

Exploring the Role of Teamwork in Enhancing Research Productivity in Yobe State Tertiary Institutions, Nigeria

Bukola Agboola^{1*}, Fatima Lasisi Ibrahim²

Abstract

The impact of cooperation on academic scientists' publishing production at tertiary institutions in Yobe State, Nigeria, was the subject of this survey study. Three (3) goals served as the study's guidelines. At the 0.05 level of significance, chi-square (X²) was used to test two (2) null hypotheses. The study's target audience consisted of 162 academic scientists, and a survey research design was employed. The study used the total enumeration sampling technique. A questionnaire was used by the researcher as the data gathering tool. Thus, 162 copies of questionnaire were distributed to academic scientists and 122 (75.3%) was adequately filed and returned which was used for data analysis. Data was analyzed using descriptive statistics of frequency counts and percentages. The findings revealed that teamwork existed among academic scientists to moderate extent; information sharing activities among academic scientists was to a moderate extent and academic scientists publications output revealed that majority of the academic scientists were able to publish the required papers for their promotion within time in rank. According to the study, cooperation and information exchange have a major influence on the publication output of academic scientists at tertiary institutions in Yobe State, Nigeria. Some suggestions for improvement were given in light of the findings; in order for university scientists to compete with their counterparts in the developed world, they should be encouraged to work together and exchange research knowledge. Having done that, management should motivate academic scientists by giving award and recognition to scientists that have excelled and management of these institutions should encourage academic scientists to publish more in overseas journals so as to promote familiarity and increase innovation among scientists in Nigeria.

Keywords: Impact, teamwork, information sharing, publication output & academic scientist

INTRODUCTION

In this study, the terms "teamwork" and "teamwork" are used interchangeably to describe a group of two or more researchers who work together to achieve shared goals, share educational and research aspirations, and foster group effort in order to meet the focus's educational needs. It has long been standard procedure for higher education scholars to collaborate (Read, 2010).

*Author for Correspondence

Bukola Agboola
E-mail: agboolabukolao@gmail.com

¹Department of Library & Information Science, Federal University Gashua, Yobe State

²Professor, Department of Library & Information Science, University of Maiduguri, Nigeria

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To generate the desired change in human, the process by which information gets transferred from one source to another certainly deserves serious attention. Similarly, it is well known that capacity of information bring and put impact structural changes within a society that result to huge development. However, the flow of information could be either through formal or informal channels. The former signifies channel that is meant for public-large potential audiences, in which information is permanently stored and can be retrievable, as well as having little direct feedback to the originator.

Especially in the areas of pure sciences and technology within the faculties/schools of science, science and technology, and science education, academic scientists and lecturers are interchangeable in Yobe State, Nigeria's higher education institutions.

The faculty/schools of sciences under study offered courses such as agricultural technology, biological science, biochemistry, chemistry, computer science, environmental biology, mathematics, science laboratory technology, statistics and physics. Tertiary institutions are considered learning and research communities for the purpose of promoting national and global development. Based on this regard academic scientists also contribute to the existing knowledge in the field of sciences and to the nation at large.

Oyedipe, Adekunmisi and Akinbode (2017) opine that teamwork and information sharing offer several opportunities in education. First of all, they may be used as a means of preparing students for future workplace. In today's globalized society, students watch lecturers who embrace the positive effects of collaboration and information exchange on education. Students can be given the chance to participate in the knowledge-age skills that the Bung people have learned in a more complicated world through collaboration between lecturers and students and information sharing. To give tomorrow's workers and clients the skills and knowledge they need to promote jobs and services, lecturers will need to collaborate with one another. The establishment of sustainable teamwork opens up the horizon of information sharing wider. Hence those belonging to the teamwork enjoy unlimited information. Therefore, scientists obtain much of their information from their colleagues through formal and informal ways. Semali, Baker and Freer (2013) observed that scholarly discussions and information sharing among tertiary institution lecturers frequently take place in academic communities for the purpose of achieving common goal of academic and intellectual progress. Information teamwork among professionals especially in the field of science is a desirable element for productivity. Communication is one form of the activities which usually takes up a significant fraction of a scientist's working life.

Professors in higher education who specialize in teaching and research in the sciences are known as academic scientists. A team of lecturers known as academic scientists carries out scientific research to increase understanding in a particular field of study. Research to improve medical and economic growth is one of the responsibilities of higher institutions. To advance in their positions, academic staff members must conduct research. In addition to promoting lecturers, research papers raise their stature and credibility while also benefiting their local community and the wider world. Compared to their colleagues in other regions of the world, Nigerian lecturers' production has been deemed to be of low quality (Nwakpa, 2015).

In their fields of competence, lecturers are essentially responsible for teaching, research, and community service. In order to push the boundaries of knowledge, they are also interested in journal publication, conference proceedings, collaboration, and information exchange with others. Imhonopi and Urim (2011) have noted that academics in industrialized nations actively collaborate with both colleagues in their field of expertise and those outside of it. They are visibly, academically, and globally productive due to their research activities.

It is expected of lecturers to do research and share their findings. The number and frequently the quality of a lecturer's publication output—such as journal articles, books, conference proceedings, and technical reports in the sciences—determines his or her recognition and development in a post-secondary school.

Rasmussen and Moen (2011) submitted that academic environment are known as knowledge promoters in the hardship economy, which are working as an important infrastructure towards building the capacities for nations and regions to survive and succeed in the knowledge economy. Traditionally, teaching and research have been the institutions objectives before the recent commercialization of

research as a different role for tertiary institution in society. Rørstad and Aksnes (2015) asserts that, there are large differences in the publication output among scientists, a relatively small proportion of scientists that team-up and share research information contribute to the majority of the publications.

Publication output refers to the achievement for promotion among lecturers of academic community. Hence, the publication output of lecturers is not only designed for national growth and development but it is also an important barometer for deciding who merits promotion and who does not within the tertiary institution environment According to Popoola (2002), the number of books published or journal articles created over time could be used to gauge the volume of academic scientists' publication output. Popoola further observed that, the criteria for determining world Class University are not so much the size of student's population or quality of community services but the scientific research output.

PROBLEM STATEMENT

Preliminary observation shows that academic scientist in tertiary institutions in Yobe State, Nigeria seems not to frequently collaborate and share information on their publications. This may be attributed to lack of understanding the impact of teamwork and information sharing on their publication output and pressure of work on academic scientists as a result of higher increasing students' population. These could so likely reduce the number of publications produced by scientists in Yobe State, Nigeria's academic institutions. Nevertheless, teamwork and information sharing is very vital for quality and quantity publication output, it is therefore, the problem of this study to examine the impact of teamwork and information sharing on the publication output of academic scientists in tertiary institutions in Yobe State, Nigeria.

Objectives of the Study

The objectives of the study are to:

1. Assess the degree of collaboration among academic scientists in Yobe State, Nigeria's tertiary institutions.
2. Assess the degree to which academic scientists in Yobe State, Nigeria's tertiary institutions exchange information.
3. Assess the volume of publications produced by academic scientists in Yobe State, Nigeria's tertiary institutions.

Research Hypotheses

The following null hypotheses were tested using chi-square:

1. H_{01} : There is no significant impact of teamwork on publication output of academic scientists in tertiary institutions in Yobe State, Nigeria
2. H_{02} : There is no significant impact of information sharing on publication output of academic scientists in tertiary institutions in Yobe State, Nigeria.

LITERATURE REVIEW

Interaction between two or more scientists that facilitates the sharing of accomplished and meaningful activities in relation to a shared superordinate goal is known as scientific teamwork.

Scientists who team-up may also bring additional, individual goals to workplace. A teamwork involve two or more lecturers who interact with each other, at certain period, working together to achieve the same goal. Doherty (2011) in a research on Medicines for Malaria Venture (MMV) observed that many collaborations exist within scientists which facilitate ideas and information that debate, discuss and range scale from interdepartmental to global forums Changing other people's behavior is a challenge that requires cooperation and excellent communication skills. In a cooperative society, member communication is the most important factor. People are more cooperative, trustworthy, and able to come to solutions more easily when they can communicate.

Green and Johnson (2015) submitted that teamwork may occur virtually or physically at any level of an institutions. People can collaborate within institution, between institution, among one another, countries, and professions. Teamwork is a term commonly used in research, medical, clinical, and health professions.

Research Methodology

For the study, descriptive survey research was used. The target group consisted of 162 academic scientists from the three postsecondary institutions that were the focus of the study: Federal College of Education (Technical) Potiskum, Federal Polytechnic Damaturu, and Federal University Gashua. Total enumeration sampling was employed in the study. The instrument used to collect the data was a questionnaire. The data was analyzed using descriptive statistics such as percentages and frequency counts.

Chi-square was used to test the two hypotheses at the 0.05 level of significance.

Data Analysis and Interpretation

Academic scientists were given 162 copies of the questionnaire, and 122, or 75% of the total, responded. All were duly completed and sent back for examination. However, 40 copies of the questionnaire—or 25% of the total—were not returned. For analysis, the 122 (75%) was chosen (Table 1).

Table 1 shows that, academic scientists in tertiary institutions in Yobe State collaborate with colleagues in their field with 57(47%) respondents, extent to which scientists published in teamwork with colleagues in other field of science, 64(52%) respondents and extent of teamwork when it comes to Tetfund sponsorship, 54(44%) respondents who indicated moderate extent, while, the extent of teamwork in existence among academic scientists, with years of teamwork in research indicated, 58(48%) respondents and extent of teamwork with colleagues outside their field 53(43%) respondents who indicated low extent [1]. This implies that, out of 122 respondents, the majority of 51(42%) respondents indicated moderate extent, followed by 34(28%) respondents who indicated high extent, and 32(26%) respondents indicated low extent, while 5(4%) respondents indicated no extent. Therefore, the extent of teamwork in existence among academic scientists was to moderate extent.

Table 2 shows that, academic scientists in tertiary institutions in Yobe State share information with colleagues in their field with 57(47%) respondents, extent to which they inform their colleagues before starting research 68(56%) respondents and extent to which they maintain scientific data in secret up to the time of publication was 82(67%) respondents who indicated moderate extent, while, the extent of information sharing activities among academic scientists, with extent to which they normally distribute to colleagues the pre-prints of their research work 64(52%) and extent to which they prefer working alone than sharing information to colleagues for research purpose was 73(60%) respondents who indicated low extent. Specifically, the information sharing activities among academic scientists was to moderate extent in sharing information with colleagues in their field, extent to which they inform their colleagues before starting research and extent to which they maintain scientific data in secret up to the time of publication. This implies that, out of 122 respondents, majority with 53(43%) respondents indicated moderate extent, followed by 39(33%) respondents who indicated low extent, and 20(16%) respondents indicated high extent, while 10(8%) respondents indicated no extent. Therefore, the extent of information sharing activities among academic scientists was to moderate extent [2-5].

Table 3 shows academic scientists publication output, with 56 assistant lecturers/ lecturer III who required 2 papers for their promotion, 31 (55%) respondents were able to published required number of papers for their promotion as against 25 (45%) respondents who were not able to publish the required paper. Twenty one (21) lecturers II indicated 4 papers were required for their promotion, and 14 (67%) respondents had published the required papers as against 7 (33%) respondents who had less papers within time in rank.

Table 1. Extent of Teamwork in Existence among Academic Scientists.

Statement	N	HE	ME	LE	NE	Remark
To what extent do you collaborate with colleagues in your field?	122	42 (34%)	57 (47%)	20 (16%)	3 (3%)	Moderate Extent
To what extent do you published in teamwork with colleagues in other field of science		45 (37%)	64 (52%)	11 (9%)	2 (2%)	Moderate Extent
How do you rate your years of teamwork in research		26 (21%)	33 (27%)	58 (48%)	5 (4%)	Low Extent
To what extent do you collaborate when it comes to Tetfund sponsorship		39 (32%)	54 (44%)	16 (13%)	13 (11%)	Moderate Extent
To what extent do you collaborate with colleagues outside your field?		18 (15%)	49 (40%)	53 (43%)	2 (2%)	Low Extent
Total			170/5	257/5	158/5	25/5
Average		34 (28%)	51 (42%)	32 (26%)	5 (4%)	Moderate Extent

Keys: High Extent (HE), Moderate Extent (ME), Low Extent (LE), and No Extent (NE)

Table 2. Extent of Information Sharing Activities among Academic Scientists.

Statement	N	HE	ME	LE	NE	Remark
To what extent do you share information with colleagues in your field	122	28 (23%)	57 (47%)	34 (28%)	3 (2%)	Moderate Extent
To what extent do you inform your colleagues before starting research		24 (20%)	68 (56%)	12 (10%)	18 (14%)	Moderate Extent
To what extent do you maintain scientific data in secret up to the time of publication		20 (16%)	82 (67%)	15 (13%)	5 (4%)	Moderate Extent
To what extent do you normally distribute to colleagues the pre-prints of your research work		8 (7%)	34 (28%)	64 (52%)	16 (13%)	Low Extent
To what extent do you prefer working alone than sharing information to colleagues for research purpose		18 (15%)	22 (18%)	73 (60%)	9 (7%)	Low Extent
Total			98/5	263/5	198/5	51/5
Average		20 (16%)	53 (43%)	39 (33%)	10 (8%)	Moderate Extent

Keys: High Extent (HE), Moderate Extent (ME), Low Extent (LE), and No Extent (NE)

Table 3. Academic scientists publication output.

Rank of academic scientists	Number of academic scientists	Number of papers required for promotion in university, Poly & College	Number of papers published within time in rank	Academic scientists publication output			
				Academic scientists with required papers		Academic scientists with less papers	
				Freq	P(%)	Freq	P(%)
Assistant Lecturers/ Lecturer III	56	2 papers	2 papers	31	55%	25	45%
Lecturer II	21	4 papers	4 papers	14	67%	7	33%
Lecturer I	11	5 papers	5 papers	9	82%	2	18%
Senior Lecturers	17	10 papers	10 papers	12	71%	5	29%
Readers/ Principal Lecturers	8	15 papers/14 papers	15 papers	6	75%	2	25%
Professors/ Chief Lecturers	9	-	16/15 papers and above	8	89%	1	11%
Total	122			80		42	

Source: field survey, 2019

Table 4.3 further shows that 11 lecturers I indicated that 5 papers were required for their promotion, and 9 (82%) respondents had published [6, 7] the required papers within time in rank as against 2 (18%) respondents who had less papers within time in rank. In the same vein 17 senior lecturers indicated that 10 papers were required for their promotion, and 12 (71%) respondents published the required number of papers within time in rank as against 5 (29%) respondents who were not able to publish the required papers within time in rank.

Furthermore, 8 readers/principal lecturers indicated that 15/14 papers were required for their promotion, and 6 (75%) respondents were able to publish the required number of papers within time in rank as against 2(25%) respondents. Similarly, Table 4.3 shows that 9 professors/chief lecturers had not indicated the number of papers [8, 9] required for promotion. However, 8 (89%) respondents indicated that they were able to publish 16/15 papers and above, as against 1 (11%) respondent who did not. The analysis indicated that the higher the rank the more prolific in writing the academic scientists become as indicated by number of publication output as the rank increase. Also the fact that Professors/Chief Lecturers publication output did not indicate number of publications revealed that at that level publication output is no longer required and so keeping counting does not matter [10-12]. The analysis in Table 4.3 revealed that academic scientists were able to publish the required papers for their promotion within time in rank has the highest scores with 80(439%), followed by academic scientists with less papers with 42(161%).

Hypotheses Testing

Ho1: Academic scientists' publication output at tertiary institutions in Yobe State, Nigeria, is not significantly impacted by teamwork.

The contingency table for the test of the effect of teamwork on academic scientists' publication output in tertiary institutions in Yobe State, Nigeria, is displayed in Table 4.

According to Table 4, the P-value at the 0.05 level of significance at 18 degrees of freedom is 1.149, and the computed X^2 is = 60. The hypothesis is rejected because the computed X^2 of 60 is higher than the P-value of 1.149. This suggests that academic scientists' publication production at tertiary institutions in Yobe State, Nigeria, is significantly impacted by cooperation.

Ho2: Academic scientists' publication production at tertiary institutions in Yobe State, Nigeria, is not significantly impacted by information sharing.

$X^2 = 64.7$ and P-value = 6.262 at the 0.05 level of significance at 12 degrees of freedom were found in Table 5. The hypothesis is rejected because the computed X^2 of 64.7 is higher than the P-value of 6.262. This suggests that academic scientists' publication production at tertiary institutions in Yobe State, Nigeria, is significantly impacted by information sharing.

Table ?????

Option	SA	A	D	SD	Total	Df	X^2	p-value	Decision P<0.05
Observed	26.1	64	26.4	5.4	122	18	60	1.149	S
Expected	30.5	30.5	30.5	30.5	122				

Table 5. Shows contingency table for the test of impact of information sharing on publication output of academic scientists in tertiary institutions in Yobe State, Nigeria.

Option	SA	A	D	SD	Total	Df	X^2	p-value	Decision P<0.05
Observed	33.6	64.2	20.8	3.4	122	12	64.7	6.262	S
Expected	30.5	30.5	30.5	30.5	122				

Summary of Findings

The results of the study are as follows:

1. Extent of teamwork in existence among academic scientists was moderate
2. Extent of information sharing activities among academic scientists was also moderate
3. Extent of academic scientists publication output revealed that majority of the academic scientists were able to publish the required papers for their promotion within time in rank
4. The study revealed that there is significant impact of teamwork on publication output of academic scientists in tertiary institutions in Yobe State, Nigeria
5. Finally, the study also revealed that there is significant impact of information sharing on publication output of academic scientists in tertiary institutions in Yobe State, Nigeria.

CONCLUSION

The study came to the conclusion that they consciously work together to increase their publishing output and be productive in their various scientific fields, especially with their Nigerian counterparts in their specialized fields. The study came to the conclusion that in order to promote, enhance, and improve their publishing output, academic scientists should work closely with one another and share scientific knowledge with colleagues. It can be concluded that teamwork and information sharing are integral part of the activities of the academic scientists in order to be efficient and effective in research activities. This study further concluded that, academic scientists should not only collaborate for the purpose of promotion, but also for the purpose of innovation, invention and creativity to meet with their counterpart abroad in terms of new discovery. Federal Government through TETFund intervention with the teamwork of NUC should not only consider publication for promotion but support, encourage and grant academic scientists opportunity to contribute their best to the economic development of our country.

Recommendations

The following suggestions for improvement were given in light of the study's findings:

1. To effectively compete with peers in the developed world, academic scientists should be encouraged to work together and share research findings with one another. After that, management ought to encourage academic scientists by rewarding and recognizing those who have achieved excellence.
2. Academic scientists at postsecondary institutions ought to provide peers with pre-prints of their current research projects. This will significantly increase the likelihood of scholarly discourse and the incorporation of pertinent concepts into their research. By doing this, their published outputs will be of higher quality and more visible to their peers.
3. Academic scientists should be encouraged to publish by the management of tertiary institutions. scientists to write
4. The management of tertiary institutions including NUC, NBTE, and NCCE should create an atmosphere that is more favorable for academic scientists to collaborate easily and quickly in order to produce high-quality publications.
5. They should also encourage teamwork and information sharing by the scientists through scholarship, grant conference and seminars. This will enhance and stimulate breakthrough in their various fields of interest.

Tertiary institutions' managements in teamwork with their regulatory body should provide more conducive environment for easy information sharing among academic scientists. This will improve communication about other people's thoughts, expertise, accomplishments, and experiences.

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