



Quantitative Technique: A Missing Gap in Africa's Contemporary Historiography

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Abstract

Historiography, as a technique of writing history is a combination of art and the sciences. The over – ridding objective is to present history with commitment to truth and objectivity. To achieve this, the African historians working on Africa rely on a number of sources. However, in their presentation, they have over – used the traditional conservative historical method, which is a combination of the narrative and unit analysis with focus on qualitative technique.

Over the years, the qualitative approach has become the norm in African historical research. This trend still persist unbroken till today. The position of this study is that the over – reliance on qualitative approach to the utter neglect and apparent under – use of quantitative method has created a missing gap in historical research. This is because contemporary burning issues in Africa can no longer be adequately understood and addressed without the use of innovative multidisciplinary mix, integrating politico – economic social, institutional sectors with quantitative analysis, in order to achieve an evidence based research for the solution of Africa's multifaceted challenges.

Key words: Historiography; Qualitative approach; Africa

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INTRODUCTION

The whites hardly ever looked at the continent of Africa as a historical entity. For a long time, all kinds of myths and prejudices concealed the true history of Africa from the world at large (Amadou 1990). Africa has a history, but unfortunately, for far too long, little was known about it and the little known was misunderstood and distorted (Smit, 1978; Erim and Uya, 19884; Afigbo, 1985; Davidson, 1970).

In the view of Amadou (1990) the Europeans refused to see Africans as the creators of the original cultures which flowered and survived over the centuries in patterns of their own making. Europeans by not forgoing their prejudices and re-examining their methodology are unable to grasp that indeed Africa was and still is historical part of the World (Alagoa and Williamson, 1983). the European adventures, travelers, slave dealers, merchants, Soldiers, Missionaries, Administrators, colonialist and scholars of different persuasions over thousands of years either by ignorance, self-interest or misconception tainted the image of Africa with spurious identification as a people without history until the coming of Europeans (Traver Ropper, 1966).

In their ignorance of African past and history, the Europeans like Traver Ropper risked the conclusion on Africa without history, born of course, out of bias and racism. Basically, three main sources are available for the historiography of Africa as elsewhere. It has to be emphasized here that none of these sources, however, is automatically or everlastingly predominant (Arnadou, 1990).

The three main sources are namely

- Written documents
- Archaeology and
- Oral Tradition.

All the three are supplemented with linguistics, anthropology, archives, art, the natural and the physical science (Nzewunwa, 1990), and Technology (Lundberg

1951). Each has its limitations but this need not detain us here. Historical Objectivity may be affected or reduced by these limitations.

Objectivity is defined by Nzewunwa (1990) as commitment to truth in historical writing. At times, it is equated with scientific method or the pursuit of facts usually uninfluenced by personal feelings or passing of moral judgement (Anaele, 2008). Historiography is the art and technique of writing history (Anyanwu, 1995).

Generally, the use of quantitative method in historiography minimizes bias and subjectivity by authentic verification of veracity of the information and its sources. Busha and Harter (1980) see quantitative history as useful in explaining the relationship between historical factors through collection and organization of evidence (data) for drawing of conclusions followed by a meaningful narrative to recount or re-enact past events. The selection, organization and analysis of the evidence unarguably improve the quality of the history under survey.

This work addresses the role of Mathematics in quantitative, methods of quantitative historiography, interpretation of the data and criticism against its use.

EXPLANATION OF KEY WORDS

History

To the African, History is the embodiment and incorporation of everything he did, whether be it technology, medicine, religion, institutions etc. even as he did not establish special institutions for historical studies. In this work, history is taken to mean the sum total of human experience, an enquiry into the past, with the aim of understanding the present in order to predict the

future and avoid repetition of past mistakes. After all, the present we know is the past. Essentially, history is about human achievements, failures, peoples, events worthy of preservation, and even ideas. There is no knowledge without historical origin. For the academic historian, it is the methodical study or record of the past which may be remote or immediate. History is the mirror of the society, for it puts in perspective not only the past, but also the present, and to a large extent the future. Put in another way, the past is important to the historian, because it is the parent of today, which in turn is the parent of tomorrow. This linkage and continuity gives history its important role in any human society.

Historiography

It is the art, method and technique of writing history guided by commitment in pursuit of facts unaffected by bias, personal feelings distortions or passing of moral judgments. It is writing of history with objectivity, uninfluenced by personal interest and political leanings or government.

Objectivity

It is the commitment of the historian to write history with a good approximation of truth.

Quantification

The use of mathematical figures, numbers and statistics in historical research to represent or express findings on the topic under study. By using quantitative numbers, graphs scales measurement of variables, percentages etc. the quantitative historian rids his writing of personal biases through empirical data that are verifiable with content validity.

Let us use the following table for illustration.

Table 1
Enrollment of students by gender into Salem University, Lokoja-Nigeria 2010-2015

Year	No. of males	%	No. of females	%	Total male and female	%	Differential %
2010/11	200	36	360	64	560	100	28
2011/12	260	41	380	59	640	100	18
2012/13	250	40	372	58	622	100	18
2013/14	280	42	378	58	658	100	16
2014/15	285	42	390	58	675	100	16
2015/16	1,270	39	1,980	61	3,250	100	22

THE ESSENCE OF QUALITATIVE METHOD

Quantities are fast becoming a fashion in historical research for data presentation.

Historians as do other researchers in different academic fields are also expected to make use of quantities (Mc Dowell, 2002) and Fritz (1956). Quantitative history is the use of data expressed in mathematical presentation for historical studies.

One may be tempted to ask, where does mathematics concerned largely with figures, numbers, quantities, angles, equation, and measurements meet with history,

or archaeology which are about re-enacting and reconstructing the past from works of ancestors, or from broken pots of pieces of stone? Mathematics helps to add not only glamour to historical evidence, but also a measure of precision usually lacking in narrative history. A committed historian must endeavor to acquire some degrees of mathematical skill for understanding the dynamics of change within the society he studies, if he must be relevant in terms of evaluating and deciding policy, making inputs into it, in the analysis and implementation of such policies.

Many have shied away from the use of quantities even when their presentation earnestly needs it. Even some who have such quantities at their disposal simply refused to use them, as if they are non-essential elements of history. This accounts for the bulk of volumes in their analysis and interpretation, basically qualitative.

Quantities and numbers take different forms in historical research. They may be used to represent age, in-come and expenditure, birth, death, income disparity, family size, population, human development index, gender disparity, unemployment rate, budgets, pattern of voting during elections, poverty rate, number of school dropouts, crime rate, road accident rate, literacy and illiteracy rate, inflation rate, economic growth, policy evaluation and analysis, level of corruption, and social vices, census figures to mention just a few.

It is therefore as important as it is needful for the historian researcher to grasp how quantities and their presentation can assist in answering some of his questions and thus, enhance the quality of his argument and findings. Nzewunwa (1990) sees historians who display blind eyes towards quantities as negligent as wasteful by their neglect of quantities as if they do not exist.

Above all, quantitative method has many advantages lacking in qualitative history. It sets out in advance and as early as possible the systems and methods of grouping/ classification, the mathematical and hypothetical assumptions used and the pattern trend of the topic under research. By this process, it becomes possible with ease to cross-check the results produced, establish trend, continuity and change. It's another advantage is in bias. It reduces bias often seen in qualitative approach, usually arising from impressionist history. The quantitative historian searches for patterns into which to situate his study, outline similarities and comparison using mathematical data. The quantitative historian must not lose sight of the diversity of human historical experience, but should instead try to reduce it into a compact, comprehensive and manageable degree. A warning must be sounded here on the use of figures.

Figures may be misused (Njoku, 2017). This may result to poor quantitative history, particularly in a situation where there are pre-determined categories to which the evidence is forced to slant. Another caution is avoiding assumptions from being contrary to historical facts. These problems also could beset the qualitative history.

In his book, *Mathematics in Archaeology*, Clive Orton states in the preface that "Mathematics can be used as a tool for organizing one's thought, and data, and as such is of value to any archaeologist (historian) Whatever his philosophy, whether he works in the field, laboratory, study or armchair "

METHODS OF QUANTITATIVE HISTORY

The quantitative historian like other researchers according to (Lundberg, 1951) Claire (2011), Obasi (1999), (Ezeifedi

and Njoku, 2017), (Nzewunwa, 1990) in his methodology is involved in collection of data, the classification and arrangement of data, the description of data and analysis/presentation.

INTERPRETATION OF DATA

A historian is faced with a number of quantitative evidences which may be economic, political and social. The historian may collect data that bear relevance to the economy.

This may involve areas such as population, agriculture, distribution and consumption, import and export, budgets, transportation, income and expenditure among others.

Political data may be in form of demographic information such as age, or election and even administrative units and their performance. A historian involved in social history may be interested in collecting data about education in the form of schools, their locations, enrollment, sex and age of students and school examination results.

On religious matters, He may concern himself with denomination and attendance.

There are also other social matters which may be in the form of hospitals, number of beds, bed space, patients in and out, ratio of doctors to patients , number of death, hospital facilities, budgetary allocation to health etc.

He may also like to know about the prisons in his study of crime and punishment or even about accidents on the roads. All of these require some quantification on the part of the historian. We may illustrate this further by taking a few examples.

Let us consider the political historian interested in elections. He will need quantitative evidence of various forms. Such evidence may be scattered in various places. It is only by asking the relevant questions that the historian may get answers to carry out fruitful research in the subject area.

The evidence available may be proved by the quality of the quantity obtained. For example, answers may be gotten from the following questions on elections

- What was the election for?
- How many constituencies were involved?
- How many parties contested?
- How many candidates contested in each party?
- In each constituency?
- What were the social and economic status of the candidate?
- The historian may also have to ask questions on the voting pattern; for example, how many registered voters were on the voting register? How many actually voted?

He may break this further from booth to booth, constituency to constituency, state by state, before arriving at a national total. He may also be interested in the type of people who voted for each party such as their social status, ethnic composition, religion, age range or even their sex, and literacy level.

By doing this over a number of years of elections, he may be able to see the voting pattern from one area to the other, from one state to another, and therefore make conclusions on the pattern.

For a fairly stable literate society, the political historian may be in a position, using such information, the analysis and interpretation, to forecast the trend of future elections.

The economic historian on the other hand deals more with quantities. His evidence may be in the form of living standards which may be in the form of cost of living. He can study the trends and patterns for a number of years for which he can obtain information.

The method is to select a given number of years and the manner in which money is spent. For instance, in the family may be spent on food, clothing, house rent, education, health and other sundries.

For each year under study, he enters in the relevant column the total amount spent, he also notes in a column, the total income for the family. By doing this for a number of years, say ten years, he will be able to find the mean for the period under study, for a given size of family on a given income.

From such study, he can find out the pattern of income

Table 2
The number of male/female admission into Salem University 2011-15

Year	Males	%	No. of females	%	Total male and female	Differential %
2011	392	43.01	493	56.99	865	13.98
2012	468	43.33	612	56.67	1080	13.34
2013	412	41.04	592	58.96	1004	17.94
2014	457	43.07	604	56.93	1061	13.86
2015	489	46.09	572	53.91	1061	13.82

Diagrams

Data can also be presented by diagrammatic forms. Diagrams represent quantitative information. The objective is to reduce space, create aesthetics and enhance the quality of historical study. For instance, when one is involved in social history or economic history that treats demography, one may accumulate so many quantities from year to year, decade to decade or even century to century.

Once the researcher is able to determine the mean of each of the subset being studied, it becomes easy to represent each quantity by diagrams. For example, the growth rate of a population of a given group of people for over a century may be represented by 10 different figures

Table 3
The number of male/female admission into Salem University Lokoja 2011-2015

Year	No. of males	%	No. of females	%	Total male and female	%	Differential %
2010/11	200	36	360	64	560	100	28
2011/12	260	41	380	59	640	100	18
2012/13	250	40	372	58	622	100	18
2013/14	280	42	378	58	658	100	16
2014/15	285	42	390	58	675	100	16
2015/16	1,270	39	1,980	61	3,250	100	22

and expenditure, and from there make generalization on living standard. It is also from this that he makes recommendations on improvement on the standard of free government subsidy on social services, increase in wages or reduction in some rents and health bills.

PRESENTATION OF DATA

The quantitative historian like in other disciplines deals with quantities. He knows that his information is scattered in a number of places, and in most cases in a confused form that requires order and sanity.

There are certain methods of presenting such data to make them manageable and easy to understand, The simplest of such method is tabulation.

Table

A table is a convenient method of producing an ordered pattern of numerical data. It facilitates the compilation of complex numerical information. Whatever the nature of the table, the presenter should always strive to make it simple, ensure that the columns and rows have headings with brief units of the quantity being measured.

of the human being, each different from the other in heights.

This involves the use of scales which informs the reader about the of the population. The figures are ranked side by side to make them seen and understood in context. In discussing the population size and growth of a country, or even the density, such representation can be done by dots, each showing the size of the population in a given area or period.

It thus varies in size. Large dots for areas with large population, medium for areas with average population, and small where the area is low.

Diagrammatic representations eliminate the use of lots of words and even figures.

HISTOGRAM

According to Wikipedia, A histogram is an accurate representation of the distribution of numerical data. It is an estimate of the probability distribution of a continuous variable and was first introduced by Karl Pearson. It differs from a bar graph, in the sense that a bar graph relates two variables, but a histogram relates only one.

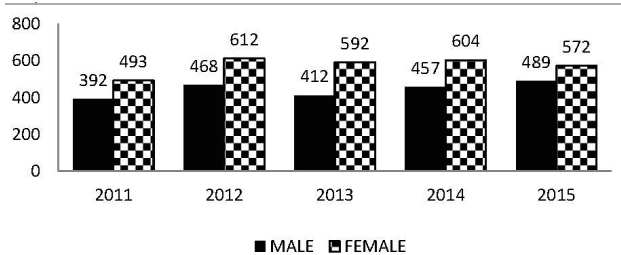


Figure 1
The number of male and female admission into Salem University Lokoja 2011 – 2015

Line Charts

The line chart is made up of line of different lengths, each length describing the size or number. For example, if the historian wishes to consider admission into an institution for a period of time, he must obtain a total score for each year. He represents each year of enrollment by line.

The method is to put at the extreme left side, different quantities scaled from zero upwards. On the horizontal axis, the years in question are written. It is then possible to project the enrollment of a given year on the straight line running from the horizontal line axis from the point where the year is indicated vertically upwards, until the required figure on the left column is met.

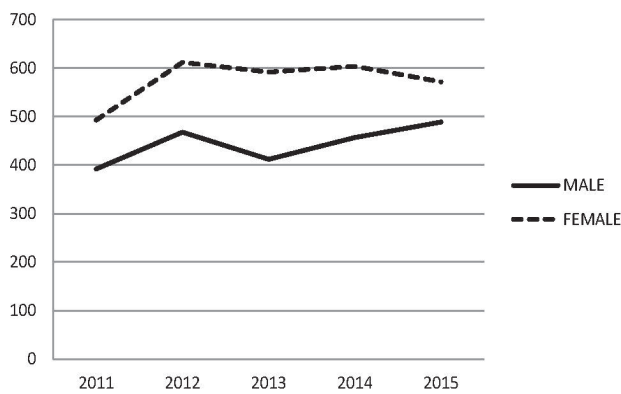


Figure 2
The number of male and female admission into Salem University, Lokoja 2011-2015

Graphs

We can by using the same process of vertical line and horizontal intersecting at some points use quantities to create a graph. Graphs are usually created by points. The procedure is to join the points. By joining the points, we are in better position to appreciate the difference in the quantities we study to enhance the quality of our work.

Interpretation

Collection, arrangements and presentation of data are of importance; their analysis and interpretation are of equal importance.

By using statistics of numbers and quantities, empirical evidence becomes possible and hypothesis created and tested.

Deductions are also made from such information.

This may also be abused, particularly when the available data are misused through forcing them to skew towards pre-determined conclusion. The ability to describe and compare phenomenon, proves very helpful not only to other scholars but also to government, policy makers and policy implementers. They help and assist them in making fast decisions.

For an academic and professional historian to identify the ills and errors in his society, he must be able to appreciate the methods by which the facts in currency have been arrived at. Without this, he cannot criticize what is wrong in whatever situation he finds himself, be it education, industries or even government. Thus, a good committed historian requires knowledge of how policies are made and arrived at to be able to make an input in decision-making. Quantities, when professionally used in historical research save the historian time, reduce volume of words used in narrative and qualitative history, and spares him from the embarrassment of being charged of opportunism, bias and distortion of historical facts.

The Missing Gap

European writers of diverse backgrounds conjure Africa as a benighted people without history (Ayandele, 1968) until the coming of the whites to the continent (Anene, 1966).

This horrific image of Africa arising from distortion of facts (Erim and Uya, 1981) supracism (zerbo, 1990), scratchy knowledge of Africa's people and institutions (Afigbo, 1975) and abuse of historiography (Davidson, 1965) is now consigned to academic refuse bin in archives, only dusted by readers who want to amuse themselves (Oyisi, 1977). Indeed in European thought, Africa is not historical part of the world (Hegel, 1770-1831), without history, but only the history of Europeans in Africa, the rest darkness...and darkness and remains mentally a child (Richard Burton).

Indeed African history is as old as those of other lands and peoples (Uzoечи, 1978). However, one must admit the onerous tasks and challenges facing the Africanist historian in the reconstruction of Africa past, especially in the sahel, the sub – Saharan region where writing in its modern communication and documentation sense is recent (Diop, 1955). This contrasts sharply with ancient Egypt, the Maghrib, Ethiopia and the rest of (the now “occupied” Arab North Africa) where the art of writing pre – dated that of Europe (Erim and Uya, 1984). The central role of writing (i.e. documentation) as source of objective

historiography is now a foregone debate, even as this reality does not adjudge it as the only veritable source of history (Johnson 2009), and Anyanwu (2002). Yet it can be abused by those who control power, who determine what should be written and used as language of history, especially by undemocratic regimes (Anaele, 2002 & 2016).

Consequently, in absence of written records, the Africanist historian has to rely on other sources such as archaeology, the natural physical and environmental sciences, linguistics, oral traditions, art works, (Nzewunwa, 1990) or even rely on them solely in his reconstruction of African past (Jan Vansina). From these sources or combinations of them, authentic history of Africa's past have emerged (Njoku, 2017).

Some of the works written from these sources are mountainous and reference to them here need not detain us. The awareness and renaissance in the reconstruction of African past gained momentum after the WWII (Davidson, 1983), resulting as would be expected to Africans themselves daring to tackle the study of Africa, using all due precautions, actual African sources (Amadou – Mahtar, 1990) to rebut the old held belief in historyless of black societies (Dike and Njoku, 2008) and (Smith, 1978).

The 1950s – 1970s witnessed the emergence of avalanche of university professional historians (in Africa and overseas) whose plethora of writings on African decolonized history are worthy of note. These were but not limited to the following, Professors K. O. Dike, A. Afigbo, Alagoa, Ayandele, J. F. Ajayi, Inspie, Anene, Ikenna Nzimiro, S. J. Cooney, G. N. Uzoigwe, V. C. Uchendu, E. Erim, Uya, Ikemi etc. Nigeria, professor Omar Copper (Ghana), Prof. Boahen (Ghana), professor B. A. Ogot (Kenya), Prof. Ali Mazrui (Kenya), Prof. P. Mutibwa (Uganda) etc. Some of the foreign authorities in Africa worthy of recognition are Professor J. D. Fage (U.K.), Prof. Curtin (USA), Prof. Martin Klein (Canada), Pro Jan Vansina (Belgium) and Basil Davidson etc each of which made indelible contributions to Africa history.

Commendable as their efforts were (and still remain), they used the orthodox narrative and qualitative methodology in their technique. Their narrative and qualitative approach in historiography which they bequeathed to succeeding generations of historians with neglect to quantitative historiography still persists as the norm today, and without apparent break (Anaele, 2020) in the offing.

Imperatively, the missing gap created by this over – sight on the use of quantitative approach to complement the already established traditional methodology deserves to be closed, going by the current trends in our ever – changing world, Africa inclusive (Akintoye, 1976). History is a university subject and the knowledge of history is present in all academic disciplines (Crowder, 1977).

To avoid reducing history from being presented wholly in qualitative narrative, focusing on story telling of battles, personalities, cultural heritage, values and traditions (empathic history), the African historian must explore beyond these old fashion. He should in addition, deal and write on institutions, structures, technology, social and political transformations, inter – state relations, challenges to African development, foreign loans and debt burden, unemployment and poverty pervading all over Africa, energy and environmental issues, foreign policy of African states, good governance and respect to human rights, refugees and internally displaced persons, race and ethnicity, crime, population and demography, urbanization, corruption, transportation, gender – relations and issues, globalization and its impact on developing countries, obstacles to nation building in Africa and African integration, economic relations with the wider world, human trafficking of Africans into Europe, killer diseases, cross – boarder crimes, and smuggling, international institutions, family and social stability, peace and conflict, insurgency, civil wars and general insecurity, strategic studies, energy and environmental issues, health, education, religious riots etc. These are some of the issues contemporary historiography must address beyond its traditional role, if history must be relevant to African's needs, and problem solving.

To this effect, the subject of historiography must tilt towards addressing all these post-colonial issues created by internal and external dynamics in Africa, using the lens of history. To accomplish this burden, African historiography must integrate social and scientific approach in its methodology. African historiography while keeping faith to the general principles of historical criticisms has to; in addition, adopt quantitative and scientific techniques to deal with these socio – economic and political problems.

Quantitative approach (i.e. integration of mathematic and statistics in historical method) is a new theory of historical science, requiring the historian to possess a working knowledge of quantities and wide ranging interdisciplinary background. The resultant outcome will make history maintain its champion as the compass societies rely on for finding their ways to a progressive future, amidst thorns, and labyrinth of obstacles. History is an art and science (Carr, 1984). Science, in the sense that it uses various arms of the sciences in the formulation of hypothesis, collection of data, testing of hypothesis before arriving at conclusion. Put in another way, history is sustained by the sciences for historical research. The historian worthy of his salt must not close eyes to the use of quantities when dealing with socio – economic and political issues. It saves time, guides against perjury, enlivens history, concretises his findings, saves the reader from wedding through forest of words before understanding the historical narrative, shows contrasts and similarities in relationship between two or more variable

etc. To achieve this, the researcher must first determine his methods for data presentation and analysis.

The concluding section of these work summaries methods of data presentation and analysis. A sound data generation process is only an aspect of a whole data network that the principle objective is the production of a lucid and concise document embodying the findings of the entire research (Obasi, 1993). For data to serve its purpose and to be free from unreliability and inaccuracy, they must be properly organized. Data generated in a survey research are in their raw and detailed nature (Obasi, 1999). The first step is classification.

Classification according to (Erricker, 1981) is the bringing together items with common characteristics, according to i) basis of time (ii) basis of geography (iii) basis of quality or attribute and (iv) basis of quantity. Then after, the researcher proceeds to presentation of the data in any of the following methods, he considers suitable for the subject under study.

For presentation of his data, he may use tabular method. By tabulation, he arranges his data in a small space so that the reader can easily see them, see the important results and discover the connection between the factors (Erricker, 1981). The use of tables is very important for socio – economic history. A table is an orderly display of data in labeled rows and columns. (Obikeze, 1986).

One effective method for organizing and summarizing data is by use of frequency tables. Frequency table can be represented in histograms and polygons. A frequency table or frequency distribution is one in which the variables of interest forms the basis for classification according to number of items possessing the same value of the variables (Obasi, 1999).

Frequencies are compared also by ratio or by proportion or by percentage.

Graphs are also used for presentation of data, and can be in form of histograms, frequency polygons, line graphs, the O'give, the Lorenz Curve, the bar charts, the flow charts etc. All of these are simple mathematics and statistics familiar to any scholar who had passed through primary and secondary education. Thus, the historian not an exception, especially now that there are some softwares for data analysis without tasking even the uninformed in mathematics and statistics.

By the changing trend in historical research in response to socio – economic and political transformations in the African society, and the globe at large, historical studies can no longer sit at the comfort zone of conservatism, but must as a matter of importance strike a balance between the qualitative narrative technique and the quantitative, mathematical and statistical technique.

Until this gap is closed, then and only then will history is seen not only as the study of antiquity, but also contemporary issues in Africa.

SUMMARY AND CONCLUSION

Every knowledge or academic discipline has a historical origin. Simply put there is history in all human achievement, be it science, technology, politics, economics, social sciences, art, strategic studies, crime, demography, gender, urban and transport studies, culture, inter-state religion, law, education, administration, war and peace studies, anthropology to mention just a few.

One can therefore and rightly too, see history as cutting across all human and societal activities; the bad, the valley, those advancement, as well as those to be discarded. This amorphous nature of history puts much demand on the historian if he is to remain relevant to his ever changing world.

The stark reality requires from the historian some degrees of flexibility in his methodology by not holding firmly on the orthodox traditional technique of narrative history sourced primarily from historical evidence(s). Since history now goes beyond the boundaries of its traditional role, it has therefore become imperative for the historian to incorporate quantities, social science and scientific approaches in his research.

CONCLUSIONS

This work has addressed the inescapable demand on historian to have a working knowledge of quantities for presentation of historical research. This becomes unavoidable going by the current trend to understand history through socio-political and economic trends in our society, their continuity and change, as well as how these have contributed to human and society development. He is the creator and the destroyer. In conclusion therefore, man as a social being cannot be fully studied without complementing such studies with social science and scientific approach.

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