ANALYSIS OF FACTORS INFLUENCING ACADEMIC COLLABORATIVE RESEARCH IN SELECTED FEDERAL UNIVERSITIES IN NIGERIA

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ABSTRACT

This study assessed collaborative research among academic researchers in selected federal universities in Nigeria. The study covers some universities which were selected using cluster sampling; the Universities selected were Bayero University Kano, University of Ibadan, University of Jos, University of Maiduguri, University of Port Harcourt, and University of Nigeria Nsukka. A total number of 150 copies of Questionnaires were distributed to Academics; out of the total number distributed 122 were successfully completed and were used for the study. Data collected were statistically analyzed using statistical package for the social science (SPSS) IBM version26. The study was carried out specially to examine the factors influencing collaborative research in selected Nigerian federal universities, involvement of the academic staff in collaborative research, and types of collaborative and preferred areas of collaborative research conducted. It was recommended that, Government and its agencies such as the TETFUND re-visit their policies in order to encourage and improve collaborative research activities. There is the need to consider and encourage up-coming researchers to participate more in research collaboration. Non-governmental organizations have to come in to sponsor research activities; this will increase research output in different fields. More research facilities should be provided for the conduct of research; more funds need to be provided for the conduct of collaborative research. Sensitization fora need to be formed between academics, government and community members so that community could give due recognition to researchers. And finally collaborative researchers need to focus more on the areas of sport and recreation, trade unionism and politics.

Keywords: Research, Research collaboration, Academic research, Nigeria universities

Introduction

The cardinal role of Academic institutions includes the generation, processing, sharing and dissemination of knowledge, it is widely accepted that conduct of research advances knowledge and ensures progress in the larger society. Universities undertake researches in various fields for various reasons and that propels the sustenance and progress of the society, the drivers of these research activities are the academics/researchers in the academic institutions and especially the universities. The term academic staff had been defined by several scholars, Egwunyenga (2008) posits that academic staff are individuals employed in tertiary institutions of learning who possess the relevant knowledge and expertise to teach, conduct research and mentor others for societal advancement. Popoola (2008) defined academics as lecturers who are staff of academic institutions and whose primary duties are teaching, research and community services.

Research is one of the major functions of academics; they embark on the necessary investigative processes with the application of required techniques towards realization of effective and meaningful life of their immediate communities and the world at large. Onyancha (2015) noted that the global ranking of universities brings about the struggle towards attaining positions and recognition with regards to standards, and there has been an increase in the rate of collaborative research in various sectors around the globe yielding tremendous positive outcomes, this also brings about useful discoveries in the areas of health, economy, education, business, environment, engineering, technology and general sciences etcetera.

These results and achievements being recorded made it very imperative to encourage and support collaborative research (Aliyu, 2007; Lee and Ahn, 2007; Ocholla, 2013; Onyancha, 2015; Fari and Ocholla, 2015). Moreover, collaborative research among and between scholars has been reported to be, as a result of the tremendous number of emerging and experienced specialist in every discipline, coupled with the continuous fusion and fragmentation of knowledge towards addressing the ever increasing complexity of research problems in form of unsolved observable trends and phenomenon. Ocholla (2013) connects the ever growing interest and involvement in the uplifting of collaborative research culture to the following reasons:

1. The increase in understanding of the value of knowledge and the burning desire to strengthen it through research.
2. A transformation from individualistic to applied collaborative research.
3. Growing advocacy for shared responsibilities among experts towards achieving better
    results.
4. The ever increase in funding for collaborative research processes and projects.
5. The desire to expand the provision and access to higher education globally.

Collaborative research has become the focus of considerable number of research institutions and organizations and it has taken different dimensions with regards to varying fields and context. Research collaboration has been defined by various researchers to reflect a number of contextual viewpoints (Fari & Ocholla, 2015); thus many of the definitions depend on the nature, scope and context of the investigation being carried. Despite the benefits of collaboration, the authors also highlighted the cost of collaboration to be more funding and increased logistics; Consuming more time and administrative

strategy as more individuals are involved and who might be at different geographical locations; and associated with cultural, disciplinary and political barriers.

Statement of the Problem

Academic environments are the bedrock upon which any developmental idea, skill and innovation are bred; they are the centers of excellence promoting research and development which transforms the immediate society and the world at large, academic institutions are expected to lead the path towards realization of promise land in terms of technological advancement in human and material development. The machineries responsible for the continuous and steady activities to achieve these developmental outcomes are the human beings (researchers/academics), who are the main role players in the execution of the relevant task, based on their expertise in the various and vast fields of human endeavor. In contemporary knowledge society the drivers of cultural preservation, development of social, economic and political activities and most importantly educational growth are the academic institutions (International Institute for Educational Planning, 2007). In order to avoid duplication of research effort, academics collaborate in research which allows professional and constructive scrutiny of their findings and all other relevant data generated between them.

A number of studies have been carried out concerning research collaboration (Cabrera & Cabrera, 2002; Reus & Liu, 2004; Aliyu, 2007; Lee & Ahn, 2007; Ugah, 2008; Umar, 2009; Fari & Ocholla, 2015; Fari, 2015) but to the researcher's knowledge, less has been done to understand the factors influencing collaboration and especially in Federal Universities in Nigeria. However, this research is also triggered by the observation that, a majority of academics in Nigerian federal universities do not adequately exploit the opportunities of collaborative research as many of their publications are single authored. By implication, academics who do not engage in collaborative research could be left behind in their academic pursuit and subsequently slow their professional growth. As a result of these circumstances, one may speculate the trend of collaborative research among academics in Federal Universities in Nigerian; could it be that the right initiative and awareness is lacking? Or the frequency of research collaboration is not significant? It is against this background that this study is designed to examine the factors influencing research collaboration among academics in some universities in Nigeria.

Objectives

The aim of this research is to examine the factors influencing research collaboration in selected universities in Nigeria. The specific objectives were to:
1. Explore whether academics in Federal Universities in Nigeria collaborate in research
2. Find out the factors influencing research collaboration among the academics
3. Investigate the effects of research collaboration
4. Explore the ICTs used for research collaboration
5. Determine the factors militating against research collaboration
6. Proffer solutions to the identified problems

Research Questions
1. Do academics engage in research collaboration?

2.   What are the factors influencing research collaboration?
3.   What are the effects of research collaboration?
4.   What are the ICTs used for research collaboration?
5.   What are the militating factors to effective research collaboration?
6.   What are the perceived solutions to effective research collaboration?

Hypotheses

The following null hypotheses were tested:

Ho$_1$. There is no significant difference in the factors influencing research collaboration among academics in the selected federal universities in Nigeria.

Ho$_2$. There is no significant relationship between usage of ICT and effectiveness of research collaboration among academics in the selected federal universities in Nigeria.

Ho$_3$. There is no significant difference in the factors militating against research collaboration among academics in the selected federal universities in Nigeria.

Study Justification

This study will be significant in a number of ways as it will help to reveal the factors influencing research collaboration in Nigerian universities. Its findings are expected to go a long way in improving collaboration by academics in Nigeria, Africa and indeed the world at large. The study will also highlight contemporary practice in research collaboration. Improvement of research collaboration could lead to better utilization of knowledge for the fulfillment of research objectives in Nigeria and especially in the Federal Universities. This research will help in designing collaborative research networks in Nigerian universities. In addition, it will serve as an important knowledge contribution in the area of research collaboration and knowledge sharing research for growth and innovation in the areas of science and technology and social science researches towards improving the wellbeing of the citizenry, economically, socially and educationally.

Methodology

A structured questionnaire was designed with a five-point interval scale. A total of 150 of the questionnaires were distributed to academic lecturers in the selected Universities through a stratified random procedure. The federal universities selected using cluster sampling across the six geopolitical zones one university selected at random from each zone) in Nigeria were Bayero University Kano, University of Ibadan, University of Jos, University of Maiduguri, University of Port Harcourt and University of Nigeria, Nsukka. Administration was done mostly by mail. Of the total administered, only 122 were successfully completed and used for the study. Data collected were statistically analyzed with the Statistical Package for the Social Sciences (SPSS) IBM version 26. Statistical procedures adopted included summary statistic, Analysis of variance used to compare opinions of the respondents based on qualifications and the institutions involved in the study and Pearson Product Moment Correlation procedure for establishing extent of relationship between investigated variables. Statistical significance was fixed at alpha level of 0.05 ($p = 0.05$).

Results

Of the total respondents, 122, 67.2% were males and 32.8% were females. Discipline wise, 16.4% were from Arts and Social sciences, 16.4% from Engineering and 67.2% from Education. Majority (83.6%) were having doctorate degrees with only 16.4% having master degree in their respective institutions. Experience wise, 16.4% have been on the job for less than 11years and 50.8 have between 11 and 20years of experience on the job. Those with higher number of years of experience were 32.8% of the total respondents. All the respondents indicated that they take part in research collaboration in their respective institutions.

Table 1: Population and Sample of the Study

S/N	Federal University	Zone	Population	Sample
1	University of Maiduguri, Borno State	North-East	2040	20
2.	Bayero University Kano, Kano State	North-West	1225	12
3.	University of Jos, Plateau State	North-Central	2526	25
4.	University of Ibadan, Oyo State	South-West	3390	34
5.	University of Port Harcourt, Rivers State	South-South	1929	19
6.	University of Nigeria, Anambra State	South-East	3290	34
Total	6	6	14400	144

Involvement of respondents in collaborative research

Table 2 shows the respondents by the type of research in which they partook in collaboration with other colleagues. In the table, 83.6% were involved in collaborative research for Conferences, workshops and seminars presentations, Book publishing (32.8%), Scholarship availability (16.4%), Teaching methods/class management (66.4%), Current/on-going researches (50.0%) and Part-time, visiting and sabbatical jobs (50.8%). Other areas in which they were involved in collaboration were Agricultural researches (33.6%), Communal activities (33.6%), Consultancy/trade (50.0%), Health researches (16.4%), New technologies (ICTS) research (50.0%) and Culture, Tradition research/exhibition (20.5%), Sports and recreation (33.6%), Trade unionism (12.3%) and Politics (50.8%). In terms of preferred areas of collaboration, their involvement did not necessarily correspond with their interest as shown in the graph and the Table 2.

In terms of preference, collaboration for Conferences, workshops and seminars presentations was (100.0%), Book publishing (32.8%), Scholarship availability (16.4%), Teaching methods/class management (50.0%), Current/on-going researches (66.4%) and Part-time, visiting and sabbatical jobs (34.4%). Other areas which they expressed their preferences in collaboration were Agricultural researches (29.5%), Communal activities (33.6%), Consultancy/ trade (33.6%), Health researches (44.3%), New technologies (ICTS) research (50.0%) and Culture, Tradition research/exhibition (31.1%), Sports and recreation (33.6%), Trade unionism (12.3%) and Politics (34.4%). These observations imply that the academics were involved in collaborative research even if their preferred field of discipline was not the focus of such investigation.

Table 2: Types of Collaborative and Preferred Areas of Collaborative Research

Types of collaboration	Partake in		Preferred	
	Freq.	**%**	**Freq.**	**%**
Conferences, workshops and seminars presentations	102	83.6	122	100.0
Book publishing	40	32.8	40	32.8
Scholarship availability	20	16.4	20	16.4
Teaching methods/class management	81	66.4	61	50.0
Current/on-going researches	61	50.0	81	66.4
Part-time, visiting and sabbatical jobs	62	50.8	42	34.4
Agricultural researches	41	33.6	36	29.5
Communal activities	41	33.6	41	33.6
Consultancy/trade	61	50.0	41	33.6
Health researches	20	16.4	54	44.3
New technologies (ICTS) research	61	50.0	61	50.0
Culture and Tradition research/exhibition	25	20.5	38	31.1
Sports and recreation	41	33.6	41	33.6
Trade unionism	15	12.3	17	13.9
Politics	62	50.8	42	34.4

Factors influencing research collaboration

Table 3 shows the perceived factors expressed in means and standard deviation on a five-point scale that influenced the academics in collaborative research in the different institutions. Table 1 revealed that the most influencing factor for research collaboration in the selected institutions was to avoid duplication of effort. Others in the hierarchy were to uncover new ideas, be current in the discipline improve collaboration, promote multidisciplinary research, promote internationalized research activities and improve research output. Among others in the hierarchy were strengthen the academic culture, foster unity among academics, become popular among colleagues and be familiar with others in my field along with the need to secure funding/ scholarship.

Table 3: Factors Influencing Research Collaboration in the Selected Institutions

Engaging in collaboration is to	Mean	Std. Deviation
Avoid duplication of effort	4.51	1.115
Be current in my discipline	4.34	1.104
Become popular among colleagues	3.84	1.068
Be familiar with others in my field	3.66	1.252
Improve collaboration	4.18	1.068
Uncover new ideas	4.34	1.104
Strengthen the academic culture	4.02	1.414
Foster unity among academics	3.84	1.342
Improve research output	4.02	1.414
Secure Funding/scholarship	3.50	.956
Promote multidisciplinary research	4.17	1.066
Promote internationalized research activities	4.16	.903

Effects of Research Collaboration

One of the major effects of effects of research collaboration's influence on academic pursuit perceived by the respondents as indicated in Table 4 in their ranked order is that it provides a reliable source of input for preparing lectures and lecture notes. Others were that it leads to more exposure, and provides room for a wider participation in academic activities along with access to information relevant to research work which in turn enhances productivity and keeps the academics abreast of knowledge with current developments. Among other such effects were that it allows others to evaluate products researches and get relevant reference materials for lecture and thus allow a quicker and wider communication apart from its acquired influence on the methods of teaching in the institutions. It thus provides more information relevant to the specific field, thereby motivating factors for more researches. But the respondents did not agree that collaborative research provide them with community recognition or a mean of obtaining relevant input on research from other colleagues and improve community development. Opinion was divided on these issues along with the perception that collaboration research provides an appropriate means of publicizing research findings

Table 4: Effects of Collaborative Research on Academic Pursuits

Effects	Mean	Std. Dev.
A reliable source of input for preparing lectures and lecture notes	4.51	0.763
I get relevant reference materials for my lecture	4.16	0.903
Influences my method of teaching	4.00	1.157
A source of guidance in assessing my students	3.66	0.941
Allow others to evaluate my research	4.16	0.903
Access to information relevant to my research work	4.18	1.068
Awareness on other researches being conducted	3.66	1.370
Obtaining relevant input on my research from other colleagues	3.50	1.255
It is a motivating factor for my research	3.99	1.153
An appropriate means of publicizing research findings	3.51	1.386
Acquire more information relevant to my field	3.99	1.153
A means of keeping abreast of knowledge	4.17	1.066
Enhanced productivity	4.17	1.066
More exposure	4.34	1.103
Wider coverage	3.84	1.342
Improved community development	3.50	1.255
Community recognition	3.34	1.493
Effective self-help techniques	3.84	1.462
Quicker and wider communication	4.01	1.000
Wider participation	4.18	1.068

ICTs used for Research Collaboration

Among the use of ICTs for collaborative research, the computer ranked first with 66.4% and 33.6% for most used and frequently used. These are indicated in Table 5. Use of Mobile phone and Internet Facilities came next in the hierarchy. Others with less frequency of usage were Flash Drive (USB) with 67.2% for most frequent and 32.8% for frequently used, CD-ROM with 83.6% for frequently used and Digital camera with 32.8%.

Table 5: ICTs Used by Respondents for Collaborative Research

ICTs	Most frequent		Frequent		Not frequent		Never	
	F	%	F	%	F	%	F	%

	F	%	F	%	F	%	F	%
Computers	81	66.4	41	33.6				
Mobile phones	102	83.6	20	16.4				
Radio			20	16.4	61	50.0	41	33.6
Television	20	16.4	20	16.4	41	33.6	41	33.6
Digital camera			40	32.8	62	50.8	20	16.4
Internet Facilities	102	83.6	20	16.4				
CD-ROMs			102	83.6			20	16.4
Flash Drive (USB)	82	67.2	40	32.8				
Blog			40	32.8	41	33.6	41	33.6

Factors militating against research collaboration

The opinions of the respondents on the suggested factors were scored in frequencies and percentages on a dichotomous scale in Table 6.

Table 6: Respondents Opinion on Factors Militating against Research Collaboration

	Yes		No	
Factors	F	%	F	%
Poor funding of research activities	101	82.8	21	17.2
Poor research culture among academics	122	100.0		
Poor facilities available for conduct of research	101	82.8	21	17.2
Lack of recognition of collaborative research efforts	102	83.6	20	16.4
Academics' poor attitude towards collaborative engagements	122	100.0		
Lack of advocacy in the academia	82	67.2	40	32.8
Low level of information literacy skills among academics	81	66.4	41	33.6
International travel barriers	61	50.0	61	50.0
Poor policies on internationalization of academic institutions	102	83.6	20	16.4
Stringent policies on logistics/funding	82	67.2	40	32.8

Among the factors militating against collaborative research in the selected institutions indicated in Table 6, poor research culture among academics and their attitude towards collaborative engagements ranked the most outstanding. All the respondents agreed with these opinions. Poor policies on internationalization of academic institutions and were the next militating factors which the respondents were of the view constituted a major challenge. Along with these was inadequacy of facilities available for conducting research and poor funding of research activities characterized by stringent policies and logistics.

Suggested solution for effective research collaboration

The opinions of the respondents on the solutions for improving research collaboration in the selected institutions are tabulated in frequencies and percentages in Table 7.

Table 7: Solutions to improved Collaborative Research in the Selected Institutions

Suggestions for effective research collaboration	Yes		No	
	F	%	F	%
Improved funding of research activities	122	100.0		
Imbibing the spirit of research culture among academics	81	66.4	41	33.6
Provision of adequate facilities available for conduct of research	102	83.6	20	16.4
Due recognition of collaborative research efforts	102	83.6	20	16.4
Academics' positive attitudinal change towards collaborative engagement	101	82.8	21	17.2
Improved advocacy in the academia	102	83.6	20	16.4
Improved level of information literacy skills for lifelong learning among academics	122	100.0		
International policy formulation on travel barriers	102	83.6	20	16.4
Improved policies on internationalization of academic institutions	81	66.4	41	33.6
Flexible/accommodating policies on logistics/funding	102	83.6	20	16.4

From the opinions of the respondents in Table 7, one of the major and outstanding solutions to collaborative research is the abandonment of self-claim of adequacy of knowledge and seeking improved level of information literacy skills for lifelong learning among academics. The next most important solution which all the respondents agreed on was the need for improved funding of research activities which should include flexible and accommodating policies on logistics in financing of researches. There is also the need for improved advocacy in the academia along with recognition of collaborative research efforts and provision of adequate facilities for conducting research. Respondents were of the view that there is need for positive attitudinal change among academics towards collaborative research which would limit the inhibition to collaborative efforts among academics.

Test of Hypotheses
Ho$_1$. There is no significant difference in the factors influencing research collaboration among academics in the selected universities

Table 8 showed the analysis of variance model for the test of difference on factors influencing research collaboration among academics in the selected universities with the qualifications of the academics as the independent variable. The mean scores for the respective categories of qualifications are shown in Table 9. The result revealed no significant difference between the academics of different qualifications on the factors. The observed F-value for the test was 0.0555 at degree of freedom of 2,119. The p-value obtained in the test was 0.576($p>0.05$). These were clear indications that the academics of different qualifications did not differ significantly in the factors influencing research collaboration in the selected universities.

Ho$_2$. There is no significant relationship between usage of ICT and effectiveness of research collaboration among academics in the selected universities

Table 10 showed the summary of the test of relationship between usage of ICT and effectiveness of research collaboration among academics in the selected universities.

The result of the test conducted with the Pearson Product Moment Correlation procedure revealed that the use of ICT was positively and significantly correlated with effectiveness of research collaboration among academics in the selected universities. The observed correlation coefficient was 0.850 obtained at 120 degree of freedom. And the level of significance obtained for the test was 0.000 ($p < 0.05$). The null hypothesis was therefore rejected.

Ho₃. There is no significant difference between the selected universities in the factors militating against research collaboration among academics in the selected universities

Table 11 showed the analysis of variance model for the test of difference on factors militating against research collaboration among academics in the selected universities. The mean scores for the universities are shown in Table 12. For the test of difference between the institutions carried out with the One-way Analysis of Variance (ANOVA) on factors militating against their research collaboration among academics, it was the variability was significant (p = 0.000). The observed F-value was 27.510 at the 2,119 degree of freedom. The respondents from the University of Maiduguri were found to differ from all other respondents from the different institutions selected for the study. The null hypothesis was therefore rejected. Observed variability was associated to the location environment since the other selected institutions did not differ significantly in those factors enumerated above.

Table 8: ANOVA on Factors Influencing Research Collaboration by Respondents' Qualifications

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.078	2	0.539	0.555	0.576
Within Groups	115.668	119	0.972		
Total	**116.747**	**121**			

Table 9: Mean Scores on Factors Influencing Research Collaboration by Respondents' Qualifications

Qualifications	N	Mean	Std. Deviation	Std. Error
PhD	78	3.9786	1.00454	0.11374
Masters	24	4.1806	0.86381	0.17633
Bachelor's degree	20	4.1667	1.04644	0.23399
Total	**122**	**4.0492**	**0.98227**	**0.08893**

Table 10: Test of Relationship between Usage of ICT and Effectiveness of Research Collaboration among Academics in the Selected Universities

Variables	N	Mean	Std. Dev.	r-calc.	Df	p-value
Use of ICT	122	3.5528	.52457	0.850	120	0.000
Effectiveness of research	122	3.9365	1.00515			

Table 11: ANOVA on Factors Militating against Research Collaboration in the Institutions

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	116.747	5	23.349	27.510	0.000
Within Groups	98.457	116	0.849		
Total	**215.204**	**121**			

Table 12: Mean Scores on Factors Militating against Research Collaboration by the Institutions

Institutions	N	Mean	Std. Deviation	Std. Error
UI	21	4.5833	0.98120	0.11374
UNN	21	4.4167	0.86381	0.17633
UJ	20	5.0000	1.02444	0.23399
BUK	20	3.7500	0.98227	0.08893
UNIMAID	20	2.0000	2.19591	0.24864
UNIPORT	20	4.5000	1.93321	0.39462
Total	**122**	**4.0492**	**0.86381**	**0.17633**

Conclusion

The study has established that collaborative research promotes multi- disciplinary research initiatives and improves research output among researchers. Collaborative research serves as sources of recognition and pave the way for further academic pursuit and strengthen academic culture and foster unity among academics. It is also established that it provides room for a wider participation in academic activities which leads to access to information relevant to research work and leads to enhancement of productivity among researchers; giving researchers the opportunity to keep abreast of contemporary practices and to be up-to-date in their field. Collaborative research also gives room for evaluating other colleagues in terms of contribution and expertise in different areas as well as providing opportunity and motivation for further researches. It brings about understanding and wider coverage/communication of research results, hence there is need to explore the Bibliometric analysis of the collaborative researches among academics in Federal universities in Nigeria. In so doing, the most prolific authors could be ascertained; the areas of research/discipline mostly collaborated upon; the most collaborative university; and types of publications (book, journal articles, chapters, products and services) emanating from the collaborative researches.

Recommendations

In line with the findings and conclusions of the study, it is recommended that:
1. Government should as a matter of urgency provide more resources through its agencies like TETFUND and to re-visit existing policies towards improving collaborative research activities and making it a priority in tertiary institution.
2. There is need to consider up-coming researchers in the academia for sponsorship with senior colleagues and among themselves to be given recognition and opportunity to participate more in research collaboration through adequate funding, thereby promoting collaborative researches and mentorship.
3. Other stakeholders in education needs to come in to sponsor and provide scholarships to research activities, as this will increase research output in different field of knowledge.
4. Sensitization forum needs to be formed championed by universities in collaboration with other stakeholders and academics to ensure recognition and valuing of collaborative research and researchers, especially with regards to

promotion and sponsorship, this will serve as a catalyst for more collaborative researches.

5. Collaborative research need to focus more in the areas of sport and recreation, trade unionism and politics as these areas are reported to be given less attention in terms of collaborative researches.

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