

Assessment of Research Skills Acquisition among Undergraduates in Universities in Cross River State, Nigeria

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Abstract

This study assessed research skills acquisition among final year undergraduates of universities in Cross River State, Nigeria. Survey research design was adopted for the study, while stratified random sampling technique was used to select a sample of 618 from a population of 6178 final year students in the universities for the study. An instrument titled: "Research Skills Acquisition Questionnaire" (RSAQ), duly validated with reliability estimates of the sub-variables between .71 and .78 was used to collect data for the study. The data collected were subjected to statistical analysis using population t-test. The results of the analysis showed that: the extent of undergraduates' research skills acquisition (in terms of, problem identification, literature review, research design and instrumentation, sampling and data collection, analysis and interpretation of results, author citing and referencing, and overall research skills) is significantly high. Based on the findings of this, it was concluded that an effective research skills acquisition among undergraduates is significantly high. It was recommended that seminars and workshops should be organized on regular basis for students to update and sustain their skills in research work.

Keywords: *Research skills acquisition; problem identification, literature review; author citing and referencing.*

Introduction

Universities all over the world have the mission of producing skilled manpower necessary to function effectively in their societies. As a result, their training programmes are tailored towards achieving this mandate. The ability to achieve this mandate successfully is what distinguished one university from the other. It is on this basis that universities are ranked. Those who can meet up this mandate successfully and effectively are ranked higher than others. Meeting this mandate involves impacting requisite research skills, knowledge, and attitude to enable students to realize their potential and become self-reliance which is one of the major goals of tertiary education in National Policy Education of Federal Republic of Nigeria (FRN, 2013). The students should acquire both physical and intellectual skills, which will enable them to be self-reliant and useful members of the society and also promote and encourage scholarship and community service. Despite government effort to maintain educational standard in higher institutions, the goal is yet to be achieved (Musari, 2009). Therefore, it follows that universities have not been living up to expectations in solving the problems of life by equipping students with research skills.

In Nigerian universities and universities in other parts of the world, some students lack the basic skills to outline knowledge and this had led to the collapse of adequate acquisition research skills in solving national problems. There is therefore, serious challenge among scholars concerning the quality of projects prepared by undergraduate students in universities (Okebukola, 2002). Okebukola (2002) also noted that university students performances in

research methods examination is not commensurate with the growing demand for good research that meet the local and national standards for publishing with the sole aim of contributing substantially to the knowledge bank. Some develop negative attitude during the learning process, especially when it comes to the study of research and statistics. Lack of commitment to course of study can adversely affect the students' performances in the acquisition of research skills and in solving crucial national problems through research.

It has also been observed that here is an ample evidence to show that research conducted by higher education (especially undergraduates) has not contributed to the expansion of new knowledge, and improvement in the economy of a nation (Bako, 2005). This is not supposed to be so, since research results in general are the pillars on which new knowledge can be discovered and upheld. Therefore, students are supposed to be conversant with the expected research skills during and after graduation to be able to impact positively on the society.

The major essence of research is to provide a methodology for obtaining answers to questions raised by curiously studying the evidence within the specified parameters, using scientific methods (Lacey, 2007). The success of research requires adequate preparation in the plan and conduct of empirical research. This preparation essentially equips the research students with knowledge and skills in carrying out a successful investigation. Among the skills that are essential in carrying out a successful investigation include skills in: problem formulation; hypothesis formulation; literature review; design of the investigation; sample selection; instrument design, validation and data collection; selection and assessment of appropriate statistics; interpretation of results; and discussion of findings (Obot, 2014).

It was observed that the level of acquisition of research skills by some students, who had completed tertiary institutions and their projects, do not have practical relevance to the title of the study. Also, students' assessment of research skills acquisition with regards to formulation of testable hypothesis is not concise, organization of and literature review is not very impressive due to poor style of citation. The researchers also noted that students' choice of statistical analysis seems inappropriate thus, affecting the interpretation of results and conclusion. Data analysis is the modern scientific method of research, which is empirical in nature. Most undergraduate students in University of Calabar (UNICAL) and Cross River University of Technology (CRUTECH) have been seen to experience some difficulty. Analysis of research accuracy is the ability to utilize the right statistical analysis that is fitted for the hypothesis since wrong statistical analytical tool gives wrong interpretation and wrong findings.

Sometime the society or accrediting agencies assess the effort or success of tertiary institutions in meeting the needs and expectations of the society through the production of graduates with high analytical skills in research. Some students tend to abuse the research processes they employ in carrying out their research works, by adopting many unethical activities such as a falsifying reference dates, plagiarisms, self-filling of research instruments, and so on, thereby debasing the expected standard for research work. They usually emerge with baseless, unsubstantial, and deceptive findings, conclusions and recommendations that if followed could be misleading.

Many researchers have been put forth by researchers as reasons responsible for observed variations in students' character, attitude or behavior toward their research work. Some of these reasons include instability in tertiary institutions, non-availability of research facilities, compromise on the part of the supervisors in research supervision, lack of research skills in students themselves, incompetence in lecturers of research methodology course, and

so on. Furthermore, as individuals they remain unfulfilled if they do not have those skills that will make them attain their life-long dreams. As an individual, family, community and country, this situation is unacceptable. Given that the importance of research today cannot be overemphasized in the growth and development of any nation, it is from this backdrop that this study was designed to assess research skills acquisitions among undergraduates in universities in Cross River State, Nigeria.

Purpose of the study

The purpose of the study is to assess undergraduates' research skills acquisition (in terms of problem identification, literature review, research design and instrumentation, sampling and data collection, analysis and interpretation of results, author citing and referencing, and overall research skills).

Statement of hypothesis

The following null hypothesis was formulated to guide the study: the extent of undergraduates' research skills acquisition (in terms of problem identification, literature review, research design and instrumentation, sampling and data collection, analysis and interpretation of results, author citing and referencing and overall research skills) is not significantly high.

Method

The research design adopted for this study was survey. The population of the study is made up of all the final year undergraduates in University of Calabar (UNICAL), with 3840 students, and Cross River University of Technology (CRUTECH), with 2339 students during 2016/2017 academic session. Stratified random sampling technique was employed based on institution. Simple random sampling technique was used to select 618 final year students (that is, 384 students from UNICAL, and 234 students from CRUTECH) for the study. Ten percent (10%) of the final year students' population (6179) was selected as the sample (618) for the study.

The questionnaire titled "Research Skills Acquisition Questionnaire (RSAQ)" was the instrument used for data collection in this study. It was developed by the researchers who are experts in the area of Research, Measurement and Evaluation. The instrument had two parts, A and B. Part A elicited responses on personal information, while part B was designed to elicit responses on assessment of research skills acquisition among final year university students in the state. It consists of six sections, each for problem identification; literature review; research design and instrumentation, sampling and data collection, analysis and interpretation of results; and author citing and referencing skills, with each section consisting of five items, giving a total of 30 items. The instrument was in the form of a modified 4-point Likert scale of much help needed = 1 point; moderate help needed = 2 points; little help needed = 3 points; and No help needed = 4 points. The instrument was duly validated and its reliability estimates established using cronbach alpha method. The reliability estimates for each of the sub-variables (sub-skills) and for the overall skills were found to be between .71 and .78. These values were high enough for the instrument to be deemed suitable for the study.

The researchers administered copies of the questionnaire to all the final year students selected for the study in the two universities. All the 618 copies of the questionnaire administered were duly titled and retrieved by the researchers, giving a return rate of 100 percent.

For ease of scoring, a coding schedule was developed, reflecting all items and their response options for ease of coding of reach retrieved questionnaire. A 4-point coding scale was adopted for each of the items on the questionnaire and respondents were required to respond to the items on the questionnaire based on the extent they acquired each skill, thus: No help needed = 4 points; little help needed = 3 points; moderate help needed = 2 points; much help needed = 1 point.

Result

The only null hypothesis of this study was restated and tested at .05 level of significance.

Hypothesis:

The extent of undergraduates' research skills acquisition (in terms of; problem identification, literature review, research design and instrumentation, sampling and data collection, analysis and interpretation of results, and author citing and referencing) is not significantly high.

For the research skills acquisition measure to be significantly high the score on each research skills acquisition should be greater than 12.5 (which is the mid-point, which is 2.5 multiply by 5, the number of items measuring each skills). In the case of overall research skills acquisition, the score should be significantly greater than 75 (i.e. 2.5 x 30).

The data collected were analyzed using population t-test statistical tool. The null hypothesis was tested at .05 alpha level. The result is presented in Table 1.

Table 1

Population t-test analysis of the extent of research skills acquisition among final year undergraduates (N = 618).

Reference mean = 12.50

Sub-variable	Sample mean	Mean error	SD	t-value	Sig.
Problem identification	13.88	.143	3.56	9.58	.000
Literature review	12.92	.149	3.71	2.81	.001
Research design and instrumentation	14.31	.186	4.62	9.74	.000
Sampling and data collection	13.05	.167	4.15	3.29	.001
Analysis and inter. of results	13.63	.164	4.07	6.90	.000
Author citing and referencing	15.10	.185	4.61	14.02	.000
Overall research skills	79.43	.431	10.71	10.27	.000

$P < .05$, $df = 617$; $t_{critical} = 1.96$

The review in Table 1 show the mean scores, standard deviations and t-values of the research skills acquisition of the sampled final year students. From the table, it can be observed that the mean score for problem identification (13.87) with standard deviation (3.56); literature review (12.92) with standard deviation (3.71); research design and instrumentation (14.31) with standard deviation (4.62); sampling and data collection (13.05) with standard deviation (4.15); analysis and interpretation of results (13.63) with standard deviation (4.07); author citing and referencing (15.10) with standard deviation (4.61), are each higher than the hypothesized (reference) mean of 12.50 ($t = 1.96$; $p < .05$). Similarly, the mean score for the overall research skills acquisition (79.43) with standard deviation (10.71) is also higher than the hypothesized (reference) mean of 75 ($t = 1.96$; $p < .05$).

The calculated absolute t-values for problem identification skills (9.58); literature review skills (2.81); research design and instrumentation skills (9.74); sampling and data

collection (3.29); analysis and interpretation of results (6.90); author citing and referencing (14.02); and overall research skills (10.71), are each higher than the critical t-value of 1.96 (two-tailed test). With this result, the null hypothesis was rejected. This implies that the level of final year students' research skills acquisition in terms of problem identification, literature review, research design and instrumentation, sampling and data collection, analysis and interpretation of results and author citing and referencing is significantly high.

Discussion of findings

The findings agree with Brennan, Koogan and Teichler (1996) in a survey of graduates across Europe and the UK found that graduate research skills acquisition in problem identification is statistically significant. The findings also agree with that of Joshua, Amadi, Eyo, and Ekpo (2014) who examined the research skills acquisition of undergraduates in Nigerian Universities. In their findings, the extent to which final year students acquire research skills is significantly high. Many universities have developed methods to see that graduate attributes are addressed across a whole course or programme in problem identification.

The finding is also in consonance with that of Ashibi (2005), who reported that the extent of undergraduates' research skills in literature review is significantly high. Smith (2013) proposed a model for graduate level library research that includes various search strategies in order to guide graduate students in carrying out exhaustive literature searches.

The findings also agree with that of Ben, Kaluand and Teo (2006) in a survey of graduates of university of Ibadan that graduate research skills in research design/instrumentation technique is significantly high. The findings also agree with that of Leo (2012) who seen data analysis skills in research as the ability of the research to apply an appropriate method for interpreting and manipulating data.

The findings is also in agreement with that of Obot (2014) who examined environmental factors and research skills acquisition and found that amongst other variables the extent of undergraduates' research skills in author citing and referencing is statistically significant. Referring to works of established authorities and experts in your subject area, one can add weight to ones comments and agreements. This could help to demonstrate that one has read widely, and considered and analysed the writings of others. Good referencing is essential to avoid any possible accusation of plagiarism and is a very serious academic offence. At the end of the day, it is regarded as stealing intellectual property.

Conclusion

Based on the findings of this study, it was concluded that the extent of research skills acquisition among the final year students is significantly high in the six sub-variables and in the overall research skills. The reason could be that the universities have developed appropriate methods and instilled effective research skills acquisition in problem identification, literature review; research design and instrumentation; sampling and data collection; analysis and interpretation of results; in author citing and referencing among undergraduates.

Recommendations

Based on the findings of the study, the following recommendations were made;

1. The University of Authority should evaluate and encourage students' research skills acquisition in terms of problem identification, literature review, instrument construction and validation, data collection, data analysis and interpretation of results, author citing and referencing.

2. Workshops should be organized on a regular basis for lecturers and students to update and sustain their skills in research work generally, especially in the area of literature review and data analysis.

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