WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

University Research Culture in Public and Private Universities in South East Nigeria: A Comparative Study

Ugochi Chinonyerem Mbachu [a]*, Chinonso Getrude Ezema [b], Nkechi Agatha Onwumbiko[c]

[a,b,c] *Department of Educational Management and Policy, Nnamdi Azikiwe University, Awka. 42007, Nigeria*

A B S T R A C T

The study comparatively analyzed some selected indicators of university research culture in public and private universities in South-East, Nigeria. These indicators include: institutional research policies, availability of research infrastructure, collaboration with and access to research professionals, research benefits and incentives, balanced teaching and research responsibilities, and training and development opportunities. Five research questions guided the study and five hypotheses were tested. Descriptive survey research design was adopted for the study. A sample size of 1,119 academics (896 from public and 223 from private universities) were drawn from a population of 10,946 academics (9,184 from public universities and 1,762 from private universities) from four public and four private universities in two states namely – Anambra and Enugu states in South-East, Nigeria. Multi-stage sampling procedure which involved stratified sampling and simple random sampling techniques was adopted. Data were collected using a researcher developed instrument titled Selected Indicators of University Research Culture Questionnaire (SIURCQ). The instrument was administered directly by the researcher with the help of eight assistants. The instrument was validated by three experts. Internal consistency of the instrument was ascertained using Cronbach Alpha. This yielded a coefficient of 0.926, 0.817, 0.848, 0.813, 0.713 and 0.791 for sections A, B, C, D, E and F respectively and an overall index of 0.926 for SIURCQ. Mean scores of the respondents were used to answer the research questions while t-test was used to test the hypotheses at 0.05 level of significance. The findings of the study among others showed that out of the six selected indicators of university research culture, five of them are better in public universities based on their mean score while private universities scored higher than public universities in only one indicator of university research culture which is: availability of research infrastructure. It was recommended among others that those indicators of university research culture found to be weak in public and private universities should be enhanced by universities management to encourage academics' involvement in research projects.

Keywords: Research, Research Culture, Public University, Private University

1. Introduction

Research involves the creation of new knowledge for solving problems or challenges, whether they are economic, social, technological, environmental, or otherwise. The problems faced by the world are varied and multifaceted, which requires diverse minds to focus on the research that would produce these solutions. Universities, as principal knowledge mining institutions and producers of high level skilled manpower for national needs, are expected to provide solutions to the contemporary challenges in the society, through the execution of research by academics and other researchers. Aside providing solutions to problems, the production of research also constitutes the basis for assessing the performance of academic staff (appraisal) for promotion (Peretomode and Chukwuma, 2011); and enhances the reputation, rank and economic status of universities (Lertputtarak, 2008). Kpolovie and Onoshagbegbe (2017) in tandem asserted that the attainment of a university's vision, mission and goals depend greatly on the research productivity of its academic staff.

Considering the importance of research, it is crucial that an environment which encourages researchers to flourish in their research endeavours is provided within a university setting. Such environment in a university which encourages the production of research is called university research culture (Iqbal, Jalal & Mahmood, 2018; Hanover, 2014; Mohd & Muhajir, 2013; Naoreen & Adeeb, 2014). Diverse scholars have conceptualized the term: university or institutional research culture using various terms to depict this concept. Kennedy cited in Lodhi (2016) considered it as culture of scholarship, while Connell (2004) perceived it as equivalent to research management in an institution. Iqbal, Jalal and Mahmood (2018) explained university research culture as the combination of all the activities, collaboration, cooperation and deliberations to promote research among academics. Mohd and Muhajir (2013) also explained that research culture is related to the academic environment in which research activity is not only appreciated and seen as a result of scientific work but as an integral aspect of routine activities in an educational institution.

Hill (2002) used the etymological definition of culture to deduce the meaning of institutional research culture as an 'environment' in which research grows and multiplies. The term 'environment' according to Hill, refers to a set of variables such as institutions' characteristics, infrastructure, administrative policies and social systems, associated with a particular academic institution especially universities, which helps to foster research output.

These definitions point to the fact that university research culture provides a supportive framework in which research is generally encouraged, valued, discussed and produced.

University research culture is so important and encouraged in developed countries, as Zadari (2014) noted that academics and the education system in developed countries have a firm tradition of research, recognizing research as an important aspect of their responsibilities. Kyaligonza (2015) also reported that modern topmost universities such as Harvard University, Massachusetts Institute of Technology, Stanford University, among others in developed countries are rated as some of the best universities in the world because they possess indicators of university research culture such as vibrant research units, departments or institutes equipped with advanced research infrastructure and facilities, and policies that ensure transparent and competitive evaluation and reward process for research proposals from both staff and students. Contrariwise, scholars (Maasen, 2015; Okpe, Simisaye and Otuza, 2013; Sanyal and Varghese, 2006; Yusuf, 2012) have complained that there are presumptions of weak research culture in higher educational institutions (HEIs) in developing countries, those in Nigeria inclusive. This situation seems to have persisted over the years. This is evident in the results from various higher educational institutions' ranking bodies, where universities in developing countries recorded very low ranks. One of such ranking body is the World Webometric Ranking of Higher Educational Institutions (HEIs).

Mbachu and Unachukwu (2022) in their study complained that the 2020 webometric ranking of HEIs revealed that no Nigerian university was listed among the top 1,000 HEIs in the world and no university in South East Nigeria was listed among the top 1,500 HEIs in the world. The ranking also shows that there is great disparity between the ranks of private and public universities in South East geopolitical zone of Nigeria. Nine public universities in the zone ranked higher than the highest ranking private university in the zone. This disparity poses serious concern for universities management, academics, students and prospective students of these universities. Kpolovie and Onoshagbegbe (2017) explained that the low ranking of Nigerian universities among world and African universities is suggestive of low research productivity of her academic staff, which may be related to the research environment. Studies such as Anyaogu and Iyabo (2014) and Kpolovie and Onoshagbegbe (2017) have also shown that ownership (i.e. whether private or public HEI) and management of these institutions and their academic staff have direct link with the research productivity and the nature of the research environment.

Indicators of institutional or university research culture have been identified by scholars such as Dacles, Valtoribio, Rosario, Matias and Saludarez (2016); Hanover (2014); Salazar-Clemena and Almonte-Alcosta (2007); Bland, Center, Finstad, Risbey and Staples (2005). For instance, Dacles, Valtoribio, Rosario, Matias and Saludarez (2016) mentioned these indicators to include: institutional research initiatives, presence of research unit, financial reward and merit system, research expertise, research capability programmes, institutional policies, utilization of research output. Hanover (2014) listed the indicators of university research culture as effective leadership and clear goals, training and support programmes, research centers, research recognition, network and collaboration opportunities, balanced teaching and research responsibilities, pay incentives, research funding; while Salazar-Clemena and Almonte-Alcosta (2007) operationally listed university research culture to include; institutional research policies and agenda, research infrastructure, departmental culture and working conditions, budget for research, collaboration with and access to research professionals, guidelines on research benefits and incentives, research committee and publications. Some of these elements are common among the authors while others vary. However, the potency of the indicators of university research culture may vary.

University research culture is substantiated by appropriate institutional research policies to support researchers in the execution of research works. Dacles, et al. (2016) explained that institutional research policies is an essential indicator of university research culture that provides a framework for the conduct of research in an institution to encourage increased research output of researchers. Research collaboration and interaction of scholars also support university research culture. Bland, Center, Finstad, Risbey and Staples (2005) explained that successful researchers have a network of like-minded scholars with whom they discuss their research works. Collaborative research is needed within and across disciplines to facilitate academics' discussion of different research problems and to gain in-depth knowledge concerning types of research. The formal and informal interaction with colleagues or professionals who have established themselves as researchers may motivate young academics to engage in research activities and enrich their research profiles. Therefore, Lodhi (2012) proposed that the arrangement of such activities that provide opportunities to interact with renowned researchers might be useful in fostering the importance and value of doing research among academics.

Hanover (2014) explained that the consolidation of university research culture will also entail reducing teacher course loads to give academics more time to engage in research and produce results. Bland, Center, Finstad, Risbey and Staples (2005) reported that academics with fewer teaching hours tend to have more research output. This implies that lack of time for research hinders research activities. Thus, Salazar-Clemena and Almonte-Alcosta (2007) proposed that strategies for time allocation are needed for teaching and research activities to create a balance between them.

Hanover (2014) explained that the introduction of training and development opportunities for academics will promote research practices and production in a university. These training programmes will build skills, competencies and capacity in academics to do research. Furthermore, relating academic staff research performance with promotion, increased pay and other financial and non-financial benefits and incentives may not only be important in recognizing their research activities but will help to motivate others to engage in research practices and yield increased scholarly output. Hill (2002) and Salazar-Clemena and Almonte-Alcosta (2007) discovered that academics were motivated to engage in research but needed proper research infrastructure along with other administrative supports to encourage their research performance. Commenting on the importance of research infrastructure, Hill (2002) asserted that introduction of adequate research infrastructure contributes to the birthplace of the research acculturation process. Thus, the availability and proper utilization of research infrastructure such as contemporary Information and Communication Technology (ICT) facilities, updated libraries, uninterrupted power supply, among others, especially in the development and publication of research works online will ensure wider visibility of research results.

Based on these indicators, the operational construct of university research culture for this study derived from review of literature will include: institutional research policies, availability of research infrastructure, collaboration with and access to research professionals, research benefits and incentives, balanced teaching and research responsibilities, and training and development opportunities. The choice of these was based on reports of studies which indicated these elements as strong determinants of research productivity (Bland, Center, Finstad, Risbey and Staples, 2005; Dacles, Valtoribio, Rosario, Matias and Saludarez, 2016; Hanover, 2014; Iqbal, Jalal and Mahmood, 2018; Salazar-Clemena and Almonte-Alcosta, 2007).

Since it has been favourably argued that good university research culture enhances research productivity of academics, and consequently the university ranking; the poor ranking of universities in South-East, Nigeria and the great disparity in the ranks of public and private universities in the region, calls for a comparative study of selected indicators of university research culture in public and private universities in South-East, Nigeria.

The general objective of the study is to comparatively analyze selected indicators of university research culture in public and private universities in South East, Nigeria. These indicators of university research culture include: institutional research policy, availability of research infrastructure, collaboration with and access to research professionals, research benefits and incentives, balanced teaching and research responsibilities and training and development opportunities. Six research questions and six hypotheses (tested at 0.05 level of significance) were developed for the study.

The research questions are;

- What are the mean scores of institutional research policy indicator in public and private universities in South-East, Nigeria?
- What are the mean scores of availability of research infrastructure indicator in public and private universities in South-East, Nigeria?
- What are the mean scores of collaboration with and access to research professionals indicator in public and private universities in South-East, Nigeria?
- What are the mean score of research benefits and incentives indicator in public and private universities in South-East, Nigeria?
- What are the mean scores of balanced teaching and research responsibilities indicator in public and private universities in South-East, Nigeria?
- What are the mean scores of training and development opportunities indicator in public and private universities in South-East, Nigeria?

The hypotheses are;

- There is no significant difference between institutional research policy indicator in public and private universities.
- There is no significant difference between availability of research infrastructure indicator in public and private universities.
- There is no significant difference between collaboration with and access to research professionals indicator in public and private universities.
- There is no significant difference between research benefits and incentives indicator in public and private universities.
- There is no significant difference between balanced teaching and research responsibilities indicator in public and private universities.
- There is no significant difference between training and development opportunities indicator in public and private universities.

2. Research Methodology

The study utilized the descriptive survey research design, and was conducted in South-East geopolitical zone of Nigeria. There are five states in the zone with 23 universities (11 public and 12 private). A sample size of 1,119 academics (896 from public and 223 from private universities) drawn from a population of 10,946 academics (9,184 from public universities and 1,762 from private universities) was used for the study (the data were obtained from the Nigerian University System Statistical Digest -A publication of the National Universities Commission, 2017). The multi-stage sampling procedure which involved simple random sampling and proportionate stratified random sampling technique was used to derive the sample size. At the first stage, simple random sampling was used to sample two states (Anambra and Enugu states) out of the five states in South East, Nigeria. Then, the universities were stratified on the basis of type, namely: public and private universities. Two public and two private universities were randomly drawn using simple random sampling from each of the sampled states, giving a total of eight universities; four public and four private. The public universities sampled are: Nnamdi Azikiwe University and Chukwuemeka Odumegwu Ojukwu University for Anambra state; and University of Nigeria, Nsukka and Enugu State University, for Enugu state. The private universities sampled include: Madonna University and Paul University for Anambra state; and Godfrey Okoye University and Caritas University for Enugu state. The next stage involved sampling of the 1,119 academics from the eight universities already sampled. This was done using proportionate stratified sampling technique to draw 20% of staff from each of the eight universities sampled. This resulted to 244, 94, 414, 144, 101, 26, 54 and 42 for the eight universities respectively.

Primary data were collected using a researcher developed instrument titled Selected Indicators of University Research Culture Questionnaire (SIURCQ). The instrument contains 42 items in six sub-sections A, B, C, D, E and F, covering the six selected indicators of university research culture used in this study. All the items were structured on a four point scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) and weighted 4, 3, 2 and 1 respectively. The instrument was validated by three experts who are lecturers (one in measurement and evaluation and two in educational management) all in the Faculty of Education NnamdiAzikiwe University, Awka. The reliability of the instrument was ascertained using Cronbach Alpha. This yielded a coefficient of 0.926, 0.817, 0.848, 0.813, 0.713 and 0.791 for sections A, B, C, D, E and F and an overall index of 0.926. Both manual and

Computer-Assisted Personal Interviewing (CAPI) system (Google form) were used to collect the required data from academics. The link for the Google form (https://forms.gle/Rb7cLV7PJEaKd2NVA) was sent to either WhatsApp numbers or e-mail addresses of academics in the sampled universities. Out of the 1,119 copies of questionnaire administered, 1,108 copies (filled by 888 public university academics and 220 private academics) representing 99.02% of the copies administered were retrieved. These were used for data analysis.

Mean scores of the responses were used to answer the research questions while t-test was used to test the hypotheses at 0.05 level of significance. For the research questions, where the mean score is 2.50 and above the item was acceptable, while an item with less than 2.50 was unacceptable. For the testing of hypotheses, where the probability level is less than the significant level of 0.05 ($p<0.05$), the null hypothesis was not accepted, and if the probability level is greater than the significant level of 0.05, the null hypotheses was accepted. Analyses were done using version 20 of the Statistical Package for Social Sciences (SPSS).

3. Results

The data collected were analyzed and the results presented in Tables according to the Research Questions and Hypotheses.

Research Question 1: What are the institutional research policy indicator scores in public and private universities in South-East, Nigeria?

Table 1: Mean institutional policy indicator scores of public and private universities

	Items	**Public University (N=888)**			**Private University (N=220)**		
		Mean	**SD**	**Decision**	**Mean**	**SD**	**Decision**
A	**Institutional research policies:**						
	In my university;						
1	There's an established policy framework that guides academic staff in the conduct of their research obligations	3.27	0.702	Accepted	3.12	0.773	Accepted
2	Research policy mandates academic staff to be productive in research work	3.37	0.734	Accepted	3.36	0.737	Accepted
3	Research policy procedures for the conduct of research are widely acceptable to the academic staff	2.74	0.867	Accepted	2.81	0.827	Accepted
4	The standard of ethics in conducting research outlined in the research policy is widely acceptable to academic staff	2.85	0.755	Accepted	2.74	0.774	Accepted
5	Academic freedom is fully implemented in this university to support the conduct of research	2.87	0.866	Accepted	2.65	0.837	Accepted
6	Research policy encourages academic staff to publish in reputable online media for wider visibility	3.33	0.737	Accepted	3.33	0.790	Accepted
7	Research policy encourages academic staff to publish in reputable print media for wider visibility	3.21	0.793	Accepted	3.21	0.766	Accepted
	Grand mean for Institutional Research Policy	**3.09**	**0.548**	Accepted	**3.03**	**0.539**	Accepted

Results on Table 1 reveal that academics in public and private universities accepted the presence of institutional research policies indicator of university research culture which encourages them to be productive in research. This gave a grand mean of 3.09 and 3.03 for public and private universities respectively.

Research Question 2: What are the availability of research infrastructure indicator scores in public and private universities in South-East, Nigeria?

Table 2: Mean availability of research infrastructure indicator scores of public and private universities

	Items	**Public University (N=888)**			**Private University (N=220)**		
		Mean	**SD**	**Decision**	**Mean**	**SD**	**Decision**
B	**Availability of research infrastructure:**						

	In my university;						
8	There is a vibrant institutional research office that handles research concerns of staff in the university	2.39	0.832	Not accepted	2.33	0.898	Not accepted
9	There are updated libraries for research purposes	2.42	0.841	Not accepted	2.56	0.787	Accepted
10	The laboratories are well equipped for research purposes	1.96	0.751	Not accepted	2.64	0.718	Accepted
11	Lecturers have access to contemporary Information Technology (IT) facilities öto facilitate the conduct of research	2.12	0.771	Not accepted	2.83	0.745	Accepted
12	Lecturers have uninterrupted access to the internet for research purposes	1.82	0.740	Not accepted	2.58	0.848	Accepted
13	Lecturers have access to uninterrupted power supply to facilitate research work	1.70	0.722	Not accepted	2.64	0.883	Accepted
	Grand mean for availability of research infrastructure	**2.07**	**0.579**	Not accepted	**2.60**	**0.562**	Accepted

The result on Table 2 shows that academics in public universities did not accept the availability of adequate research infrastructure in public universities as shown by a grand mean of 2.07 for public universities. Private universities however had a grand mean of 2.60 (more than the cut off mark of 2.50) indicating that they accepted the availability of research infrastructure indicator of university research culture in their universities.

Research Question 3: What are the collaboration with and access to research professionals indicator scores in public and private universities in South-East, Nigeria?

Table 3: Mean score of academics responses on collaboration with and access to research professionals indicator of public and private universities

	Items	**Public University (N=888)**			**Private University (N=220)**		
		Mean	**SD**	**Decision**	**Mean**	**SD**	**Decision**
C	**Collaboration with and access to research professionals:** In my university;						
14	The university management arranges activities that provide opportunities to interact with renowned researchers (e.g. visiting scholars programme)	2.48	0.835	Not accepted	2.46	0.872	Not accepted
15	The university management provides means for linkages with other institutions (local and international) in order to create intellectual synergy	2.64	0.762	Accepted	2.59	0.858	Accepted
16	The university management provides opportunities for academic staff to participate in academic exchange and networks with international academics	2.62	0.802	Accepted	2.41	0.775	Not accepted
17	There is partnership between this university and other institutions to expand research opportunities	2.59	0.679	Accepted	2.61	0.850	Accepted
18	Lecturers have vibrant network of colleagues with whom they have frequent and substantive research communication.	2.56	0.784	Accepted	2.93	0.641	Accepted
19	The university management supports the hosting of scholarly conferences to establish institutional relationships with other universities.	2.85	0.795	Accepted	2.60	0.830	Accepted
20	The university management sponsors academic staff's participation to scholarly conferences to enhance research collaboration with other academic staff.	2.57	0.927	Accepted	2.50	0.797	Accepted

21	Multidisciplinary research is supported to facilitate collaborative research between academics across disciplines	2.75	0.760	Accepted	2.67	0.789	Accepted
22	There is room for collaboration between academics with similar research interests	2.82	0.753	Accepted	2.87	0.664	Accepted
	Grand mean for collaboration and access to research professionals	**2.65**	**0.459**	Accepted	**2.63**	**0.570**	Accepted

Results on Table 3 reveal that the grand mean for collaboration with and access to research professionals indicator for public and private universities is 2.65 and 2.63 respectively (which is beyond the cut-off mark of 2.50). This indicates that academics in public and private universities accepted that there are opportunities for collaboration and access to research professionals in these institutions.

Research Question 4: What are the research benefits and incentives indicator scores in public and private universities in South-East, Nigeria?

Table 4: Mean score of academics responses on research benefits and incentives indicator of public and private universities

	Items	**Public University (N=888)**			**Private University (N=220)**		
		Mean	**SD**	**Decision**	**Mean**	**SD**	**Decision**
D	**Research benefits and incentives:**						
	In my university;						
23	Academic staff with excellent research achievements are well recognized.	2.76	0.847	Accepted	2.88	0.909	Accepted
24	Academic staff with excellent research achievements are provided increased opportunity for promotion	2.62	0.876	Accepted	2.47	0.819	Not accepted
25	The university management provides financial incentives for publication of research results	1.91	0.745	Not accepted	1.96	0.632	Not accepted
26	Academic staff are sponsored to at least one conference each year	1.89	0.785	Not accepted	2.16	0.798	Not accepted
27	Academic staff are sponsored to at least one academic workshop each year	1.93	0.802	Not accepted	2.13	0.762	Not accepted
28	Academic staff's publishing successes are circulated via regular newsletters to encourage increased productivity	2.34	0.779	Not accepted	2.17	0.815	Not accepted
29	Academic staff's publishing successes are circulated via memos to encourage increased productivity	2.31	0.751	Not accepted	2.22	0.771	Not accepted
30	There's increased pay for increased research productivity	2.22	0.894	Not accepted	2.05	0.748	Not accepted
31	Promotion system encourages academic staff to be more research productive	2.90	0.927	Accepted	2.42	0.832	Not accepted
32	The procedures for granting research incentives are transparent	2.14	0.849	Not accepted	2.20	0.858	Not accepted
	Grand mean for research benefits and incentives	**2.30**	**0.479**	Not accepted	**2.27**	**0.524**	Not accepted

Results on Table 4 reveal that academics in public and private universities did not accepted the presence of research benefits and incentives indicator of university research culture in their institutions as revealed by a grand mean of 2.30 and 2.27 for public and private universities respectively.

Research Question 5: What are the balanced teaching and research responsibilities indicator scores in public and private universities in South-East, Nigeria?

Table 5: Mean score of academics responses on balanced teaching and research responsibilities indicator of public and private universities

	Items	Public University (N=888)			Private University (N=220)		
		Mean	**SD**	**Decision**	**Mean**	**SD**	**Decision**
E	**Balanced teaching and research responsibilities:**						
	In my university;						
33	There are opportunities for teaching load reduction to enable academic staff devote more time to research	2.20	0.854	Not accepted	2.18	0.692	Not accepted
34	Academic staff are given periods of permitted absence (leave) to enable frequent and/or extended research time	2.53	0.825	Accepted	2.44	0.871	Not accepted
35	Teaching workload is moderate enough to permit academic staff time for research work	2.51	0.719	Accepted	2.58	0.900	Accepted
36	Academic staff are appraised based on teaching responsibility	2.45	0.772	Not accepted	2.69	0.924	Accepted
37	Academic staff are appraised based on research responsibility	3.05	0.709	Accepted	2.83	0.909	Accepted
	Grand mean for balanced teaching and research responsibilities	**2.55**	**0.495**	Accepted	**2.54**	**0.638**	Accepted

Results on Table 5 reveal that academics in public and private universities accepted the balanced teaching and research responsibility indicator of university research culture in their institutions. This is indicated by their grand means of 2.55 and 2.54 for public and private universities respectively.

Research Question 6: What are the training and development opportunities indicator scores in public and private universities in South-East, Nigeria?

Table 6: Mean score of academics responses on training and development opportunities indicator of public and private universities

	Items	Public University (N=888)			Private University (N=220)		
		Mean	**SD**	**Decision**	**Mean**	**SD**	**Decision**
F	**Training and development opportunities:** In my university						
38	The university management continuously provides programmes for the enhancement of research skills among academic staff.	2.66	0.796	Accepted	2.40	0.924	Not accepted
39	Academic staff are mandated to participate in training and development programmes to improve their capacity to do research	2.73	0.780	Accepted	2.63	0.940	Accepted
40	Research methods is a valid course taught to academic staff upon employment into the institution	2.21	0.924	Not accepted	2.00	0.791	Not accepted
41	There is academic staff-to-academic staff research mentoring initiative in this university to provide valuable guidance in research	2.24	0.802	Not accepted	2.33	0.947	Not accepted
42	Professional development opportunities are routinely and proactively offered to members to ensure their continued professional growth	2.39	0.895	Not accepted	2.27	0.854	Not accepted
	Grand mean for training and development opportunities	**2.45**	**0.643**	Not accepted	**2.33**	**0.736**	Not accepted

The result on Table 6 shows that academics in public universities did not accept the training and development opportunities indicator in public and private universities. This is indicated by the grand mean of 2.45 and 2.33 (less than the mean cut-off mark) for public and private universities respectively. Public universities however scored higher than private universities with respect to this indicator. This reveals that even though the training and development opportunities available in these institutions are not adequate, public universities have more opportunities than private universities academics.

Hypothesis 1: There is no significant difference between the mean scores of institutional research policy indicator in public and private universities.

Table 7: T-test comparison of mean scores of institutional research policy indicator in public and private universities.

s/no.	Items	Public University (N=888)		Private University (N=220)					
		Mean	SD	Mean	SD	t–value	df	Sig(2-tail) p value	Remark
A.	**Institutional Research Policy indicator scores**	**3.09**	**0.548**	**3.03**	**0.539**	**1.444**	**1106**	**0.149**	**Not Significant**

The result on table 7 reveals that academics in public and private universities did not differ significantly in their responses on the presence of institutional research policy indicator of university research culture. This shows that there is no significant difference between public and private universities in terms of the presence of institutional policies indicator of university research culture in these institutions. The null hypothesis is therefore accepted.

Hypothesis 2: There is no significant difference between the mean scores of availability of research infrastructure indicator in public and private universities.

Table 8: T-test comparison of mean scores of availability of research infrastructure indicator in public and private universities.

s/no.	Items	Public University (N=888)		Private University (N=220)					
		Mean	SD	Mean	SD	t–value	df	Sig(2-tail) p value	Remark
B.	**Availability of research infrastructure indicator scores**	**2.07**	**0.579**	**2.60**	**0.562**	**-12.182**	**1106**	**0.000**	**Significant**

The result on table 8 reveals that academics in public and private universities differed significantly in their responses on the availability of research infrastructure indicator of university research culture. This shows that there is significant difference between public and private universities in terms of the availability of research infrastructure indicator of university research culture in these institutions. The null hypothesis is therefore not accepted.

Hypothesis 3: There is no significant difference between the mean scores of collaboration with and access to research professionals indicator in public and private universities.

Table 9: T-test comparison of mean scores of collaboration with and access to research professionals indicator in public and private universities.

s/no.	Items	Public University (N=888)		Private University (N=220)					
		Mean	SD	Mean	SD	t–value	df	Sig(2-tail) p value	Remark
C.	**Collaboration and access to research professionals indicator scores**	**2.65**	**0.459**	**2.63**	**0.570**	**0.607**	**293.025**	**0.544**	**Not Significant**

The result on table 9 reveals that academics in public and private universities did not differ significantly in their responses on collaboration with and access to research professionals indicator of university research culture. This shows that there is no significant difference between public and private universities in terms of opportunities for collaboration and access to research professionals in these institutions. The null hypothesis is therefore accepted.

Hypothesis 4: There is no significant difference between the mean scores of research benefits and incentives indicator in public and private universities.

Table 10: T-test comparison of mean scores of research benefits and incentives indicator in public and private universities.

s/no.	Items	Public University (N=888)		Private University (N=220)					
		Mean	SD	Mean	SD	t–value	df	Sig(2-tail) p value	Remark
D.	**Research Benefit and Incentives indicator scores**	**2.30**	**0.479**	**2.27**	**0.524**	**0.930**	**1106**	**0.353**	**Not Significant**

The result on table 10 reveals that academics in public and private universities did not differ significantly in their responses on the research benefits and incentives indicator of university research culture. This shows that there is no significant difference between public and private universities in terms of deriving research benefits and incentives to encourage the production of research by academics in these institutions. The null hypothesis is therefore accepted.

Hypothesis 5: There is no significant difference between the mean scores of balanced teaching and research responsibilities indicator in public and private universities.

Table 11: T-test comparison of mean scores of balanced teaching and research responsibilities indicator in public and private universities.

s/no.	Items	Public University (N=888)		Private University (N=220)					
		Mean	SD	Mean	SD	t–value	Df	Sig(2-tail) p value	Remark
E.	**Balanced Teaching and Research Responsibilities indicator scores**	**2.55**	**0.495**	**2.54**	**0.638**	**0.060**	**287.628**	**0.952**	**Not Significant**

The result on table 11 reveals that academics in public and private universities did not differ significantly in their responses on the balanced teaching and research responsibilities indicator of university research culture. This shows that there is no significant difference between public and private universities in terms of having a balanced teaching and research responsibility for academics in these institutions. The null hypothesis is therefore accepted.

Hypothesis 6: There is no significant difference between the mean scores of training and development opportunities indicator in public and private universities.

Table 12: T-test comparison of mean scores of training and development opportunities indicator in public and private universities.

s/no.	Items	Public University (N=888)		Private University (N=220)					
		Mean	SD	Mean	SD	t–value	df	Sig(2-tail) p value	Remark
F.	**Training and Development Opportunities indicator scores**	**2.45**	**0.643**	**2.33**	**0.736**	**2.239**	**306.828**	**0.026**	**Significant**

The result on table 12 reveals that academics in public and private universities differed significantly in their responses on the training and development opportunities indicator of university research culture. This shows that there is significant difference between public and private universities in terms of the availability of training and development opportunities to build the capacity of academics to execute research projects in these institutions. The null hypothesis is therefore not accepted.

4. Discussion of Findings

Interestingly, an analysis of the selected indicators of university research culture revealed that out of six indicators, five of them are better in public universities than private universities based on their mean scores. These are namely: institutional research policy, collaboration and access to professionals, research benefits and incentives, balanced teaching and research responsibilities and training and development opportunities. While for just one element –availability of research infrastructure, basically availability of uninterrupted power and internet supply, access to contemporary Information Technology, as well as well equipped library and laboratory, the private universities were found better having a higher mean score.

Research infrastructure also contributed the least to the overall university research culture score in public universities. This may have impeded the promotion of university research culture in public universities. This finding agrees with Naoreen and Adeeb (2014) who discovered that in public universities, the lack of ICT facilities for research hindered the promotion of university research culture. The finding also agrees with Kyaligonza (2015); Nguyen, Nguyen and Dao (2021); Okpe, Simisaiye and Otuza (2013); Yusuf (2012) whose studies revealed that public universities still suffer from poor and inadequate infrastructure for research. Research infrastructure such as modern ICT facilities, among others are cost-intensive and funding from the government is consistently dwindling. This may be an adjudged reason for the low research productivity of academics in public universities, considering the importance of utilization of these contemporary facilities for research. Private university academics accepted the availability of research infrastructure in their universities. This may be because these universities are relatively new and based on Johnson and Louw (2014) most new universities strive to establish university research culture in their institutions in other to improve research outputs, gain prestige and popularity, and attain higher ranks in global ranking of universities. Such infrastructure may also be perceived as adequate/sufficient for these academics considering their relatively few numbers.

The institutional research policy element of university research culture contributes the most to university research culture of both public and private universities. This implies that public and private university academics generally agree that there's a widely acceptable policy that guides them in the conduct of their research obligations. However, the score of public universities in this regard was found higher than that of private universities. This may be because public universities tend to have better organizational structure than private universities which are usually a 'one-man' business affair. This concurs with the assertions of Nguyen, Nguyen and Dao (2021) that institutional policies on research are established in universities and guide academics in the conduct of their research obligations. Iqbal, Jalal and Mahmood (2018) and Salazar-Clemena and Almonte-Acosta (2007) also found out that institutional research policies were prevalent in universities for the promotion of a culture of research in universities.

Analysis of 'collaboration and access to research professionals' element revealed that even though this element is above average for both public and private universities, opportunities for collaboration and interaction with research professionals were found to be more in public universities than in private universities. This finding agrees with Fari and Ocholla (2016) who discovered that academics in Nigerian and South African universities were availed opportunities for collaborative research which was found to influence knowledge sharing, average number of citations received by co-authored papers and research productivity. Nguyen, Nguyen and Dao (2021) also found out that the vast majority of scientific papers from Vietnam universities were attributable to international collaboration.

Research benefits and incentives were found to be low in both public and private universities but lower for private universities. This implies that academics in both public and private universities lack research benefits and incentives to pursue their research endeavours and publish results. Yusuf (2012) discovered that incentives to encourage academics in their pursuit of research was lacking in most Nigerian universities which has resulted to poor motivation to do research. The private universities scored least in this element of research culture when compared to other elements of research culture. This seems to explain the significant disparity in the research productivity of academics in public and private university, where the productivity of academics in the public university were found better than those in the private university. Although, the result suggests that there is more provision for uninterrupted power and internet as well as other ICT infrastructure in private universities than the public, the lack of adequate motivation in form of incentives for publishing research results, attendance to conferences and professional capacity development programmes, among others; and research benefits for academics in private universities undermines the gains the availability of infrastructures would have made. A motivated staff can improvise for the infrastructure that is lacking in order to enhance productivity.

For balanced teaching and research responsibilities element of university research culture, most of public and private university academics agree that there's a balance between teaching and research responsibilities. This implies that the teaching workload is moderate enough to permit academics time for research; hence the administrators may be applauded on this. Findings agree with Iqbal, Jalal and Mahmood (2018) who revealed that a balance between teaching and research responsibilities for academics were prevalent for promotion of university research culture in public universities in Punjab. Adeyanju and Oshinyadi (2017) also revealed a significant relationship between number of available periods of lecture and research productivity.

Mean score for availability of adequate training and development opportunities was found to be low in both public and private universities with private universities rating lower than public universities. This implies that academics in public and private universities are rarely exposed to research skill-building trainings for their continuous professional development. Yusuf (2012) also found out that academics in universities lacked research skills necessary for executing research due to the lack of training and professional development programmes for academics on modern research methods, among others. Mohaida, Arifin and Nik Ahmad (2017) also found out that the absence of a mentor-mentee system for the professional development of younger academics constituted an impediment to the development of university research culture. This may be a plausible cause for the low research productivity among academics in both public and private universities.

Even though private university academics may seem to have access to basic research infrastructure, without adequate skills or competencies on how to utilize some of them for enhanced research productivity, such facilities would be underutilized. This underscores the importance of organizing training and development programs to build the competencies and skills of academics.

5. Conclusion

The poor global ranking of the universities in South-East, Nigeria, and the great disparity in the ranking of public and private universities in the same region; spurred up need for probe towards finding means of remedying the situation. The importance of research productivity of academics in this ranking and the contribution of university research culture on the research productivity of academics, gave rise to the comparative analysis of university research culture and research productivity of academics in public and private universities in South-East, Nigeria.

Based on the outcome of the analysis, the overall research culture in both public and private universities was found to be above average, but a probe into the individual elements of the university research culture shows that some of the elements of the university research culture were weak, while some are good for different university types.

For both public and private universities, the academics agreed that: there is an established widely acceptable policy framework that guides them in the conduct of their research obligations; they enjoy adequate collaboration with and access to research professionals; the university management in both public and private universities ensure balanced teaching and research responsibilities for their academics to avail academics time for research work.

On the other hand, both private and public universities performed poorly in the following areas of the university research culture: research benefits and incentives; and exposure of their academics to research skill-building trainings and development programmes for their professional development. Public universities also performed poorly in availability of adequate research infrastructure. Public universities were found to be better than the private universities in these regards, except in the area availability of adequate research infrastructure, where private universities were reported to have better research infrastructure than the public universities.

In fact, the availability of research infrastructure without commensurate trainings and motivation via incentives, will not translate to enhanced research productivity. Perhaps, this may be the reason for better research productivity among academics in public universities than those in private universities in South-East, Nigeria.

These weak elements of university research culture may be plausible reasons for the low research productivity of academics and low ranking of universities in South-East Nigeria, among the world universities. There is need to improve the university research culture along these areas if attainment of 'world-class' status is the objective of the public and private universities in South-Eastern part of the country.

Based on the findings of this study, the following recommendations are made:

- Public universities should provide adequate research infrastructure such as uninterrupted internet and power supply, access to contemporary Information Technology, well equipped library and laboratories, among others to provide an environment that will incite research productivity.
- More opportunities for collaboration and access to professionals should be availed to private university academics to enhance their university research culture
- Incentives and other research benefits should also be provided to academics to enhance university research culture and encourage research productivity.
- Adequate training and development opportunities should be provided for academics in public and private universities to build their capacity and skills to do research. This would also help to boost the university research culture in these institutions.
- An in depth study on the influence of each of the indicators of university research culture on research productivity of academics in Higher Educational Institutions in Developing Countries. This will help the management of such HEIs to find optimum means of channeling their limited resources in developing their university research culture. A multivariate analysis could be explored.

References

Adeyanju, H. I. and Oshinyadi, P. O. (2017). A study of publication productivity among academic staff: Implications on planning for the

development of human resource in south-west Nigerian universities. *International Journal of Language Communication Science. 4*(1), 241-256.

Anyaogu, U. and Iyabo, M. (2014). Demographic Variables as Correlates of Lecturers Research Productivity in Faculties of Law in Nigerian

Universities. *DESIDOC Journal of Library and Information Technology.34*(6), 505-510.

Bland, C. J, Center, B. A., Finstad, D. A., Risbey, K. R. and Staples, J. C. (2005). A theoretical, practical and predictive model of faculty and departmental research productivity. *Academic Medicine*, *80*, 225–237.

Connell, H. M. (2004). *University research management: Meeting the institutional challenge.* Paris: OECD Publishing.

Dacles, D. M., Valtoribio, D. C., Rosario, F., G., Matias, C. A. and Saludarez, M. U. (2016). Cultivating research culture: An analysis of

contributing factors, the institution's research initiatives, and collaboration among the HEI's trifocal functions. *American Journal of Education Research. 4*(6), 439-449.

Fari, S. A. and Ocholla, D. (2016). Nature, patterns and trends of research collaboration among academics in selected universities in Nigeria and

South Africa. *Mousaion 34*(1), 1-22.

Hanover (2014). *Building a culture of research: Recommended practices.*USA: Hanover Research, Washington DC.

Hill, R. A. (2002). *Establishing and sustaining a research culture.* A working paper presented to the Australian and New Zealand Academy of Management Conference. 3rd redraft. Waikato Institute of Technology.

Iqbal, M., Jalal, S. and Mahmood, K. M. (2018). Factors influencing research culture in public universities of Punjab: Faculty member's perspective. *Bulletin of Education and Research. 40*(3), 187-200.

Johnson, B. J. and Louw, A. H. (2014). Building research culture from scratch at a university of technology. *Mediterranean Journal of Social Sciences. 5*(1), 151-164.

Kpolovie, P. J. and Onoshagbegbe, E. S. (2017). Research productivity: H-index and i10-index of academics in Nigerian universities. *International Journal of Quantitative and Qualitative Research Methods, 5*(2), 62-123.

Kyaligonza, R. (2015). An investigative study of research productivity of the academic staff in public universities in Uganda. *Direct Research Journal of Social Science and Educational Studies, 2*(4), 60-68.

Lertputtarak, S. (2008). *An investigation of factors related to research productivity in a public university in Thailand: A* case study. (Doctoral Dissertation, Victoria University, Melbourne, Australia). Retrieved from http://vuir.vu.edu.au/1459/

Lodhi, A. S. (2012). A pilot study of researching the research culture in Pakistani public universities: The academics' perspective. *Procedia-Social and Behavioral Sciences.* 31, 473-479.

Lodhi, A. S. (2016). *Factors influencing institutional research culture: The case of a Pakistani university.* (Doctoral thesis) University of Leeds,

School of Education, United Kingdom.

Maassen, P. (2015). *Research productivity at flagship African universities.* Retrieved from http://www.universityworldnews.com/

Mbachu, U. C. & Unachukwu, G. O. (2022). Comparative analysis of research output of academics in private and public universities in south-

east, Nigeria. *World Journal of Advanced Research and Reviews. 13(*10), 565-575. DOI: https://doi.org/10.30574/wjarr.2022.13.1.0016

Mohaida, M., Arifin, M. and Nik Ahmad, H. I. (2017). *Research culture among academics at higher education institutions: A case study at the*

international Islamic university, Malaysia. Proceeding of the International Conference on Lifelong Learning for Islamic Eduction - ICLLIE (pp. 9-15). Retrieved from http://irep.iium.edu.my/60266/2/mohaida%20%26%20drarifin_researchculture

Mohd, A. and Muhajir, F. (2013). Understanding of research culture levels: A review of literature. *Research Journal of Social Science Management. 3*(4), 120-124.

Naoreen, B. and Adeeb, M. A. (2014). Investigating academic research culture in public sector universities of Pakistan. *Procedia- Social and*

Behavioural Sciences. 116. 3010-3015.

Nguyen, N. D., Nguyen, T. D. and Dao, K. T. (2021). Effects of institutional policies and characteristics on research productivity of Vietnam science and technology universities. *Heliyon 7*(1), 1-9.

Okpe, I. J., Simisaye, A. O. and Otuza, C.E. (2013). Research output and pattern of publication among Faculty in Nigerian private universities:

Babcock university experience. *Journal of Information and Knowledge Management, 3*(9), 64-71.

Peretomode, V. F. and Chukwuma, R. A. (2011). Manpower development and lecturers' productivity in tertiary institutions in Nigeria. *European Scientific Journal, 8*(13), 16-28.

Salazar-Clemeña, R. M. and Almonte-Acosta S. A. (2007). *Developing research culture in Philippine higher education institutions: Perspectives of university Faculty*. Paper presented at the Regional Seminar "Competition, Cooperation, and Change in the Academic Profession: Shaping Higher Education's Contribution to Knowledge and Research," Hangzhou, China. Paris: UNESCO Forum. Retrieved from http://unesdoc.unesco.org/images/0015/001578/157869e.pdf

Sanyal, B. C. and Varghese, N. V. (2006). *Research capacity of the higher education sector in developing countries*. Paris: UNESCO.

Yusuf, A. K. (2012). An appraisal of research in Nigeria's university sector. *Journal of Research in National Development, 10*(2), 321-330.

Zadari, S. (2014). The sorry state of research at our universities and how to fix it. Retrieved from: https://www.dawn.com/news/1141829