

ISSUES FOR RESEARCH IN PUBLIC ADMINISTRATION

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Abstract: Starting research in public administration requires various considerations. This paper discussed some issues for research in this subject. Ethics, Plagiarism, Evaluation of E-Information etc. are presented in this paper. The paper also highlights other points for doing computerized data analysis. Types of Data Scales is also discussed. In the case of hypotheses testing, its acceptance and other problems with null hypotheses significance testing are also discussed. Various e-resources in public administration form part of this paper. And suggested readings are also given so as to enable future researchers with the best literature. This paper may also be helpful to other researchers in social sciences.

Keywords: E-resources; Public Administration; Research; Social Sciences

1.0 Introduction

To conduct research in public administration requires various considerations. Some of the research issues are discussed in this paper so as to enable researchers in this subject. This paper may also be of help to other researchers in social sciences too. However, the points discussed here are none at all exhaustive but will help the readers to further explore the many concepts. A few of the general considerations are presented below so as to bring some awareness and introduce the future researchers with other concepts that are helpful in actual research in the subject of public administration. A broad overview of topics discussed in this paper is given below:

- Ethical Issues in Research
- Plagiarism
- Online Information and Evaluation
- Computerized Data Analysis
- Types of Data Scales
- Other Issues with Null Hypotheses Significance Testing
- Considering Acceptance of Null Hypotheses
- Doing Research in Public Administration

2.0 Ethical Issues in Research

Ethics is a branch of philosophy. It is not possible to discuss every ethical concern in research. However, a few points are considered below:

- Do not conduct parallel or duplicate research (because it is of no use to investigate what has been investigated before, unless your research contributes some new knowledge);
- Most of the research in social sciences involves human participants (as respondents of surveys), hence, be sure you adhere to the policy of the university or institution in which you are registered to research in this regard (like Institutional Review Boards; getting informed consent of research participants etc.);
- It should also be ensured that you get permission to conduct research in other organizations or institutions etc. from where you will collect data (like from that university where you will do the survey and collect data from students, teachers etc.);
- Reporting true results is the most important aspect in research (i.e. results are free from your personal bias or projection of ideas);
- Be sure your research has good *reliability*. *Validity* (both *internal* and *external*) is also essential. These are statistical terms (with respective theories and applications), especially used in experimental research designs and/or making generalizations / drawing inferences about the whole *population*;
- Remember that Null Hypotheses Significance Testing is not the end of our statistical analysis;
- Also discuss limitations of your research while reporting. Since no research is free from limitations so it is better to advise your readers and future researchers (in same topic or area) regarding the limitations of your investigation;

- Do acknowledge each author and source (proper citation and references) whether you have taken other author's original words or just the idea alone (it is important to acknowledge for ideas of others too); and
- Refrain from plagiarism.

3.0 Plagiarism

The academic world regards plagiarism as an academic fraud and cheating. Plagiarism basically means that we are copying (in our writing) other author (s) work or works without acknowledging them and we write in such a manner that we were the original creators of the words or ideas copied. Furthermore, simply acknowledging the other author (s) with proper citation and references does not allow us to copy other person's words or ideas in much greater length, say a full page of another author's book, or table (s) of data, figure (s) or diagrams etc.

For research purposes, a balance needs to be maintained while using other authors' words or ideas and the concept of *fair use* helps here. The scope of fair use also depends upon the copyright laws of respective countries because in some countries its scope is wide and in others, it has a narrow scope.

According to section 52 (a) (i) (ii) of the Indian Copyright Act, 1957, certain acts are provided which does not infringe copyright. The nature of the work on which fair dealing is applied are: literary, dramatic, musical or artistic (except a computer programme). And the purpose of fair dealing should be: private use, including research; and for criticism or review, whether of that work or of any other work.

Increasing access to the Internet has enhanced the practice of plagiarism. It is a common misconception that we are free to copy anything from the Internet but indeed it is false. Even in the open access documents on the Internet, there are various clauses and types of copyright declarations or restrictions (*Creative Commons Attribution* – various copyright clauses for open access documents) that are applied in copying other author (s) works, and acknowledging the source author is a must in all cases. It must be remembered that although Internet has enhanced the scope of plagiarism, but at the same time many software have indeed become available to check plagiarism. When our work is submitted to these types of software for checking, they show and highlight our copied portion on one half of the computer screen and on the other half of the screen, it is shown from where we have copied (the source and author's document/s). Hence, beware that plagiarism can be detected now-a-days and universities in our own country also have started to use plagiarism detection software. It is implied that you do need further training and awareness in this regard to do research in an ethical manner without plagiarizing your own previous work (s) or of other persons. Some of the citation practices in various style manuals (American Psychological Association; Chicago Style etc.) can help in this regard but unethical practices of writers (whether knowingly or in ignorance) require great caution and authors must be sure when permission is required from copyright holder (s). However, the scope of plagiarism is much vast. For example, taking help from others (friends, family etc.) without acknowledging them is also a form of plagiarism.

4.0 Online Information and Evaluation

The connectivity and accessibility to the Internet has made us believe that today's search engines are so powerful that nothing (in electronic format) can escape from locating and retrieving information (this perception is a myth). It is common misconception that:

If it (ANY information in e-form) is NOT available on a particular search engine, it doesn't exist!

The truth is that the so called most powerful search engines are still unable to search and retrieve information from the whole World Wide Web (WWW) because much of the web is invisible (search the meaning of *invisible web* and related aspects).

Usage of Boolean logic (Boolean search techniques – AND, OR, NOT, truncation etc.) may also help to refine information and its relevant retrieval.

Many *meta-search engines* are also available which perform simultaneous searching from many search engines. However, meta-search engines also are unable to search from the whole Internet.

Take care with Wikipedia

Although Wikipedia provides an enormous amount of definitions, but its academic credibility is disputable. Be aware that all wikis in general are operating in their own environment and accomplishing their purpose as per the limitations of working in such environment. Be sure you understand that Wikipedia is also known as 'people's encyclopaedia' and it provides a platform for people to write (anybody whether professor or just literate only). Though its quality is improving over time with increased editorial control but due to its huge quantity of information, there is no guarantee of authenticity in its content. It is better to avoid writing or

quoting from Wikipedia in academic research. Moreover, at the research level, it is the ethical duty of a researcher to find information from authentic sources of information. Whether a researcher had not tried to find authentic source or one is unable to find credible information. Is it indeed the case that a particular piece of information is available in Wikipedia alone (and nowhere on the whole planet), in case it is so, then the credibility of such information is doubtful in itself. Be sure that you understand the nature and working environment of Wikipedia before quoting from it in academic research.

5.0 Evaluation of Online Information

Availability of information is one thing and critical evaluation of information along with its source is another. It is must to evaluate the information itself and from where it has become available. Like we cannot pass or get good marks by reading desultory publications (cheap books or guides that are readily available in the market). With the advent of Internet, Information Revolution has resulted in information over-load also and critical skills have become essential before we act upon certain information. It is not the case that authentic information is not available on the Internet but we need to be aware of the authentic online information resources and also to refrain from un-authentic information on the World Wide Web. The scope of critical evaluation skills is much greater and lifelong process but a brief discussion of some points to evaluate online information is discussed here. In some cases these may be equally applicable to print publications as well. The major points are:

- Check for authority: who is the author (is it mentioned or not on the website you are reading) whether a doctor, professor or specialist in the concerned field (qualifications mentioned) and land address or Email or other contact information is available;
- See the About Us or similar web page/material: who is the publisher (any website or some reputed publisher in the concerned subject, government etc.), what is the purpose of the website and putting the information on the Internet;
- Check currency: how much current is the information and when the website was last updated;
- Domain name: whether a commercial website (.com); academic website (.ac.in – academic and Indian; .ac.uk – academic and British); government website (.gov.in – government and Indian) etc.
- See Links or References: whether other web links or references to other credible sources are provided or not (we may need to read these other sources also); and
- Ability to Identify Bias: whether author is indeed providing facts or factual statements or just writing in such a way that his/her personal opinion or bias is projected as truth.

There are many other considerations too while evaluating online information, so you may search on the Internet regarding how to evaluate online information.

6.0 Computerized Data Analysis

Computers are meant to help us in data analysis and at the same time these are meant to compute/calculate the numbers also. Many statistical analysis software have become available now-a-days and each software has its own way to enter the data and perform statistical analysis of data (some software may be similar in some respects and others not so).

The basic problem emerges that a computer just computes numbers to the maximum extent we tell it to (by giving commands as desired in particular software) and it can even compute the results (sum, mean etc.) when we have actually used the numbers for numerical coding only and the software will produce beautiful statistical results (but otherwise wrong results). Why it happens because all software are working in their respective environments and within the environment of computer too. And for a computer a number is a number and since it is meant to compute numbers, wrong results occur because a computer cannot differentiate when a number is referred as a number indeed and when a number is used for numerical coding alone.

Take an example of a male and female. We entered numerical codes 1 for male and 2 for female in the statistical software. Now we compute sum of these and the result will be 3 and if we further calculate the mean, then the software will give 1.5 as result $(1 + 2 / 2)$. But what is the meaning of this 1.5 mean (or total sum 3) when we have actually used 1 and 2 for numerical coding only?

To some of you it may seem an absurd example here but it has been observed indeed that beginners do make such mistakes (much greater than this example) in statistical analysis with software packages.

This problem is mentioned here to remember that we must be clear about the scaled data (*interval* and *ratio*) and the non-scaled data (*nominal* and *ordinal*) what further calculations are possible on each type of data individually (types of data scales are discussed in next section).

Hence, please understand that statistical software packages are the application part only and these are application of respective and other theories on which particular formulae are based (like we cannot perform parametric tests of hypotheses on non-scaled data).

The only major concern is that we must know the theory which we are applying in the statistical software (otherwise application without theory would result in disaster alone).

There are many other issues and problems with computerized data analysis and where software can help us better (or worse too, depending upon respective situations). For example, we are entering age in the statistical software and check the frequencies, where one value shows 200. It must be a typing error (may be 20 was wrongly typed as 200, but has to be checked with our collected data too for accuracy).

The most important aspect is that we must fully understand the theory of the formula we are applying in the statistical software and how such software handles such theory and its application in it.

7.0 Types of Data Scales

It is essential to understand what are different types of data scales. These tell us the properties of data. There are four types of data scales: Nominal, Ordinal, Interval, and Ratio.

7.1 Nominal Data: It is categorical data and we just name it or form categories. For example, gender can be categorized as male and female; or area of living can be categorized as urban, semi-urban and rural.

7.2 Ordinal Data: Ordinal data is one step ahead of nominal data. Here data is in some order, whether ascending or descending and also referred to as rank data. For example, we consider marks in division like 60 percent or more marks is first division, 50 percent to less than 60 percent is second division and less than 50 percent is considered third division till one has passed at least. This first, second and third division is in some order. The chief disadvantage of ordinal data is that we do not know anything other than the order like 90 percent marks is also first division and 61 percent marks is also first division.

7.3 Interval Data: Interval data has the properties of equal intervals and magnitude. For example, we measured motivation on a scale of 1 to 20. Four respondents – WXYZ have motivation scores as 5, 10, 15, and 20 respectively (W=5 and Z=20). The difference between W and X is 5 and also the difference between Y and Z is 5. Here the intervals are equal. Hence, the intervals can be added (but not the quantity), we can say that the difference between W and X is same as Y and Z. The main disadvantage of interval data is that there is no absolute zero. Say a person appeared in reasoning test and got zero marks but it does not mean that reasoning is zero in that person. Another example of interval data can be temperature on Fahrenheit scale where zero is arbitrary only and not absolute and we cannot say that 20° is twice than 10° degree temperature. Another example of interval data can be the price index, where base year is generally set at 100.

7.4 Ratio Data: It is the highest level of data because zero is absolute here. We can have data between ratios. Examples include weight, length etc. A weight of 2 kg is twice of 1 kg.

7.5 Important: The first two that is nominal and ordinal are technically not considered as scales. Only interval and ratio data is scaled data. And parametric tests of hypotheses (like t-test, analysis of variance ANOVA etc.) can be performed on interval and ratio data.

Moreover, ratio data is highest level and contains all properties of the lower ones too. Similarly, interval data contains the properties of nominal and ordinal data also, and it is obvious that ordinal data also has properties of nominal data.

It may be noted that a higher level data can be converted to lower one but not vice versa. For example, you collected ratio data about monthly income from four respondents as 11,000, 13,000, 17,000, and 19,000. We can form categories here as income between 10,000 to 15,000 and 15,000 to 20,000. But what if you collected data in the categories itself, then you will have 2 respondents in each of your two categories but you did not collect what is their exact income.

8.0 Other Issues with Null Hypotheses Significance Testing (NHST)

In most statistical instances in research, we usually aim for the rejection of null hypothesis H_0 (but acceptance of H_0 is not implied automatically in case of insignificant result in respective situations). However, our rejection of the null hypothesis H_0 at a certain significance level (usually 5 percent; 95 percent confidence level) means that the result is significant. But how much *significant* the result really is? Take note that the meaning of the word *significant* used in hypotheses testing literature. It is not the same as the word 'significant' in a Standard English Dictionary or our daily usage and understanding. Hypothesis testing is just a game of numbers and probability.

Further calculations are required, especially when significant result has occurred in NHST (when H_0 is rejected). One such computation is *Effect Size*.

Different formulae of hypotheses tests have their respective different formulae to compute *effect sizes* in various situations and to interpret the value of an *effect size*, there are different criteria.

Furthermore, *Power* is required. In NHST, it refers to *Power* analysis. It helps to compute power calculations to know whether a particular research had enough power to reject the H_0 or not (with regard to sample size), i.e. whether the research indeed was so powerful that it could detect a significant difference, or it lacked the power. The value of the *power* helps us to decide this.

There are many ways and respective formulae to compute *power*. Two of the ways are:

- To compute power after (post-hoc) our hypotheses are tested and *effect size* of our study is known; and
- The other is to compute *power* before (a priori) the collection of our data (so as to have a desirable sample size in the research).

One point needs to be considered that calculating *power* requires the value of *effect size*. In case of post-hoc calculation, we do have calculated the *effect size* of our research.

But how can we calculate *effect size* before (a priori) collecting our data (and hypotheses are still to be tested)? In such a case (a priori), *effect size* can be estimated with previous research with *Meta-Analysis* in a particular topic or area of research in which we are investigating.

Moreover, *power* gets affected when we have decided 1 percent *significance level* (in advance at *research design* stage) rather than 5 percent *significance level*, apart from many other considerations.

There are many other associated words and formulae (and respective theories of each) with *Effect Size*, *Meta-Analysis*, and *Power*. These are mentioned here because future researchers must be aware that null hypotheses significance testing is not the end of the statistical data analysis. It is beyond scope here to discuss these new concepts in detail here but you are advised to refer suggested readings in this paper.

9.0 Considering Acceptance of Null Hypotheses

Researchers basically aim to reject a null hypothesis. One point needs consideration here that when we are unable to reject H_0 , i.e. we accept it. Take an example that you are researching the population of all MA level public administration students in the state of Punjab regarding their socio-economic aspects. You collected data from a sample only. One H_0 is made that *there is no significant difference between the first and second year students in their family income*. Your results also find no significant difference in this respect and you accept the H_0 .

If we are unable to reject H_0 it does not mean that H_0 is indeed true or there is no difference. It just means that our data (from the sample) has failed to reject the null hypothesis. This is mentioned here because in various research documents you will read where authors just write that the null hypothesis has been accepted (which is not a correct way).

Take another example of leadership skills among MA level public administration and political science students. H_0 is that *there is no significant difference between public administration and political science students in their leadership skills*. In case our result is unable to reject the H_0 (or we did not find any difference), we are only asserting that our data has failed to reject the null hypothesis. The more complex variables we research, the more complex becomes the acceptance of a null hypothesis in reality.

10.0 Doing Research in Public Administration

As you will invest some of your years of life in research and after some time interest in the topic is one of the most important motivations. So the topic of research should be of interest to you. Rather than suggesting topic (s) or areas of research in public administration, it is much better that some of the information sources be provided here so that you should be able to select your own topic of research (in consultation with your research supervisor when you go for actual research).

The most common sources of information for research are the ones where research gets communicated (previous research), that is, journals, theses, conference proceedings etc. (apart from working professionals and teachers, who are researchers also) and present research scholars and librarians working in research or/and academic institutions can also help.

To find out current doctoral research submitted in Indian universities, check the titles and other bibliographical information for the last three or five years (or as desired) in the column of theses (social sciences issue for

public administration) in *University News* (a journal published by the Association of Indian Universities) which is most likely to be available in your university library.

11.0 Information and Library Network (INFLIBNET)

INFLIBNET is an Autonomous Inter-University Centre under the University Grants Commission (India). It has been in operation for the last about two and half decades with headquarters at Gandhinagar (Gujarat) [visit <http://www.inflibnet.ac.in>].

There are many activities of INFLIBNET and it provides access to various other academic links or portals under its scope. To see full text Indian theses in public administration (and other subjects too) in an open access mode, see *ShodhGanga* (visit <http://shodhganga.inflibnet.ac.in>). *ShodhGanga* provides access to theses submitted in Indian universities and various search parameters are available viz. university, subject etc.

There is a link of *ShodhGangotri* also in INFLIBNET which helps to check the present research going on in different subjects and universities in India so as to avoid parallel or duplicate research.

Under the *National Mission on Education through Information and Communication Technology* (NMEICT), sponsored by the Ministry of Human Resource Development (Government of India) [visit www.nmeict.ac.in], various new initiatives have also been started to provide electronic content (text, audio-visual etc.) for academic purposes. The website of INFLIBNET also provides access to *e-PG Pathshala* (visit <http://epgp.inflibnet.ac.in>) and *Integrated e-Content Portal* (e-Acharya) [visit <http://eacharya.inflibnet.ac.in>]. However, both e-PG Pathshala and e-Acharya are somehow of recent origin, so e-documents in public administration may be much limited at the present time. Please note that viewing contents in some of these websites may require registration with Email.

To read somehow old Indian theses in public administration and other relevant subjects or topics, see the *Vidyanidhi* website by University of Mysore (visit <http://dspace.vidyanidhi.org.in>). And to read international theses, see the *Networked Digital Library of Theses and Dissertations* (NDLTD) [visit <http://www.ndltd.org>]. Both of these have open access e-resources.

For academic research, it is better to search in publisher databases by visiting respective websites. For example, *Emerald*; *ProQuest*; *Sciencedirect*; *Taylor & Francis*; *Wiley*; *Sage* etc. These are highly paid subscription based publishers but are likely to be subscribed by your university library. Check which electronic material you have access in public administration and relevant or related subjects or topic of your research because information is inter-disciplinary. Furthermore, these paid publishers do have some content (much indeed) which is available in open access mode.

To find out about the open access journals in public administration or relevant to your topic of research, see the *Directory of Open Access Journals* (DOAJ) [visit www.doaj.org] and respective journals too.

Also note that all information or literature is not available in electronic format, so use library documents in printed format effectively. Be sure to differentiate between *peer reviewed* and *non-peer reviewed* documents.

Also identify the top ten journals in public administration, both at the international and national level.

Research in public administration also requires that you are in touch with (in person or electronically) various research institutions in the subject itself and relevant subjects also. For example, United Nations Educational, Scientific and Cultural Organization (UNESCO), Indian Institute of Public Administration, Lal Bahadur Shastri Academy, Indian Political Science Association, Indian Council of Social Science Research (ICSSR) etc. and also attend various seminars, conferences, workshops etc.

Furthermore, if you would like to read the lessons in public administration from the Indra Gandhi National Open University (IGNOU), visit www.egyankosh.ac.in. Registration with Email may be required to view e-content. Many other open educational resources are also available.

In case you want to access data by the Government of India and also like to make various diagrams (bar, line, pie etc.) on the Internet, visit www.data.gov.in and for world data visit www.data.worldbank.org. Learn in these websites to use and play with various features and kindly do not forget to give proper citation and references when you use these e-resources in your research writing/reporting.

For academic research purposes, you may already be aware that, rather than using the general search engine 'Google', it is better to use *Google Scholar*.

12.0 Referring Suggested Readings

Learning itself is lifelong learning process and research requires extensive learning. Some books are suggested here for different purposes so that these help you to conduct actual research in an effective manner. It is implied that whenever you refer these books, kindly read the latest edition. Also note that you will be further directed by respective authors of these works to more documents.

First of all for research in our subject, read Miller and Yang (2008). This book covers many research techniques in public administration along with statistical theory and application aspects too in computerized data analysis.

In case you want to learn statistics with the 'Statistical Package for Social Sciences' (SPSS) in much detail, read Field (2013).

To learn statistical techniques (both descriptive and inferential) from start and at much advanced level including analyzing data on computer with SPSS, read Howell (2013).

Learning the aftermath of null hypotheses significance testing is much more complicated but Ellis (2010) has made it simpler, so read it.

To learn how to handle experimental designs and prepare good research reports, read Harris (2002).

Another book to prepare better reports, especially writing for journal articles is by Sternberg and Sternberg (2010).

13.0 Conclusion

This paper discussed some of the ethical concerns while conducting research and it is must to refrain from plagiarism or other unethical practices. Evaluation of online information has become a necessity. Extreme caution is required while analyzing the data with computers. Some of the issues with Null Hypotheses Significance Testing (NHST) were also discussed and we must remember that statistical analysis does not end at NHST. To conduct research in public administration, some of the sources for data and information were also mentioned and you were directed to refer to the suggested readings.

14.0 References

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