Content and Statistical Analysis for Computing Respondents' Feedback in the Social Sciences: The Case of Political Science and Public Administration Departments

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Abstract: - **Content analysis has become one of the fundamental mechanisms to determine the presence of certain concepts as employed within sets of texts. Researchers quantify and analyze the presence, meanings and relationships of such words and concepts, then make inferences about the messages within the texts, the writer(s), the audience, and even the culture and time of which these are a part. Texts can be defined broadly as books, book chapters, discussions, newspaper headlines and articles, historical documents, speeches, conversions, etc it is qualitative in nature. For instance, if a researcher is interested in studying the behavioural pattern of the certain citizens before, and after the creation of either state or local government, existing literatures on the study may be consulted in order to come up with established facts about history of state and local government creation in the selected area of his/her research.**

I. INTRODUCTION

Content analysis is a research tool used to determine the presence of certain words or concepts within texts or sets of texts. Researchers quantify and analyze the presence, meanings and relationships of such words and concepts, then make inferences about the messages within the texts, the writer(s), the audience, and even the culture and time of which these are a part. Texts can be defined broadly as books, book chapters, discussions, newspaper headlines and articles, historical documents, speeches, conversions, etc it is qualitative in nature. For instance, if a researcher is interested in studying the behavioural pattern of the certain citizens before, and after the creation of either state or local government, existing literatures on the study may be consulted in order to come up with established facts about history of state and local government creation in the selected area of his/her research.

II. THE RELEVANCE OF CONTENT AND STATISTICAL ANALYSIS IN POLITICAL SCIENCES

Statistical Analysis is fundamental to all experiments that use statistics as a research methodology. Most experiments in social sciences and many important experiments in pure science and engineering need statistical analysis. (Panneerselvam 2013:1). Statistical analysis is also a very useful tool to get approximate solutions when actual process is highly complex or unknown in its true form. Example: The study of "Legislative Representativeness and Governance in Ekiti State" is heavily relied on statistical analysis. Or the study of turbulence relies heavily on statistical analysis derived from experiments. Turbulence is highly complex and almost impossible to study at a purely theoretical level. Scientists therefore need to rely on a statistical analysis of turbulence through experiments to confirm theories they propound (Ibid). in social sciences therefore, statistical analysis is very useful to obtain data, general theories that are universally valid and acceptable. This is coupled with experiments and surveys that can be used to confirm theories. For instance, what is the link between money and happiness? Does having more money make you happier? This is an age-old question the scientists have been trying to answer. Such experiments are highly complex in nature. In order to bring out direct relationship between money and happiness, statistical analysis can be employed.

It is specifically important to note that while content analysis is qualitative, statistical analysis is quantitative which is subject to calculation. The statistical analysis is of two categories namely 'descriptive' and 'inferential' statistics. The descriptive statistics refers to the type of statistics, which deals with collection, organizing, summarizing and describing quantitative data. Take for instance, a mathematics teacher finds the average score of his class, here the average score is a descriptive statistics since it (average score) describes the performance of that class but does not make any generalization about other class (Kolawole, 2002:1). Examples of descriptive statistics are graphs, chats (pie chats, columinial charts, bar charts, histogram, pictograms, tables and other ingredients) that display data for easier understanding. Other examples of descriptive statistics are central tendency (mode, mean, median), correlational coefficient i.e degree of relationship (ibid). it is equally important to note the following elements of descriptive statistics procedures:

(i) The population or sample of interest;

(ii) One or more variables that are to be investigated;
(iii) Tables, graphs or numerical summary tools;
(iv) Identification of pattern in data.

Another category of statistical analysis is that of 'Inferential Statistics' which deals with the methods by which inferences are made to a larger sample on the basis of the observations made on the smaller sample e.g suppose a researcher decides to use the average score of one class to estimate the average score of other or more classes of the same population, the procedure of this estimation is a process of inferential. This might have informed the submission of Johnson (2002) that "any procedure of making generalization that goes beyond the original data is called inferential statistics".

Indeed, inferential statistics provides a way to test the significance of results obtained when data are collected. Examples of Inferential Statistical tools are analysis of variance, analysis of covariance, correclational analysis etc. Important elements of inferential statistical procedures are stated as follows:

(i) The population of interest;
(ii) One or more variables that are to be investigated;
(iii) The sample and population units;
(iv) The inferences about the population based on information contained in the sample;
(v) A measure of reliability for the inferences.

In carrying out research in political science, various mathematical/statistical methods can be employed. However, two of these methods are discussed thus: (i) percentage calculations: the simple ways to determine percentage is while you are calculating a percent, you are showing what part of number is in a decimal. Like a fraction, it divides up a whole into parts. Percent means "out of 100" so we divide the whole we are looking at, into 100 parts. For example, 50% of 40% = (50/100) x (40/100) = 0.50 x 0.40 = 0.20 = 20/100 = 20%.

Another example is that of a political researcher who intends to investigate the political behaviour of a certain tribe or ethnic group. Having administered his/her questionnaires, the researcher can therefore generate codes through which responses of the respondents be represented e.g male and female exist in the unit of sample population. So, code 01 = male, code 02 = female, code 03 = Religion etc. In calculating, if 30 out of 40 respondents have agreed strongly towards the negative political behaviour of the said population it can then be calculated thus:

$$\frac{30}{40} \times \frac{100}{1} = 75\%$$

(ii) Another statistical concept that is useful in political science is chi-square analysis. According to www2.iv.psu.edu/jxm57/irp/chisquar. html. assessed on 08/01/2015 Chi – square test is a statistical test commonly used to compare observed data with expected data according to a specific hypothesis. Chi-square requires that we use numerical values, not percentage or ratios. For example, if a researcher intends to measure the degree of representativeness of the legislative members in Ekiti State, chi-square analysis may be employed. This method helps to bring out the deviations in the result of chance (i.e differences between the observed and expected). It also shows how much deviation can occur before the investigator must conclude that something other than chance is at work, causing the observed to differ from the expected. (Montgomery, 1984:32)

The chi-square test is always testing what scientists usually call the "null hypothesis", which states that there is no significant difference existing between the observed and expected result. (Ibid)

The formular for calculating chi-square is indicated below:

$$x^2 = \frac{(O - E)^2}{E}$$

Categorically, chi-square is the sum of the squared difference between observed (o) and the expected (e) data (or the deviation, d) divided by the expected data in all possible categories. (Babatola, 1998:41)

In essence, statistical analysis helps in establishing facts which are testable, replicable and verifiable in all respects.

REFERENCES

[1]. Panneerselvam. P. (2003), *Research Methodology*, published by Asoke K. Ghosh, PHI Learning private Limited, Rimijhim House, III. Patparganj Industrial Estate, Delhi-110092.
[2]. Kolawole, E. B, (2002), *Statistical Methods* Revised Edition. Bolabay Publications (Academic Publishing Consultants) 15, Obafemi Awolowo way. Ikeja Lagos Nigeria.
[3]. Babatola, A.M (1998), *Local Government and State Creations Implications for National Integration.* (Unpublished) B.Sc Long essay submitted to the Department of Political Science Ondo State University Ado-Ekiti. Davies Binders & Printers, No 9, Ogbon Obia, Ado Ekiti, Ekiti State.
[4]. Johnson R.A. (2002), Miller & Freand's Probability and Statistics for Engineers, 6th ed, Prentice Hall of India, New Delhi.
[5]. Montgomery, DC (1984), Design and Analysis of Experiments, John Wiley & Sons, New York.