

*Full Length Research*

# Mapping the Postgraduate Research Output of Faculty of Agriculture, Modibbo Adama University, Yola, Nigeria, 2000-2021: A Bibliometrics Study

Dr. Murtala Aliyu (CLN)<sup>1</sup> and Dr. Babangida Umar Babayi (CLN)<sup>2</sup>

<sup>1</sup>Department of Library and Information Science, Modibbo Adama University, Yola. Nigeria.  
Email: muraliyu2006@mau.edu.ng

<sup>2</sup>Ibrahim Babangida Library, Modibbo Adama University, Yola. Nigeria.  
Corresponding author's E-mail: babayi@mau.edu.ng

Accepted 6 March 2024

The study focuses on the mapping of postgraduate research output (theses and dissertations) of the faculty of agriculture of Modibbo Adama University, Yola during the period of 20 years of running its postgraduate programme (2001-2021). The theses and dissertations were obtained from the postgraduate faculty of the university, and they were used to retrieve bibliographic data for the study. The study covers 330 theses and dissertations. The study analyzed research output such as types of postgraduate research output produced the relative growth rate of the research output, annual growth rate of the research output, and ranking the highest supervising academic by departments in the faculty. Survey and observation methods were used. The data collected were analyzed and presented in the form of tables. Annual Growth Rate and Compound Growth Rate were analyzed using the formulae. The findings of the analysis shows among others that MSc is the highest postgraduate theses produced and 2019 is the year of thesis produced in the faculty. The findings also, shows that the highest compound annual growth rate is 123.60% in 2023. The CAGR is equally in fluctuating trend just like the AGR. The findings of the analysis revealed that Prof. D.T. Gungula, Prof. Prof. I.O. Tella and Prof. A.O. Sogbeson rank first, second and third respectively. The study recommended among others that to enhance research output, management needs to promote timely completion of supervision across all types of programmes. Also, University management and the postgraduate school should actively promote and encourage lecturers to contribute significantly to the advancement of research output.

**Key Words:** Mapping, Postgraduate Research Output, Bibliometrics Study

**Cite This Article As:** Aliyu, M., Babayi, B.U. (2024). Mapping the Postgraduate Research Output of Faculty of Agriculture, Modibbo Adama University, Yola, Nigeria, 2000-2021: A Bibliometrics Study. *Inter. J. Acad. Lib. Info. Sci.* 12(2):23-31

## INTRODUCTION

The paper attempts to map out the post graduate research output (thesis and dissertation) of the Faculty of Agriculture of Modibbo Adama University, Yola during the period of 20 years of running its postgraduate programme (2001-2021) through a bibliometrics analysis. A thesis is a long essay or dissertation involving personal research, written by a candidate for a university degree or A thesis is an idea or theory that is expressed as a statement and is discussed logically, While, A dissertations a long piece of writing on a particular subject, especially one that is done to receive a

degree at college or university. It is also, is a long formal piece of writing on a particular subject, especially for a university degree

Bibliometrics involves studying and analyzing publications using mathematical manipulations. In addition to that Ana (2022) connotes that bibliometrics can be used for books, websites, monographs, conference proceedings, policy statements, and even patents. In the context of this study, bibliometrics is mostly used to measure the impact of post-graduate research output for a certain period. Bibliometrics methods also, estimate how much influence or impact a selected thesis/ dissertation has on future research. The typical method involves tallying the number of citations an article receives after its publication. Over the course of its 27-year existence, the university in question underwent several transformations, transitioning from Modibbo Adama College of University of Maiduguri (MACUM) to Federal University of Technology, Yola (FUTY), then to Modibbo Adama University of Technology, Yola (MAUTech), and currently to Modibbo Adama University, Yola (MAU). Modibbo Adama University, located in Yola, Adamawa state, Nigeria, was originally established in 1981 by the Federal Government of Nigeria with the aim of supplying the country with much-needed technologically skilled manpower. It is officially recognized by the National Universities Commission (NUC) as one of the Federal Universities authorized to confer Bachelor's, Master's, and Doctorate degrees in various fields of Science and Technology. The university's inaugural class, consisting of 108 students, graduated during the 1988/89 academic session. Initially merged with the University of Maiduguri in 1984, where it functioned as the Modibbo Adama Campus (MACUM), it regained independence in 1988 and reverted to its original name, Federal University of Technology, Yola. In 2011, President Goodluck Ebele Jonathan, GCFR, sanctioned the university's name change to Modibbo Adama University of Technology (MAUTECH) in Yola, effective from October 1st, 2011.

With a students' population of over twenty thousand, the University runs undergraduate and postgraduate programs in seven schools namely: School of Agriculture and Agricultural Technology (SAAT); School of Environmental Science (SES); School of Management and Information Technology (SMIT); School of Pure and Applied Sciences (SPAS); School of Engineering and Engineering Technology (SEET); School of Technology and Science Education (STSE) and School of Postgraduates Studies (SPGS). In addition to conventional full-time programs, the University runs Degree programs through its Distance Learning Centre. Its Consultancy Services Unit also runs Diploma and Certificates in over twenty programmes. Teaching and Research in Science and Technology have been the main thrust of the University. These have been attractive to the University series of collaboration and partnership with foreign Universities, Corporate bodies, Government and non-governmental Organizations. Six distinguished professors have successfully steered the affairs of the University as Vice Chancellors from its inception.

The Faculty of Agriculture was established in currently the Faculty of Social and Management Sciences has Eight (8) Departments as listed below:

1. Agricultural Economics and Extension
2. Animal Science and Range Management
3. Crop Production and Horticulture
4. Crop Protection
5. Fisheries
6. Food Science
7. Forestry and Wildlife
8. Soil Science

### **Statement of the Problem**

There is a need for effective analyses and mapping techniques to examine and understand the postgraduate research output within a given context. The current methods or approaches used for analyzing and mapping this output may be inadequate, leading to challenges in identifying trends, patterns, and areas of research strength or weakness. This limitation hinders the ability of stakeholders, such as academic institutions, funding agencies, and policymakers, to make informed decisions and allocate resources effectively to support postgraduate research endeavours. Therefore, there is a need to address this problem by developing robust and comprehensive methods for analyzing and mapping postgraduate research output that can provide valuable insights and inform strategic actions in the field. Based on the preliminary investigation conducted by the researchers on supervision of postgraduate students which disclosed that most of the academic staff of the faculty were reluctant and most of the grandaunts over stay without graduating on time, this could be attributed lack of incentives and motivation. It is against the background that the researcher's analyses the postgraduate research output of Faculty of the Agriculture Modibbo Adama University, Yola

## Objectives of the study

The study Analyses mapping the postgraduate research output of Faculty of Agriculture, Modibbo Adama University, Yola, Nigeria, 2000-2021: A Bibliometrics Study specifically the objectives of the study are to:

1. analyze the types of postgraduate research output of the Faculty of Agriculture, Modibbo Adama University, Yola
2. analyze the growth of postgraduate research output in the Faculty of Agriculture, Modibbo Adama University, Yola
3. analyze the annual growth rate of the postgraduate research output of the Faculty of Agriculture, Modibbo Adama University, Yola
4. analyze the compound annual growth rate of the postgraduate research output of the Faculty of Agriculture, Modibbo Adama University, Yola
5. analyze the most prolific academic staff based on postgraduate supervision in the Faculty of Agriculture, Modibbo Adama University, Yola

## Literature review

Literature related to this study was reviewed empirically;

An analysis conducted by Ana (2022) on a bibliometrics Analysis of Research Publications of the Bucharest University of Economic Studies in Time of Pandemics: Implications for Teachers' Professional Publishing Activity. The paper investigates how academic performance in terms of scientific publications, especially during the pandemic period, may constitute the premises for boosting professional well-being. The analysis focuses on the researchers and professors of the Bucharest Academy of Economic Studies, analyzing comparatively the academic performance during the pandemic as a fundamental side of their professional career. Two samples of scientific publications collected between January 2020 and December 2021 were investigated. The first sample comprised 1411 documents indexed in the WoS database, while the second one was formed by 876 documents indexed in the Scopus database. All samples were published during the pandemic and have the university's affiliation. The empirical findings indicated that the pandemic has created a boost in the number and quality of medical publications for the professors at the Bucharest University of Economic Studies. They created new multidisciplinary teams (economics and medicine), strengthening and widening national and international collaborations.

Ahmed (2019) investigated the research contributions of Al-Jouf University, Saudi Arabia, regarding publication output in the period 2006–2017 found on the Scopus database. According to the article, Al-Jouf University develops and improves research publishing production. The same idea was also developed by Maharana (2013), who researching the output of Sambalpur University for the period 2007–2011, conducting the analysis describing the growth, impact, and contribution of research carried out by the faculty members, researchers, and students

A similar study conducted by Xianli et al. (2020) on bibliometrics analysis to identify the characteristics of the articles published in the Journal of Economic Computation and Economic Cybernetics Studies and Research from 1969 to 2020. The elements analyzed included: the number of citations per article; the positions of the authors cited (Stoical was the first author 21 times, the second author 8 times, and the third author 3 times); the number of authors per article; the top prolific countries in terms of publication in ECECSR (with Romania at the top of the list, followed by China in second place and Iran in third place); the main topics of the articles published ("economics", "mathematics", and "computer")

## METHODOLOGY

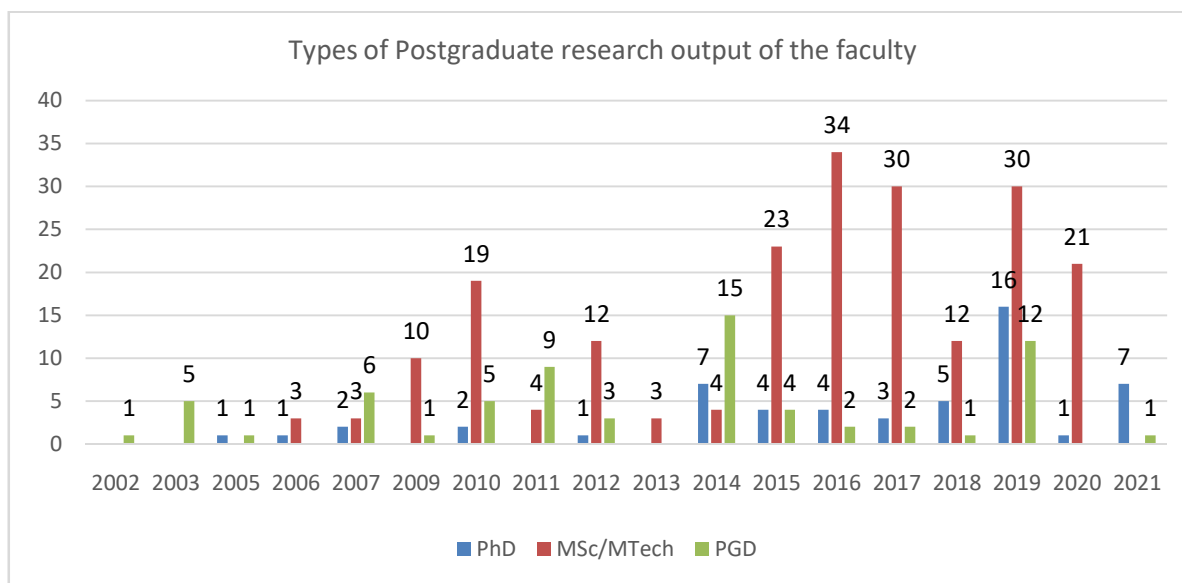
This is a Bibliometrics analysis of the postgraduate research output of the faculty of agriculture, MAU, Yola. Survey and observation method were used. The study covers 330theses and dissertations produced in the faculty within the period of the study. The data were retrieved from the theses and dissertations available at the postgraduate school of the university. The data collected were manually analyzed and presented inform of tables. Annual Growth Rate ( A G R ) and Compound Growth Rate ( C G R ) were analyzed using the

formulae:  $AGR = \frac{Ending\ Value}{Begining\ Value} - 1 \times 100$   $CAGR = \left( \frac{Ending\ Value}{Begining\ Value} \right)^{1/n} - 1$  Weightingsystem(PhD=5points, MSc/MTech. = 3 points, MBA/MPA = 2 points and PGD/PGDE = 1 point) was used to determine the ranking of the academic staff.

## Data Analysis

**Table 1:** Types of Postgraduate Research Output of the Faculty

Year	PhD	MSc/MTech	PGD	Total
2002			1	1
2003			5	5
2005	1		1	2
2006	1	3		4
2007	2	3	6	11
2009		10	1	11
2010	2	19	5	26
2011		4	9	13
2012	1	12	3	16
2013		3		3
2014	7	4	15	26
2015	4	23	4	31
2016	4	34	2	40
2017	3	30	2	35
2018	5	12	1	18
2019	16	30	12	58
2020	1	21		22
2021	7		1	8
<b>Total</b>	<b>54</b>	<b>208</b>	<b>68</b>	<b>330</b>



**Figure 1.** Types of Postgraduate Research Output of the Faculty

Figure 1 shows that in the year 2002 1 (PGD) student was supervised, in 2003 5(PGD), in 2005 1(PhD) and 1(PGD) = 2, in 2006 1(PhD), 3 (MSc) 4 respectively. In 2007 2(PhD), 3(MSc) and 6(PGD) =11. In 2009 10(MSc) and 1(PGD) =11. In 2010 2(PhD), 19(MSc) and 5(PGD) =26. In 2011 4(MSc) and 9(PGD) =13. In 2012 1(PhD), 12(MSc) and 3(PGD) =16. In 2013 3(MSc) =3. In 2014 7(PhD), 4(MSc) and 15(PGD) =26. In 2015 4(PhD), 23(MSc) and 4(PGD) = 36. In 2016 4(PhD), 34(MSc) and 2(PGD) =40. In 2017 3(PhD), 30(MSc) and (PGD) =36. In 2018 5(PhD), 12(MSc) and 1(PGD) =18. In 2019 16(PhD), 30(MSc) and 12(PGD) = 58. In 2020 1(PhD) and 21(MSc) =22. In 2021 7(PhD) and 1(PGD) = 8. The analysis shows that MSC is the highest postgraduate theses produced and 2019 is the year of thesis produced in the Faculty.

**Table 2:** Growth of Postgraduate Research Output

Year	Number of Postgraduate Research Output	Percentage
2002	1	0.30
2003	5	1.51
2005	2	0.61
2006	4	1.21
2007	11	3.33
2009	11	3.33
2010	26	7.88
2011	13	3.94
2012	16	4.85
2013	3	0.91
2014	26	7.88
2015	31	9.39
2016	40	12.12
2017	35	10.61
2018	18	5.45
2019	58	17.58
2020	22	6.67
2021	8	2.42
<b>Total</b>	<b>330</b>	<b>100</b>

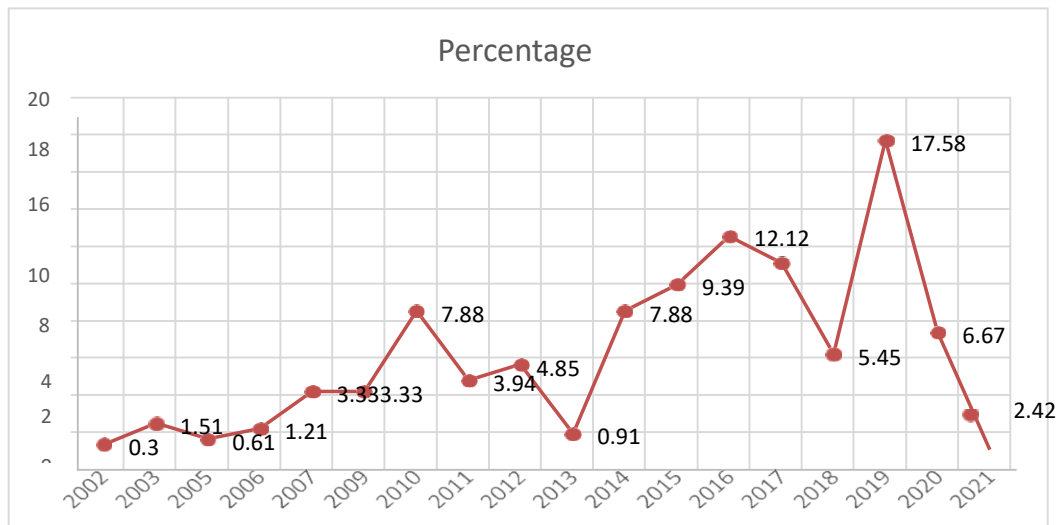
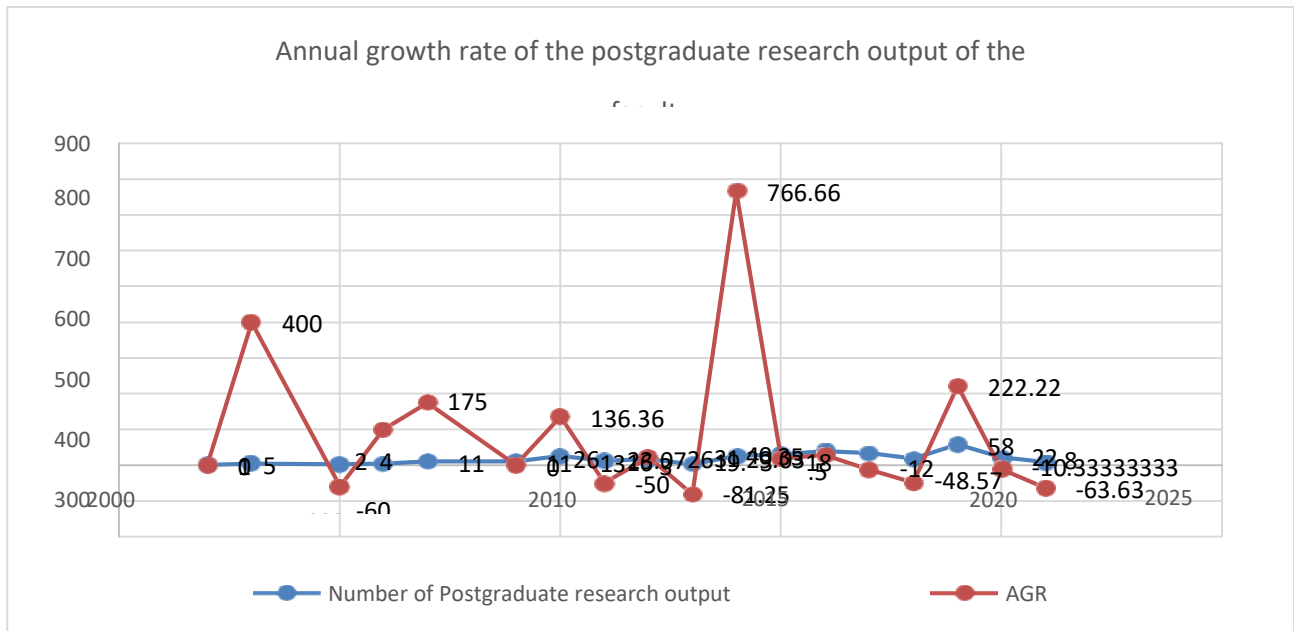
**Figure 2.** Growth of Postgraduate Research Output

Figure 2 above shows the growth of research output annually, in 2002 1 represented 0.30%. In 2003 5 represent 1.51%, in 2005 2 represent 0.61%. In 2006 4 represented 1.21%. In 2007 11 represent 3.33%. In 2009 11 represented 3.33%. In 2010 26 represented 7.88%. In 2011 13 represented 3.94%. In 2012 16 represented 4.85%. In 2013 3 represent 0.91%. In 2014 26 represented 7.88%. In 2015 31 represent 9.31%. In 2016 40 represent 12.12%. In 2017 36 represent 10.61%. In 2018 18 represent 5.45%. In 2019 58 represented 17.5%. In 2020 22 represented 6.67%. In 2021 8 represent 2.42%. From the analysis above it shows that MSc has the highest growth of thesis and dissertation produced in 2019 with 17.8% Table 2.

**Table 3:** Annual Growth Rate of the Postgraduate Research Output of the Faculty

Year	Number of Postgraduate research output	AGR
2002	1	0
2003	5	400
2005	2	-60
2006	4	100
2007	11	175
2009	11	0
2010	26	136.36
2011	13	-50
2012	16	23.07
2013	3	-81.25
2014	26	766.66
2015	31	19.23
2016	40	29.03
2017	35	-12.5
2018	18	-48.57
2019	58	222.22
2020	22	-62.06
2021	8	-63.63
	<b>330</b>	

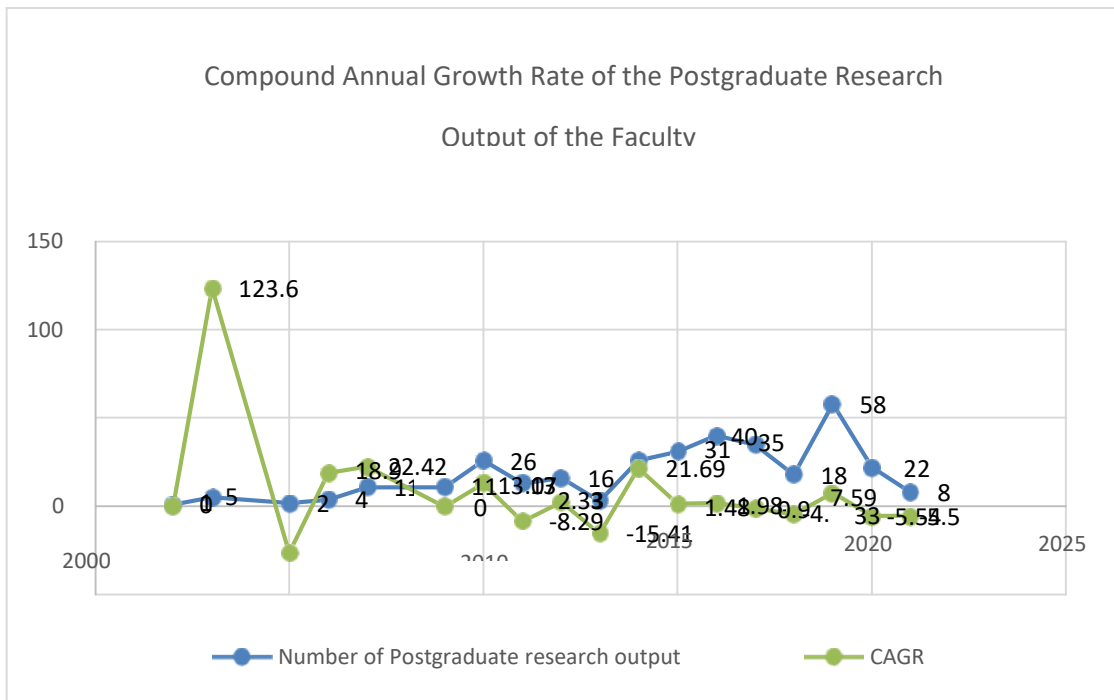


**Figure 3.** Annual Growth Rate of the Postgraduate Research Output of the Faculty

Table 3 indicates the Annual Growth Rate (AGR) of post graduate research output of the faculty. It can be deduced that in 2002 1 represents 0. In 2003 5 represent 400, in 2005 2 represent 60. In 2006 4 represent 100. In 2007 11 represented 175. In 2009 11 represent 0. In 2010 26 represent 136.36. In 2011 13 represent -50. In 2012 16 represented 23.07. In 2013 3 represent -81.25. In 2014 26 represented 766.66. In 2015 31 represent 19.23. In 2016 40 represented 29.03. In 2017 36 represented -12.5. In 2018 18 represent -48.57. In 2019 58 represent 222.22. In 2020 22 represent -62.06. In 2021 8 represent -63.63. The analysis indicated that the highest AGR was in 2014 with 766.66, the AGR is in a fluctuating trend.

**Table 4:** Compound Annual Growth Rate of the Postgraduate Research Output of the Faculty

Year	Number of Postgraduate research output	Cumulative Frequency	CAGR
2002	1	1	0
2003	5	6	123.60
2005	2	8	-26.31
2006	4	12	18.92
2007	11	23	22.42
2009	11	34	0
2010	26	60	13.07
2011	13	73	-8.29
2012	16	89	2.33
2013	3	92	-15.41
2014	26	118	21.69
2015	31	149	1.48
2016	40	189	1.98
2017	35	224	-0.94
2018	18	242	-4.33
2019	58	300	7.59
2020	22	322	-5.54
2021	8	330	-5.50



**Figure 4.** Compound Annual Growth Rate of the Postgraduate Research Output of the Faculty

Figure 4 above shows the compound annual growth rate of the post graduate research output of the faculty, in 2022 the CAGR is 0. In 2003(1/1)CAGR indicated 123.60. In 2005 (5/6) CAGR indicated -26.31. In 2006(4/12) CAGR indicated 18.92. In 2007 (11/23) CAGR indicated 22.42. In 2009(11/34) CAGR indicated 0. In 2010 (26/60) CAGR indicated 13.07. In 2011(13/73) CAGR indicated -8.29. In 2012 (16/89) CAGR indicated 2.33. In 2013(2/92) CAGR indicated -15.41. In 2014(26/118) CAGR indicated 21.69. In 2015 (31/149) CAGR indicated 1.48, In 2016 (40/189) CAGR 1.98. In 2017 (35/224) CAGR indicated -0.94. In 2018(18/242) CAGR indicated -4.33. In 2019 (58/300) CAGR indicated 7.59. In 2020 (22/322) CAGR - indicated 5.54 and in 2021 (8/330) CAGR -5.50. Therefore, it clearly shows that the highest compound annual growth rate is 123.60 in 2003. The CAGR is equally in fluctuating trend just like the AGR.

**Table 5:** The Most Prolific Academic Staff based on Postgraduate Supervision in the Faculty

S/No.	NAME	PhD	Score (5)	MSC	Score (3)	PGD	Score (1)	Total	Rank
1	Prof. D.T. Gungula	3	15	19	57	2	2	74	1
2	Prof I.O. Tella	11	55	5	15			70	2
3	Dr. A.O. Sogbeson	5	25	12	36	3	3	64	3

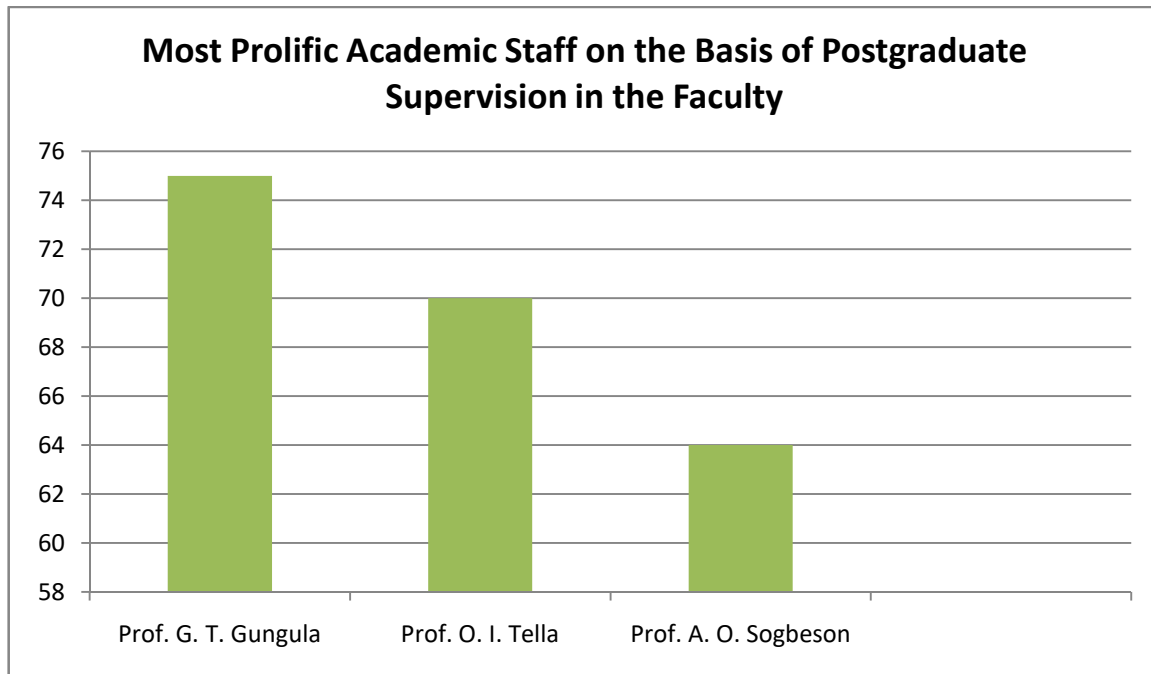
**Figure 5.** The Most Prolific Academic Staff based on Postgraduate Supervision in the Faculty

Table 5 above shows the most prolific academic staff based on postgraduate supervision in the faculty Prof. D.T. Gungula rank first with total of 74 scores, followed by Prof. Prof I.O. Tella rank second with total scores of 70 and Prof. A.O. Sogbeson rank third with total 64 scores

### Summary of findings

Based on the analysis the following findings emerged:

1. The analysis shows that MSC is the highest postgraduate theses produced and 2019 is the year of thesis produced in the Faculty
2. The analysis above it shows that MSc has the highest growth of thesis and dissertation produced in 2019 with 17.8%
3. The analysis indicated that the highest AGR was in 2014 with 766.66, the AGR is in fluctuating trend.
4. The findings shows that the highest compound annual growth rate is 123.60 in 2023. The CAGR is equally in fluctuating trend just like the AGR.
5. The findings of the analysis revealed that faculty Prof. D.T. Gungula ranked first with a total of 74 scores, followed by Prof. Prof I.O. Tella ranked second with a total scores of 70 and Prof. A.O. Sogbeson ranked third with a total of 64 scores



## CONCLUSIONS

It has been concluded that the type of research output is MSc as the highest postgraduate theses produced and 2019 is the year of the thesis produced in the faculty. From the analysis it was concluded that the growth of research output annually MSc has the highest growth of thesis and dissertation produced in 2019 with 17.8%. Also, it was concluded that clearly shows that the Annual Growth Rate (AGR) of post-graduate research output of the faculty was in 2014 with 766.66, the AGR is in fluctuating trend. The findings conclude that the highest compound annual growth rate (CAGR) is 123.60 in 2023. The CAGR is equally in fluctuating trend just like the AGR. Finally, the most prolific academic staff based on postgraduate supervision in the faculty, Prof. D.T. Gungula ranked first with a total of 74 scores while, Prof I.O. Tella ranked second with a total scores of 70 and Prof. A.O. Sogbeson ranked third with a total of 64 scores

## RECOMMENDATIONS

Based on the findings from the analysis the following recommendations were made:

1. To enhance research output, management needs to promote timely completion of supervision across all types of programs.
2. University management and the postgraduate school should actively promote and encourage lecturers to contribute significantly to the advancement of research output.
3. The Dean of the faculty should make efforts to increase the Annual Growth Rate (AGR) of postgraduate research output by ensuring timely graduation of students.
4. The management and faculty members should work towards increasing the compound annual growth rate of postgraduate research output within the faculty.
5. Motivation and encouragement should be provided to academic staff to promote and expedite postgraduate supervision within the faculty.

## REFERENCES

- Ana, A. M. D., Stela, M. F., Cosmin, L. M., Hrisanta, M. M. & Mihai, E. M. (2022) A Bibliometric Analysis of Research Publications of the Bucharest University of Economic Studies in Time of Pandemics: Implications for Teachers' Professional Publishing Activity. *Int. J. Environ. Res. Public Health* 2022, 19, 8779
- Ahmed, A. (2019). Bibliometric Analysis of Research Publications of Al-Jouf University, Saudi Arabia during the Year 2006–2017; *Libraries at University of Nebraska: Lincoln, Nebraska*, 17.
- Maharana, R.K. (2013). A bibliometric analysis of the research output of Sambalpur University's publication in ISI Web of Science during 2007–2011. *Library Philosophy and Practice*, 926, 1–14.
- Xianli, W., Huchang, L., Tang, M., Ruxanda, G., & Smeureanu, I. (2020). Global trends and characteristics of the publications in economic computation and economic cybernetics studies and research: from 1969 to 2020 based on bibliometrics analysis. *Econ. Comput. Econ. Cybern. Stud. Res.* 54, 23–42.