

INTERROGATING THE INDIFFERENCES IN THE APPLICATION OF STATISTICAL TECHNIQUES IN THEATRE SCHOLARSHIP

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Abstract

Contextually, theatre study is multidisciplinary in nature and research is interdisciplinary in nature as well as an inevitable, and useful academic exercise. However, there exist controversies in the use of statistical techniques in the conduct and writing of research in theatre scholarship. Some theatre scholars frown at its usage while others see it as a veritable tool in conducting investigation to solve identifiable problems in theatre and its allied fields. In the midst of these controversies, this study seeks to address the imbalances by examining the appropriateness in the use of statistical techniques in the contemporary theatre scholarship. To this end, the online survey research method and the questionnaire instrument were applied in gathering and analyzing data towards arriving at a dependable conclusion. The findings show that majority of theatre scholars approved the continuous use of statistical research techniques in theatre scholarship despite its challenges. Thereafter, the study concludes that there is need for theatre scholars to be innovative and experienced in statistical techniques in conducting and writing research and defend it in written and oral forms when the need arises.

Key Words: Indifferences, Application, Statistical, Theatre

Résumé

Sur le plan contextuel, l'étude théâtrale est de nature multidisciplinaire. De sa part, la recherche est de nature interdisciplinaire en tant qu'un exercice académique inévitable et utile. Cependant, il existe des controverses concernant l'utilisation de techniques statistiques dans le processus de la rédaction de recherches sur le théâtre. Certains spécialistes du théâtre se moquent de son utilisation, alors que d'autres le considèrent comme un véritable outil pour mener des enquêtes afin de résoudre les problèmes identifiés dans ce domaine et d'autres domaines connexes. Dans le cadre de ces controverses, cette étude cherche à remédier le déséquilibre en examinant la pertinence de l'utilisation des techniques statistiques dans la recherche sur le théâtre contemporain. À cette fin, la méthode de recherche par sondage en ligne et le questionnaire ont été utilisés pour collecter et analyser des données en vue de parvenir à une conclusion fiable. Les résultats montrent que la majorité des spécialistes du théâtre ont approuvé l'utilisation continue des techniques de recherche statistique dans le domaine du théâtre, malgré ses défis. En conclusion, l'étude met l'accent sur la nécessité pour les spécialistes du théâtre d'être innovants et expérimentés dans le domaine des techniques statistiques dans la conduite et la rédaction de recherches et pour les défendre sous forme écrite et orale, le cas échéant.

Mots clés: indifférence, application, statistique, théâtre

Introduction

Over the decades, the most mind boggling challenges in academics have been and still is to “look for” or engage in an organized enquiry that is directed at providing information necessary to expand the frontiers of knowledge or solving identifiable problems. Historically, research has been and still is a useful, unavoidable, intellectual and academic exercise of man’s existence and interaction (Agba, Micheal S. 52). Interestingly, research is multidisciplinary or interdisciplinary in nature because it cuts across science, arts and humanities, law, economics, political science, public administration, to mention but some. Currently, the arts and humanities co-harmoniously exist with other faculties in the academic relationship. Theatre scholarship as seen in performing and non-performing arts, film, media, and carnival studies in the faculty of arts and humanities is interdisciplinary in nature because it borrows theory and principles from other disciplines for practice, enhance survival and progressive development. Interestingly, theatre scholars have been and are still engaging in organizing investigation aimed at providing useful information for solving identified problems. In the process, they have been and are still employing qualitative and quantitative approaches where the latter involves the application of the statistical tools in conducting and writing research.

Recently, there have been disagreements among theatre scholars, engaged in the undergraduate and post graduate studies projects, thesis, and dissertation’s supervision and moderations in Nigerian universities, on the use of statistical techniques in research. The authors of this paper have encountered these controversies at different point in time as academics in Nigerian universities specifically during the internal and external defence of undergraduate project and postgraduate (Thesis, dissertation and Seminar papers). The first argument is that theatre scholarship is a behavioural and social activity and its product cannot be measured or quantified to guarantee the use of research statistics (techniques) in conducting and writing research to solve identified problem. Other theatre scholars disagree and presuppose that theatre scholarship is multidisciplinary and permits innovation and cross fertilization of ideas and knowledge from other fields to enhance teaching and practice of theatre. Currently, the United Nation Educational Scientific, and Cultural Organization (UNESCO) Framework for Cultural Statistics directs that generating cultural data base requires the use of statistical techniques in collecting, analyzing and presenting cultural statistics. In the midst of these controversies, this paper seeks to address the imbalances by interrogating the indifferences in the application of statistical techniques in conducting and writing research in theatre scholarship in Nigeria.

Statement of the Problem

The qualitative and quantitative research designs are applied in various disciplines of study like Social Sciences and Humanities. However, there seems to exist squabbles among theatre scholars centered on the application of statistical tools in research to solve identified problems in the theatre profession. These standpoints have induced negative behaviour in the use of statistical tools among academic staff and students of institutional theatre, film, media and performing arts Departments in Nigeria. To this end, this study has set forth to redress imbalances by interrogating the indifferences in the application of

statistical tools in theatre research in a view to promote positive statistical behaviour among academic staff and students of institutional theatres arts Departments in Nigeria.

Objective of the Study

The objectives of the study are:

- I. To ascertain why theatre scholars show interest or dislike statistical application in theatre scholarship
- II. To create awareness and continuous education on the use of statistical techniques in conducting and writing research in theatre scholarship.
- III. To promote positive statistical research behaviour in institutional theatre, film, and media arts Departments in Nigeria.

Significance of the Study

Since research is an inevitable, multidisciplinary and useful academic exercise, this study becomes significant because it would identify why theatre artists comply with or dislike the application of statistical tools in theatre research. Besides, it would create awareness and continuous education on the values of statistical tools in conducting and writing research in theatre studies. Perhaps, this study will draw attention to the need for the employment of qualified research statisticians to teach theatre research methods in the institutional theatre arts departments in Nigeria. More so, the study has tremendous potentials to promote positive and ethical statistical research behaviours among academic staff and students of institutional theatre arts Departments in Nigeria.

Delimitation of the Study

Since statistical tools are important research instruments applied in various disciplines, including Social Sciences and humanities, the core of this study is centered on examining the show of interest or dislike among theatre scholars in the application of statistical tools in theatre research and scholarship in Nigeria.

Review of Literature

Theoretical Framework

This study dwells on the Everett M. Rogers' "Diffusion of Innovation Theory". The theory attempts to explain how new idea, knowledge and product (innovation) spread, gathers momentum, and diffuses through individuals, groups and institutions in the social system to impact change in a short or long run. The theory presupposes that people or groups are imbued with the characteristics to conceive, invent or devise new idea, knowledge and creative means to harness skills, talents techniques, and communicate same to others if they feel it will, all things being equal, enhance their utility or yield some relative advantage to the idea it supersedes. In the process, diffusion which is the process by which an innovation is communicated through certain channels, over time among member of the social system sets in (Ismail Sahn 14; Greg Orr 1).

The theory emphasizes on knowledge where a person becomes aware of an innovation or ideas and how it functions. The theory also emphasizes on persuasion where a person forms favourable attitude towards the innovation. What is more, Roger's theory

stresses on the act of decision where a person engages in activities that lead to a choice to adopt or reject the innovation. The theory further insists on the act of implementation and confirmation where a person put an innovative idea into use and further evaluates the result. Besides, the theory emphasizes on the communication channels where a person creates and share information on the value of innovation with one another to reach a mutual understanding using a specific means of social communication. The theory also insists on the prepotency of the social system which is a set of interrelated units engaged in a joint problem solving activities to accomplish a task or goal in a social structure, and where diffusion innovation take place (Sahn 14-18; Orr 1-3)

The implication of this theory for this study is that the theatre scholar as a social being and like the society, is dynamic and subject to innovation; jettisoning the old and maximizing new ideas, inventions, knowledge, and interactions and communicating same to other persons towards change. Whereas some theatre artist see statistical tools and its application as an innovation or new convention comport, comply and putting it into use because its yields some relative advantage, others detaste and reject its implementation in theatre research. To this end, it stimulates this study to interrogate these indifferences in encouraging positive attitudes towards the application of statistical tools and techniques in conducting and writing research.

Research Statistics in Theatre Studies

Various studies have established that research is an unavoidable, useful and scientifically academic exercise directed at the discovery of truth and creation f knowledge to solve identified problem in all disciplines. It implies that research is multidisciplinary or interdisciplinary in nature in that it cut across all disciplines like Social Sciences, arts and humanities, public administration Economics, law, and Health Sciences to mention some. (Agba Michael 1-2, C R Kothari 1-3). In the process, scholars are caught in between the peculiarities of data collection and analysis, specifically, the rigours of quantification (statistical application) Statistics, therefore, is the branch of applied mathematics concerned with the collection, organizing, summarizing, analyzing, and interpreting and presenting as well as drawing valid conclusions and making reasonable decisions on the bases of such analysis (Regina Idu Ejemot- Nwadiaro 74). She argues that statistics is used in all academic disciplines including Biological Health, Social Science and Humanities. She further opines that statistics relies on the use of numbers and formulas requiring the fundamentals of mathematical computation and reasoning. It further implies that a researcher in all academic discipline needs some basic arithmetic or mathematical skills. However, a survey of relevant literature in theatre research show that there has been palpable lack of interests and critiques of its application by theatre scholars to enhance it adequate usage in the theatre scholarship when compared to other disciplines like Education, Banking, and Finance. What exists is sporadic and perhaps the result of recent research. For instance in *Research Method: An Integrate Approach*, Nwabueze discusses investigative techniques in theatre research and express survey method and sampling procedures which involves the collection of large volume of data and large population size. However, he was silent over the use of statistical techniques in summarizing, organizing, analyzing and presenting data in order for large volume of data to be meaningful (60-61). Besides, in the *Preliminary Reading in Theatre*

Research, Nwamuo provides background information on conducting and writing research in theatre Studies. Nwamuo's submission ignored wide range of issues in research methodology and techniques, specifically, statistical techniques in data collection, analyses and presentation.

On his part, Esekong H. Andrew, another performing artist in academic writes on research in the humanities. Andrew's book compendium titled: *Research in the Humanities* is a product of the cumulative experience of scholars and students, teaching, learning, conducting and writing research, particularly at the postgraduate level. The work is systematically structured into six sections with twenty chapters. For instance, in "Understanding the peculiarities of micro and macro level research in the humanities", Esekong H. Andrew argues that a disturbing phenomenon in the arts and humanities is "the stampede towards qualitative analysis irrespective of the nature of the study and nature of data, mainly to resist the rigors of quantification (statistical application). He argues that quantitative data that requires picturesque presentations such as tables, graphs and charts could be introduced at some points for easy assimilation of the impact of the findings and quick understanding of the statistical values (7). Similarly, in "Adopting the framework of scientific research to students in the Humanities", Andrew writes on the scientific method of data collection and the scientific methods of analysis. He opines that "there are two methods of analysis applicable in the humanities depending on the nature of the study; namely; qualitative and quantitative analysis (21). In these two articles, Esekong H. Andrew acknowledges the peculiarities of qualitative analysis and the quantification (statistical tools application) that occasion its usage in conducting and writing research in the field of arts and humanities. However, he fails to discuss and illustrate the statistical tools commonly used by theatre scholars such as graphing frequency, and measures of central tendency (mean, mode and median) to mention some.

Another theatre scholar who attempts to examine the imperatives of statistics in theatre research is Sam Ukala. In the *Manual of Research and Thesis Writing in Theatre Arts*, Ukala writes on methodologies in theatre research, specifically, on artistic methodology and provides some reasons why theatre artists detest statistical tools and why it cannot be applicable in conducting and writing research in theatre studies. He argues that the artistic methodology is designed for artistic creation and interpretation; writing for stage, the screen or the radio or developing a model for doing so, composing, arranging and performing a piece of music; acting; choreographing and dancing; designing and building set or costumes; designing and executing light or sound plots; directing for stage, the screen or radio. He further insists that artistic methodology is regarded as a method less methodological because it deals with relativity and contains element that cannot be quantitatively or statistically or empirically measured, and allows for reliance on intuition, inspiration and imagination that makes each end product subjective and speculative (14-15). He further argues that statistical analysis of data is not a common feature of research in theatre arts and related disciplines because of their literariness that entails mainly descriptions, narrations, textual interpretations, applications of theories and principles, and as further seen in dramaturgy and performance as well as criticism. Ukala further notes that in this context, the written word, plates (photography), video cassettes or compact disc and figures are the chief tools. To him, these may have accounted for the palpable lack of

interest among theatre artists in the use of statistical tools in conducting and writing research and where many books, dissertations and theses are without statistical tools (40).

Although, Ukala acknowledges the use of statistical tools in data analysis in theatre research, he discusses and elaborates on the invariant method, specifically, the frequency distribution which he reasons as the most commonly used statistical technique and ignoring the cumulative frequency, relative frequency, grouped frequency distribution, graphing frequency distribution, measures of central tendency (mean, mode and median), and the coefficient of variation which are also commonly used in dissertation and theses. In this context, the written word is the chief tool for these and it is more often demonstrated by plates (photography), figures (designs of costumes and set), and video cassettes or compact discs than statistical tables. Ukala further notes that some theatre scholars compliment simple statistics in research. He insists that some researchers in the discipline involved in design and administration of questionnaire that stimulate the collection of numerical or countable data for analysis. He adds, "Fortunately not all analysis involved complex statistical methods and techniques (40). Although Ukala acknowledges the use of statistical tools in theatre arts, he only discusses the invariant method, specifically, the frequency distribution as the commonest used in theatre research (42-45). He ignored the cumulative frequency, relative frequency, group frequency distribution, graphing frequency distribution, measures of central tendency (mean, mode, median), and the coefficient of variation which are also commonly used in theatre arts and other related discipline

However, Sam Ukala further insists that despite the palpable lack of interest in statistical application in theatre studies and related discipline, some theatre scholars and actor trainees compliment quantitative design and administration of questionnaires in research method and have continued to show interest on the application of simple statistics like the graphing frequency, measures of central tendency, and coefficient variation in theatre research. He notes that numerical or countable data are collected and are subjected to analysis using simple statistical techniques. He adds that consequently, many theatre artists have learnt to use simple or less complicated statistical methods in conducting and writing research (40). For instance, in the "Comparative Analysis of Budget Implementation in AIT, Lagos, and AKBC-Television Service, Uyo, Nigeria," Charles Ukim Adora, analysed the 1999 Annual Approved Budget Documents of these media stations studied. In his analyses, Adora applied the simple statistical tools of tabulation (use of tables), Graphing Frequency Distribution (Bar Chart, and Pie Chart) to represent the nominal scale information, easy understanding, quick comparison and summation of the income and expenditure data of the 1999 Annual Approved Budget Documents of the media organizations studied (136-186). With these statistical application, Adora was able to conclude that the management of the African Independent Television, Lagos, proposed, approved, and implemented more revenue and expenditure than the management of AKBC-TV Service, Uyo, Nigeria, in the 1999 fiscal year at a glance (136-186). Other scholars in the discipline who have comfort and complied with the statistical tools in conducting and writing research are Edisua Merab Yta, Godwin Oko Wonah and Jane Eyo Ita. In their article titled; "Drama in Education and Domestic Violence in Ikot Ansa, Calabar, Nigeria," they investigated into the use of drama in education in confronting domestic violence in Ikot Ansa community. In their analyses, they applied the statistical tools of tabulation, measures of central tendency (Mean for

individual and group data) and the graphing frequency distribution (comprising, Bar Chart, Histogram and Polygon) to analyze data on the situation of domestic violence, group knowledge mean scores per item, group attitude mean scores per item, and group mean scores on perception of drama in education (225-234). With these statistical applications, authors of the article referred where able to articulate with ease, quick comparism and summation that the menace of domestic violence is prevalent or common in Ikot Ansa community, Calabar, with women being more victims. Besides, the study demonstrates the effectiveness of the use of drama in education as a potential tool in teaching and communicating domestic violence issues in Calabar metropolis, Nigeria (234).

Similarly, Yta, Edisua Merab, a performing artist in academic and an erstwhile doctoral candidate, Department of Theatre, Film and Carnival Studies, 2013-2017, experimented with the use of statistical tools in studying entertainment education drama serials as an alternative communication strategy to promote positive social behaviour towards women's right in select communities of Cross River State and Akwa Ibom State. Yta sought to find out if there was any significant relationship in identification between TV and radio drama serial model characters and the adoption of human rights practices and to what extent the entertainment education drama serials helped increase the knowledge of women's right amongst citizens in selected communities studied (vi). In the process, she employed a quasi-experimental factorial design modification of pre-test and post-test control groups with two treatment variables. In her data analysis and presentation schedule, the inferential statistics were used in testing the five hypothesis of the study at 0.5 level of significance and for possible difference in knowledge and attitude to women's right personalities between the experimental and control groups. Besides, the data for identification with the Tv and radio serial characters were analyzed using analysis of covariance as seen in pre-test and post-test, measure of central tendency (mean) and coefficient (standard deviation/variation). In the process, the mean and standard deviation for the various identification was computed and compared using the independent t-test analysis (95-179). Deduced from the data analysis, interpretation and discussion, the statistical technique employed enabled Yta Edisua Mareb to find out that those who watched the entertainment education television serial drama "because I am a woman" had higher knowledge of women's right and identified more with model character than participant who listened to the entertainment education radio drama serial, "Rainbow City" (vi; 183).

For the benefit of theatre scholars who are still ignorant or professionally myopic in research statistics, it becomes imperative for this study to re-educate ourselves on the value of statistics and its application in conducting and writing research. In *the Fundamentals of Research Methodology in Social Sciences and Humanities*, Agba, acknowledges that measurement plays a fundamental function in the conduct of scientific research. To him, measurement is the process of assigning or attaining a numerical value (datum) objects, events or persons according to roles. Besides, data quantification is possible through the use of measurement thereby making research data amendable to statistical manipulation and treatment towards arriving at a dependable conclusion (116-117). Idaka Idaka concurs and argues that, a researcher who lacks it must be schooling in building it by learning and practicing the knowledge and skills such as the four fundamental rules of addition, subtraction, multiplication and division.

These include;

- i. Addition, subtraction, multiplication and division of subtractions;
- ii. Use of zero in addition, subtraction, multiplication and division;
- iii. Positive and negative numbers;
- iv. Computation of squares and square roots;
- v. Summation notation;
- vi. Removal of brackets and simplifying of complex terms (Idaka Idaka 2).

In *Simplified Statistics in Education*, Idaka Idaka further opines that statistics help scholars and researchers to design and conduct their own research. He further argues that statistical methods serve two principal functions:

- i. They help the researcher or scientist in organizing, summarizing, interpreting and communicating numerical data. This function is referred to as descriptive statistics.
- ii. They permit the investigator to go from young data harvesting, from a little number of subjects to reach conclusion about the larger group from which the smaller group was obtained. In contrast to (i), it is referred to as inferential statistics (11).

Available literatures on statistical tools show that it is varied. One of it is Frequency Distribution or invariant frequency distribution. It is a commonly used approach in the organisation of data in research. It is a table that shows the frequency of observation in each category of a variable and further arranged from the highest to the lowest. A frequency distribution indicates the number of individuals or objects that received each possible score. It is regarded as the first step in data analysis. It provides researchers with a concise way of communicating information about data to the reader (Nachmias 357-58). Closely related to frequency distribution is the frequency table or tabulation. This is the process of condensing classified data or arranging the vast array of data collected from a source like questionnaire in the form of a table for easy understanding or comprehension, quick comparison and summation necessary for the present and future use (Mbonta I Monjol 58-59; Agba 138). Significantly, when constructing a statistical table the investigator should consider the following characteristics;

- i. It must have a title that is self-explanatory,
- ii. The title, column and rows heading should be clear, concise, unambiguous and brief.
- iii. The unit of measurement, constructed for group and ungroup raw data sets
- iv. Reasonable margins should be left round the edges of the table.
- v. The column total may be given at the end of the columns and row if need be.
- vi. The table should be constructed to fit the available space and structurally concise or simple (Ejemot- Nwadiaro 86; Monjol 58-59).

An example of a typical statistical table is shown on table 1

Table 1: Showing Details of Revenue Budget of AKBC-TV Service Uyo, in the 199Fiscal Year

Sub head	Details of revenue	Estimates	Approved provision 1998	Increase	Decrease	Actual Collection Jan-Aug. (8 months)
301	Government subvention	10,679,120	10,128,690	550,430		5,219,996.76
304	Commercial services	6,000,000	6,118,000	-	118,000	3,645,996.99
	Total	16,679,120	16,246,690	55,430	118,000	8,865,559.75

Source: Adora, Charles Ukim (139)

Percentage Distribution is another statistical tool available for researchers. It entails converting frequencies to proportions or percentages. The proportion is further obtained by dividing the frequency of a category by the total number of response in the distribution. A proportion becomes a percentage when it is multiplied by 100 (358). This formula can be expressed as

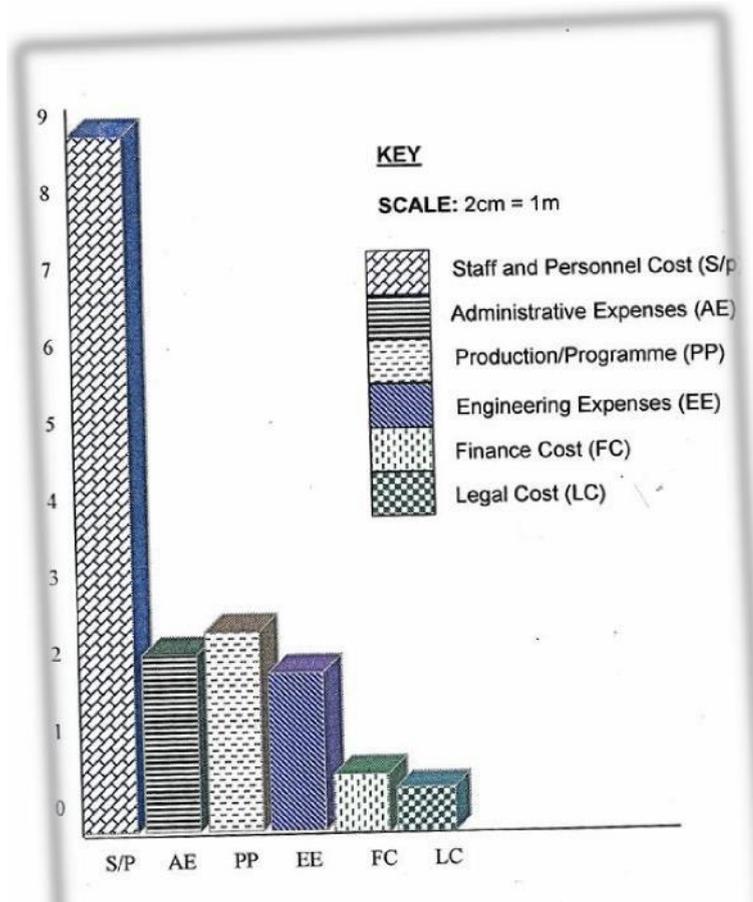
$$\text{Percentage} = \frac{\text{Item}}{\text{Total}} \times 100$$

An example of percentage distribution is shown on Table 3, highlighting the demographic characteristics (sex and age) of respondents.

Graphing Frequency is another statistical tool useful in conducting and writing research. Its usage becomes necessary because some readers may find it troublesome to read and understand numerical tables. Alternatively, they need a means that data can be presented and easily read in a glance. Graph provides alternative methods of displaying and communicating the information and data organized in frequency distribution visually, more effectively, and easily read at a glance. There are various types of graphs. These include Pie Chart, Bar Chart, Histogram and Polygon (Idaka 23). For instance, the Bar Chart is a graphical view of a given data. Its characteristics includes rectangular bar separately separated by a gap, and having similar width as well as varying lengths that indicates the frequencies of the item, The construction of the bar chart follows varied steps.

- i. Choose a suitable scale of a given value
- ii. Draw and indicate the vertical Y axis and the horizontal X axis.
- iii. Draw and indicate the bars on the axis with height and corresponding to the value of each category
- iv. Provide a key or legend beside that indicates the size or sector of the items (Idaka 25). A sample of the Bar Chart is shown on Figure 1

Figure 1: Bar Graph Showing the Various Expenses of AKBC Service in the 1999 Fiscal Year



Source: Adora, Charles Ukim (152)

Alternatively, researchers can manipulate the Pie Chart. It is represented in a circle that is divided by radial lines into varied sectors or sections that represent different categories of items in such a way that the area of each sector is like a slice of a pie that is proportional to the size (frequency) of the corresponding category represented. The Pie Chart is useful to demonstrate in a glance the percentage of the total that is equal to the percentage of a measurement of interest. In another way, it is use to demonstrate the proportion of items or figures that make up the overall total. To draw a pie chart, researchers should follow the following steps;

- i. Researchers must need and use a mathematical set
- ii. Use a pair of compass with a HB pencil to draw a circle with a radius

- iii. Use a protractor to divide the area of the circle into sections or sectors to get the real value degree equivalent obtained.
- iv. Title the diagram and further provide a key or legend to indicates the size or the pie that show a particular sector, sector or item(Ejemot Nwadiaro 97-9 8; Idaka 24-25)

According to them, the pie chart can be calculated and represented using the mathematical formular of;

$$\frac{\text{Frequency of each component} \times 360}{\text{Total Frequency}} \quad 1$$

The pie chart can also be calculated and represented using the simple percentage as;

$$\frac{f}{1} \times 100 = x\%$$

A sample of the Pie Chart is shown on Figure 2, showing the sources of revenue in the approved budget of the Akwa Ibom Broadcasting Corporation, Television Service, Uyo, Nigeria, in the 1999 fiscal year (Adora 145)

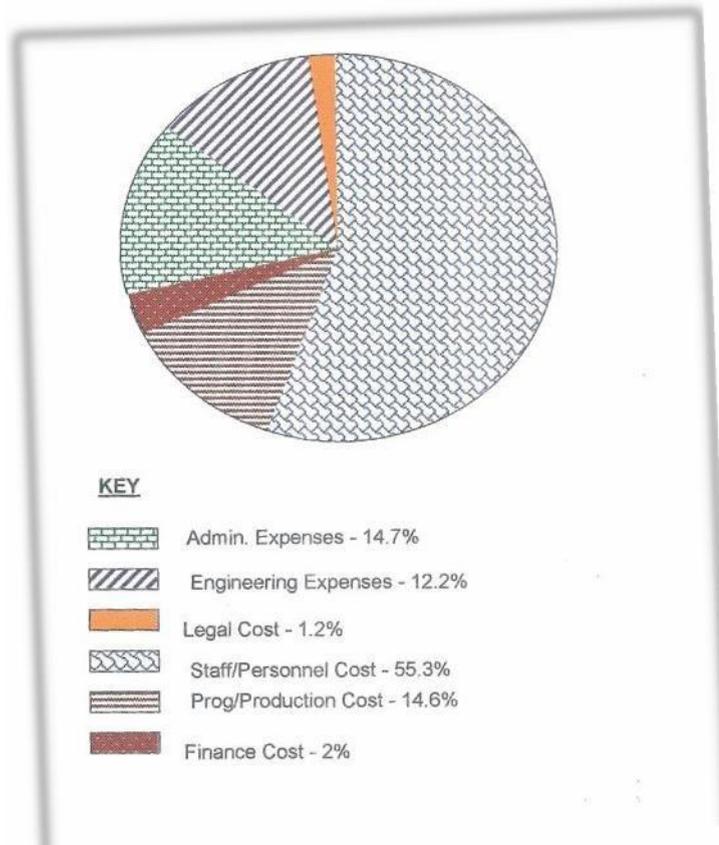


Figure 2: Pie Chart Showing the Various Expenses of AKBC Service in the 1999 Fiscal Year

Source: Adora, Charles Ukim ()

The Measure of Central Tendency is another statistical tool that can be used by researchers in conducting and writing research in academic disciplines. Nachmias educates us that it is a measure that reflects a typical or an average characteristic of a frequency distribution. What is more, it identifies the most representative value of the distribution and further provides researchers with a way to summarize data. Nachmias insists that the three measures commonly used in social science and humanities are mode, median, and the arithmetic mean. Mode is the observation value or number or category that occurs most frequently in a distribution. Whereas a distribution with a single mode is unimodal, a distribution that has two modes is bimodal. A distribution that has three mode is trimodal (Ejemot Nwadiaro 100). In contrast, median or mid points is the score observation value or number that falls in the middle of a distribution. Idaka argues that to determine the mean of a given distribution, the scores must be arranged in ascending order from the lowest to the highest. He further argues that the most preferred used or better measured of central tendency is the mean because it is usually one that reflects all scores. He argues that the mean is calculated by adding all the scores in a distribution, then dividing the sum by the total number of scores (36-37). He presents the definitional formula as

$$\text{Mean} = \frac{\text{Sum of all scores}}{\text{Total number of score}}$$

Variance and standard deviation are measures of variability or dispersion that suggest how widely the observations are spread out around the measure of central tendency and used in research. Researchers used it as a measure of dispersion and can be used in advanced statistical calculations. Nachmais notes that variance (S^2) and standard deviation (" S ") are calculated by squaring and summing the deviation then dividing the sum by the total number of observations. The definitional formula for the variance is

$$S^2 = \frac{\sum (x - \bar{x})^2}{N}$$

The advantages in using standard deviation are legion. It is more stable from sample to sample. It further has some mathematical properties that enable the researcher to obtain the standard deviation for two or more groups combined. (Nachmais 378-9; Ejemot-Nwadiaro 108-111). Another statistical tool used in conducting and writing research is the coefficient of variation. It is used to calculate the degree of dispersion relative to the mean. Symbolically, the coefficient of variation is defined as

$$V = \frac{S}{\bar{X}}$$

Where V = the coefficient of variation

S = the standard deviation

\bar{X} = the arithmetic mean (Nachmias 379)

Method

The study applied the statistical technique of analysis and presentation. The study further used the descriptive design option where it describes the observable and dependable

data obtained from the population of study. The study area is the institutional theatre departments in the Federal and State Universities spread across Nigeria.

Population of Study

Participants in the study were three hundred (300) academic staffs (Theatre scholars) of the institutional theatre arts Department in Nigeria who were recruited through online survey research. This was done based on the available electronic mailing addresses of the participants where they can be contacted and responses can be received immediately. The purposive sampling technique was used to recruit the participants whose professional status ranges from Lecturer 1 to Professor. Those chosen were unique because they have demonstrated adequate research skills through conducting and writing well researched thesis, dissertations, conference papers, books, and articles published in local and international journals.

Data Collection

The online survey research and questionnaire instruments were used in data collection. A total of three hundred (300) structured questionnaires were designed using the Louis Guthsman Scale model. The questionnaire was structured into three sections. Each section is split into two parts; notably, the items and response rate. The response rate directs the respondent to indicate yes if the item was favourable and no if it is not necessary to the variable. Significantly, Section A indicates the socio demographic characteristics of respondents. Section B, indicates the possible reasons why theatre artists comport and comply with statistical tools and Section C indicates the possible reasons why the theatre artists distaste and will not want to comply statistical application in theatre research. Thereafter, the questionnaires were distributed online to the population of study spread across institutional theatres Departments in Nigeria Universities. The study asked for information on the possible reasons for the use or not to use statistical tools in conducting and writing research in theatre scholarship. After a week, a total of two hundred and six filled questionnaires were emailed back and were received and retrieved online.

Socio-Demographic Characteristics of Participants (Respondents)

The Socio demographic characteristics of participants are presented in words and figures using the tabular and simple percentage formula as shown below.

Table 1: Showing Socio-Demographic Characteristics of Participants

Variables	Participants	
	Number	Percentage
Sex		
Males	195	65
Females	105	35
Academic Qualification		
Ph.D	200	67
M.A	100	33
BA	Nil	Nil

Professional status		
Lecturer 1	99	33
Senior Lecturer	56	19
Associate Professor	51	17
Professor	94	31

Source; Fieldwork, 2018

Deduced from table 1, the bulk of the participants were males (195 or 65%). Females constituted a small proportion of the sample (105 or 35%). The educational attainment of the participants was significantly high as the majority (200 or 67%) had the Doctorate of Philosophy Degree (Ph.D), while an insignificant proportion of the participant (100 or 33%) had the Masters of Arts Degree. Again this resonates with literacy and research level of these respondents concerning the professional status of the participants, majority 99 or 33% were lecturer 1, Senior lecturers were 56 or 19% and Associate Professors were 51 or 17%. A small proportion of the participants were Professors (94 or 31 %).

Results

Significantly, data were obtained from two hundred and six (206) structured questionnaires retrieved from the population of study (Theatre Artists who are academic staff) in the institutional theatre arts Departments spread in Nigerian universities online and were analysed using the univariate frequency distribution and percentage(%) relative frequency formula.

Table 2: Showing Possible Reason Theatre Scholars Comply with Statistical Techniques in Theatre Research

Possible	Reasons	Participants			
		Yes	%	No	%
To cope with sample survey, finite and infinite population universe studied.		196	95	10	15
To make for ease organizing of large volume of data		198	96	8	14
To adequately address quantitative variables studied in specific cases in theatre discipline		150	73	56	27
To enhance the measurement of economic and social dimension		205	99	1	01
To easily compare, summarize, analyze and present data		120	58	86	42
To reduce and stop numerical credulity and excessive guess work.		156	76	50	24
To create cultural database to impact cultural policies and programmes.		187	91	19	09
To meet the challenges of new concept and techniques, to which have drastically		190	92	16	8

transformed arts and culture, and the way it is accessed.

Source: Field Work 2018

Table 2 shows various reasons given for use of statistical techniques in conducting and writing research in theatre studies. To cope with the multidisciplinary nature of theatre scholarship, 189 or 92% of the participants say yes while 17 with 8% say no. 196 or 95% of the participants say yes to use statistical tools to cope with sample survey, finite and infinite population or universe studied, while 10 or 15% disagreed. More so, 198 or 96% to make for ease organizing of large volume of data and 8 or 40% say no to it. Concerning the use of statistical data to address qualitative variables in theatre scholarship, 150 or 73% say yes

and 56 with 27% say no to it. 205 or 99% of the participants accepted to use statistics to enhance the improve metrics and measurement of economic and social dimension of arts and culture while 1 or 01 refused. To easily compare, summarize, analyze and present data in theatre research, 120 or 58% of the participants accepted, while 86 with 42% refused. Concerning the use of statistical tools to assist researchers in reducing and stopping numerical credulity and excessive guess work, 156 or 76% of the participants say yes while 50 with 24% say no to it. 190 or 92 of the participants say yes to promote the use of statistical tools in creating cultural database necessary for making rational decision to impact cultural policies and programming 190 or 92% to meet the challenges of new concepts and techniques to which have tremendously transformed arts and culture and the way it is accessed while 16 or 8% say no to it. What is more, 205 or 99% concur to the use of statistical tools to encourage innovative and ethical research while with 01% say no to it.

Table 3 shows various reasons why theatre artists used statistical techniques in research. All the participants acknowledge the distrustful or dismissive attitude and behaviour of theatre scholars towards statistical application in theatre research. For instance, 180 or 87% of the participants agreed that artistic activities, items, events, products and services harbour elements that evade empirical measurement. Besides, 160 or 78% say artistic methodology dwells on the artist's intuition, inspiration and imagination where it end products are subjective, speculative as well as devoid of empirical measurement. What is more, 190 or 92% might have no need for statistical application in research because theatre research is characteristically literariness as seen in descriptions, narrations, textual interpretations that cannot be quantitatively measured. More so, majority of the respondents as in 205 or 99% despised statistical application in theatre research because the written word and as illustrated by plates, figures, video cassettes or compact disc constitute the foremost tool used for artistic methodology than statistical inference.

Table 3: Showing Possible Reasons Why Statistical Tool is not commonly used among Theatre Scholars

Possible Reasons	Participants	Y e s %		N o %	
Theatre activities or events concern relativity and harbo elementsr that evade empirical measurement.	180	87	26	13	
Artistic Methodology dwells on artist's intuition, inspiration, imagination that makes each end product subjective, speculativ ^e and devoid of empirical measurement.	160	78	46	22	
Theatre research is characteristically literariness and subject to descriptions, narrations, textual interpretation that cannot b ^e quantitatively measured.	190	92	16	8	
The dominant tool for artistic methodology is the written wor and illustrated by plates, figures, video cassette or compact disc than by statistical inference.	205	99	1	1	

Discussion

The data collected and analyzed in table 2 and 3, respectively show that controversies in the use of statistical techniques in theatre scholarship is currently inevitable.

However, significant numbers of theatre scholars demonstrate the need for its usage to meet the innovative principles in today's world and the multi-disciplinary nature of theatre studies, where it demands a combination of tools, theories and approaches from other disciplines to solve identified problems. Similarly, majority of the participants as in 99% concur to the use of statistical tools to solve address empirical variables inherent in theatre activities, events, products, and services to easily compare, summarize and present large volume of data in mass production, participation, and to reduce or stop the numerical credulity as well as excess guess work.

Findings in table 3 are particularly necessary as it unveils various reasons given why statistical tools are not commonly used in theatre research ascertain the hiccups in the use of statistical tools in theatre research. The negative comments and objection on the use of statistical tools by some theatre scholars are informed by the nature of theatre activities, events, products and services as it harbour elements that evade empirical measurement. These are evident by the views of the majority of participants with a staging of 87 percent (%) who concur to the revelations. Perhaps, the negative concern observed from some theatre scholars over the use of statistical tools in research may have been informed by the unquantifiable nature of artistic methodology as in artists intuition, inspiration, imagination, narration, textual interpretation that defy empirical measurement as envisaged by 92% and 99% respectively. It invariably means that despite its substantives there exists lackadaisical or despondent statistical behaviours that need laborious empowerment to meet the contemporary qualitative and ethical research in scholarship.

Recommendation

If numerical data exist in arts and humanities and methods of statistics are useful and indispensable in this field of study, then, the following recommendations are offered.

- i.** Academic staff and students should find themselves schooling again in research statistics to enable them improve on its application for future development
- ii.** The impregnation of research statistics in theatre research and method's curriculum to make it mandatory for the teaching, learning and application of its techniques in conducting and writing research.
- iii.** Recruiting teachers with wealth of experiences in statistics to teach research methods in theatre studies

Conclusion

This paper has been able to reveal the squabbles envisaged among theatre scholars concerning the use of statistical techniques in conducting and writing research. The paper also identified the possible reasons why theatre artists are pleased with statistical tools and why it is not commonly applied in theatre research. Since methods of statistics are useful and indispensable in all fields of study including theatre arts and its allied fields, it is imperative to reposition the use of its technique in conducting and writing research as well as to meet the demands of the United Nations Educational, Scientific and Cultural Organization's Framework for Cultural Statistics to address identified problems in theatre profession. .

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