



Patterns of Scholarly Collaboration among Academics in Nigerian Universities: Knowledge Sharing or Knowledge Hoarding?

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ABSTRACT

This study investigates the patterns of scholarly collaboration among academic staff in the four Nigerian universities, Bayero University, Kano; University of Maiduguri; University of Ibadan; and University of Porthacourt, using quantitative approach through survey questionnaire administered randomly to collect data from the population of academics in the four universities. The study found that Nigerian university academics collaborate in the pursuit of their scholarly activities in the areas of publishing/writing article, data collection, data analysis, and workshops/seminar presentations. The findings also revealed that phones, emails, web forums/blogs/wikis, instant messaging service, VOIP, social networking sites and post mail were the means of communicating research and other scholarly endeavors to colleagues, both within and outside their universities. The study will serve as a springboard for strengthening and facilitating scholarly collaborations and knowledge sharing, thereby bridging the knowledge gaps that exist between the haves and have not knowledge in the Nigerian higher education sub-sector. The contribution of the study lies in the fact that the findings add to the understanding of knowledge sharing activities available in the Nigerian universities, and no such study exists in the literature.

Keywords: Scholarly collaboration, Knowledge sharing, Scholarly communication, Academic staff, Nigerian universities.

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I. Introduction

Research is a social rather than an isolated undertaking which is heavily dependent on social interactions such as communication and collaboration (Lievrouw as cited in Barjak, 2006: 1350). Kraut, Egidio & Galegher (1988:1) note that in most disciplines, the development of new ideas for scientific research, the execution of research tasks, and the preparation of formal research reports are all processes that involve extensive social interaction. Hence, the trends in the scholarly community today are that public and private research funding agencies require interdisciplinary, international, and inter-institutional collaboration (Sonnenwald, 2007). Western Libraries (2013) asserts that there are different stakeholders involved in the modern scholarly communication process, including authors, publishers, libraries, researchers, higher education institutions and funding agencies. Katz and Martin (1997) outline several advantages of collaboration namely: sharing of knowledge, skills and techniques; transfer of knowledge or skills especially tacit

knowledge; cross-fertilisation of ideas which may generate new insights or perspectives which may not have happened with individuals working alone; provision of intellectual companionship thus overcoming intellectual isolation; and potentially increase the visibility of the work by each collaborator diffusing the findings either formally or informally.

Katz and Martin (1997) opine that collaboration can take various forms ranging from offering general advice and insights to active participation in a specific piece of research. Researchers from different organisations may also 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. In supporting these opinions, other authors (Bukvova, 2010; Laudel, 2002; Abbas, 2016) argue that not all research collaborations will necessarily lead to a publication and not all co-authored papers are results of a collaborative research process.

In spite of all the benefits that collaboration presents to researchers, Duque, Ynalvez, Sooryamoorthy, Mbatia,

Dzorgbo and Shrum (2005) assert that research collaboration presents a paradox for less developed areas. Based on a comparative study of scientists in Ghana, Kenya and Kerala in India, Duque *et al.* (2005) found that the research institutions of sub-Saharan Africa, for which collaboration has seemed to hold the greatest promise, are the least equipped to benefit, since the very conditions that problematize the relationship between collaboration and productivity also undermine the benefits of new information and communication technologies. Duque *et al.* (2005) argue that it is not just collaboration, that causes research problems, but the routine of everyday life built around poverty, corruption and family obligations. Moreover, that same activity may change the relationship between connectivity and collaboration, between Internet access and use, between the advantages and costs of regular efforts to coordinate activity. While collaboration may boost productivity in the developed world, this study suggests that no such relationship should be expected where donors from afar introduce collaborations.

Luo and Olson (2008) observe that access to resources and knowledge gained from colleagues drives productivity in science. However, for scientists from developing countries, this access is lacking. This can be blamed partly on limited access to resources and knowledge. For example, the UNESCO Science Report of 2010 indicated that the average proportion of GDP allocated to R&D in Africa is about one-tenth the proportion in industrialized countries, meaning therefore that scientists from such developing countries are disadvantaged in terms of access to laboratory facilities, computers, library holdings, graduate student skills, and time available for research (Luo & Olson, 2008). Scientists in developing countries are also isolated interpersonally since they are usually part of smaller research communities and tend to be dispersed over long distances. Furthermore, infrastructure problems with transportation and communication hinder scientists in developing countries from engaging in regular collegial communication as well as benefiting from the intellectual stimulation that accompanies contact (Luo & Olson, 2008:366). Onyancha (2009) and Ocholla and Ocholla (2007) through a bibliometric count and analysis of publications from various parts of Africa showed limited collaborations between institutions and between authors.

II. Objective of the Study

The main objective of the study was to investigate the patterns of scholarly collaboration among academics in Nigerian universities. The main objective was further subdivided in to the following specific objectives;

- Identify areas of scholarly collaboration among academics in Nigerian universities, and
- Determine the means of communicating research and other scholarly endeavors to colleagues in the universities.

III. Review of Related Literature

Several studies have attempted to show the positive relationship between collaboration and research productivity. Carillo, Papagni and Capitanio (2008)

conducted an econometric analysis of data on publications in four scientific fields of seven advanced countries. They found that social interactions among researchers have positive effects on a scientist's productivity and there is a U-shaped relation between the size of a scientific network and individual productivity. Bozeman, Fay and Slade (2013) and Lee and Bozeman (2005) agree with these findings and suggest that the relationship is more evident than it appears at first glance.

According to Kotecha (2011:2) improved information and communications technologies mean that universities and researchers gain more ability to access global research facilities, collaborate with experts on the continent and the world, conduct complex research and, essentially, build, store, and share their own knowledge bases. In fact, many of today's scientific problems are beyond the realm of one discipline or scientist to solve and are therefore benefitting from cost-effective and reliable ICTs which have made it possible for scientists to put together more long-distance collaborations than ever before (Olson, Bos & Zimmerman, 2008). According to Olson *et al.* (2008), scientific colleagues no longer have to come together in a single laboratory but can partner using technologies such as e-mail, videoconferencing, shared whiteboards, and centralised databases. The new technologies have made it possible to gather, share and analyse large amounts of data with increasingly specialised, sophisticated, and often expensive instrumentation.

De Moor and van Zanden (2008:67, 69) describe the growth of 'collaboratories' (laboratories without walls) where scientists are connected to one another, to instruments, and to data, independent of time and location, thereby creating a virtual community of peers. Today, there are web applications that aim at facilitating collaborative knowledge creation and sharing and usually referred to as Web 2.0, social media, social tools or participatory media (Ponte & Simon, 2011; Cann, Dimitriou & Hooley, 2011; Ezema, 2013). Social media have big implications for how researchers (and people in general) communicate and collaborate (Cann *et al.*, 2011) and research has shown that the use of these tools among researchers is on the rise. In interviews with researchers who are already using social media in their research, Cann *et al.* (2011) found that they are using social media to bridge disciplinary boundaries, to engage in knowledge exchange with industry and policy makers, and to provide a channel for the public communication of their research. Procter *et al.* (2010) showed that the adoption of Web 2.0-based novel forms of scholarly communications among UK researchers had reached only modest levels at the time. However, the services were being rapidly adopted, although in a rather fragmentary manner. In 2011, Ponte and Simon surveyed researchers from different disciplines who showed a strong positive attitude towards Web 2.0. Their study found that more than a third of all respondents used Web 2.0 inspired tools including wikis such as ScienceWikia, blogs (Science Blog), and social networks (Nature Network). However, social bookmarking such as (CiteULike) (25.8%) and micro-blogging (Twitter) (17.7%) are used to a lesser degree.

Sonnenwald (2007) observes that scientific collaboration (also referred to as research collaboration,

R&D collaboration, or team science) is increasing in frequency and importance and it has the potential to solve complex scientific problems and promote various political, economic, and social agendas, such as democracy, sustainable development, and cultural understanding and integration. Hsieh (2013) corroborates this in his bibliometric study of research articles published between 1975 and 2005 and published in the Thomson Reuters Web of Science collection. The study demonstrated that multinational scientific teams have an increasing role in the production of knowledge and are evolving into larger scale structures of three or more nationalities. The study also showed that developing countries are more often associated with international collaborative initiatives when compared to developed countries.

IV. Methodology

The main methodologies or research approaches in social research include the quantitative, the qualitative

(Babbie & Mouton, 2001; Creswell, 2008; Sheppard, 2004) and mixed methods research (Creswell & Plano, 2007; Greene, 2008; Teddlie & Tashakkori, 2009). In the present study, quantitative approach through survey research design was used to collect data from the population of academic staff. A total of three hundred and sixty four (364) academic staff from four (4) Federal Universities located across the two regions of Nigeria (South and North) were selected for the study. The universities are Bayero University, Kano; University of Maiduguri; University of Ibadan; and University of Porthacourt.

Based on the above, stratified sampling technique was used to randomly select sample for the study. This allows the researcher divide the population into two: i. Universities in Northern Nigeria ii. Universities in Southern Nigeria. Stratified sampling technique guarantees that the sample will include specific characteristics that the researcher wants included in the sample (Creswell, 2008).

TABLE I
SPECIFICATIONS ADOPTED FOR THE SIMULATED INVERTER

S/No.	University	Establishment	Region	Academic Staff	Sample
1.	<i>Bayero University, Kano</i>	1975	North	10, 60	90
2.	<i>University of Maiduguri</i>	1975	North	10, 14	86
3.	<i>University of Ibadan</i>	1948	South	1,122	95
4.	<i>University of Porthacourt</i>	1975	South	10, 93	93
	<i>Total</i>			4, 289	364

The population of this study is 4, 289 According to Israel (2012), if the population is 4, 289 at ±5% precision, the sample should be 364 at the 95% confidence level.

The sample of each university was calculated proportionately, using a formula recommended by Krejcie and Morgan (1970) as represented below:

$$\frac{N \times S}{TP}$$

TP

Where,

N = Number (i.e. population of each institute)

S = Sample T (total sample size)

P = Population

Based on this formula, the distribution of samples across the five research institutes is;

$$\text{B. U. K.} \quad \frac{10, 60}{4, 289} \times 364 = 90$$

$$\text{UNIMAID} \quad \frac{10, 14}{4, 289} \times 364 = 86$$

$$\text{U. I.} \quad \frac{1,122}{4, 289} \times 364 = 95$$

$$\text{UNIPORT} \quad \frac{10, 93}{4, 289} \times 364 = 93$$

For the collection of data, Congress Meetings of respective branch chapters of the umbrella body of Nigerian university academics, known as Academic Staff Union of Universities (ASUU), was used to randomly

administer questionnaire to the academics and collect data for the study. Generally, the questionnaire was organised in sections A-C, covering questions 1-9. The issues covered the following themes: interaction on scholarly matters; membership of professional association; collaboration and communication; means of communicating research work.

The data collected from the survey was sorted, scrutinised, edited and analysed using the Statistical Package for Social Sciences (SPSS) version 20.0 for Windows 7, to generate descriptive statistics, including percentages and frequency. The frequency and percentage displayed a number of occurrences side-by-side with the corresponding percentage, as well as relating this to the variables used in the research.

V. Results and Discussion

In this segment, the respondents' profile, namely university, gender, discipline, educational qualification and academic rank, are presented. The distribution of academics on the basis of universities revealed that 90 (24.7%) were drawn from Bayero University, Kano, 86 (23.6) University of Maiduguri, 95 (26.1%) University of Ibadan, while 93 (25.5%) were selected from the University of Porthacourt. The results show that respondents from University of Ibadan are greater in number, followed by the University of Porthacourt, while the total sample stood at three hundred and sixty four.

TABLE II
UNIVERSITY OF RESPONDENTS

Name of University				
University	Freq	%	Valid %	Cumulative %
Bayero University, Kano	90	24.7	24.7	24.7
University of Maiduguri	86	23.6	23.6	48.4
University of Ibadan	95	26.1	26.1	74.5
University of Porthacourt	93	25.5	25.5	100.0
Total	364	100.0	100.0	

TABLE III
DISCIPLINE OF RESPONDENTS

Discipline of Respondents			
	Freq	%	Valid %
Agriculture	87	23.9	23.9
Humanities/Social Sciences	160	44.0	44.0
Medical Sciences	61	16.8	16.8
Science/Technology	56	15.4	15.4
Total	364	100.0	100.0

The study shows that 87 (23.9%) were in the discipline of agricultural sciences, 160 (44%) in the humanities and social sciences, while 61 (16.8%) were academics based in the medical sciences. The findings further revealed that 56 (15.4%) of the respondents were in science and technology. The results show that the majority 160 (44%) of the respondents were in the field of humanities and social sciences of the four universities. This may not be unconnected to the fact that the four universities were conventional universities, offering diverse field of knowledge, as against specialized universities that concentrate on a particular field, such as science and technology or agriculture.

TABLE IV
ACADEMIC QUALIFICATION OF RESPONDENTS

Academic Qualification			
Qualification	Freq	%	Valid %
Bachelor's Degree	25	6.9	6.9
Master's Degree	120	33.0	33.0
PhD	198	54.4	54.4
Others	21	5.8	5.8
Total	364	100.0	100.0

TABLE V
ACADEMIC RANK OF RESPONDENTS

Academic Rank			
Rank	Freq	%	Valid %
Assistant Lecturer	62	17.0	4.7
Lecturer I & II	92	25.3	25.3
Senior Lecturer	154	42.3	42.3
Associate Professor	39	10.7	17.0
Professor	17	4.7	10.7
Total	364	100.0	100.0

Table 4 shows the academic qualification of the respondents in which 25 (6.9%) were primary/bachelor's degree holders and 120 (33%) had Master's degrees. One hundred and ninety eight (54.4%) had a PhD, while 21 (5.8%) were holders of other qualifications, such as postgraduate professional diplomas and postgraduate medical qualifications. The distribution of the respondents' academic status shows that majority of the respondents were holders of Master's and Doctorate Degrees. Research has shown that there is a high correlation between staff with doctorates and research output (Cloete, Bailey, Pillay, Bunting & Maasen, 2011). This suggests that the larger number of teaching staff with PhD and Master's qualifications in Nigerian universities

could impact positively on the overall research productivity through collaborations in the universities.

The distribution of respondents by academic rank reveals that 62 (17%) were at the rank of assistant lecturer, 92 (25.3%) either lecturer I or lecturer II, while 154 (42.3%) were senior lecturers. The result also shows that 39 (10.7%) were associate professors, while 17 (4.7%) at the rank of full professors in the four universities. The result shows that majority of the respondents 154 (42.3%) were either at the rank of lecturer I or lecturer II.

The study examines the trends of collaboration and communication in research and other scholarly endeavors among academics.

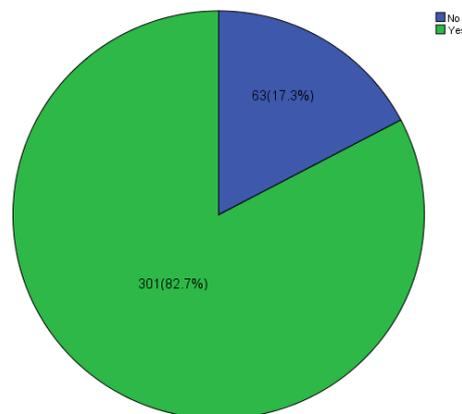


Fig. 1. Collaboration with colleagues on scholarly matters

The trends of scholarship in the three universities was towards collaboration as 301(82.7%) of the respondents engaged in collaborative scholarly endeavors, while 63(17.3%) were not collaborating with colleagues on scholarly activities. The results show that scholarly collaboration, knowledge sharing and dissemination was a routine activities in the four universities.

The responses in Table 7 show the nature of collaboration among academics in the four universities, as thus: publishing/writing article, 103(28.3%) responded no, while 261(71.7%) believed yes; data collection 157(43.1%) said no and 207(56.9%) claimed yes; sharing data 226(62.1%) were not collaborating, while 138(37.9%) said yes; data analysis 58(15.9%) claimed no, while 306(84.1%) said yes; supervision 200(54.9%) no and 164(45.1%) believed yes; workshops/seminar

presentations 64(17.6%) no, while 300(82.4%) claimed yes. The overall results show that academics were collaborating in publishing/writing article, data collection, data analysis and workshops/seminar presentations. It also reveals that academics were not collaborating on supervision and sharing of data.

Consistent with findings of the present study, Sooryamoorthy (2009) found that collaborative research in South Africa (Africa's research leader) has been growing steadily and the scientists are highly oriented towards collaborative rather than individualistic research. Additionally, South African scientists preferred international collaboration to domestic collaboration. In this regards, Olmeda-Gomez, Perianes-Rodriquez, Ovalle-Perandones, Guerrero-Bote, and Anegon, (2008) found that greater visibility of research was attained with international collaborations than with any other type of collaboration they studied.

TABLE VI
NATURE OF THE SCHOLARLY COLLABORATION

	Freq	%	Valid %	Cumulative %
Publishing/writing articles				
No	103	28.3	28.3	28.3
Yes	261	71.7	71.7	100.0
Total	364	100.0	100.0	
Data collection				
No	157	43.1	56.9	56.9
Yes	207	56.9	43.1	100.0
Total	364	100.0	100.0	
Sharing data				
No	226	62.1	62.1	62.1
Yes	138	37.9	37.9	100.0
Total	364	100.0	100.0	
Data analysis				
No	58	15.9	15.9	15.9
Yes	306	84.1	84.1	100.0
Total	364	100.0	100.0	
Supervision				
No	200	54.9	54.9	54.9
Yes	164	45.1	45.1	100.0
Total	364	100.0	100.0	
Workshops/Seminar presentations				
No	64	17.6	17.6	17.6
Yes	300	82.4	82.4	100.0
Total	364	100.0	100.0	

The results of the present study contradicted the findings of Ocholla and Ocholla (2007) and Onyancha (2009) who, through bibliometric counts of publications, found limited collaborations between researchers and universities in Africa.

The study investigates the platform used by the academics to communicate their research works to their colleagues both within and outside the scholars' immediate environments. The results are encapsulated in Table 7.

TABLE VII
MEANS OF COMMUNICATING RESEARCH WORK

	Freq	%	Valid %	Cumulative %
Phone i.e. Landline and Mobile				
Not important	19	5.2	5.2	5.2
Moderately important	97	26.6	26.6	31.9
Important	110	30.2	30.2	62.1
Very important	138	37.9	37.9	100.0
Total	364	100.0	100.0	

		Email		
Not important	13	3.6	3.6	3.6
Moderately important	23	6.3	6.3	9.9
Important	57	15.7	15.7	25.5
Very important	271	74.5	74.5	100.0
Total	364	100.0	100.0	
		Web forums/blogs/wikis		
Not important	28	7.7	7.7	7.7
Moderately important	45	12.4	12.4	20.1
Important	116	31.9	31.9	51.9
Very important	175	48.1	48.1	100.0
Total	364	100.0	100.0	
		Instant messaging service/chat		
Not important	13	3.6	3.6	3.6
Moderately important	79	21.7	21.7	25.3
Important	140	38.5	38.5	63.7
Very important	132	36.3	36.3	100.0
Total	364	100.0	100.0	
		VOIP e.g. Skype, Google talk, Viber		
Not important	39	10.7	10.7	10.7
Moderately important	63	17.3	17.3	28.0
Important	172	47.3	47.3	75.3
Very important	90	24.7	24.7	100.0
Total	364	100.0	100.0	
		Social networking sites e.g. Facebook, Twitter, WhatsApp		
Not important	20	5.5	5.5	5.5
Moderately important	138	37.9	37.9	43.4
Important	145	39.8	39.8	83.2
Very important	61	16.8	16.8	100.0
Total	364	100.0	100.0	
		LinkedIn		
Not important	26	7.1	7.1	7.1
Moderately important	51	14.0	14.0	21.2
Important	204	56.0	56.0	77.2
Very important	83	22.8	22.8	100.0
Total	364	100.0	100.0	
		Fax		
Not important	97	26.6	26.6	26.6
Moderately important	133	36.5	36.5	63.2
Important	116	31.9	31.9	95.1
Very important	18	4.9	4.9	100.0
Total	364	100.0	100.0	
		Post mail		
Not important	28	7.7	7.7	7.7
Moderately important	83	22.8	22.8	30.5
Important	157	43.1	43.1	73.6
Very important	96	26.4	26.4	100.0
Total	364	100.0	100.0	
		Face to face		
Not important	22	6.0	6.0	6.0
Moderately important	48	13.2	13.2	19.2
Important	176	48.4	48.4	67.6
Very important	118	32.4	32.4	100.0
Total	364	100.0	100.0	

The results in Table 8 identify the means of communication for respondents teaching and research

activities. Based on the findings: phone both landline and mobile was cited by 19(5.2%) as not important, while 97(26.6%) said moderately important, 110(30.2%) important and 138(37.9%) very important; email 13(3.6%) claimed not important, 23(6.3%) moderately important, 57(15.7%) important, while 271(74.5%) very important; web forums/blogs/wikis 28(7.7%) not important, 45(12.4%) moderately important, 116(31.9%) important and 175(48.1%) very important; instant messaging service/chat 13(3.6%) not important, 79(21.7%) moderately important, 140(38.5%) important, while 132(36.3%) very important.

VOIP such as Skype, Google talk, Viber 39(10.7%) not important, 63(17.3%) moderately important, 172(47.3%) regarded them as important, while 90(24.7%) as very important; social networking sites such as Facebook, twitter, WhatsApp 20(5.5%) regarded them as not important, 138(37.9%) moderately important, 145(39.8%) important and 61(16.8%) very important; LinkedIn 26(7.1%) not important, 51(14%) moderately important, 204(56%) important, while 83(22.8%) believed it was very important to their research and teaching activities; fax 97(26.6%) not important, 133(36.5%) moderately important, 116(31.9%) important and 18(4.9%) very important; post mail 28(7.7%) not important, 83(22.8%) moderately important, 157(43.1%) important, 96(26.4%) very important; face to face 22(6%) not important, 48(13.2%) moderately important, 176(48.4%) important, while 118(32.4%) very important.

Consistent with the findings of the present study, Tenopir and King (2008) in a longitudinal study of thousands of scientists in the US found that the presence of digital technologies for information searching, communication and publication had vastly improved their capabilities and availed broader information resources including access to older articles. Cohen in Veletsianos and Kimmons (2012) observes that technology has given rise to social scholarship which uses social technology tools as an integral part of research and publishing. This scholarship is characterised by openness, conversation, collaboration, access, sharing and transparent revision. Veletsianos and Kimmons (2012) examined the relationship between scholarly practice and technology. They proposed that technology has mediated the emergence of a new form of scholarship that they referred to as Networked Participatory Scholarship in the world.

VI. Conclusion

The aims of scholarly collaboration was to foster sharing of knowledge, skills and techniques; cross-fertilisation of ideas which may generate new insights or perspectives that may not have happened with individuals working alone; provision of intellectual companionship thus overcoming intellectual isolation; and potentially increase the visibility of the work by each collaborator diffusing the findings either formally or informally. The present study found that Nigerian university academics collaborate in the pursuit of their scholarly activities, especially with regards to publishing/writing article, data collection, data analysis, and workshops/seminar presentations. While phones, emails, web forums/blogs/wikis, instant messaging service, VOIP,

social networking sites and post mail were actively used to communicate with colleagues on scholarly matters. In this sense, the present study concludes that knowledge sharing was a common phenomenon through scholarly collaborations in the Nigerian universities, and that various communication media have been utilized to communicate research and other scholarly endeavors to colleagues, both within and outside their universities.

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