculty member in your university
- c) Librarian in another university
- d) Faculty Member in another university

Other (please specify)-----  
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7) If you have not participated in any form of collaboratory research, what could be the reasons (tick all that apply)

- a) Lack of awareness of the existence of the practice
- b) Low interaction levels between faculty and librarians
- c) Feeling that research is a reserve for the faculty
- d) Absence of working forums among faculty and librarians
- e) Feeling like collaboratory research could be too expensive
- f) Feeling like collaboratory research could be time consuming
- g) Absense of willing collaborating patners
- h) Fear of ownership/credit assignment in collaboratory works
- i) Absence of university support

Others (please specify)-----  
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8) Kindly indicate in the table below the extent to which you AGREE or DISAGREE with the following statements regarding the benefits of collaboratory research (tick as appropriate).

	<b>Benefits of Collaboratory Research</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Moderate</b>	<b>Agree</b>	<b>Strongly Agree</b>
1	Basis for curriculum development and teaching					
2	Provides intellectual companionship within practicing communities					
3	Allows cross-fertilization of ideas resulting to new insights					
4	Enables sharing of skills and techniques					
5	Enhances the productivity of the participants					
6	Contribution to knowledge					
7	Establishment of new areas of applied research					

8	Opportunity to increase the level of librarian research					
9	Enhances the research and leadership competencies of librarians					
10	Encourages research and publication					
11	Enhance the nature of the relationship faculty and librarians					

Any other benefits (please specify)

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9) On a scale of 1-5, where 1 represents Lowest Rating and 5 represents Highest Rating, how would you rate the following challenges associated with collaboratory research

	<b>Challenges of Collaboratory Research</b>	<b>Lowest Rating</b>	<b>Low Rating</b>	<b>Moderate</b>	<b>High Rating</b>	<b>Highest Rating</b>
1	High costs in terms of time					
2	Reluctance by the participants					
3	Difficulties in sharing intangible resources like tacit knowledge					
4	Difficulties in making a collaboratory focused enough to be interesting to participate in					
5	Lack of collaboratory research funding					
6	Insufficient joint research network between faculty and librarians					
7	Lack of understanding of different priorities of faculty and librarians					

8	Lack of support from senior managers and inadequate personnel					
9	Institutional barriers					
10	Inadequate education in research methods					
11	Problems with assigning credit to the participants					
12	High costs of coordination					

Any other challenges (please specify)-----  
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11) Despite the challenges, to what extent do you agree with the following statement: “Collaboratory research has the ability to address some of the many challenges facing LIS profession”

Strongly Disagree    Disagree    Not Sure    Agree    Strongly Agree  
                                                                                       

**Section C: Priority Areas for LIS Research**

1) On scale of 1-5, where 1 represents Lowest Priority and 5 represents Highest Priority, please indicate the level of research priority you would attach to the following areas of concern in LIS

Area of Concern	Priority Level				
	1 Lowest Priority	2 Low Priority	3 Moderate	4 High Priority	5 Highest Priority
Electronic information services					
Management of libraries and information centers					
Staff development					
User needs and also non users					
Impact of LIS on society					
Social inclusion to allow wider participation					
Networks and cross sectorial working					
Health information					

Any other areas (please specify)

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**Section D: Collaboratory Research Implementation Strategy**

1) On a scale of 1-5, where 1 represents Lowest Effect while 5 represents Highest Effect, please indicate the effect of the following factors on the **success** of collaboratory research?

S/No.	Factor	Ranking				
		1 Lowest Effect	2 Low Effect	3 Moderate	4 High Effect	5 Highest Effect
1	Mutual trust					
2	Commitment					
3	Good personal relationships					
4	Flexibility					
5	Leadership					
6	Clearly defined objectives					
7	Clearly defined responsibilities					
8	Mutually agreed project plan					
9	Realistic aims					
10	Adequate resources					
11	Defined project milestones					

12	Simple collaboratory agreement					
13	Regular progress monitoring					
14	Effective communication					

Any other factors (please specify) -----  
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2) Please provide any suggestions towards promotion of collaboratory research between LIS faculty and librarians now and in future

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End of the Questionnaire

Thank you so much for your time!

### **APPENDIX III: INTERVIEW SCHEDULE FOR CHIEF UNIVERSITY LIBRARIANS**

- I. Research is critical for the development of any discipline LIS not an exception-What is your take on this
- II. How often do you participate in any form of research activity and publication?
- III. Collaboratory research entails researchers working together on research projects irrespective of their geographical location resulting in co-authored publications. How familiar are you with this emerging concept?
- IV. Have you ever participated in collaboratory research, with whom and like how many times?
- V. If you have not participated in any form of collaboratory research, what could be the reasons
- VI. What is your overall opinion on collaboratory research between faculty and librarians
- VII. What factors in your own opinion would influence the success of collaboratory?

## **APPENDIX IV: UNIVERSITY RESEARCH AUTHORIZATION**

## **APPENDIX V: RESEARCH PERMIT**

## **APPENDIX VI: SPECIFIC UNIVERSITY APPROVALS**