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Relationship between Students' Scores on Research Methods and Statistics, and Undergraduate Project Scores

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Abstract
This study examined the relationship between students' scores on Research Methods and statistics, and undergraduate project at the final year. The purpose was to find out whether students matched knowledge of research with project-writing skill. The study adopted an expost facto correlational design. Scores on Research Methods and Statistics for 2008/2009, 2009/2010, 2010/2011 were correlated with project scores for 2009/2010, 2010/2011 and 2011/2012 respectively. The population for 2009/2010, 2010/2011 and 2011/2012 were 86, 90 and 102 respectively. The respective samples drawn through systematic random sampling technique were 23, 25 and 30. The past questions on Research Methods and Statistics for 2008/2009, 2009/2010, 2010/2011 as well as the undergraduate project assessment for 2009/2010, 2010/2011 and 2011/2012 were the instruments used for data collection. The three hypotheses for the study were tested at .05 level of significance using the Product Moment Correlation techniques. The co-efficient of determination was used to answer the research questions. The result of the study showed a significant relationship between students' scores on Research Methods and Statistics and undergraduate projects for 2009/2010 academic session only. The conclusion was that scores on Research Methods and Statistics did not adequately correlate with students' undergraduate project scores. It was recommended that emphasis on Research Methods and Statistics should be placed on the problem-solving nature of research.

Introduction

Nworgu (2006) defined educational research as a systematic approach to the solution of educational problems. According to the author educational research deals with the application of the phenomenon of science in finding solutions to educational problems. Educational research is accompanied with some benefits. Iwuana, Ogbebor and Onwuegbu (2010) identified benefits accruing from educational research to include improving teaching methodology and teaching strategies, improving on existing school curriculum, allowing for educational programmes to be evaluated and promoting professional growth among teachers.

In the Faculty of Education of Delta State University, Abraka education students take Research Methods and Statistics coded EDU 312, Faculty of Education Handbook (n.d). This course is preparatory to the research (EDU 400) done in the final year. EDU 312 and EDU 400 are core courses with two units and four units respectively. Taken in 300 level, EDU 312 consists of two parts, namely, continuous assessment (tests, attendance and assignment) and examination. The continuous assessment attracts 25% of the course work while 75% of the course work accounts for the examination.

Achievement in these two areas may be affected by the attitude of the student. Ossai (2010) conducted a study on "Attitude of students towards Tests and Assignment using a sample of 120 students from the Department of Guidance and Counselling, Delta State University, Abraka. Among others, the study showed that the students had a negative attitude towards tests.

The project or research done in the final year is usually an application of "Research Methods and Statistics" earlier taken in 300 level. At this level of project writing, emphasis is laid on the learning process of beginning researcher rather than the unique contribution to education (Best & Kahn, 2007). These authors posited that for such beginners, the study serves as an exploratory process.

There is usually a specified format for project writing. Okorodudu (2013:69) reported that "a good number of universities, including Delta State University, adopt a five-chapter structure for project, dissertation and thesis presentation". Egbule (2012) identified the five-chapter structure as Introduction,, Review of Related Literature, Research Methods and Procedure, Presentation and Discussion of Results, and Conclusion and Recommendations from chapter one to chapter five respectively.

Research is associated with some problems. Udeh and Dandaura (2010) observed that the slow pace of research in Nigeria is attributable to insufficient education of first generation of managers of industries, inadequate funding, lack of equipment and facilities, poor working conditions of workers, poor communication network, poor record-keeping culture and the attitude of government and the society. Some of these problems are often associated with undergraduate research. Writing on "Problems and Prospects of Undergraduate Students' Research in Educational Administration for National Development", Osuya and Okochi (2014) reported that problems of undergraduate research could be traced to the quality of lecturers in Nigerian Universities, poor quality of undergraduates, inadequate supervision by lecturers, instability in Universities and inadequate library facilities for effective research. To address the situation, these authors suggested that libraries should be enriched,

undergraduate students should attend conferences, the involvement of external examiners, the up-dating of knowledge of lecturers and greater commitment on the part of the lecturers/supervisors.

Purpose of the Study

The purpose of the study was to determine the relationship between scores in Research Methods and Statistics and scores in Students' Projects at the undergraduate level in the Department of Guidance and Counselling, Delta State University, Abraka from 2009/2010 academic session to 2011/2012 academic session.

Statement of the Problem

The knowledge acquired from Research Methods is preparatory to project writing. Therefore, one expects students to demonstrate mastery of Research Methods during project writing. Experience appears to point to the fact that this is not the case. Therefore, the problem of this study is to find out the relationship between students' scores on Research Methods and Statistics and undergraduate students' project scores with specific reference to education students at Delta State University, Abraka.

Research Questions

The research questions that guided the study were:

i) What is the extent of relationship between students' scores in Research Methods and Statistics and students' project scores in 2009/2010 academic session?

ii) What is the extent of relationship between students' scores in Research Methods and Statistics and students' project scores in 2010/2011 academic session?

ii) What is the extent of relationship between students' scores in Research Methods and Statistics and students' project scores in 2011/2012 academic session?

Hypotheses

The following hypotheses were tested at .05 level of significance.

i) There is no significant relationship between students' scores in Research Methods and Statistics and students' project scores in 2009/2010 academic session.

ii) There is no significant relationship between students' scores in Research Methods and Statistics and students' project scores in 2010/2011 academic session.

ii) There is no significant relationship between students' scores in Research Methods and Statistics and students' project scores in 2011/2012 academic session

Methodology

This study employed an *expost facto* correlational design. The population for the study consisted of final year students of the Department of Guidance and Counselling, Faculty of Education, Delta State University, Abraka. The population figures were 86, 90 and 102 for 2009/2010, 2010/2011 and 2011/2013 academic sessions respectively. Through systematic random sampling technique, sample sizes of 23, 25 and 30 were drawn respectively from the three population figures. Scores from past questions on Research Methods and Statistics (EDU 312) for 2008/2009, 2009/2010 and 2010/2011 were used to correlate scores obtained from undergraduate project (research), EDU 400 for 2009/2010, 2010/2011 and 2011/2012 academic sessions respectively. See (appendix). The three instruments were constructed by a team of examiners (including professors) teaching courses in Research Methods and Statistics. Project assessment forms were used were used by lecturers in the department to score students on their projects at the end of the four-year or three-year programme for University Matriculation Examination (UME) students or Direct Entry students. The three null hypotheses were tested at .05 level of significance using the Product Moment Correlation Statistics. The research questions were answered using co-efficient of determination.

The following grading system was used in line with what is in the Faculty of Education Information Handbook:

Score range	Grade	Points
70% and above	A	5
60% - 69%	B	4
50% - 59%	C	3
45% - 49%	D	2
40% - 44%	E	1
0% - 39%	F	0

Data Analysis and Results

Table 1 showing the Product Moment Correlation analysis of scores on Research Methods and Statistics and Project for 2009/2010 academic session.

N	Variable	r-calculated	r^2	r-critical	Decision
23	Scores	0.4246	0.182	0.413	Rejected

From table 1, the calculated r-value of 0.4246 is greater than the critical r-value of 0.413 at .05 level of significance. The co-efficient of determination is 0.18; hence the hypothesis of no significant relationship was rejected.

Table 2 showing the Product Moment Correction Analysis of scores on Research Methods and Statistics and Project for 2010/2011 academic session.

N	Variable	r-calculated	r^2	r-critical	Decision
30	Scores	0.3523	0.12	0.361	Accepted

From table 2, the calculated r-value of 0.3523 is less than the critical r-value of 0.361 at 0.05 level of significance. The hypothesis of no significant relationship was accepted.

Table 3 showing the Product Moment Correlation analysis of scores on Research Methods and Statistics and Project for 2011/2012 academic session.

N	Variable	r-calculated	R^2	r-critical	Decision
25	Scores	0.2519	.06	0.396	Accepted

From Table 3, the calculated r-value of 0.2519 is less than the critical r-value of 0.396 at .05 level of significance. The co-efficient of determination is 0.06; thus, the null hypothesis of no significant relationship was upheld.

Discussion of Results

The result of this study showed a significant relationship between students' scores on Research Methods and Statistics, and Project for 2010/2011 academic session only. That is, no significant relationship was recorded in 2009/2010 and 2011/2012 academic sessions. As shown by the values of r^2, the co-efficient of determination, students' scores on Research Methods and Statistics accounted for 18%, 12% and 6% variation in project scores for 2009/2010, 2010/2011 and 2011/2012 academic sessions respectively. The results for the three sessions may be attributed to the quality of the undergraduate students. This is in line with Osuya and Okochi (2014) who reported that some of the problems of undergraduate project writing are the quality of the students and lack of library facilities. It is clear from the Table 1 that the students for 2009/2010 academic session matched theory with practice. Hence, the significant relationship. This was not the case with 2010/2011 and 2011/2012 academic sessions. It is reasonable to believe that in these two academic sessions inadequate mastery of Research Methods and Statistics as well as students' attitude towards academic work must have been a factor. This observation is in line with Ossai (2010) who reported that students had a negative attitude towards tests. Lecturers that supervised the projects must have put in extra efforts aimed at making the students successful in project writing.

Conclusion

Students' scores on Research Methods and Statistics did not have any relationship for *2010/2011 and 2011/2012* academic sessions. The only significant relationship was in 2009/2010 academic session.

Recommendation

This researcher hereby recommends that emphasis on Research Methods and Statistics should be placed on the problem-solving nature of research.

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Appendix 1: showing scores on Research Methods and Statistics (X) and Undergraduate Project (Y) for 2009/2010, 2010/2011 and 2011/2012 academic sessions.

S/No.	**2009/2010**		**2010/2011**		**2011/2012**	
	X	**Y**	**X**	**Y**	**X**	**Y**
1.	1	5	4	4	4	4
2.	1	5	4	4	4	4
3.	1	4	5	5	1	4
4.	3	4	4	4	1	4
5.	1	4	4	4	1	4
6.	3	5	5	5	2	4
7.	1	3	4	4	4	5
8.	3	4	4	4	1	4
9.	3	5	5	4	3	4
10.	1	4	4	4	1	4
11.	3	5	5	4	4	4
12.	1	3	4	4	3	4
13.	5	5	3	3	3	4
14.	2	4	3	3	1	3
15.	3	5	5	4	3	4
16.	3	4	4	4	3	4
17.	2	4	5	4	2	4
18.	4	4	4	4	4	4
19.	4	4	1	4	1	4
20.	3	4	5	4	3	4
21.	4	5	4	3	5	4
22.	4	5	5	4	3	4
23.	3	5	3	4	3	3
24.			3	4	3	4
25.			5	3	2	4
26.			2	4		
27.			1	3		
28.			4	3		
29.			5	3		
30.			3	3		

Appendix II showing Product Moment Correlation Technique

Year	N	ΣX	ΣY	ΣX^2	ΣY^2	ΣXY	r
2009/10 23	59	100	185	444	264		0.4246
2010/11 30	117	114	483	442	450		0.3523
2011/12 25	65	99	205	395	260		0.2519