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## RESEARCH ARTICLE

### RESEARCH CHALLENGES IN NIGERIA: THE RELATIONSHIP BETWEEN EARLY EXPOSURE TO RESEARCH PRINCIPLES AND WILLINGNESS TO SUPPORT ACADEMIC RESEARCH

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#### ABSTRACT

This paper set out to examine whether early exposure to research tenets was a predictor of research support in Nigeria and the United States. Data relating exposure to and support for research were collected in the both countries and analysed using the SAS statistical software. The results show no statistically significant relationship between early exposure to research and support for academic research. There is also no significant relationship between someone's level of education and a willingness to support academic research.

#### Key words:

Research challenges,  
Exposure theory,  
Early research exposure,  
Research Nigeria Universities,  
Support for academic Research.

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## INTRODUCTION

Academic research is a core function of tertiary institutions and an important indicator for measuring their quality and performance. That research constitutes 60% of the assessment factors the Times Higher Education (THE) uses to assess and rank universities underscores the importance of academic research (THE, 2014). THE credits the respectable ranking of University of Cape Town (world's 124<sup>th</sup> best university and Africa's best in 2014) to the strength of its research. In another example, academic staff promotions and career advancements are based largely on the volume and quality of research work (Owuamanam and Owuamanam, 2008). Nigerian universities have not fared well in research volume, quality, or influence (Committee of Vice-Chancellors, 2014). A number of authors blame the poor performance on: (a) inadequate or poor funding, (b) low motivation, (c) poor or obsolete research infrastructure, (d) brain drain and heavy teaching workload, (e) unfavourable national philosophy, (f) corruption, and (g) unstable political system (Abiodun, 2014; Akinnaso 2012; Chiemeke *et al.*, 2013; Yusuf, 2012). In explaining the poor ranking of Nigeria universities among their counterparts, Akinnaso notes that the above factors have also led to "poor teaching and learning

outcomes; diminishing research and consultancy traditions; and questionable service to the community" (p. 5). In general, the impact and influence of academic research in Nigeria is non-existent since Nigerian governments at local, state, and federal levels are not known for advocating and implementing research-based policies and programs. In essence, the value of academic research appears to be underappreciated in Nigeria outside of the university.

While the afore-mentioned reasons for the poor state of academic research in Nigeria are indisputable, literature is silent on the underlining causes and what appears to lack of appreciation for academic research. This paper presents a quantitative non-experimental study that examined the relationship between early exposure to research and the willingness to appreciate and support academic research. That Nigerian universities rank low in volume, impact, influence, and reputation of academic research is not in doubt. For instance, none of the 128 universities in Nigeria has appeared in THE's ranking of 400 best universities in the world during the past five years. Also not in doubt is the extensive literature covering the challenges that beset the Nigerian researcher; the most prevalent being lack of funding, motivation, research infrastructure, national philosophy, and will by political and industry leaders to encourage research. All these factors tend towards apathy or lack of appreciation for academic research.

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The fundamental reason for the research challenges in Nigeria is unclear. Conversely, American universities have continued to dominate the top 100 best universities in the world during the past decade, with research playing overriding factor in the ranking criteria. Could this be due to the fact that Americans are taught research tenets and skills early age (Yongpradit, 2014)? The objective of this paper is to investigate the influence of early exposure to research on the tendency to support academic research in Nigeria and the United States. Another objective is to determine whether or not any relationship exists between a person's level of education and his/her willingness to support academic research.

## Literature Review

Researchers continue to examine reasons for the lack lustre publications from Nigerian universities from different dimensions. In one of such investigations, Egwunyenga (2008) identifies non-utilization of research outcomes, absence of dedicated research centres, inadequate research funding, and brain drain as some of the constraints affecting academic research in Nigeria. The author indicates that the average Nigerian researcher remains dogged and willing to overcome all obstacles including international politics of publication. Lamenting that research in Nigeria's higher learning institutions is yet to make an impact, Yusuf (2012) blames "inadequate and irregular funding, poor motivation, poor or obsolete research infrastructure, brain drain and rising workload resulting from deteriorating staff/student ratio" (p. 7) as the reasons for poor research outcome in Nigeria. Aniete (2014) observes insufficient collaboration between Nigeria academics and industries in research. Aniete further notes that synergy between the two bodies has contributed immensely to the economic growth and industrialization of many countries.

The level of academic research in federal government universities was the subject of investigation by Okiki (2014). The author reported poor funding and low Internet bandwidth as the research barriers in federal universities. In an empirical study of academic staff of Nigeria universities, Biodun (2014) found that poor funding, lowly and inadequate research facilities, and lack of international exposure contribute to the dearth of quality academic research work in Nigeria. The author also blamed the same factors for the low productivity of university staff. Jimoh (n.d.) identifies inadequate infrastructure and social inhibitions as factors inhibiting research progress in the country. Literature on the state of Nigeria research is replete with the same research barriers that appear to be man-made. The need to understand the fundamental reasons for the barriers motivated this study.

## Theoretical Framework

These researchers argue that lack of early exposure to research principles leads to apathy, which ultimately results in the man-made research challenges faced in Nigeria. It is the contention of these authors that when citizens are exposed to and thought the value of research early in life, they would grow to appreciate and support academic research. The argument is based on the premise that people are motivated to support and defend their attitudes, beliefs, and behaviours from selective congenial exposure (Hart *et al.*, 2009). Consistent with the

familiarity principle, it is reasonable that those exposed to research principles and tenets early in life are more likely to embrace and support research in future.

It is proposed that early exposure to research tenets in elementary school or secondary school is a predictor of one's willingness/tendency to support academic research later as an adult; that early exposure to research reduces apathy and improves appreciation for academic research. Thus exposure theory and cognitive bias provide the theoretical framework for this study. It is also argued that difficulty in collecting data is also one of the challenges facing researchers in Nigeria. Under appreciation of academic research may be the reason authors have difficulties in obtaining research grants as well as difficulty in collecting data in Nigeria. Personal efforts to obtain research data in Nigeria have in many cases been discouraging because of lukewarm cooperation from industry leaders. Elehia (2008) notes that cultural practices of not trusting strangers with information tend to affect research and data collection in developing countries in general.

## Research Questions

Research questions and hypotheses typically draw from the problem under investigation and the purpose of the research. The major questions in this research pertain to the assumption that an early understanding of academic research and its values lead to appreciation for and the willingness to support academic research later. Another valid question is how the Nigerian research environment differs from that of the United States that has a high level of research volume and impact (THE, 2014). Answering the following questions could help to explain the assumption made in this study.

**RQ 1:** What relationship exists, if any, between a person's early exposure to research principles and his/her willing to support academic research later as an adult?

**RQ 2:** Is there a relationship between someone's level of education and his/her tendency to support academic research?

**RQ 3:** Is there a difference between Nigerians and Americans in terms of their willingness to support academic research?

## Hypothesis

H1<sub>0</sub>: No relationship exists between early exposure to research and a willingness to support research later.

H2<sub>0</sub>: There is no difference between a person's level of education and his/her tendency to support research.

H3<sub>0</sub>: There is no difference between Nigerians and Americans in level of support for research.

## MATERIALS AND METHODS

This non-experimental quantitative correlational study was designed to examine how early exposure to research relates to one's willingness to support academic research at a future time in Nigeria and the United States. A non-experimental quantitative design was employed even though an experimental design would have been more rigorous for examining the effects of independent variables on dependent variables (Diamond and Sekhon, 2008). However, an experiment for

studying this type of relationship would mean years of tracking participants to collect data, which is not feasible at this time. Instead, two sets of data were collected from two population groups using the same questionnaire. Two population groups were surveyed using a validated questionnaire. One group, Nigeria was denoted as Group N and the other group, the United States was denoted as group U. Participants in both groups were adults who were randomly surveyed. The same questionnaire, which sought data regarding participants' exposure level to research and the likelihood of their support for research was administered to all participants. The data for each group were analysed using Statistical Analysis Software (SAS) version 9.3.

**Measures**

The likelihood survey utilized a 5-point scale in which participants were asked to indicate their early exposure levels to research and the likelihood of research support, where 1=Definitely true, 2=True, 3=Not sure, 4=False, and 5=Definitely false.

Eighteen questions in four groups were asked. The first group of questions concerned early exposure to research while the second group was concerned with late exposure to research. The third group of questions concerned a respondent's likelihood to support research, while the fourth group measured the level of education of the respondent.

**Research Variables**

The following variables were used in collating the data and performing the analysis.

- EER = Early exposure to research (exposure to research in elementary or secondary schools)
- LER = Late exposure to research level (exposure to research in higher institutions – colleges and universities)
- SLR = Support level for research level
- EDL = Education level

**RESULTS**

Pearson's correlation coefficient was used to measure the linear relationships between the variables for both Nigeria and the United States. Data samples from both countries were assumed to be normally distributed, and the test for normality showed they were. The data sets for both countries were tested and analysed independently.

**Hypotheses Testing**

□□□ -Nigeria: No relationship exists between early exposure to research and willingness to support research later.

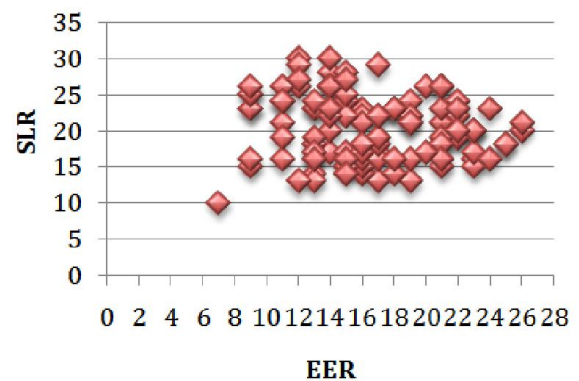
The descriptive statistics for the Nigeria data set is shown in Table A1 in Appendix A. Table 1 below presents the Pearson correlation of the variables of interest.

As shown in the table the correlation between early exposure to research (EER) and support level for research (SLR) is negative (-0.11190) and weak at the probability significance of 0.2401 (Pr = 0.2401). Since the level of significance is greater

than 0.05, it implies that the association between EER and SLR in Nigeria happened by chance, and not statistically significant. This means there is not enough evidence to reject H1<sub>0</sub>. Figure 1 shows the scatter plot for the relationship.

**Table 1. Pearson Correlation - Nigeria**

Pearson Prob>  r	Correlation Coefficients, N=112			
	EER	SLR	EDL	LER
EER	1.00000	-0.11190	0.15470	-0.39834
SLR		1.00000	-0.30763	-0.25345
EDL			1.00000	0.04654
LER				1.00000



**Figure 1. Nigeria – Research Support vs. Early Exposure to Research**

The association between late exposure to research (LER) and SLR for Nigeria was then examined. The analysis shows a moderate negative relationship (-0.25345) between the two variables at a probability significant level of 0.0070. Since (Pr = 0.0070) is less than 0.05 the association is statistically significant in the negative direction.

H2<sub>0</sub> -Nigeria: There is no difference between a person's level of education and his/her tendency to support academic research

The correlation between education level (EDL) and SLR (-0.30763) is negative and moderate at a probability significance of 0.0010 (Pr = 0.0010), which is less than 0.05. It does imply that the association between EDL and SLR in Nigeria is statistically significant. It follows that there is enough evidence to accept the null.

H1<sub>0</sub> - USA: No relationship exists between early exposure to research and willingness to support research later

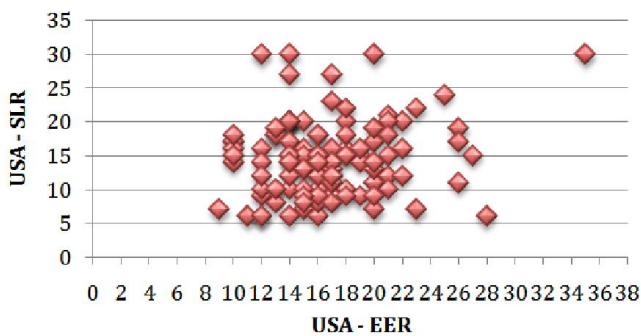
The descriptive statistics for the USA data set is shown in Table A2 in Appendix A. Table 2 presents the Pearson correlation of the variables of interest.

As shown in the table the correlation between EER and SLR (-0.39818) is negative and moderate at the probability significance of <0.0001 (Pr = 0.0001). Since the probability significance is less than 0.05, the association between EER and SLR is statistically significant. Thus there is enough evidence

to reject  $H_{O1}$  – USA. Figure 2 shows the scatter plot for the relationship.

**Table 2. Pearson Correlation – USA**

Pearson Correlation Coefficients, N = 111 Prob>  r  under H0: Rho=0			
	EER	SLR	EDL
EER	1.00000	-0.39818	0.09864
SLR		<.0001	0.3030
EDL			0.2156
			1.00000



**Figure 2. USA Research Support vs. Early Exposure to Research**

$\square\square\square$  **Test – USA:** *There is no difference between a person’s level of education and his/her tendency to support research*

The correlation between a person’s education level and SLR (-0.11846) is negative and weak at a probability significant level of 0.2156 ( $Pr = 0.2156$ ), which is greater than 0.05. This implies that the association between EDL and SLR in the United States is not statistically significant. There is, therefore, not enough evidence to reject  $H_{O2}$ .

$\square\square\square$  - **Test:** *There is no difference between Nigerians and Americans in terms of willingness to support academic research.*

The test for this comparison was performed using Student t-test. The test compared the Nigerians and Americans that were sampled in three categories:

- Early exposure to research
- Education level
- Level of support for research

**The t-test Procedure**

$Pr>|t|$  is less than 0.05 (the alpha level), assuming equal variances for samples, and use the Pooled t –value. The following presents the results of the test of the three variables.

**Early Exposure to Research**

The result of the test of difference in EER is shown in Table 3. The descriptive statistics for the t-test is presented in Table A3 in Appendix A.

**Table 3. Variable EER – Nigeria vs. USA**

Method	Variances	DF	t Value	Pr >  t
Pooled	Equal	221	8.43	<.0001
Satterthwaite	Unequal	209.61	8.42	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	110	111	1.58	0.0171

Whether equal or unequal variances are assumed, the difference in EER between the two countries is significant.

**Education Level**

The result of the test of difference in education level is shown in Table 4. The descriptive statistics for the t-test is presented in Table A4 in Appendix A.

**Table 4. Variable EDL – Nigeria vs. USA**

Method	Variances	DF	t Value	Pr >  t
Pooled	Equal	221	-0.80	0.4264
Satterthwaite	Unequal	211.24	-0.80	0.4269

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	110	111	1.52	0.0288

There is no significant difference in the level of education between Nigerians and Americans who participated in the study.

**Level of Support for Research**

The result of the test of difference in support for research is shown in Table 5. The descriptive statistics for the t-test is presented in Table A5 in Appendix A.

**Table 5. Variable SRL – Nigeria vs. USA**

Method	Variances	DF	t Value	Pr >  t
Pooled	Equal	221	18.06	<.0001
Satterthwaite	Unequal	138.86	18.13	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	111	110	7.91	<.0001

A significant difference exists between USA and Nigeria ( $P < 0.0001$ ) in terms of support for academic research.

**DISCUSSION**

In this study, support for academic research was described as the likelihood for individuals to (a) respond to research questionnaire under any circumstances, (b) provide personal funds for research if the respondent were in a position to do so, (c) approve research funding if the respondent were in a position to do so, and (d) give access to non-confidential organization’s data for the purpose of research if the respondent were the head of the organization. Those who

learned about scientific research in elementary or high schools were regarded as having early exposure to research, while those who learned about scientific research for the first time in tertiary institutions were regarded as having late exposure to research.

In the study the participants were randomly sampled in Nigeria and the United States of America about their research exposure to and willing to support academic research. The result shows that 89% of USA respondents had early exposure to research compared to 43% of Nigerian respondents who had early exposure. Eleven percent of USA respondents had late exposure to research while 46% of respondents in Nigeria were in the same category. However, this disparity did not appear to affect the level of support for academic research, as the findings show no evidence of any relationship between early exposure to research and the willingness to support research later. The result also shows no evidence that one's level of education has a positive relationship with his or her willingness to support academic research, despite the slight variations in the education levels of the two groups studied. Table 6 shows the level of education of both groups.

**Table 6. Respondents' Education Levels**

Respondent Education Level	USA	Nigeria
Secondary Education	14.8%	12%
Bachelor's or equivalent degree	51%	56%
Master's or PhD	35%	31%
Other	0.2%	1%

The results also show no difference between Nigerians and Americans in their willingness to support academic research even though a difference exists between the level of early exposure to research in both groups. Similarly, there is no difference between the level of education and the tendency to support research in both countries. Since this study does not support the assumption that late exposure to research could lead to lack of support and appreciation for research, what then are the fundamental reasons for the challenges faced by Nigerian academic researchers?

### Research Barriers in Nigeria

As literature has revealed, lack of national policy or political will, heavy teaching workload, and inadequate funding have been blamed for the lack lustre research of Nigerian academics. Nigeria's national policy on research advocates among other functions, "aims to identify common problems and resources for research, tie research agenda to national priorities" (STI, 2011). It is unclear how state and federal governments in Nigeria implement this policy, and what mechanism they employ to manage the coordination of academic research efforts in the country's higher institutions. In some countries bodies such as Research Information Networks (RIN, 2009) have been set up as community interest to provide "rigorous research and analysis" to governments and industries. Nigeria research stakeholders can adopt the RIN model to foster interest in its activities.

### Lack of Funding

Research funding barriers are not limited to the Nigerian researcher. In the Journal of Stroke Editorial, Rothwell (2007)

decries the lack of funding for stroke worldwide. Paterlini (2009) advocates a radical reform of the Italian education and research programs to address lack of research funding in the country. Similarly, Seruga *et al.* (2014) and Sakar (2014) identify lack of funding as one of the major challenges of research. The preceding underscores the global nature of the challenge as researchers compete for limited funding. The challenge can be exacerbated by poorly prepared research grant proposals and by the fact that few agencies in Nigeria fund research. Seminars on writing research grants are organized periodically for researchers worldwide. Good resources are also available online to guide researchers about writing effective research proposals and applications.

### Motivation

Lack of motivation for research in Nigeria may be the result of inadequate research facilities and culture in Nigeria universities, unreasonable staff-student ratio, lopsided class sizes/workload, and the so-called "publish and perish" syndrome that emphasizes quantity as of opposed to quality of publications. It is not uncommon to see class sizes in the hundreds, especially in the government-owned universities. A class size of 500 students can be a demotivation for the faculty.

### International Collaboration

Literature is sated with suggestions and need for international collaboration in research. One of such literature (n.d.) advises researchers, especially new ones, to not work alone. The new and even older researchers benefit from working in teams as either co-investigator or project coordinator under a principal investigator.

### Significance of the Study

Government and industry leaders often shape their policies using research findings. This study is significant for many reasons. For the Nigerian research community, knowing an important factor that had been overlooked provides the community an additional tool to tackle and overcome research challenges. However, it poses the challenge to investigate the role of other factors leading to the lack lustre impact of Nigeria's research endeavours.

### Recommendation for Further Study

The result of this study may be generalized since the population sample satisfied the assumption of normality. However, further study using a different design is suggested. Since the study does not support the claim that early exposure to research played in lukewarm support for research in Nigeria, there is a need to investigate the role that culture plays in support for research in the country.

### Conclusion

The result shows no evidence of any relationship between early exposure to research and willingness to support research later. The result also shows no evidence that one's level of education has a positive relationship with his or her willingness to support academic research



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## Appendix A

Table A1. Descriptive Statistics for Nigeria

Simple Statistics						
Variable	N	Mean	StdDev	Sum	Minimum	Maximum
EER	112	20.25893	4.42708	2269	10.00000	30.00000
SLR	112	16.45536	4.38648	1843	7.00000	26.00000
EDL	112	3.18750	0.69140	357.00000	1.00000	5.00000
LER	112	7.66964	1.66245	859.00000	4.00000	10.00000

Table A2. Descriptive Statistics for USA

Simple Statistics						
Variable	N	Mean	StdDev	Sum	Minimum	Maximum
EER	111	14.58559	5.56200	1619	6.00000	30.00000
SLR	111	8.47748	1.55999	941.00000	2.00000	10.00000
EDL	111	3.27027	0.85223	363.00000	1.00000	5.00000
LER	111	16.70270	4.32665	1854	9.00000	35.00000

Table A3. t-Test of EER (Significant difference exists between USA and NIGERIA (P &lt; 0.0001))

COUNTRY	N	Mean	Std Dev	Std Err	Minimum	Maximum
NIGERIA	112	20.2589	4.4271	0.4183	10.0000	30.0000
USA	111	14.5856	5.5620	0.5279	6.0000	30.0000
Diff (1-2)		5.6733	5.0241	0.6729		

COUNTRY	Method	Mean	95% CL Mean	Std Dev	95% CL StdDev
NIGERIA		20.2589	19.4300	21.0879	4.4271
USA		14.5856	13.5394	15.6318	5.5620
Diff (1-2)	Pooled	5.6733	4.3472	6.9994	5.0241
Diff (1-2)	Satterthwaite	5.6733	4.3455	7.0012	4.5962

**Table A4. T-Test of EDL (No Significant difference between USA and NIGERIA, P = 0.4264)**

COUNTRY	N	Mean	Std Dev	Std Err	Minimum	Maximum
NIGERIA	112	3.1875	0.6914	0.0653	1.0000	5.0000
USA	111	3.2703	0.8522	0.0809	1.0000	5.0000
Diff (1-2)		-0.0828	0.7756	0.1039		

COUNTRY	Method	Mean	95% CL Mean	Std Dev	95% CL StdDev
NIGERIA		3.1875	3.0580	3.3170	0.6914
USA		3.2703	3.1100	3.4306	0.8522
Diff (1-2)	Pooled	-0.0828	-0.2875	0.1220	0.7756
Diff (1-2)	Satterthwaite	-0.0828	-0.2877	0.1222	0.7096

**Table A5. t-Test of SLR(Significant difference exists between USA and NIGERIA (P < 0.0001)**

COUNTRY	N	Mean	Std Dev	Std Err	Minimum	Maximum
NIGERIA	112	16.4554	4.3865	0.4145	7.0000	26.0000
USA	111	8.4775	1.5600	0.1481	2.0000	10.0000
Diff (1-2)		7.9779	3.2978	0.4417		

COUNTRY	Method	Mean	95% CL Mean	Std Dev	95% CL StdDev
NIGERIA		16.4554	15.6340	17.2767	4.3865
USA		8.4775	8.1840	8.7709	1.5600
Diff (1-2)	Pooled	7.9779	7.1074	8.8483	3.2978
Diff (1-2)	Satterthwaite	7.9779	7.1076	8.8481	3.0169

\*\*\*\*\*