

# The influence of rank and sex on research collaboration among academic staff of public tertiary institutions in edo state, nigeria

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## Abstract

*This research paper investigated the determinant of rank and sex on research collaboration among academic staff in public tertiary institutions in Edo State, Nigeria. To give direction to this study three (3) research questions were raised out of which two (2) were hypothesized. The aim of this study is to investigate research collaboration among academic staff in public tertiary institutions in Edo State, Nigeria. The study used descriptive survey research design. The population of this study comprised all academic staff in public tertiary institutions in Edo State, Nigeria. The sample size for the study consisted two hundred (200) academic staff using multi stage sampling techniques. Questionnaire was used to collect the data for the study. The questionnaire has two sections. Section 'A' has items dealing with bio-data of the academic staff while Section B deals with items on research collaboration. The four (4) point likert format of: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) were used. The Reliability of the instrument was determined by using the Cronbach Alpha Statistic which yielded coefficients of 0.82. The researchers administered the instrument to the academic staff. Research questions 1 was answered using the descriptive statistics such as mean and standard deviation. Hypotheses 1 and 2 were tested using the independent t-test statistic. The hypotheses were tested at 0.05 alpha level of significance. The study revealed that research collaboration among academic staff in public tertiary institutions in Edo State, Nigeria is low. It was also revealed that there were no significant difference in research collaboration among academic staff in public tertiary institutions in Edo State, Nigeria based on rank and sex. Based on the findings, the researchers recommended that since the study has found that research collaboration among academic staff institutions in Edo State, Nigeria is low, there should be a regular seminar organize by the management of the tertiary institutions on the need and importance of research collaboration among academic staff.*

**Keywords:** Research collaboration, Rank, Sex, Academic Staff

## Introduction

Tertiary Institutions (TIs) all over the world are boosting the expansion of connectivity in effective teaching, applied research and services that support institutional missions (UNESCO, 2023). According to Ayenalem et al (2022) when teaching, problem solving and professional service are performed in integrative approach, goals of TIs are achieved. Tertiary institutions comprise universities, polytechnics and colleges of education. TIs encourage genuine collaboration at individual and institutional levels to better achieve their missions. The culture that fosters partnership and team-work instead of individualism embraces collaboration. Researchers have recognized that most problems confronting societies require individual and institutional collaboration (Bature & Atweh, 2019; Leahey & Bar-ringer, 2020). From the foregoing, at the international front, TIs promote collaboration to enhance connectivity among lecturers, advance knowledge, solve real-world complex problems, improve web ranking and maintain their status locally and internationally.

In Nigeria, TIs are public or private universities, polytechnics and colleges that prepare future professionals at undergraduate and postgraduate levels. Lecturers in TIs are responsible for teaching, lifelong learning, advancing academic excellence, conducting scholarly research, supervising seminars/projects, class advising, community service and many other administrative responsibilities. They perform three core functions, which include teaching, research and community service. Lecturers of TIs include professors/chief lecturers, senior lecturers, lecturer I, and others ranks down the academic ladder. Lecturers' collaboration in TIs has become necessary for individual and

institutional success, promotion, wealth creation and national development (NUC, 2012; Abubakar, 2016). Lecturers' collaboration can occur between and among lecturers within a locality or between and among international professionals (Delgadillo, 2016; Doyle, 2019).

In TIs there seems to be more interest in strengthening work relationships (Fiore, Graesser, Greiff, Griffin, Gong, Kyllonen, Massey, O'Neil, Pellegrino, Rothman, Soulé and Davier 2017; University of Gondar, 2021). Ayenalem, et al. (2022) stressed that Ethiopian Ministry of Education encourages institutional collaboration and mostly fund the projects that are written by 5 – 8 lecturers. Though collaboration is highly encouraged but the actual practice of collaboration among senior and junior lecturers is not sufficiently known as a result of limited empirical studies. Ayenalem, et al. (2022) argued that empirical studies on effective practice of collaborative work is inadequate.

Studies reported that academic staff rarely put collaboration into actual practice (Vangrieken et al. 2015; Jong, et al. 2020; Vangrieken & Kyndt, 2019). The real pattern of collaboration in their day-to-day routines of instruction, inquiry, and professional service are less often applied. Junior lecturers are left to learn things on their own and to sink or swim in their everyday jobs (Abdurrahman, 2016; Saidin et al. 2020; Wondem, 2022). Therefore, lecturers' collaborationism should focus on combined line of work and a corporate sense of obligation to improve their practice in instruction, inquiry, and professional service (Jong et al., 2019). There are empirical global evidences on the challenge of how to effectively conduct and enhance collaboration between novice and veteran lecturers (Abdurrahman, 2016; Dias-Lacy & Guirguis, 2017;

AL-Naimi et al. 2020; Sai-din et al. 2020).

Consequently, it seems that lecturers are not collaborating as expected. The findings of Ibe et al. (2020) reiterated that collaboration is recognized to be important but it is still not adequately practiced. This research gap prompted the current study on the influence of rank and sex on research collaboration among academic staff in Edo State, Nigeria.

### **Concept of Research Collaboration**

Almost every kind of discipline requires some joint efforts in achieving common goals. Cooperation, partnership, agreement and team work is referred to as collaboration. Fiore, et al. (2017) defined collaboration as the coordination of team members which include the demand for the exchange of thought; mutual identification of difficulty, negotiated consent, and Management of relationship with group goals and the needs to be achieved. Collaboration means working with others to achieve a common goal (Bhullar et al. 2021). It refers to the process of working together with other people (Johari et al., 2022).

According to Ayenalem et al (2022) collaboration means working with someone else to create or produce something. Similarly, Paphawasit et al.(2022) defined collaboration as the scientific cooperation in knowledge creation and production. In the context of this study, collaboration is defined as the process of working jointly with other intellectuals to achieve a common goal in the area of research. Research is a systematic investigation or enquire to establish facts, draw conclusion and increase knowledge. According to Montague, (2015) research means knowledge creation and knowledge cross-fertilization. Odigwe and Owan (2022) stressed that since research is cardinal to scientific

cognition activity and problem-solving, TIs should strengthen research activities. The researchers maintained that one strategy for strengthening problem-solving is collaborative research. Research collaboration encompasses research networks, which brings about communication system with other researchers at the local and global levels (Johnston et al. 2020). Collaborative research takes place when researchers or higher institutions unite mainly to solve a unique problem (Odigwe & Owan, (2022). The findings of Bansal et al. (2019) revealed that most scientific problems are solved by researchers with common characteristics.

Available evidence shows that successful collaboration is hinged on certain characteristics. Similarly, the findings of Delgadillo (2016) revealed that trust, formal agreement, determination, emotional intelligence and respect for others are the elements of successful collaboration. By and large, collaboration has structures and boundaries that come in different forms. Scholars have documented different forms of collaboration that lecturers can take advantage of. For example Muckenthaler et al. (2020) identified four forms of collaboration as professional collaboration, student-related collaboration, collective work collaboration and co-construction collaboration. Odigwe and Owan (2022) identified five forms of research collaboration, which include intra-research collaboration, inter-research collaboration, institution-government research collaboration, institution industry research collaboration and institution-industry-government research collaboration.

Ayenalem et al (2022) came up with different forms of collaboration namely, isolation, balkanization, contrived, and moving mosaic. From the foregoing, building on these forms

of collaboration, lecturers in TIs would benefit significantly from collaboration.

Previous researchers have shown evidences of the importance of research collaborationism. Research collaborationism allows access to relevant information, materials, resources, and methods that improves research quality (Pascoe & Vonortas, 2015; Cartes-Velásquez & Manterola 2017; Saidin et al., 2020; Wondem, 2022). According to Ayenalem et al (2022), availability of materials, resources and methods supports the platform for senior and junior lecturers to benefit from collaboration. The researchers reiterated that collaboration creates a platform for senior and junior staff to improve research activities.

Research findings revealed that collaboration reinforces professional relationship and support (Jao & Mcdougall, 2016; Fox, et al. 2016; Johnston et al. 2020; Mowery et al. 2020; O'Dwyer et al. 2022; Vieira & Cerdeira, 2022). Similar findings reveal co-authored researches reduce the burden of carrying out research individually and creates more impact (Sooryamoorthy, 2017; Cunill et al. 2019; Makvandi et al. 2021; Maddi & Yves 2021; Lewis & Richard 2021; Abdurrahman, 2016; Chaovanapricha & Chaturongakul, 2020; Wondem, 2022).

The findings of Odigwe and Owan (2022) revealed that when one or two individuals, groups and institutions collaborate, better results are achieved than when individuals work on their own. Academic staff who work together as team researchers report improved research skills (Shaikh 2015; Khalid et al. 2016). Furthermore, researchers found that collaboration supports the exchange of knowledge across disciplines (Makvandi et al. 2021; Ameh et al., 2021).

Empirical studies reveal that research collaboration plays significant role in solving complex problems, which would be difficult for individual researchers (Lewis & Richards 2021; Song et al. 2019; Samuel et al. 2021). Collaboration drives economic development amongst nations (Rajalo & Vadi, 2017; Fischer et al. 2019; Tseng et al. 2020). Moreover, it motivates and enhance wealth creation (Muckenthaler et al., 2020; Marginson, 2021; Owen-Smith, 2018). Collaboration also helps to reduce poverty, facilitates economic progress and political power (Lin et al. 2019; Ha et al. 2020; Li et al. 2020). It also enables researchers to have access to finance for research undertakings, (Matenga et al. 2019; Zdravkovic et al. 2016; Marques et al. 2020).

Researchers found that collaboration builds confidence, morale, motivation, self-efficacy, reduces workload and dissatisfaction of researchers (Goldstein, 2015; Dehdary, 2017; Shakenova, 2017; Banerjee et al. 2017; Chaovanapricha & Chaturongakul, 2020; Muckenthaler et al., 2020). Collaborative culture enhance global visibility (Brankovic, 2018; Hazelkorn, 2016).

The work of Kweik & Roszka (2021) on Gender-based homophily in research: a large-scale study of man-woman collaboration found out that most male scientists collaborate solely with males, and most female scientists in contrast do not collaborate with females at all. Also the work of Bozeman and Gaughan (2011) on how do men and women differ in research collaborations: an analysis of the collaborative motives and strategies of academic researchers found out that women have a bigger amount of collaborators, they also found out male staff collaborate with a higher number of male graduate students.

## Statement of the Problem

Lecturers' collaboration in TIs has become necessary for individual and institutional success, promotion, wealth creation and national development (NUC, 2012; Abubakar, 2016). The effective pattern of cooperation in their regular routines of pedagogy, investigating, and professional service are less often applied. Junior lecturers are left to learn things on their own and to sink or swim in their everyday jobs (Abdurrahman, 2016; Saidin et al. 2020; Wondem, 2022). Therefore, lecturers' collaborationism should focus on combined work and a corporate sense of obligation to improve their activity in instruction, inquiry, and professional service (Jong et al., 2019). Consequently, it seems that lecturers are not collaborating as expected. The findings of Ibe et al. (2020) reiterated that collaboration is recognized to be important but it is still not adequately practiced. It is on this premise that the researchers investigated the influence of rank and sex on research collaboration among academic staff of public tertiary institutions in Edo State, Nigeria,.

## Research Questions

The study also intends to provide answers to the following research questions:

1. What is the level of academic staff' research collaboration in public tertiary institutions in Edo State, Nigeria?
2. Is there a difference in research collaboration among academic staff in public tertiary institutions in Edo State, Nigeria based on their rank?
3. Is there a difference in research collaboration among academic staff in public tertiary institutions in Edo State, Nigeria based on their sex?

## Hypotheses

Research questions 2 and 3 were hypothesized as follows:

1. There is no significant difference in research collaboration among academic staff in public tertiary institutions in Edo State, Nigeria based on their rank
2. There is no significant difference in research collaboration among academic staff in public tertiary institutions in Edo State, Nigeria based on their sex

## Methodology

The survey research design was adopted for the study. The population is made up of all academic staff in public tertiary institutions in Edo State, Nigeria. The sample size was two hundred (200) academic staff. This was done using multi stage sampling technique. At the first stage, stratified sampling technique was used to select one university and one polytechnic. At the second stage, simple random sampling technique was used to select one faculty and one school from the university and polytechnic selected respectively. At the third stage, proportionate sampling technique was used to select one hundred and twenty (120) and eighty (80) academic staff from the faculty and school selected respectively. The researchers made use of a self-developed questionnaire titled "Research Collaboration Questionnaire (RCQ)". The instrument has two sections. Section A has items dealing with biodata of academic staff while Section B deal with items of research collaboration of academic staff. Section A covered questions like sex, rank of the academic staff, section B has ten items which covered questions on research collaboration of academic staff. The four (4) point

likert format of: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) were used. The instrument was validated by experts. Reliability of the instrument was determined by using the Cronbach Alpha Statistic. Twenty (20) copies of the instrument were administered to the academic staff outside of population of the study. Thereafter, their responses were collated and data analyze using the Cronbach Alpha Statistic. The reliability coefficient of 0.82 was obtained. The instrument was administered to the academic staff. Research questions 1 was answered using the descriptive statistics such as mean and standard deviation. Since the study is using 4 point scale, the mean criterion used is 2.50. Hypotheses 2 and 3 were tested using the independent t-test statistic. The hypotheses were tested at 0.05 alpha level of significance

S/N	Statement	SA	A	D	SD	Mean	St.Dev
1	I like working with my colleagues to achive common goal in conducting research work	30	40	40	90	2.41	.527
2	I like to exchange ideas with my colleagues concerning research problem	120	40	25	15	2.52	.531
3	I like to work alone to create or solve problems identified in research	125	45	10	20	2.22	.440
4	Writing research work with my colleagues enhances global visibility	30	20	95	55	1.78	.651
5	I believe writing research work with my colleagues reduces workload and dissatisfaction	8	12	47	133	2.33	.622
6	I like working with my colleagues in writing research because I know it builds confidence, morale, motivation and self efficacy	3	4	66	127	2.26	.724
7	I respect other colleagues ideas when carrying out research work	148	34	10	8	2.55	.674
8	I don't like working with my colleagues when carrying out research because of a lack of trust	156	22	12	10	1.77	.612
9	I like to write with my colleagues in research work because I know it solve complex problems which may be difficult for me solve alone	144	37	11	8	1.70	.640
10	I like to collaborate with my colleagues in research writing because it provides access to finance for research undertakings	44	69	32	55	2.34	.672
	Cluster Mean					2.18	.609

Table 1 shows that the academic staff agreed that they exchange ideas with colleagues concerning research work, they resepect other colleague ideas when carry out research work with, the mean of 2.52, 2.55 and standard devition of .531, .674 respectively while they like to work alone, they did not agree that writing with colleagues provides access to finance, they did not agree to work with colleagues because of lack of trust, they did not agree that working with colleagues in research writing builds confidence, morale, motivation and self efficacy, they did not agree that writing research with colleagues reduces

workload, they agree to work alone to solve problems identified in research with the mean ranges from 1.70 to 2.41 and standard deviations ranges from .440 to .724 respectively. The Table also showed cluster mean of 2.18 and standard deviation of .609 which implies that the level of collaboration among academic staff in tertiary institutions in Edo State is low.

### Hypothesis one

There is no significant difference in research collaboration among Academic staff in public Tertiary Institutions in Edo State, Nigeria based on their rank

**Table 2: Independent Sample t-test of Research Collaboration among Academic Staff Based on Ranks**

Sex	N	Mean	Std Dev	df	t	Sig(2 tailed)
Senior	70	22.31	3.22	199	1.547	.245
Junior	130	22.27	2,14			

Table 2 showed a calculated t-value of 1.547 and a p-value of .245 testing at  $\alpha$  level of 0.05. Since the p-value is greater than the alpha level, the hypothesis which stated there is no significant difference in research collaboration among academic staff based on rank is retained. This implies that there is no discrimination in research collaboration among senior and junior academic staff.

### Hypothesis Two

There is no significant difference in research collaboration Academic staff in public Tertiary Institutions in Edo State, Nigeria based on their sex

**Table 3: Independent Sample t-test of Research Collaboration among Academic Staff Based on Sex**

Sex	N	Mean	Std Dev	df	t	Sig(2 tailed)
Male	80	25.29	3.44	199	.345	.072
Female	120	25.33	1.23			

$\alpha=0.05$

Table 3 showed a calculated t-value of .345 and a p-value of .072 testing at  $\alpha$  level of 0.05. Since the p-value is greater than the alpha level, the hypothesis which stated there is no significant difference in research collaboration among lecturers based on sex is retained. This implies that there is no discrimination in research collaboration among male and female academic staff.

### Discussion of Findings

The discovery from research question one revealed that the level of collaboration among academic staff is low. This may be due to lack of conducive research environment, lack of trust and respectful relationship among collaborators. It could also be due to the scarcity of resources and deficiency of

period of time and inquiry content. The finding is not in support with the findings of Chaovanapricha and Chaturongakul (2020) who found out that collaboration builds confidence, morale, motivation, self-efficacy, reduces workload and dissatisfaction of researchers.

The finding from hypothesis one showed that there is no significant difference in research collaboration among academic staff based on rank. This may be due to the fact that the senior lecturers have the knowledge of the importance of research collaboration, hence give chances and opportunities to junior staff to collaborate with them. This finding is in agreement with the findings of Odigwe and Owan (2022) who revealed that when one or two individuals, groups and institutions collaborate, better results are achieved than when individuals work on their own. The finding is also in consistent with the findings of Abdullah and Kamoludeen (2016) who posited that academic staff who work together as team researchers report improved research skills. The finding also support the findings of Makvandi et. al (2021) who found that collaboration supports the exchange of knowledge across disciplines. The finding is not in support of Ayenalem, et al. (2022) who posited that though collaboration is highly encouraged but the actual practice of collaboration among senior and junior lecturers is not sufficiently known as a result of limited empirical studies.

The finding from hypothesis two showed that there is no significant difference in research collaboration among academic staff based on sex. This may be due to the fact that lecturers are aware of gender equality as a cardinal human right, an essential basis for peaceable, comfortable

and sustainable world. The finding is not in agreement with the work of Kweik and Roszka (2021) who found out that most male scientists collaborate solely with males. However, it was also in contrast with their findings who disclosed that most female scientists in contrast do not collaborate with females at all. The finding also is in support of the work of Bozeman and Gaughan (2011) who found out that women have a larger number of collaborators, they also found out male staff collaborate with a greater number of male graduate students.

### **Conclusion**

Based on the outcome of the work, the researchers come to the conclusion that academic staff of tertiary institutions in Edo state, Nigeria are not collaborating enough in research, it was also concluded that academic staff that are collaborating in research are not discriminating based on their ranks or sex.

### **Recommendations**

Based on the findings, the researchers recommended that there should be a regular seminar organize by the management of the tertiary institutions on the need and importance of research collaboration among academic staff.

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