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Between the Perils and the Opportunities: Exploring the Strategies for Overcoming the Challenges of Quantitative Technique in Political Science Research

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Abstract

The conduct of research in political science has been bedevilled with unprecedented challenges. The problems are associated with the appropriate technique that could be adopted in profitably conducting political inquiry. The argument therefore has revolved around the possibility or otherwise of using quantitative and/or statistical approach in the conduct of political science research. Very germane to the discipline of political science in Federal University Lokoja¹ for instance is the phobia for numerical analyses, which incidentally constitute the core of quantitative methods of research. As a result of this, bulk of the researches are qualitative in nature. Yet, despite recent advances in political science methods, the problem persists and little attention has been devoted to the reasons and solutions to the phobic condition of students and researchers in quantitative methods. To this end, this study identified the major challenges students and researchers face in the conduct of quantitative research in political science and the probable ways of overcoming them. The data for this study were gotten from both primary and secondary sources such as questionnaire, textbooks, the internet and other published and unpublished materials. The study asserts that, despite the perceived perils in quantitative techniques of research, there are great opportunities that could be tapped to improve the conduct of political science research. Going by the findings of the study, it recommends the need for training and re-training of emerging political scientists on the strategies for handling quantitative techniques, collaborative engagements between political scientists and quantitatively oriented disciplines, and the need to foster a blend between quantitative and qualitative techniques.

1. Introduction

Political science research has been a subject of controversy for decades. This is not in doubt. It is a function of the acute relevance of research to the development of any human society. Different political issues and phenomena continue to emerge daily, looking for the attention of the political scientist. Most of the developmental strides that have been recorded are as a result of people's curiosity to improve knowledge.

¹ Though this study focuses on Federal University Lokoja, my experience in University of Nigeria, Nsukka where I did my graduate programmes and University of Maiduguri where I taught between 2010 and 2014 shows that the experiences are similar. Besides, the papers usually presented at the National Conferences of the umbrella body of Political Scientists in Nigeria, that is Nigerian Political Science Association (NPSA) are largely qualitative in nature.

The degree of political development of a country is a direct reflection of the nature of political science research. So, sophisticated political researches inevitably herald sophisticated political systems. To this end, all hands must be on deck to improve the nature, dynamics, and potency of researches in the field of political science.

Research in itself is a scientific endeavour that must be carried out by a scientific mind. “The concept of research is as old as science”². It is the hallmark of any scientific inquiry. The central target of research is to attend to the inquisitiveness of man. Researches are aimed at making innovations that are cardinal to inventions and discoveries.

It is also noted that “for a scientific mind, all knowledge is a response to a question, if there has not been a question, there can be no scientific knowledge.”³ Man being a social being is daily faced with challenges of trying to understand and appreciate his environment and the attendant social phenomena. With the growing need for continual development and human progress, certain critical issues must necessarily be addressed.

There are diverse approaches to carrying out research. The general argument is that the nature of the study determines the type of approach or technique to be adopted. Going by this development, it is also presupposed that scholars, researchers, and students are encouraged to adopt one or more of these approaches that best suit them and also agree with their background and research orientation. The choice of an approach(es) to use have been argued to have effect on the final outcome of the research.

As a result of the growing debate among researchers on the best technique to adopt in the conduct of social research, scholars and researchers are attuned to embracing any innovative means that can ease research while at the same time boosting the robustness of social inquiry. So, the argument has revolved around the qualitative and quantitative techniques of research. Researchers of qualitative

² Geotz, W. P. *The New Encyclopedia Britannica*, 2005, P. 268

³ Gueye, P. S. An introduction to the epistemology of the social sciences. In J. B. Ouedraogo, & C. Cardoso, *Readings in methodology: African perspective*, Dakar, Senegal: CODESRIA, 2011, P. 47.

background are comfortable with the continuity of the qualitative method, which they are familiar with whereas those who are quantitatively inclined are comfortable with the continuity of the quantitative approach to the conduct of social research.

The choice of an approach to political and social inquiry depends on a number of factors, which include: the researcher's orientation, his interest, the type of knowledge sought, his personal experiences, his background, among others. In political science in particular, the controversy over the choice of approach revolved around the debate between traditionalism and behaviourism. This made the innovation of the 1960s, christened post behavioural revolution a welcomed development as it helped to enhance the fusion of both the qualitative and quantitative approaches in the conduct of political inquiry.

Despite the precision and the empirical orientation of the quantitative technique to the conduct of research, many political scientists are not comfortable with it. They see it as being more perilous due to the issues that are of concern to the political scientist. A lot more are uncomfortable with anything numeric, hence their clamour for the perpetuity of the qualitative technique to the conduct of political science research.⁴⁵

To this end, having the consciousness of the perceived perils of the quantitative technique to the conduct of political science research, this paper attempts to explore the opportunities therein and the possibility of capacity building as a means to deepening the knowledge and application of the quantitative techniques among political scientists in Nigeria. Apart from this introduction, the other parts of this paper are; methods and materials, literature review, the perils of quantitative technique in political science, the opportunities of quantitative technique, conclusion, recommendations, and references.

⁴ Koen Slootmaeckers, Bart Kerremans and Johan Adriaensen, Too Afraid to Learn: Attitudes towards Statistics as a Barrier to Learning Statistics and to Acquiring Quantitative Skills. *Politics*, 2013.

⁵ The statistical sophistication that has become predominant in the publication of many political journals in many advanced societies is still lacking in Nigerian journals of political science.

2. Method and materials

2.1. Method and source of data

The paper relied on both the qualitative and quantitative techniques of research. The qualitative method deals with a “situated activity that locates the observer in the world,” where the researchers are “attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them” in natural settings.⁶ That is to say, better comprehension of the opinions of the producers of the information is core to effective interpretation of their views. In doing so, the researcher must be detailed and exhaustive in terms of the volume of information sourced. Applying the views of others to current realities will be a tedious one, particularly if the issues addressed by those people and the issue at hand are not similar. It will need high level manipulative skills of the researcher to effectively aggregate, articulate and interpret the findings to tally with existing realities. This is what this paper brought out.

Quantitative method on the other hands deals with a “systematic empirical investigation of observable phenomena via statistical, mathematical or computational techniques”⁷. This represents the empirical orientation of research. It deals with the collection of numeric data on the subject matter of a particular research.

The qualitative data was sourced from published documents such as text books, journal articles, internet sources, official publications, among others whereas the quantitative data was sourced from questionnaires administered on the target respondents.

The data were analyzed using both the qualitative and the quantitative methods of data analysis. Qualitatively, the content analysis of several documents was used. Efforts were made towards appropriate aggregation, articulation and interpretation of the information sourced from documentary evidences that support the focus of the paper. The qualitative documents helped to validate the

⁶ Gabrielian, V., Yang, K., & Spice, S., Qualitative research methods. In G. J. K. Yang, *Handbook of research methods in public administration*, Auerbach Publications, Taylor & Francis Group, 2008, P. 142.

⁷ Given Lisa M. *The Sage encyclopaedia of qualitative research methods*, Los Angeles, California: Sage Publications, 2008.

information sourced from the questionnaires administered. Data gotten from the questionnaire were quantified and analyzed using the Statistical Package for Social Sciences (SPSS). This was done through the normal process of numbering, coding, entry, analysis and interpretation of the information gotten through the questionnaire. This was done to give them quantitative outlook for ease of analysis. Simple statistics such as simple percentages, tables, crosstabulation, among others were used.

2.2.Sampling and sample size

The study used the simple random technique in the selection of the sample upon which the questionnaires were administered. The major concern of this paper is to further the general argument on the possibility or otherwise of using statistical/quantitative approach in the conduct of political science research. This was premised on the assumption that political science researchers and students are more comfortable with qualitative research. So, the emphasis of the study is on students and researchers of the Department of Political Science, Federal University, Lokoja. Going by this, twenty questionnaires were administered on lecturers and final year students of the Department of Political Science. Eleven questionnaires were administered on the lecturers and final years students of the Department of Geography whereas the remaining nine were administered on selected lecturers and final year students of the Department of Economics. The choice of final year students is purposive. They have some knowledge in the conduct of research, having being on their final year project.

The choice of lecturers and final year students of the Departments of Geography and Economics was to serve as a control experiment. These are sister social – science disciplines that have been doing some forms of quantitative analyses. The target of this is to check the disciplines that employ statistical/quantitative approaches to research and what can be probably done to improve the use of quantitative research method by political science students and researchers in the conduct of political and social inquiry.

3. Literature review – The qualitative – quantitative argument

The qualitative method involves the collection of extensive narrative data in order to gain insights into phenomena of interest. In fact, the qualitative approach to research “is concerned with subjective assessment of attitudes, opinions and behaviour.”⁸ Research in such a situation is a function of researcher’s insights and impressions. It involves the collection of extensive narrative data (non-numerical data) on many variables over an extended period of time in a naturalistic setting. One of the aims of qualitative research is to provide a complete, detailed description of the research topic. Social scientists who are engaged in qualitative research “rely largely on descriptive accounts of the reality they study.”⁹

Majority of Nigeria’s political scientists have pitched their tent with the long and extensive normative and descriptive accounts to elicit information required for their studies. This argument corroborates with the doctrine of traditionalism, which represents the first attempt to understand the discipline of political science. This is a movement that began in political science after the First World War. The emphasis of this assumption is on legalities, norms and ethos. This school of thought believed in the consideration of normative and historical issues in politics. This implies that, such category of political scientists believed that political science issues cannot be amenable to quantitative and numeric calculation.

The quantitative technique on the other hands involves the collection of numerical data in order to explain, predict, and/or control phenomena of interest; data analysis is mainly statistical. As rightly asserted the quantitative research technique is “by numbers.”¹⁰ Quantitative involves “the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid

⁸ Kothari, C. R. *Research methodology: Methods and techniques*. New Delhi: New Age International (P) Ltd., Publishers, 2004, P. 5.

⁹ Sodaro, J. M. *Comparative politics: A global introduction*. New York: McGraw-Hill, 2008, P. 78.

¹⁰ Sodaro, 2008, P. 64.

fashion.”¹¹ The quantitative research technique looks mainly at social phenomena that has the potential to vary in measurable degrees or quantities.¹²

In the early decades of the twentieth century, many scholars embraced quantitative methods as part of a drive to make the social sciences more scientific. Quantitative methods began to gain currency across the social sciences in the 1920s and 1930s. The adoption of these methods accelerated at mid – century, as conveyed by references to the behavioural revolution.

4. The perils of quantitative research in political science

There are a number of perils that have made the conduct of quantitative research a contentious issue in political science. Some of those perceived perilous issues are:

4.1. Absence of quantitative preparatory background by political scientists

Many of the Nigerian political scientists do not have preparatory background in quantitative research. This constitutes a major obstacle to the possibility of using it in the conduct of political science researches. It is often impossible to give what one does not have. The modern political scientists, who are more attuned to the qualitative order of research will not be able to impart to students quantitative knowledge. The implication of this is the perpetuity and continuity of the dominance of qualitative technique in the conduct of political science research.

Despite the fact that it is generally believed that numbers do not lie, the people who gather, analyze, and interpret them are quite capable of skirting the facts every now and then. The possibility of falsification and/or omission that can eventually invalidate the result of the research is traceable to the degree of integrity and honesty of the people handling the data. This is where the problem comes in. Many of the Nigeria’s political scientists are unskillful in the handling of numeric data.¹³ The logical

¹¹ Kothari, 2004, P. 5.

¹² Sodaro, 2008.

¹³ This is evident in the nature of publications emanating from them. I am practically aware that many of the quantitative data collected by political scientists are contracted out to statisticians for analysis.

implication of this is that if such people are compelled to use quantitative technique, they may have to depend on statisticians and computer scientists for help. Since the external helpers are not abreast with political realities, interpretation and generalization will definitely be doubtful. From design to execution, there are plenty of chances for human error to affect a quantitative study.

The number of respondents that claimed to have knowledge of and that have used statistical analysis as seen on tables 4.1a and 4.1b stands at 38 for those who claimed to have knowledge of statistical analysis and 30 for those who said they have actually used it in their researches. This corresponds to 95 percent and 75 percent respectively.

Table 4.1a. Field of study * Do you have any specific knowledge about statistical analysis? Crosstabulation

Count

	Do you have any specific knowledge about statistical analysis?		Total
	Yes	No	
Field of study Political Science	19	1	20
Economics	9	0	9
Geography	10	1	11
Total	38	2	40

Source: Computed from the field work of the researcher

Table 4.1b. Field of study * Do you often use statistical methods to analyse your data? Crosstabulation

Count

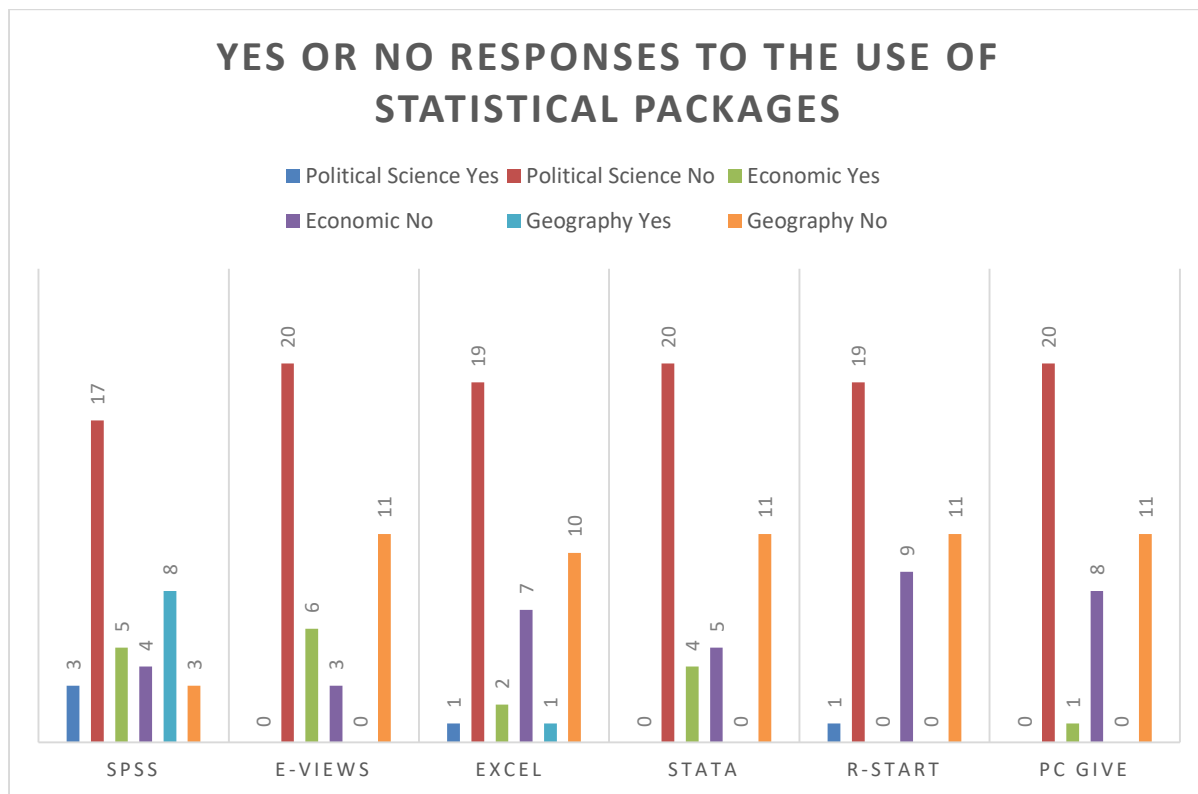
	Do you often use statistical methods to analyse your data?		Total
	Yes	No	
Field of study Political Science	11	9	20
Economics	9	0	9
Geography	10	1	11
Total	30	10	40

Source: Computed from the field work of the researcher

Figure 4.1 contradicts the opinions presented on tables 4.1a and 4.1b. Figure 4.1 shows the contrary particularly for political science scholars and students. It indicates almost zero with respect to the statistical package(s) hitherto used. Despite the fact that statistics is taught as part of the

requirements for graduation and award Bachelor of Science (B.Sc.) Degree in Political Science, the practical dimension, which ordinarily should lead to the application of the skills for the purpose of collecting, analysing and interpreting data is scarcely taught.

The responses on figure 4.1 attest to the issue of lack of familiarity with software packages that can be used to analyse quantitative data by political scientists. Data analysis is a cardinal aspect of quantitative research. Although there are software packages that are “readily available for the various simple and complicated analytical and quantitative techniques of which researchers generally make use of.”¹⁴ As a palliative to the gross dearth of statistical skills, some political scientists who insist on the conduct of quantitative study often resort to the services of statisticians and computer scientists for the purpose of analysing and interpreting their data. This often does not go down well judging by the inability of these analysts to effectively interpret the data so analysed with respect to the peculiarity of political science research.



¹⁴ Kothari, 2004, P. 372.

Figure: 4.1: Yes or No responses to the use of statistical packages used by the respondents computed by the researcher.

The difficulty of doing proper analysis and interpretation of data is inevitably responsible for improper generalisation. As a matter of fact, “the real value of research lies in its ability to arrive at certain generalisations.”¹⁵ The entire venture becomes futile if generalisation is not done.

The challenges of quantitative data analysis are acute among political scientists. Figure 4.1 shows those facts. Though, many of the respondents agreed that they have some knowledge in statistical analysis, very insignificant number can actually apply it. These fears are however allayed as all the respondents indicated their willingness to grasp any training opportunity that could boost their capacity in handling data. See table 4.1c for details of the discussion.

Table 4.1c. Field of study * If the opportunity presents itself, will you wish to be trained in the use of the appropriate statistical tools of analysis? Crosstabulation

Count

		If the opportunity presents itself, will you wish to be trained in the use of the appropriate statistical tools of analysis?	
		Yes	Total
Field of study	Political Science	20	20
	Economics	9	9
	Geography	11	11
Total		40	40

Source: Computed from the field work of the researcher

4.2.Challenges of the choice of quantitative or statistical tool(s) to use

Quantitative technique deals with data that are quantifiable, objective, and easy to interpret results. The data, particularly in a survey research can be summarized in a way that allows for generalizations that can be applied to the greater population. When effectively done, the results can be reproduced. So, to ensure that the quantitative technique produces effective results, appropriate tools must be selected and handling skills must be enhanced.

Scholars have asserted that emphasis must be placed on objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and

¹⁵ Kothari, 2004, P. 19.

surveys, or by manipulating pre-existing statistical data using computational techniques.¹⁶ The challenge with quantitative method is that it can only handle cases of mono-causality which is rare in the social sciences. In political science, it is often difficult for only one factor to be responsible for certain actions or behaviours. This technique of research is often not satisfactory in the handling of multi-causality issues.

The fact that researchers employing the use of tools, such as questionnaires, computer software or statistical package, to collect and analyze numerical data, makes it a challenge to so many political scientists who probably have limited skills or no knowledge in the handling of those tools.

A good number of respondents from the Department of Political Science argued that results from quantitative tools are limited as they provide numerical descriptions rather than detailed narrative and generally provide less elaborate accounts of human perception. This poses serious limitation to an exclusive use of the quantitative technique among political scientists. This made some of them to advocate methodological pluralism. For instance, it has been argued that “many social researches and analyses usually entail the utilisation of more than one method, thus necessitating a methodological pluralism.”¹⁷

4.3. Violent environment

It is very difficult to collect quantitative data from war zones. War torned areas characterised by insecurity, volatile situations traumatised combatants and frustrated civilians make collection of primary data unsafe.¹⁸ The pervasive confusion and the general uncertainty that is characteristic of the

¹⁶ Babbie Earl R. *The practice of social research*. Belmont, CA: Wadsworth Cengage, 2010, and Muijs, Daniel, *Doing quantitative research in education with SPSS*. London: Sage Publications, 2010.

¹⁷ Igwe Obasi, *Politics and globe dictionary*. Aba: Eagle Publishers, 2005, P. 263.

¹⁸ Osorio Javier, Numbers under fire: The challenges of gathering quantitative data in highly violent settings. *Social Science Research Council | Working Paper*, 2014, September.

violence prone societies make the use of physical traces, non-participant observation and documentary sources an alternative to questionnaire, interview and participant observation.

The unsafe nature of violent ridden societies further exacerbated the ethical and methodological challenges of conducting quantitative research in the social sciences. The risk of physical harm and emotional distress, both to human subjects participating in the research reduces the credibility of researches in the social sciences. As rightly noted, “violence increases methodological problems of bias, measure validity, and causal inference.”¹⁹.

The adoption of unobtrusive method as a preferred method over directly elicited data in conflict situations is the last resort as it helps to reduce the potential physical hazards associated with having to venture into dangerous locales in order to carry out interviews or administer questionnaires²⁰.

4.4.Problem of operationalisation of concepts

Operationalization is a process of defining the measurement of a phenomenon that is not directly measurable, though its existence is indicated by other phenomena. Operationalization is the process of strictly defining variables into measurable factors. It is a very critical aspect of the scientific research process. A well operationalized concept gives direction to the source of data. It relates to the empirical indicators of the concepts in the phenomenon to be investigated. The general argument is that quantitative research technique has a limited ability to probe answers. It becomes difficult to define concepts effectively since everything is reduced to numbers and figures.

5. The opportunities of quantitative technique

The perils of quantitative technique notwithstanding, there are so many opportunities that will not be ignored.

¹⁹ Osorio, 2014, P. 1.

²⁰ Webb Eugene J., Campbell Donald T., Schwartz Richard D., Sechrest Lee, & Grove Belew Janet, *Nonreactive Measures in the Social Sciences*. Boston: Houghton Mifflin, 1981.

5.1. bias – free endeavour

The researcher, who is making use of the quantitative technique of research is detached from and independent of the variables being studied. This helps to remove biases that may occur. In researches, biases pose validity threat to conclusion of an investigation, so it is to the credit of quantitative research as those biases are removed as the researcher is not attached to the phenomenon being studied. Owing to the fact that both the researchers and the participants are value – free, the quantitative technique is not value-laden. What that means is that the researchers and the participants are value – free, hence making the work unbiased.

Objectivity becomes the order of the day, as the researcher has no influence over the outcome of the research. This is an indicator of the effectiveness of the quantitative technique of research in doing away with subjectivity that can make the conclusions of a research doubtful.

5.2. Foreknowledge of what the researcher is looking for

The fact that researchers using the quantitative technique know from the onset what he/she is looking for gives confidence and credibility to the quantitative technique of research. The aim of every research is to solve a problem. So, the statement of the research problem is therefore germane to the conduct of a successful research. The implication is that it gives clear direction on how to source the data. A research problem has to give the researcher avenue to gather his/her data. This excludes the researcher from what Kaplan reported as the ‘drunkard search.’²¹ In that analogy, he explained that the drunkard threw away an item to a dark corner and later began to search for it in another corner where there is light. No matter how bright the place may be, he will never see the item there. According to him, “the pattern of search ..., should be closely related to the probability of the thing sought being in

²¹ Kaplan, A. The conduct of inquiry: Methodology for behavioural science. Aylesbury Bucks: International Textbooks Company Limited, 1973.

the place where the seeker is looking.”²² If this is not the case, then the researcher may become a victim of the ‘drunkard search’ analogy. This bestows analytical and methodological superiority on the quantitative technique of research.

5.3. Ease of measurement

The quantitative technique of research specifies measurable variables and relationships. This makes measurement relatively easy. Since the empirical indicators of the variables are clearly and spelt out and the linkages and relationships clearly established, it becomes easier to measure the variables. Empirical indicators that cannot be measured invalidates the entire research endeavour. This is not the case with the qualitative technique of research.

5.4. Opportunity for generalization

It gives room for generalization that can be representative of the population of the study. Generalizability is a critical attribute of quantitative technique of research as it involves the degree to which the results or conclusions of a study can be inferred on a larger population. This particularly evident in a survey research, where the researcher may not be able to handle the entire population of the study but could do so indirectly through a representative sample.

5.5. It is dependent on numbers and the use of statistical tools for analysis

The general slogan that numbers do not lie comes to play. Since data meant for quantitative technique of research are in the form of numbers and statistical tools are used to analyze them, the results tend to be more realistic. Even when questionnaires are used as instrument for gathering data, numbers are allocated to them, hence giving room for unbiased analysis and interpretation. Because it deals with numbers, it is more precise and neat when compared to the qualitative technique of research.

²² Kaplan, 1973, P. 17.

6. Conclusion

As a way of concluding, let me cite Mack, Woodson, Macqueen, Guest, & Namey (2005:3) who asserted that “the key difference between quantitative and qualitative methods is their flexibility.” The qualitative technique of research according to them is more flexible than the quantitative technique of research. The inflexibility of the quantitative technique of research derives from the kind of instrument used in generating the data and the style of analysis. For instance, the use of a structured questionnaire to gather quantitative data is inflexible as the respondents cannot adjust the questions in such a way that he/she can answer accurately.

However, quantitatively inclined researchers most times accuse their qualitatively inclined counterparts of being vague whereas the qualitatively inclined researchers accuse their quantitatively inclined colleagues of ignoring everything about social reality and/or phenomena that cannot be reduced to ‘mere’ statistics. To emphasize the scientific rigor invoked by research, it is important to embark upon the mixed method in the conduct of political inquiry.

7. Recommendations

1. As a fallout of this study, it is strongly recommended that upcoming political scientists be exposed to training in countries and localities where quantitative technique has taken root on the rudiments of quantitative research. This among others include; internship, exchange programmes between students from qualitatively inclined regions and countries and those from quantitatively inclined areas, scholarships for graduate programmes in places where expertise can be gotten on quantitative technique, and post-doctoral fellowships. These trained political scientists will become the trainers of the upcoming political scientists. Proper understanding of qualitative and quantitative techniques, various sources of data, different orientations, will give room for perpetration of a mixed method approach to the conduct of research, which inevitably leads to validity, credibility and robustness of political inquiry.

2. Efforts must be intensified towards training political scientists who will be able to analyse and interpret data. The idea of using statisticians and computer scientists to analyse data for political scientists may not be appropriate. Most times, these analysts analyse the data without providing adequate interpretation to them.
3. Political scientists are also encouraged to embrace collaborative, multidisciplinary, and interdisciplinary researches that will open them up to trends in the quantitative oriented disciplines such as Economics, Statistics, Computer Science, Mathematics, among others. When this knowledge is integrated with the predominantly normative and descriptive knowledge of the qualitative technique, it will no doubt boost the robustness of political science researches.

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