

# Writing an effective Research Paper (Editorial Article)

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**Abstract:** Writing a research paper is by far most challenging task for beginners. Academicians and Research Scholars in the primary stage of Research are not able to conduct effective and quality research. Many issues concerning Research paper writing like proper formatting, referencing style, plagiarism, grammatical mistakes are serious concerns. This paper aims to provide budding researchers an insight into the various types of Research, nitty gritty of writing an effective review or research paper. This paper will also dwell into publishing high quality research papers, identifying right journals, avoiding cloned journals and various facets of paper writing.

**Keywords:** research paper, plagiarism, high quality, referencing, cloned journals.

## I. INTRODUCTION

Research is a very confusing term for beginners. A research paper is a synthesis of research, critical thinking, source evaluation, organization, and writing. It serves two purposes: to advance the body of knowledge in the subject field and to give you, the student, an opportunity to enhance your own knowledge.[1]

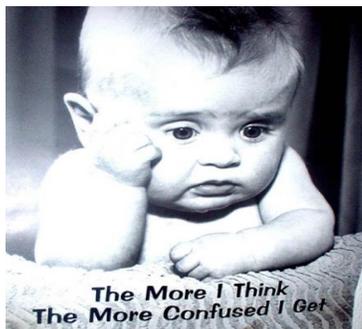


Fig 1. Research beginners thought process

**Research is the systematic approach to obtaining and confirming new and reliable knowledge.**

- Systematic and orderly (following a series of steps)
- Purpose is new knowledge, which must be reliable

**Research is not:**

1. Accidental discovery
2. Data Collection
3. Searching out published research results

**Research objectives should be SMART where SMART stands for:**

- S stands for Specific
- M stands for Measurable
- A for Achievable
- R for Relevant
- T for Time-bound

**Motives of Research can be attributed to:**

- Degree.
- Desire to face the challenge in solving the unsolved problems, i.e., concern over practical problems initiate's research.
- Desire to get intellectual joy of doing some creative work. Desire to be of service to society.
- Desire to get respectability.
- Pay Hike, Job Promotion etc.

## II. STRUCTURE OF RESEARCH PAPER

**The Research paper consists of the following sections:**

- Title
- Abstract
- Key words

- Introduction
- Related Work
- System Model & Problem Statement
- Methods / Solutions
- Simulations / Experiments
- Conclusion
- Acknowledgement
- References

**Choosing the right title:**

Choosing the right title for the paper is very important and conveys the crux of the paper. The contents of the paper is normally judged by the title of the paper.

- The title should be very specific, not too broad.
- The title should be substantially different from others.
- Avoid general / big titles, e.g.,  
 “Research on data mining”,  
 “Some research on job assignment in cluster computing”,  
 “A new framework for distributed computing”,

**Writing a concise Abstract:**

Abstract conveys the summary contents of the paper. A concise view of the paper is presented in the Abstract.

Abstract can be used:

- for search purpose.
- giving readers a paper-summary before getting into details.

**An abstract should tell:**

- the problem that the paper discusses.
- the work that has been done, or method being used.
- original findings / achievements.

**An abstract usually does NOT have:**

- reference numbers
- multiple paragraphs

**Choose right set of Keywords:**

The use of keywords is for database search and categorizing your work (for editors to choose reviewers).

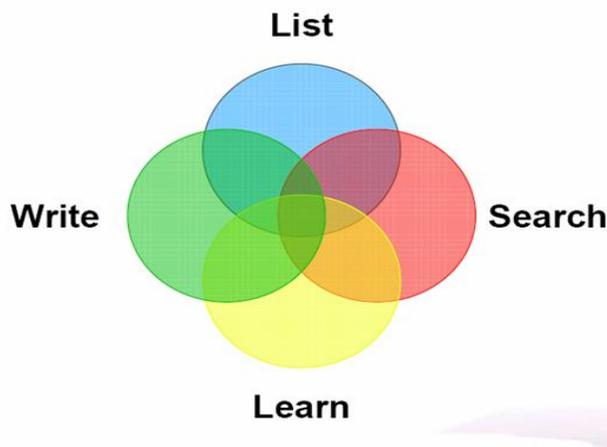
- The keywords must be specific and, as a whole, represent the main topic of the paper.
- Avoid using the words that are not the main topic, such as “calculus”, “simulations”, etc.

**Introduction:**

An introduction usually contains:

- Brief background of the topic-area
- Existing work, which would lead to the importance / originality of your work
- Description of your problem
- Achievement / significance / brief-methodology of work

Introduction provides basic overview of the topic discussed in paper. Any new reader would get a complete view of the area, subject and topic elaborated in the paper.



**Fig 2. Literature Review**

**Literature Review:**

Figure-2 shows the steps conducted in the Literature Review. The various steps in Literature Review are as follows:

- Define the research topic.
- Compile and prioritize a list of keywords.
- Identify sources of information.
- Read, evaluate, analyze all the works.
- Discuss findings and conclusions with others -- important for understanding context, gaps in previous research.
- Divide works into supportive and antithetical positions.

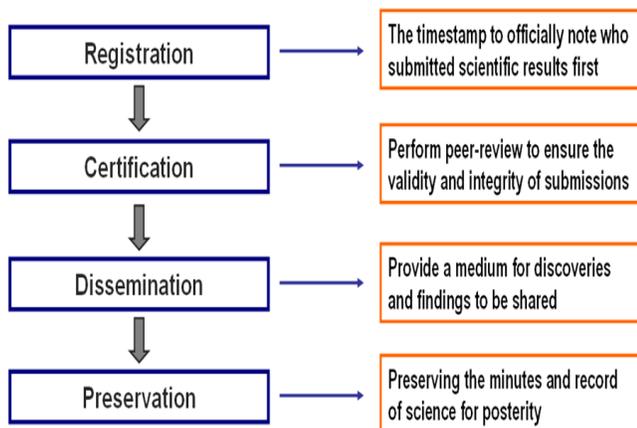
- Identify relationships between works in the literature.
- Articulate how these apply to your research

**Different resources used for Literature Review are as follows:**

- Books
- Journals
- Conference Papers
- Dissertations
- Bibliographies
- Maps
- Internet
- Indexes/Abstracts Printed
- Electronic Databases
- Government publications
- Thesis
- Interviews and other unpublished research

**Building a Network Group:**

- Build a network of Experts and Scholars working in your area of interest.
- Local Interest Group for periodical discussion and updates like every week or fortnight.
- Global Interest Group which may be used for knowledge specific directions or new updates in the field of interest.
- Discuss your Research progress, *Don't hide*.



**Fig 3. Need to Publish**

Figure -3 depicts the need for publication starting from Registration to Certification to Dissemination and Preservation [2].

**III. PLAGIARISM**

Plagiarism is equivalent to stealing literary work without referring the source [3].

Plagiarism means:

- to steal and pass off (the ideas or words of another) as one's own
- to use (another's production) without crediting the source
- to commit literary theft
- to present as new and original an idea or product derived from an existing source

**Types of Plagiarism:**

- Complete Plagiarism-A piece of work copied entirely from one or more sources
- Copy and Paste-Available information off internet or electronic journals
- Word Switch-If you copy a sentence or paragraph into your assignment and change a few words it will still be considered to be plagiarism
- Self-plagiarism-Self-plagiarism is when you re-use your own previously written work or data in a new assignment and do not reference it appropriately.

Researcher has to take extra care to ascertain that he/she does not end up having more than 5 words continuously from a particular source which can lead to plagiarism [4].

Before submission of the paper, plagiarism check using tools like Turnitin is a necessity[5] [6].

Avoiding Plagiarism is not easy however following few steps can lead to plagiarism free or reduced plagiarism paper.

**Following are the steps:**

- attribute references
- describe all sources of information
- give acknowledgments

- provide footnotes
- use quotation marks wherever required
- paraphrase the original, attributed work
- for extensive quotations, obtain permission from the publisher of the original work
- avoid self-plagiarism by taking permission from the publisher of the previous article authored by you
- obtain permission for use of published drawings or other illustrations

#### IV. SELECTING THE RIGHT JOURNAL

Frequently your research paper assignment will require you to use articles from peer-reviewed or academic journals. What are these? Peer-reviewed, scholarly, or academic journals are periodicals that publish academic or research-based articles written by scholars in the specific field of study. The articles are submitted, then scrutinized by recognized experts in the author's field in order to assure that the work is of high quality for the field and is worthy of publication in the journal. (This is the peer-review process.)

**Scholarly articles can generally be identified through their structure and language. They usually include:**

- the author's credentials and institutional affiliation
- an abstract (a summary of the article's purpose, conclusions, etc.)
- a formal structure including an introduction, literature review, research methodology, analysis, and conclusions
- statistical analysis (not always, but often)
- references to earlier research
- a bibliography or list of references
- scholarly language and terminology

Scholarly journals are usually published by universities, professional organizations, or academic publishers, and most of them do not accept advertising. For academic research, articles from magazines or newspapers are not as valuable as those published in peer-reviewed journals[7].

#### V. CONCLUSION

Conclusion should be in sync with the Abstract. The topics highlighted in the Abstract should be discussed in the Conclusion with result parameters and Future work. The comparative study results should be summarised in the conclusion. Also future roadmap of research in the particular area can be provided so that researchers have a direction to work on. Future Work can also serve as basis for research and develop research direction in the budding researchers.

#### VI. REFERENCES

At the end of your paper you will include a bibliography or works cited page. This gives the authors of your sources credit for their work. In your packet you will find sample bibliography entries for various sources. Sources should be in alphabetical order and double spaced.

##### Citation Styles:

- APA (American Psychological Association) is used by Education, Psychology, and Sciences.
  - MLA (Modern Language Association) style is used by the Humanities.
  - Chicago/Turabian style is generally used by Business, History, and the Fine Arts.
  - Council of Science Editors Documentation (CSE)
- Examples of Citation Referencing Styles:

##### CSE

Rao DK, Liu H, Ambudkar SV, Mayer M. 2014. A combination of curcumin with either gramicidin or ouabain selectively kills cells that express the multidrug resistance-linked ABCG2 transporter. *J Biol Chem* 289(45): 31397–31410.

##### APA

Rao, D. K., Liu, H., Ambudkar, S. V., & Mayer, M. (2014). A combination of curcumin with either gramicidin or ouabain selectively kills cells that express the multidrug resistance-linked ABCG2 transporter. *Journal of Biological Chemistry*,

289(45), 31397–31410.  
doi:10.1074/jbc.M114.576819

**MLA**

Rao, Divya K et al. “A Combination of Curcumin with Either Gramicidin or Ouabain Selectively Kills Cells That Express the Multidrug Resistance-linked ABCG2 Transporter.” *Journal of Biological Chemistry* 289.45 (2014): 31397–31410.

**Chicago**

Rao, Divya K, Haiyan Liu, Suresh V Ambudkar, and Michael Mayer. 2014. “A Combination of Curcumin with Either Gramicidin or Ouabain Selectively Kills Cells That Express the Multidrug Resistance-linked ABCG2 Transporter.” *Journal of Biological Chemistry* 289 (45) (November 7): 31397–31410. doi:10.1074/jbc.M114.576819. <http://www.jbc.org/content/289/45/31397.abstract>.

**REFERENCES**

- [1] <http://www.aresearchguide.com/1steps.html>
- [2] <http://works.bepress.com/aleebrahim/1>
- [3] <http://www.aresearchguide.com/styleguides.html>.
- [4] <https://ugccare.unipune.ac.in/apps1/home/index>
- [5] <https://ugccare.unipune.ac.in/Apps1/User/LR/Login?ReturnUrl=%2FApps1%2FUser%2FWebA%2FCAREList>
- [6] <https://www.scopus.com/>
- [7] <https://www.athens.edu/resources/library/resources/writing-a-research-paper>