

RESEARCH PROCESS: A SURE WAY OF MAINTAINING STANDARD IN EDUCATION

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Abstract

Complexity of our time had given a centre stage position to research. Political class depends on research evidence for policies that affect the life of the people. Resolutions of international community were as a result of research. Individually, one is confronted with decision-making situations that require research evidence. Since research is all this important for survival, it is necessary that scholars gain adequate knowledge. Part of the ways of ensuring this is to make available the research procedures to the reading public in order to forestall irregularities in standards. The purpose of the paper is to contribute to the research climate of students in tertiary institutions. Salient points in each of the sequence of activities in the research process were explored. Specific examples were given as necessary. Consequently, questions that will guide evaluation of each component were suggested.

Keywords

1. Introduction
2. Literature review
3. Research Methodology
4. Result
5. Research Flow-chart
6. References
7. Appendix

1.0 Introduction

Globalization and Complexity of our modern society have made it mandatory that we rely on research evidence in decision-making. Thus, it behooves on all and sundry to search for and get knowledge of research. Consequently students in tertiary institutions are meant to study and gain skills in scientific research process. Students go through a course in research methods in which they are expected to gain mastery of the research process that will enable them carry out research project and at the same time be able to evaluate research reports. Experience had shown that students do not acquire adequate knowledge through exposure to a single course in research. The students find it difficult to carry out research project in their terminal year. Nwankwo (2011) has also observed that research constitutes one of the academic spheres that are highly abused especially by neophytes. He maintained that a big gap exist in the area of practical approaches to research writing. Thus, this gap exists as a result of lack of proper knowledge of research procedures.

1.1 Purpose

The purpose of this paper was not to provide lecture note on research, nor was it designed to substitute for elaborate textbooks on research in education. The purpose is to point out some salient points derived from systematic observation and to provide a concise, handy and readily available piece that will aid readers to initiate and implement research investigation as well as evaluate research reports.

1.2 Research

Research is a scientific method of gaining knowledge. It consists of systematic application of scientific method to the study of problems. Educational research is the systematic application of scientific methods to the study of educational problems. The goal of educational research follows from the goal of all science, namely to explain, predict and control educational phenomena. The difference between educational research and other scientific research is the nature of the phenomena studied. It is considerably more difficult to explain, predict and control situations involving human beings (Gay 1992, Kpolovie 2010).

1.3 Research Process

This consists of series of systematically organized procedures of carrying out scientific investigation in order to find solution to identified problem. Research process is that which gives quality, credence and relevance to a research work, a universally accepted set of rules, norms, which guide the operations of research. It gives internal validity to a research work and enables the result to be generalized to settings beyond the place of research. Research process is the basis for evaluation and replicability of research by independent readers. The procedural steps are as follows;

1.4 Problem Identification

To select a topic, one should be conversant with the problem areas in his discipline (Okpala 2005). Thus, problem can arise from the unsatisfactory state of affairs in education such as continued dismal performance of students in examinations. Research can be carried out to detect causes and

remediation. Research problem can be identified from a need that is not yet satisfied. Research in this direction will lead to a paradigm shift in the practice of education to meet the needs of time. For instance the introduction of entrepreneurship in Nigerian educational system was brought about by a need to impact employable skills on school leavers. Unanswered questions, missing link and imbalance in the state of affairs in education arise when there is lack of congruency between policy and implementation. Okpala (2005) reiterated that researchers also identify problem areas in education through extensive review of published studies with particular interest on their limitations. Yet, gifted and experienced scholars identify researchable topics through intuition and systematic observation of naturally occurring phenomena.

2.0 Literature Review

Literature review should involve effective use of library resources in order to ascertain which information is relevant to the research problem at hand. The review process could focus on topic, problem, and relevant theories that would help develop effective theoretical framework. The review could border on methodology that assist in determining design, sample, instrumentation, data collection and analyses and results. Generally, evaluation questions that could be used to ascertain standard in literature review according to Okpala (2005) included;

- What is the depth of literature review?
- Does it border on the variables of the study?
- Does it show the linkages amongst the variables?
- How empirical and up to date is it?
- How organized is the whole literature (introduction, subheadings, summary)?
- Can the whole literature be effectively summarized in a clear and understandable paragraph of few sentences?

3.0 Research Methodology

This section consists of the following components: research design, sample, instrumentation, data collection and method of data analysis.

3.1 Research Design

The concept of research design can be explained in terms of plan, structure and strategy operated by the researcher to aid the provision of solution to a research problem. Design is a plan or blueprint which specifies how data relating to a given problem should be collected and analyzed. It provides procedural outline for the conduct of any given investigation (Nwogu 1991). Thus, in the course of investigating a given problem the researcher is faced with issues such as;

- What ought to be the target population
- What proportion of the population should be involved in the study and how this should be determined (sample and sampling techniques)
- How to collect and organize data pertinent to the problem under investigation
- What type of statistical test would be appropriate

Taking adequate decisions on these issues is usually facilitated in the framework provided by research design. Design used according to Isho (1992) should be related to the objectives of the study and the nature of the problem being investigated. In that order, if the study is investigating the effect of an event that happened in the past such as influence of broken home on the academic performance of students, then Ex-post fact research design would be preferable. On the other hand, if the purpose is to ascertain the extent of relationship between two or more variables, design should be correlational survey. Where the researcher is interested in administering treatments to the subjects, manipulate independent variable, monitor the effect of the manipulation on dependent variable and at the same time take effective control of variance (systematic variance, extraneous variance and error variance the research design is experimental (Ogomaka 1992). This is to mention but a few research designs. Suffice it to say that the quality of research design could be evaluated using the following questions;

- Was there a design in the study, what type?
- How did the researcher control for selection bias?
- How did the research control for history bias?
- Where there any other sources of bias controlled or uncontrolled?
- How internally valid was the design?
- How externally valid was the design?
- To which population can the research results be generalized.

3.2 Conceptual Definitions

Population: This refers to the number of individuals or objects who possess the attribute under study.

Sample: Sample is a group of individuals selected from the population for the purpose of studying the population.

Data Organization: This is a systematic arrangement of haphazard set of data into a discernible order. Data collected from the field are usually arranged in some ordered form such as magnitude types, species or patterns

Data Presentation: This means committing to paper the organized data in the form of tables, charts graphs and essays.

Data Interpretation: This means explaining the outcome of analysed data based on established rules and standards, drawing inferences, taking decisions or withholding same as evidence permits

Data: Data are relevant pieces of information (often in numerical form) required for a purpose. Discrete data involve whole numbers only while continuous data is a set of data involving low numbers and fractional values. Continuous data are generated by measuring variables such as human or object attributes. However, measurement in the nominal and ordinal scales tends to generate discrete data while those of interval and ratio scales give rise to continuous data

3.3 Data Analysis

Data analysis entails subjecting organized data to some statistical treatment, establishing benchmarks, comparing sample scores and establishing some measures that are not apparent from raw scores, analysing data based on established rules and standards, drawing inferences, taking

decisions or withholding same as evidence permits. The researcher should endeavour to use the simplest proper statistics that will ensure a comprehensive analysis of data with respect to research questions and hypothesis. The choice of statistical tools depends on the type of data collected (example nominal, ordinal, interval or ratio) and the research design. Different statistical procedures can be employed for different research questions and hypothesis that make up the research problem. Against this background, the following questions are used in evaluating the statistical analysis of a research data;

- What are the names of statistical tools used?
- Were the statistics most suitable ones considering the research questions, hypotheses, design and type of data?
- Was their use clearly stated?
- Should the researcher have used simpler statistics to achieve the same results?
- Is there a need for additional statistics?. If yes, name them.

3.4 Data Collection

Collection of data is a very crucial step in research process, it was cautioned, high quality data collection is important and to achieve this, a researcher should always be aware of the research problem, what data to collect and from where. Next, he has to choose the appropriate techniques of data collection and identify the relevant instrument to be used. He has to develop the instrument, and finally validate the instrument before administering it to the subjects. Data collection techniques include; observation, questionnaire, interview measuring scales (Likert, Thurstone, Gultman) Checklist, tests among others.

4.0 Results

In this section the research results are presented such that they can easily be understood and interpreted. The researcher is required to; briefly describe the results, relate them to the study problems, research questions and hypotheses, interpret the result by providing their meaning and indicate why results came out the way they did. He should provide a brief conclusion that could be drawn from the study as well as recommendation based on the conclusion, acknowledge the limitation of the study and suggest possible areas of further research.

It is in the light of the foregoing that the following questions are used in evaluating results and discussions of a research work;

- Was there a presentation of statistical result in graphic or tabular form? if yes, could they be understood and interpreted?
- Were the results briefly described? Were they clearly related to the study's problem and hypotheses?
- Were the results interpreted to indicate their meanings and why they came out the way they did?
- Was supporting literature used for convincing and meaningful interpretation of results?
- Were meaningful conclusion and recommendations offered?
- Did the investigator acknowledge limitations in addition to suggesting areas of further studies?

5.0 Research Flow-chart

Rather than picking each of the steps in the research process and explaining them in details which is not what was intended steps in the research process can be summarized in a diagram termed research flow-chart. This has to do with breaking down the whole research process into components such that each component builds on the preceding ones. Specifically, research flow-chart is a sequence of activities that should be followed to enable the investigator achieve his objectives (see appendix 1). The direction of the arrow indicate the steps starting with problem identification down to analysis of data. Conclusion, Limitations, Implications of the study and suggestion for further studies are dependent on the data interpretation. Further research problems are usually derived from the limitations of the study. The final steps consist of writing of report and publication.

5.1 Standard

Researchers' compliance to the process of carrying out research investigation translates to maintenance of standard in educational research. Standard is judged by the level of acceptability of a research as having fulfilled the targets which are mutually agreed upon by research experts (Dimson 2012). Thus, evaluation of research connotes ascertaining the degree of conformity to the laid down rules (Research process). Standards, as they relate to research in education are measures of achieving desirable quality in the different components of the research process without which the research is uninterpretable. Standards provide common frame for critiquing a research report from any part of the globe. They represent the degree of trustworthiness of research reports based on universal procedures.

5.2 Conclusion

Globalization has made it imperative for everyone to engage in research in order to take proper decisions based on evidence. It is necessary that research process which provides a common reference point be explained and made readily available to the interested to the students. Moreover, complexity and increased awareness associated with globalization demand that scholars not only acquire skills to execute scientific investigation but also to be able to critique research reports. These views had been expressed to aid scholars initiate, implement and evaluate research. The various procedural steps which had been summarized in research flow-chart were explained, pointing out the salient points. Conceptual clarifications were undertaken and the roles of research process in ensuring standards in research were explained.

6.0 References

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7.0 Appendix: Research Flow-chart

