

The Methodology of a Research Paper

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Abstract: Preamble, Introduction, Research Methodology, Research Paper, Research Scholar, Title, Body of Research Paper, Acknowledgement, Conclusion, Google Search, Text Books, News Paper, References, Biography, Research Paper Triangle

Preamble: Preamble can be a part of the Research Paper in which some information which is not directly related with the title of the Paper. The Research Methodology can be applied to any piece of research whether it is a large one such as a Thesis or a short one such as a simple Research Paper. Usually, words such as an Article and a Research Paper are synonymously used. There is, however, a difference between the two. A Research Paper, in addition to keeping its identity as a Research Paper, is also an Article. But, an Article cannot be a Research Paper. This is because of the fact that no Research Methodology as such is followed in the case of an Article.

I. INTRODUCTION

1. Meaning of the Title: This is generally by-passed and not cared for by most of the authors. In fact, some of the readers may not know the meaning of the Title. A brief illustrative origin of the title and its relevance to the subject matter should be given by the author at the introduction itself.

1.1 Parts of a Research Paper: A Research Paper has five parts: i) The Title, ii) The body of the Research Paper, iii) The Conclusion, iv) The Acknowledgement and v) The References. In addition to these five, at the end the author may give a brief biography of the author with his photo.

II. THE TITLE

2. The Choice of the Title: The Title is the most important part of the Research Paper. The Title is chosen from a subject in which the author is qualified. For example, subjects like Science, Engineering, Commerce, Management, etc. There are sub-branches also. For example, in Science, subjects like Physics, Chemistry and Biology. In Engineering, Mechanical Engineering, Electrical Engineering, Civil Engineering, etc. Now, coming to Management, it is the most general from the present day point of view. For example, in addition to management of industries and Business houses, there can be Management of Laboratories of any kind, Management of a Sports Club, Management of a Zoo, Management of a Botanical Garden and so on. In fact Management has entered in almost all walks of life inheriting all branches of knowledge of any subject for that matter.

2.1 The Topic in the Subject: The Title of the Paper should be pertaining to a particular topic in the subject. The author of this Paper being a Physicist, may talk about Physics. There are varieties of topics in Physics. For example, Geophysics, Astrophysics, Biophysics. In the earlier days of research, these were topics, but now-a-days they have by themselves become subjects. Meteorology, Global Warming and Climate Change are also allied branches of Physics.

2.2 The Clarity of the Title: By clarity what I mean is that the Title should be well-defined and should not be vague. In other words, it should be well focused on the subject matter of the Research Paper. I would like to mention here a practical experience I had during my Ph.D. I did my Ph.D at an advanced age of 73

and a Research Scholar, mistaking me as a guide in the hostel sought my help to get a Title for his subject. Readers may go through the following conversation:

Research Scholar: Sir, I am from Jalgaon, Maharashtra and I want to get a suitable Title on drought conditions in Jalgaon for a Research Paper I would like to publish.

Self (Author): I am not a Research Guide. I am also a Research Scholar like you. Please tell me 'drought' comes under what subject and elaborate the topic.

Research Scholar: I am a Master's Degree holder in Civil Engineering. We had a topic such as "Irrigation and Power" and 'Drought' comes under that.

Self: Subject may be OK, but 'Drought' can come in "Climate Change" also.

Research Scholar: Sir, you are a Physicist, how are you knowing "Climate Change"?

Self: My Ph.D Thesis is on Geophysics. Greenhouse Effect, Global Warming and Climate Change are allied topics. I can now give you some hints and points to Prepare a Title. One need not be either a Physicist or a Civil Engineer to Prepare a Title. Hence, prepare a Title show it to me tomorrow and we shall discuss on it. Accordingly, he brought the following Title:

"The Drought affecting the Farmers in the Jalgaon Region"

Self: I asked the scholar few questions. What is 'Drought'? and where is 'Jalgaon'? The title appears to be short and simple, but, many things are vague in this. The Research Paper, when published, goes around the world and anybody from any part of the world can read it from Google search. A reader may ask a question such as, 'where is Jalgaon?' A reader in US or UK is not knowing 'Jalgaon'. For that matter, even an Indian from north or south is not knowing where Jalgaon is. Another question is, 'What is getting affected?' What is getting affected is the crops and drinking water. Water is the vital essence required for irrigation and drinking water for the entire population of the region. Hence, an appropriate Title should be:

"The Drought affecting Irrigation and Water Supply for people in the Jalgaon Region of Maharashtra, India."

This is an appropriate Title and no reader will be inclined to ask any question on it. In your Review of Literature in the Research Paper, you may show the location of Jalgaon in Maharashtra by producing a figure of a map. The Title should be tricky and also attractive. As an illustration, I may give here some two Title from some of my already published Research Papers. One Title is, "*The Turmoil on Climate Change*" Now-a-days people are interested in Global Warming and Climate Change and further, What is that Turmoil? Readers will be interested and will draw their attention. The other Title is, "*The Four Steps to the Fifth State of Matter*" It is the most recent research in Physics. The very style of the Title itself will make the reader to go through the Paper. Some other Title, if I search for, can be, say "*Methods of reducing accidents in local trains in the city of Mumbai – An Independent Study*". So, Readers, I have given lot of information on the Title because of its importance in Research Methodology.

III. THE REVIEW OF LITERATURE

3. The Body of the Research Paper: Before entering into the subject matter of the Research Paper, find out sources from which one can get enough data and material to be collected. This comes under "Review of Literature".

3.1 Review of Literature: There are various sources from which one can get information. The sources are: i) Google Search, ii) Standard Books and iii) News Papers and Periodicals.

3.2.1 Google Search: In order to get information through Google search, the Wifi has to be powerful so as to avoid wastage of time. When one types the matter in the search, many head-lines some 8 or 10 at the end of which something as shown below in the Figure below will be seen on the computer monitor.



1 2 3 4 5 6 7 8 9 10

Fig. Google Symbol at the end of each display

The first letter O colored pink is No.1 page one gets and if No. 2 is clicked, a second page will appear and so on. Thus, taking at least 8 items in each page and assuming some 3 from the 10 coming out to be irrelevant, one can get $7 \times 8 = 56$, say 55 relevant matter on the topic of your search can be got in one sitting. Thus, Google search is the best material provider in the world.

Warning: When an item is chosen, read and understand the subject matter of the item and comprehend the same. When the same is copied exactly as it appears, it will lead to plagiarism. To site an illustration, if something appears as “*Rama killed Ravana*” do not copy in that way, but put it as, “*Ravana was killed by Rama*” in which case, plagiarism can be avoided. Another illustration is, *Robert Boyle studied the behavior of gases in a number of ways. He studied the properties such as Pressure, Volume and Temperature of certain fixed quantity of gas and found that at a constant temperature, the volume of gas is inversely proportional to the applied pressure. This is what is known as Boyle’s Law.* This has about 53 words. The question now is to comprehend and make it half or less than half. That is, one has to make it about 27 words. This will be possible only if one reads and understands the matter. This is a good exercise for Research Scholars. See, how it is done. “*Robert Boyle, as a result of many experiments, stated a law named after him that at a constant temperature the volume of a certain quantity of gas is inversely proportional to pressure*”. This however has 31 words making it more than 27 but certainly much less than 53. Somebody might feel this as a foolish exercise. But this will come from experience and fluency can be achieved.

When an item is chosen, do not forget to note down the name/s of author/s. If there is more than one author, then name of main author and write ‘et.al’ for others. The name of publication, date of publication and page number from which the matter is taken are required for proper reference.

3.2.2 Standard Books or Reference Books: One should remember that the material taken from the book should be abridged following the method of comprehension under the heading ‘warning’ given earlier. This work for people not having good command of English will be really brainstorming. Note down the Title of the book, author, name and year of publication, ISBN number, chapter and page number from where the item is chosen.

3.2.3 News Paper and Periodicals: In the Review of Literature Research Papers published in periodicals and journals can also be obtained from the Google search. Because of the copyright problem, most of the Research Papers obtained on-line are in the PDF format and some of them do not get opened when clicked in the Google search. This is because the publisher demands a price for it. For example, for a Research Paper of about 8 or 10 pages in the PDF format may cost about 40\$ and in Indian Rupees it is about Rs. 3000/-. The Research Scholar should safely avoid such papers.

Now, coming to the News Paper as a source for reference, it is the best source, but generally not chosen by authors simply because it is not mentioned as a source in the Research Methodology. But, let me tell my readers that the work of the researcher gets considerably reduced because the comprehension is already done and no trouble of plagiarism. The news appearing in the paper is reproduced. If the researcher does a comprehension, it can be done. Note down the name and page number of the News Paper. In a total number of references is, say 12, one or two can be a News Paper reference.

3.2.4 Contribution of the author in the Body of the Research Paper: Most of the subject matter in the body of the Paper is just a reproduction of the research done by others. It is expected of an author to add at least some 20% of the body of the Paper exclusively as author’s contribution. No new material can be created. But, the author can give his suggestions and suitably alter methods followed by other researchers.

This can be done only by outstanding authors with considerable experience and vast knowledge of the subject.

IV. CONCLUSION

4. This is an important part of a Research Paper. What you have started from the Introduction has to be concluded. This is the place where an author has to impersonate as a reader. You yourself appreciate and depreciate your Paper. Find out the short-comings of the Paper and comment on it so that there may be less critics from readers. Also suggest the following:

4.1 Further Reading: One may quote some references or some sources from where readers may get some additional information on the Title of the Research Paper.

4.2 Author's Contribution: By virtue of my experience of publishing a large number of Research Papers, I have found that the Research Methodology is given differently in different books. The theme of methodology remains the same, but there are many deviations First thing is that no methodology is strictly followed. The entire thing looks like an essay as if the author has created his own methodology. By virtue of my experience, I have developed a Research Paper Triangle (R P T) just to assess the quality of the Paper published. A standard RPT is shown in Fig.1

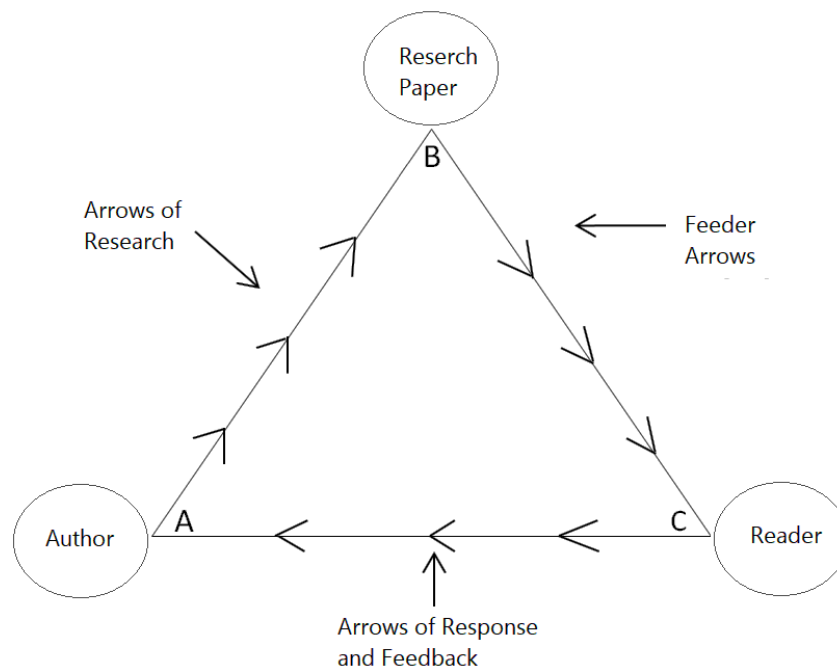


Fig. 1 An Ideal Research Paper
(Equilateral Triangle)

The triangles are either isosceles or equilateral. An ideal Triangle is an equilateral Triangle. In Fig.1 is shown an equilateral Triangle ABC with vertices at A, B and C. At vertex A is the Author of the Research Paper, at vertex B lies the published Research Paper out of arrows of research thrown by the author. At vertex C lies the Reader as if swallowing the arrows given out by the Research Paper. I have to speak lot of things about the RPT. Arrows from C to A correspond to some Response and Feedback. Arrows start from A, goes to B, B to C and comes back to A. All the arrows move clockwise. More number of arrows from A to B means the research is rigorous. That is, the Author has referred and collected a large number of research material for the Paper. Each feeder arrow from B to C corresponds to a reader down-loading the Paper from the internet. There is a system in the Google where such things are recorded and from the link between Google, Reader and the published material decides the Impact Factor of the Publication. If the Reader has

swallowed enough arrows means a large number of people have referred it. The arrows from C to A are the Response and Feedback arrows. The response and Feedback can be from the reader at C to the Research Paper at B even in which case the arrows will be reversed and I have not shown them. Comments and appreciation can go from the Reader to the Author by e-mail. Hence, it is necessary and important for the Author to give his e-mail Id in his Research Paper. When there is poor feedback or no feedback, the base of the Triangle AC gets shortened and the Triangle becomes isosceles.

The question now is how to get an equilateral Triangle. When a Paper is published through a publication, its fate is generally unknown. The best method to judge the quality of a Research Paper is to hold a Workshop for some 100 qualified participants. Best feedback can be obtained.

V. ACKNOWLEDGEMENT

This part of the Research Paper is always not necessary. But, there may be some topics which you must have gathered by referring outstanding text books or some of the extremely well-published Research Papers. You may openly thank those authors by quoting their work appropriately.

VI. REFERENCES

6. References: This should be in an alphabetical order of names of authors and serial numbers shown brackets like []. I am giving below two types of references, one for a research publication and the other for a text book.

i) For a publication:

[12] Deshpande Praful: "*Increased Carbon dioxide in the atmosphere creating Global Warming and Climate Change*"; Swagat Publications, Vol.3, Jul. 2012, p.21-32.

ii) From a text book

[17] Robert J.K: "*Heat and Thermodynamics*": Mac Millan & Co. Third Ed. 1992, ISBN:978-1-57859; Ch.IV, p.188-193.

Some of the things are written in short. Thus, in the above, the title of the research paper is written in italics; Vol. for Volume; Jul. for July; Ed. For Edition; Ch. For Chapter; P. for Page.

Note: i) If there are more than one author, in the body of the Research Paper you may write the name of the first author and then et.al. for others. But, in the Reference you have to give all the names starting from the main author.

ii) There are some authors who have a flair of writing and who are real experts in the field. Some of them publish Papers without even referring anything. I have done this in 2 or 3 of my large number of publications. But, this item, References should not be left blank. The Research Methodology demands that the column has to be filled. One may mention the reason for it in the Reference Column.

VII. BIOGRAPHY

7. A brief Bio-data of the author with a small photograph should be given and end it with your e-mail Id. E-mail Id is absolutely necessary because some readers might feel like contacting you with their comments.

VIII. GENERAL

8. General: There are many general things that are of prime importance. Choice of the Publication is very important. This can be done either before preparing the Research Paper or after finishing everything with the manuscript ready. If you select a publication of any professional body, you will be in a long Queue

because most of their publications are once a year. The selection (irrespective of the quality and originality of the paper) depends upon the designation of the author such as director, Head of Department and so on. You may select a publication necessarily with ISSN Numbers both on-line and print versions which are at least published once in three months and with good Impact Factor with sufficient editorial board members and review panel. Such private publications charge for the publication of a standard Research Paper of some 10 pages some 1000 to 2000 Rupees. They are charging because they have to maintain office and other staff. After selecting a publication, you may ask for the template of their paper and accordingly you may make changes in your paper which is called as the manuscript of your paper. The publication on receipt of your manuscript, will send it to expert reviewers. If the reviewers suggest some changes, you may do it accordingly and paying the publication charge, within 10 days your paper will be published. The entire exercise might take about a fortnight or maximum one month. Your paper will appear in the internet and over a period of time will be picked by Google also.

IX. REFERENCES

9. An independent Research Paper prepared by author without referring any review of literature.

BIOGRAPHY



***Dr.(Prof.) V.C.A. Nair** (b.15th Aug. 1939) is an Educational Physicist, Counselor, Research Guide and Consultant. He did his Masters in Physics from Mumbai University, India and Ph.D. from JJT University, Rajasthan also in India He is a Research Guide and distinguished alumni of JJT University. He is also a Chancellor designated Resource Person in the area of Physics in the University. He has to his credit over 4 decades of teaching Applied Physics in eminent Polytechnics in Mumbai and having taught nearly 16,000 students since 1965. He has published a number of research papers in Physics and Geophysics in International and UGC recognized Journals some of which can be seen in the net 'Google Search' when the name of the author or his e-mail is typed in that style. He is a Life Member of Indian Society for Technical Education which is an all India body. He had been to USA a number of times and visited eminent Universities such as Stanford, Harvard, MIT, 3 Universities of California at Berkeley, Los Angeles and also at Davis, University of Princeton at New Jersey, University of Chicago and University of San Francisco. At present Dr. Nair is a Research Guide for Physics at Shri JJT University, Rajasthan-333001, India. He is member of the Editorial Board of this Journal. His Ph.D. Thesis is in Geophysics and he is working on topics such as Tides, Clouds, Global Warming and Climate Change. – *Editor.*

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Note: The font size of letters in this Research Paper is 26 for the Title (Bold) and the others between 10, 11 and 12. (Bold or light as seen in the Paper). For Research Scholars and other Authors have to follow the Template provided by the Publisher.