RESEARCH INNOVATION AND APPLICATION OF RESEARCH SKILLS AMONG UNIVERSITY LECTURERS IN SOUTH-SOUTH ZONE, NIGERIA.

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Abstract

The main aim of this study was to find out the influence of research innovation on application of research skills among university lecturers in South-South Zone of Nigeria. The population of the study was 3033 lecturers in three Universities. The independent variable was research innovations (government funding and ICT research practices) and the dependent variable was application of research (sub-divided into nine and overall). To achieve the purpose of the study two null hypotheses were formulated and tested. Ex-post facto design was used. Stratified sample technique was deployed to sample five hundred and fifty (550) lecturers in three (3) university. Data were collected using Research Innovations and Application of Research Skills Questionnaire (RIBARSQ). The hypotheses were tested at .05 alpha level suing population t-test and One-Way Analysis of Variance (ANOVA) and Fisher's Least significant difference t-test where applied where appropriate. The results obtained showed that lecturers' application of research skills was significantly influenced by ICT practices while government funding does not significantly influence application of research skills. From the results, it was concluded that research innovation has improved lecturers research skills. It was recommended that lecturers should undertake computer and ICT practice programmes as these will improve their skills in use of computer in data analysis and formatting of research works. These will also improve on the use of required font size as required by the editors and publishing houses.

Key words: Government funding, ICT practices and application of research skills.

Introduction

Research is a process of creating knowledge that is published and utilized in teaching and learning as well as in community services. Since knowledge remains a very important possession of mankind, acquiring necessary skills for its creation could be said to be a very important human endowment. Therefore, it is an overriding duty of education, especially university education, to ensure such acquisition and application of such skills among its community (Brubacher, 2009).

Research is justified in education as a scientific process of exploiting knowledge through systematic process. Nenty (2004) states thatjust like research in pure sciences is the process of searching for the truth, and hence creating knowledge about the behaviour of physical materials.

Therefore, educational research is a scientific process of searching for the truth about educational realities, and hence creating knowledge on issues of human behaviour.

The process of creating knowledge has been developed, undergone developmental changes and validated through science. According to Brubacher (2009), "like medicine, education science is based on other sciences", it does not have a science of its own. Education science or educational research is therefore the application of scientific methodology in the search for truth about human realities (Nworgu, 2006).

Observation has shown that despite these validated developmental innovations in research methodology, lecturers still conduct research that is not general accepted locally and internationally for teaching and community services (Wibberley, Darka & Smith, 2002).

University stakeholders, expect that lecturers and graduates of universities and other higher institution to conduct research with certain specific skills. But the situation where these skills are not appropriately applied among lecturers puts a question mark on the type of research innovation these lecturers are subjected to while practicing in higher institutions of learning.

Research innovation in higher institution include a shift from state fund and TET fund funding as known as Tertiary Education (TET) Fund and a shift library volumes of papers to Information Technology and communication (ICT) library for research (Croke, 2005). These innovations share resources and facilities for research in such a way as to pool capacities between university, universities, across regions, across borders and international cooperation communities. They also play important role in enhancing the structure and conditions for good researches (Hans. 2006; Essien, Ajake & Ojini 2010). Effective application of the research innovations or skills will enable the researchers to conduct researches that will be acceptable in both local and international standards as well as create knowledge in such discipline. This standard may be guaranteed by research innovation and its application. Effective application of this research innovation in conduction of research will improve on standard of researches. Weather this is the case with university lecturers is quest of this study.

Application of research skills connotes maintaining and applying an advanced knowledge base research. According to Krawthwohl (2005, P.51-53) “the knowledge in innovative research will enabled lecturers acquire research skills in identifying research problem, analysing, validating and communicating the problem to which a solution is anticipated, reviewing and assessing the experiences of others who have earlier attempted to contribute solutions to this problems; selecting, describing and implementing research methods and processes that will enable valid solution to be found for the problem, analysing the information collected and interpreting the results of such analysis, summarizing, discussing (synthesising and evaluating) the research findings in the light of the underlying theory and reviewed literature, and presenting it in a form applicable to the research problems, and hence recommending possible solutions to the research problems and reporting and disseminating the research findings in a format or style approved by the relevant research community”. Whether research skills are being applied by university lecturers today is part of the quest of this study. “Most of these variables have been

addressed in many researches but application of research skills among lecturers remained poor and below acceptable local and international standards (NCCE, 2012).

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The present study was considered imperative in the era of knowledge creation through research innovations where lecturers are expected to systematically apply the research innovative skills in conducting research for purposes of creation knowledge and advancement in their career. This among others is not effectively achieved among lecturers. This quest provoked the present study to investigate the innovations factors and application of research skills among lecturers.

Accordingly, university lecturers are expected to conduct researches that are acceptable at local and international publication standards. But this is not the case. The question of what research innovations (government funding and ICT) contribute to the lecturer's application of research skills is imperative and needs to be answered. Based on this background, the researcher is left with no option than to investigate if the research innovation of government funding in terms of state funding and TET fund and ICT influences their application of research skills among lecturers in terms of problem identification skill, research question/hypothesis formulation skill, literature review skill, sampling skill, instrumentation skill, use of statistical tool skill, computer application in data analysis skill ,referencing skill, and report writing skill.

Statement of the problem

Application of research skills as shown by university lecturers in both local and international publications has been an issue in the educational system despite the innovation in research by various government funds.

Several investments have been made in education by successive governments in implementing innovations especially in the area of research. The government has instituted Tertiary Education Trust Fund to take care of research, thus school resource centres and internet services are provided in all institution of learning to facilitate research and promotion as well as career advancement of lecturers. Internet services are almost free and accessible to lecturers and students. College Unions had provided Laptops at easy pay conditions in the institutions (Laudel & Glaser, 2008).

Despite all these innovations to improve lecturers' research output, application of research skills among lecturers is unable to meet the acceptable local and international standards. The sub-standard research work of the lecturers, most of the time, is blamed on poor application of research skills. Given this background, it becomes necessary to ask the question to what extent does research innovation influences lecturers' application of research skills?

Research questions

1 To what extent does shift from scholar funding to government funding influence lecturers' application of research skills?

2 Does shift from analogue library to information and communication technology practice influence lecturers' application of research skills?

Null hypotheses

1. There is no significant influence of shift from scholar funding to government funding on lecturers' application of research skills.
2. Shift from analogue library to information and communication technology practice does not influence lecturers' application of research skills.

Methodology

The research design adopted for this study was the survey design. The design is appropriate because the independent variables (collaborative research, conference attendance and ICT training) already exist in the working lives of the university lecturers. The dependent variable (application of research skills) is a measure of its application that is currently taking place.

The states covered by this research are South-South zone of Nigeria. The study population was university lecturers currently serving in three states in the 2015/2016 academic session. The number of lecturers as at 2015/2016 academic session was 3033. Stratified random sampling technique was adopted and used in this study. The sample of the study was 550 University lecturers. This means that 59.72% of the lecturers were sampled. A further break down showed that 370 (67.27%) were males and 180 (32.73%) were female; 233 (42.36%) lecturers were sampled from University of Calabar, 147 (26.73%) from University of Uyo and 170 (30.91) from University of Pot Harcourt, the sample size cut across all level of lecturers from professors to graduate assistants proportionally. This means that each person in the study sample, represented 6 lecturers in the sample frame.

The questionnaire titled "Research Innovations and Application of Research Skills Questionnaire (RIARSQ)" was developed and used for data collection. The instrument is made of section A, B, and C. Section A for demographic data, B was 2 items seeking information on research Innovation and 54 items on lecturers' application of research skills divided into nine dimensions ($C_{1 - C9}$). The lecturers that require no training are classified as skilled in application of research skills; little training needed are those that have difficulties in applying certain skills and those with much training needed are regarded as those with extreme difficulties in applying research skill apply the innovation approaches. In both sections, the respondents are required to tick (√) on the most suitable option apply to them against each item.

After stratification, simple random sampling was used in selecting the respondents using the YES and NO approach. There were 550 completely filled and returned questionnaire, giving a return rate of 91.82%.

Presentation of results

In this section, each of the hypotheses of the study is restated. The independent and dependent variables are restated, and the statistical tool required for data analysis is outlined. In this study, the SPSS computer software is used in analysing the data. The results of the analysis

of data carried out are presented and then interpreted. Each hypothesis was tested at 0.05 levels of significance.

Hypothesis one

There is no significant influence of shift from scholar funding to government funding on lecturers' application of research skills.

Table 1

Independent t-test analysis of lecturers' application of research skills based on sources of government funding for research

S/No	Application of research skill variables	Groups (funding for research)	n	$\bar{X}$	SD	t.	p-value
1	Problem identification skill	(1) State fund	136	12.140	5.051	-.777	.438
		(2) TET fund	414	12.519	4.908		
		Total	550	12.330	4.980		
2	Questions/hypothesis formulation skill	(1) State fund	136	14.140	5.431	-.370	.711
		(2)TET fund	414	14.338	5.418		
		Total	550	14.239	5.425		
3	Literature review skill	(1) State fund	136	11.978	4.675	-.370	.430
		(2) TET fund	414	12.350	4.805		
		Total	550	12.164	4.740		
4	Sampling technique skill	(1) State fund	136	11.632	4.793	-789	.494
		(2) TET fund	414	11.976	5.021		
		Total	550	11.788	4.907		
5	Instrumentation development skill	(1) State fund	136	11.493	5.001	-.700	.211
		(2) TET fund	414	12.082	4.679		
		Total	550	11.788	4.840		
6	Use statistical tool skill	(1) state fund	136	12.103	5.133	-1.253	.796
		(2) TET fund	414	11.976	4.906		
		Total	550	12.040	5.020		
7	Computer application in data analysis	(1) State fund	136	12.507	5.210	.259	.767
		(2) TET fund	414	12.360	4.988		
		Total	550	12.577	5.099		
8	Referencing skill	(1) State fund	136	12.463	5.081	-.376	.707
		(2) TET fund	414	12.647	4.904		
		Total	550	12.555	5.081		

9	Reporting writing skill	(1) State fund	136	12.35	5.499	-.633	.527
		(2) TET fund	414	12.647	5.063		
		Total	550	12.486	5.081		
10	Overall application of research skills	(1) State fund	136	110.779	22.070	-.606	.544
		(2) TET fund	414	112.896	5.043		
		Total	550	111.838	23.057		

$P < 0.05$ (critical F-ratio = 2.61)

The results presented on Table 2 show that all the nine t-values (.777, -370, -789, -700, -1.253, .259, .296, -.376, -.633 and overall -.606) for problem identification, questions/hypothesis formulation skills, literature review skill, use of sampling technique skill, instrumentation development skill, use of statistical skill, computer application in data analysis skill, referencing skill, reporting skill and overall application of research skill are less than critical value of 1.966 at 0.5 level of significance with 548 first degree of freedom. Going by the state fund and TET fund funding mean scores, problem identification (X=12.140), (12.519), questions/hypothesis formulation skill (X=14.140), (X=14.338), literature review skill (X=11.978), (X=12.350), use of sampling technique skill (X=11.632), (11.976), instrumentation development skill (X=111.493), (X=12.082), use of statistical skill (X=12.103), (X=11.976)), computer application in data analysis skill (X=12.507), (X=12.360), referencing skill (X=12.463), (X=12.647), reporting skill (X=12.35), (X=12.647) and overall component of application of research skills (X=112.986), (X=111.383). From the above, the highest mean scores were in TET fund funding influence on questions/hypotheses formulation skill (X=14.338) and least from state fund and TET fund funding influence on instrumentation development skill (X=11.493).

Going by the sizes of the t-values on Table 1, it can be said that state fund TET fund funding and TET fund funding does not significantly influence application of research skill since none of the calculated t-values is greater than the critical t-value of 1.966 at 0.5 level of significance with 548 first degree of freedom. This led to the acceptance of the null hypothesis that there is no significant influence of government funding of research on lecturers' application of research skills in terms of the nine dimensions of application of research skills.

Hypothesis 2

There is no significant influence of shift analogue library to information and communication technology practice on lecturers' application of research skills.

The independent variable in this hypothesis is ICT practice for research, categorized into 4 as none, once, twice and 3 and above. The dependent variable is the nine dimensions of application of research skills of university lecturers which has nine dimension namely; problem identification skill, literature review skill, sampling technique skill, instrumentation skill, use of statistical skill, computer application in data analysis skill, referencing skill, reporting skill and overall components of application of research skills The statistical technique used to test this

hypothesis is one-way-analysis of variance (ANOVA). The results of the analysis are presented in Table 2 and Table 3.

Table 2
Summary of descriptive statistics for the application of research skill variables based on ICT practices for research

S/No	Application of research skill variables	Groups (ICT practice for research)	N	X	SD
1	Problem identification skill	(1) none	197	10.041	4.971
		(2) once	138	11.406	3.626
		(3) twice	187	15.749	3.896
		(4) three and above	28	12.036	4.734
		Total	550	12.426	4.942
2	Questions/ Hypothesis formulation skill	(1) none	197	12.147	5.429
		(2) once	138	13.188	4.001
		(3) twice	187	17.267	4.980
		(4) three and above	28	14.893	5.398
		Total	550	14.289	5.417
3	Literature review skill	(1) none	197	10.366	4.668
		(2) once	138	11.957	3.811
		(3) twice	187	14.470	4.596
		(4) three and above	28	12.357	5.042
		Total	550	12.258	4.772
4	Sampling technique skill	(1) none	197	9.995	4.635
		(2) once	138	11.420	4.230
		(3) twice	187	14.150	4.936
		(4) Three and above	28	12.464	4.834
		Total	550	11.891	4.964
5	Instrumentation development skill	(1) none	197	8.137	3.534
		(2) once	138	12.044	2.820
		(3) twice	187	15.786	3.616
		(4) three and above	28	12.429	5.647

		Total	550	11.936	4.763
6	Use statistical tool skill	(1) none	197	7.274	2.643
		(2) once	138	12.290	2.708
		(3) twice	187	16.808	2.846
		(4) three and above	28	11.857	5.727
		Total	550	12.007	4.959
7	Computer application in data analysis skill	(1) none	197	9.883	4.948
		(2) once	138	12.312	3.907
		(3) twice	187	15.107	4.408
		(4) three and above	28	12.393	5.506
		Total	550	12.396	5.039
8	Referencing skill	(1) none	197	10.457	5.127
		(2) once	138	12.348	3.786
		(3) twice	187	15.059	4.339
		(4) three and above	28	12.536	5.295
		Total	550	12.602	4.944
9	Reporting writing skill	(1) none	197	9.959	5.182
		(2) once	138	12.073	3.786
		(3) twice	187	15.690	4.317
		(4) three and above	28	12.500	5.406
		Total	550	12.567	5.171
10	Overall application of research skill	(1) none	197	88.259	30.707
		(2) once	138	109.036	23.888
		(3) twice	187	140.075	25.560
		(4) three and above	28	113.464	38.359
		Total	550	112.373	35.294

Table 3: Analysis of variance for the influence of ICT practices for research on lecturers' application of research skills

S/n	Application of research skill variables	Sources of variance	SS	df	MS	F-ratio	p-value

1	Problem identification skill	Between Groups	3333.342	3	1111.114	60.227*	.000
		Within Groups	10073.102	546	18.449		
		Total	13406.444	549			
2	Questions/hypothesis formulation skill	Between Groups	2739.893	3	913.298	37.299*	.000
		Within Groups	13369.142	546	5.486		
		Total	16109.035	549			
3	Literature review skill	Between Groups	1625.036	3	541.679	27.193*	.000
		Within Groups	10876.302	546	19.920		
		Total	12501.338	549			
4	Sampling technique skill	Between Groups	1702.065	3	567.355	26.196*	.000
		Within Groups	11825.390	546	21.658		
		Total	13527.455	549			
5	Instrumentation development skill	Between Groups	5623.433	3	1874.478	149.863*	.000
		Within Groups	6829.340	546	12.508		
		Total	1552.773	549			
6	Use statistical tool skill	Between Groups	8733.869	3	2911.290	333.515*	.000
		Within Groups	4766.102	546	8.729		
		Total	13499.971	549			
7	Computer application in data analysis	Between Groups	2619.137	3	873.046	42.101*	.000
		Within Groups	11322.456	546	20.737		

	skill	Total	13941.593	549			
8	Referencing skill	Between Groups	2044.293	3	681.431	32.707*	.000
		Within Groups	11375.505	546	20.834		
		Total	13419.798	549			
9	Reporting writing skill	Between Groups	3197.050	3	1065.683	50.676*	.000
		Within Groups	11481.961	546	21.029		
		Total	14679.011	549			
10	Overall application of research skills	Between Groups	259626.059	3	86542.020	111.383*	.000
		Within Groups	45228.532	546	776.975		
		Total	683854.591	549			

*p< 0.05 (critical F-ratio of 2.61)

The result presented on Table 3 shows that five F-ratio of 60.227, 37.299, 27.193, 149.863, 333.515, 42.101, 32.707, 50.676 and 111.383 were each higher than the critical F-ratio 2.61 at .05 level of significance with 3 and 546 degree of freedom. These implied that the F-ratio of problem identification skill (60.227) research questions/hypotheses formulation skill (37.299), literature review skill (27.193) sampling technique skill (26.196), instrumentation development skill (149.8863), use of statistical tools skill (333.515,), computer application in data analysis skill (42.101), referencing skill (32.707), reporting skill (50.671) and overall component of application of research skills (111.383) were each higher than 2.61 at .05 level of significant with 3 and 546 degree of freedom.

Based on this result, the null hypothesis was rejected for problem identification skill, question/hypothesis formulation skill, literature review skill, sampling technique skill, instrumentation development skill, use of statistical tools skill, computer application in data analysis, referencing skill, reporting writing skill and overall application and overall application of research skills. This means that there is a significant influence of ICT practices for research on application of research skills.

In order to clearly understand the pattern of the significant influence of highest ICT practice for research on lecturers' application of research skills, a post hoc Fisher's LSD multiple comparison was carried out. The result of the analysis is presented in Table 4.

Problem identification: The result from the fisher's LSD presented in Table 4 shows that there is a significant pair-wise difference between lecturers who attended ICT practice twice versus none (t=5.708), twice versus once (t=4.343), three times and above versus twice (t=-3.713) and three times and above versus none (t=2.00). There is, however no significant pair-wise difference between those who attended once versus none (t=1.365) and three and above versus once (t=.630). The result from the mean scores shows that for those who attended twice (X=15.749) had more skill in problem identification than those of who attended three times and above (X=12.036) once (X=11.406) and none (X=10.041). That is, those who attended ICT practice twice were more skilled in problem identification.

Questions/hypotheses formulation skill: The result from the fisher's LSD presented in Table 4 showed that there is a significant pair-wise difference between lecturers who attended ICT practice twice versus none (t=5.120), twice versus once (t=4.079), three times and above versus none (t=2.746) and three times and above versus once (t=-2.375). There is, however no significant pair-wise difference between those who attended three times and above versus none (t=1.704) and once versus none (t=1.041). The result from the mean scores showed that for those who attended twice (X=17.57) had more skill in questions/hypotheses formulation skill than those of who attended three times and above

Table 4

Fisher's LSD multiple comparison analysis of the significance influence of ICT practices for research on lecturers' application of research skills

s/no	application of research skills	Level of ICT training	None(N=197)	Once (n=138)	Twice (n=187)	3/above (n=28)
1	Problem identification skill	1. None	10.041 [a]	-1.365 [b]	-5.708 [b]	-1.995 [b]
		2. Once	1.365 [c]	11.406 [a]	-4.343 [b]	-.630 [b]
		3. Twice	5.708*	4.343*	15.749 [a]	3.713 [b]
		4. three and above	1.9995*	.630 [c]	-3.713*	12.036 [a]
			(MSW=18.449)			
2	Research question skill	1. None	12.147 [a]	-1.041 [b]	-5.120 [b]	-2.746 [b]
		2. Once	1.041 [c]	13.188 [a]	-4.079 [b]	-1.704 [b]
		3. Twice	5.120*	4.079*	17.267 [a]	2.375 [b]
		4. three and above	2.746*	1.704 [c]	-2.375*	14.893 [a]
			(MSW=5.486)			
3	Literature review skill	1. None	10.356 [a]	-1.591 [b]	-4.094 [b]	-1.992 [b]
		2. Once	1.591 [c]	11.957 [a]	-2.503 [b]	-.401 [b]
		3. Twice	4.094*	2.503*	14.406 [a]	2.103 [b]
		4. three and above	1.992*	.401 [c]	-2.103*	12.357 [a]
			(MSW=19.920)			
4	Sampling technique skill	1. None	9.995 [a]	-1.425 [b]	-4.155 [b]	-2.469 [b]
		2. Once	1.425 [c]	11.420 [a]	-2.729 [b]	-1.044 [b]
		3. Twice	4.155*	2.929*	14.150 [a]	1.685 [b]
		4. three and above	2.469*	1.044 [c]	-1.685 [c]	12.464 [a]
			(MSW=21.658)			
5	Instrumentation development skill	1. None	8.137 [a]	-3.906 [b]	-7.649 [b]	-4.292 [b]
		2. Once	3.906*	12.044 [a]	-3.733 [b]	-.385 [b]

		3. Twice	7.649*	3.743*	15.786 [a]	3.358 [b]
		4. three and above	4.292	.385 [c]	3.358	12.429 [a]
			(MSW=12.508)			
6	Statistical tool techniques skill	1. None	7.274 [a]	5.016 [b]	-9.533 [b]	-4.583 [b]
		2. Once	5.016*	12.290 [a]	-4.518 [b]	4.327 [b]
		3. Twice	9.533*	4.518*	16.808 [a]	4.950 [b]
		4. three and above	4.583*	-4.327*	-4.950*	11.857 [a]
			(MSW=8.729)			
7	Computer application in data analysis skill	1. None	9.883 [a]	-2.428 [b]	-5.25 [b]	-2.600 [b]
		2. Once	2.428*	12.311 [a]	-2.795 [b]	-.081 [b]
		3. Twice	5.234*	2.795*	15.107 [a]	2.714 [b]
		4.three and above	2.600*	.081 [c]	-2.714*	12.393 [a]
			(MSW=20.737)			
8	Referencing skill	1. None	10.457 [a]	1.891 [b]	-4.602 [b]	-2.079 [b]
		2. Once	1.891 [c]	12.348 [a]	-2.722 [b]	-.188 [b]
		3. Twice	4.602*	2.711*	15.059 [a]	2.523 [b]
		4.three and above	2.079*	.188 [c]	-2.523*	12.536 [a]
			(MSW=20.834)			
9	Reporting skill	1. None	9.960 [a]	-2.113 [b]	-5.730 [b]	-2.541 [b]
		2. Once	2.113*	12.073 [a]	-3.617 [b]	-.428 [b]
		3. Twice	5.730*	3.671*	15.690 [a]	3.190 [b]
		4.three and above	2.541*	.428 [c]	-3.190*	12.500 [a]
			(MSW=21.029)			
10	Overall application research skills	1. None	88.285 [a]	-20.777 [b]	-51.816 [b]	-25.205 [b]
		2. Once	20.77*	109.036 [a]	-31.039 [b]	-4.428 [b]
		3. Twice	51.816*	31.039*	140.075 [a]	26.611 [b]
		4.three and	25.205*	4.428 [c]	26.611*	113.46

	above	4 [a]
		(MSW=776.9 75)

* P< 0.05 (critical t-value = 1.96)

a – Group means (X) are along the diagonal;

b – Difference between the groups means (X) are above the diagonal;

c – Fisher's t-values are below the diagonal

(X=14.893) once (X=13.188) and none (X=12.147).

In other words, those who attended ICT practice twice were more skilled in questions/hypotheses formulation. Literature review skill: The result from the fisher's LSD presented in Table 4 shows that there is a significant pair-wise difference between lecturers who attended ICT practice twice versus none (t=4.094), twice versus once (t=2.503), three times and above versus twice (t=-2.103) and three times and above versus none (t=1.992). There is, however no significant pair-wise difference between those who attended once versus none (t=1.591) and three and above versus once (t=.401). The result from the mean scores shows that for those who attended twice (X=14.460) had more skill in literature review skill than those of who attended three times and above (X=12.357) once (X=11.957) and none (X=10.366). That is, those who attended ICT practice twice were more skilled in literature review.

Sampling technique skill: The result from the fisher's LSD presented in Table 4 shows that there is a significant pair-wise difference between lecturers who attended ICT practice twice versus none (t=4.155), twice versus once (t=2.929), three times and above versus twice (t=2.469) and three times and above versus none (t=2.00). There is, however no significant pair-wise difference between those who attended once versus none (t=1.425) and three and above versus once (t=.630). The result from the mean scores shows that for those who attended twice (X=14.150) had more skill in sampling technique than those of who attended three times and above (X=12.464) once (X=11.420) and none (X=9.995). That is, those who attended ICT practice twice were more skilled in sampling technique.

Instrumentation development skill: The result from the fisher's LSD presented in Table 4 shows that there is a significant pair-wise difference between lecturers who attended ICT practice twice versus none (t=7.649), three times versus none (t=4.282), once versus none (t=3.906), twice versus none (t=3.743) and three times and above versus twice (t=3.358). There is, however no significant pair-wise difference between those who attended three times and above versus once (t=.385). The result from the mean scores shows that for those who attended twice (X=15.786) had more skill in instrumentation development than those of who attended three times and above (X=12.429) once (X=12.044) and none (X=8.137). That is, those who attended ICT practice twice were more skilled in instrumentation development.

Use of statistical tools skill: The result from the fisher's LSD presented in Table 4 shows that there is a significant pair-wise difference between lecturers who attended ICT practice twice versus none (t=9.533), three times and above versus none (t=5.883), twice versus none (t=5.016), three times and above versus twice (t=-4.950) twice versus once (t=4.518) and three times and

above versus once (t=-4.327). The result from the mean scores shows that for those who attended twice (X=16.808) had more skill in use of statistical tool than those of who attended once (X=12.290), three times and above (X=11.857) and none (X=7.274). That is, those who attended ICT practice twice were more skilled in use of statistical tools

Computer application in data analysis skill: The result from the fisher's LSD presented in Table 4 shows that there is a significant pair-wise difference between lecturers who attended ICT practice twice versus none (t=5.234), twice versus once (t=2.795), three times and above versus twice (t=-2.714), three times and above versus none (t=2.600) and once versus none (t=2.428). There is, however no significant pair-wise difference between those who attended three times and above versus once (t=.018). The result from the mean scores shows that for those who attended twice (X=15.107) had more skill in problem identification than those of who attended three times and above (X=12.393) once (X=12.312) and none (X=9.883). That is, those who attended ICT practice twice were more skilled in computer application in data analysis.

Referencing skill: The result from the fisher's LSD presented in Table 4 shows that there is a significant pair-wise difference between lecturers who attended ICT practice twice versus none (t=4.602), twice versus once (t=2.711), three times and above versus twice (t=-2.523) and three times and above versus none (t=2.079). There is, however no significant pair-wise difference between those who attended ICT once versus none (t=1.891) and three and above versus once (t=.188). The result from the mean scores shows that for those who attended twice (X=15.059) had more skill in referencing than those of who attended three times and above (X=512.536) once (X=11.58) and none (X=10.457). That is, those attended ICT practice twice are more skilled in in their application of referencing skill and reporting writing skill: The result from the fisher's LSD presented in Table 4 shows that there is a significant pair-wise difference between lecturers who attended ICT practice twice versus none (t=5.730), twice versus once (t=3.671), three times and above versus twice (t=-3.190) and three times and above versus none (t=2.113). There is, however no significant pair-wise difference between those who attended three times versus none (t=.428). The result from the mean scores showed that for those who attended twice (X=15.690) had more skill in report writing than those of who attended three times and above (X=12.500) once (X=12.072) and none (X=9.959). That means, those who attended ICT practice twice were more skilled in report writing.

Overall application of research skill: The result from the fisher's LSD presented in Table 4 shows that there is a significant pair-wise difference between lecturers who attended ICT practice twice versus none (t=51.816), twice versus once (t=31.039), three times and above versus twice (t=5.611), three times and above versus none (t=25.205) and once versus none (t=20.770). There is, however no significant pair-wise difference between those who attended once versus none (t=1.365) and three and above versus once (t=4.428). The result from the mean scores shows that those who attended twice (X=140.075) had more skill in the overall application of research skills than those of who attended three times and above (X=112.464), once (X=109.036) and none (X=88.259). That is to say, those who attended ICT practice twice were more skilled in overall application of research skill.

Discussion of findings

The finding as presented here have provided valuable insight into some of research innovations' variables that influence lecturers' application of research skills. The discussion of these findings are presented in this section based on each of the two hypotheses formulated for study.

The finding in this hypothesis revealed that there was no significant influence of shift from scholar funding to government funding on lecturer's application of research skills. Source of research funding did not create any impact in university lecturers' application of research skills as revealed by this study. Source of research funding in Nigeria higher institutions general and university in particular is made available to researchers after the research has been carried out. The finding confirmed the view of Fatunde (2007) who reported that the West African Association of Research and Innovation regrets that Nigerian since independence has not made a priority of allocating substantial funds for research in the university. According to him, without proper research funding from government fund, university -based researchers and scientists can not undertake meaningful research and without research, the country cannot make substantial economic and industrial progress.

The inability of researchers to gain TET fund funding from government has resulted to state fund funding as well as other venues like foreign bodies. This is in line with finding of Bako (2005), who reported that less than 10% of the university based research is funded externally by foreign bodies and the same percentage by the university research Board. A study by Donwa (2006) revealed that government funding university research in Nigerian is done by the Federal TET fund and foreign agencies. The study also revealed thatthe sources of research funding are not regular and therefore, not dependable. This scarcity of TET fund funding has a negative effect on research process at the university lecturers. The implication of the finding is that since most of the funds are paid to the lecturers after conferences have been concluded, it becomes impossible to utilize the fund on already concluded papers thereby contributing little or nothing to the conduct of the research work been funded.

The second findings revealed that there was a significant influence of ICT practice for research attended on application of research skills. The outbreak of digital world has covered all facets of life, research inclusive. The exploration of literature in various disciplines is easily and conveniently facilitated by ICT. In research, various skills require the use computer such as data analysis and reporting packaging. The application of research skills is enhanced by ICT.

This finding is in support of Gill and Dangarno (2008), who discovered that research for relevant literature, publish articles and books, identification of research topics were basic facilitator of ICT in research. Gill and Dangarno (2008) were contradictory on the use SEP for bibliographic citation and referencing as ICT skills has no significance influence.

Findings on the ICT skills on problem identification skill, literature review skill, use of statistical skill, computer application in data analysis skill and referencing skill, were significance. This finding support that of Eugene (2006) which revealed thatthe internet also

provides researchers with ready channels for the dissemination of research reports and findings and ready means for production of research reports.

ICT practice and application in daily school life has become necessary and urgent for all teachers and lecturers. Trainees in ICT are becoming effective and efficient in teaching and learning process (research inclusive). ICT oriented lecturers' development skills in computer operation and use of software in conducting research. Therefore, recent trends in ICT practice among lecturers perhaps has influenced their application of research skills as revealed by the finding of this hypothesis.

Conclusion

On the basis of these findings, firstly, it was concluded that government funding in terms of state funding and TET fund funding did not significantly influence application of research skills among university lecturers. This implies that government funding makes no significant contribution to the improvement of lecturers' application of research skills.

Secondly, lecturers' application of research skills was significantly influence by lecturers' ICT practice for research. This implies that lecturers' ICT practice for research, effective knowledge creation objective is being achieved to greater extend. In other words, the acceptable local and international standard of researches and reporting research findings will be achieved.

Recommendations

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

1. Lecturers on training in university, students as well as conference attendants should consider innovative trends, research methodology and statistics as a life time experience that facilitate knowledge creation for application and advancement of such discipline.
2. A formidable research government funding policy should be developed for Nigerian university lecturers'. The state fund and TET funds for research should be made available before the commencement of the research work.
3. It is also recommended that lecturers should undertake computer and ICT practice programmes as these will improve on their skills in use of computer in data analysis and formatting of research works. These will also improve on the use of required font size as required by the editors and publishing houses.

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