

# Essential Elements of Writing a Research/Review Paper for Conference/Journals

Anita Jain

Librarian, Jaipur Engineering College  
& Research Center,  
Jaipur, Rajasthan, India  
anitajain.lib@gmail.com

Naresh Singh Bhandari

Dy. Librarian, Central Library Indian  
Institute of Technology Mandi  
Mandi - 175 001,  
Himachal Pradesh, India  
nsbhandari@iitmandi.ac.in

Neelu Jain

Asst. Prof. Dept. of E &H, JECRC  
Jaipur, Rajasthan, India  
neelushallbe@gmail.com

**Abstract**—The primary purpose of the proposed paper is to provide a preliminary guideline to the researchers who wish to communicate their findings to the academia. Hence, the procedure of publishing research paper in journals and conference proceedings are outlined in it. The paper also focus on the points to be kept in mind while preparing a research paper. The content of this paper has an interdisciplinary approach which can be utilized by researchers of social sciences as well as others.

The paper aims to provide a brief summary of each of the main sections of the paper – i.e. Title, Abstract, Introduction, methods, problem statement, Review of Literature, formulating a hypothesis, results and discussions. The present study attempts to describe the various steps that need to be followed while writing a research paper. The requirements and the logical order that needs to be followed is also mentioned.

**Keywords**—Research Paper; Abstract; Introduction; Structure of the paper; Problem statement; Review of Literature; formulating a hypothesis; Conclusion; Publication process

## I. RESEARCH

The Oxford Encyclopaedic Dictionary defines research as the systematic investigation into the study of materials, sources etc. [3] In order to establish facts and reach new conclusions and endeavour to discover new or collate old facts etc. by scientific study of a subject. Creswell states - “Research is a process of steps used to collect and analyse information to increase our understanding of a topic or issue”. It consists of three steps: Pose a question, collect data to answer the question, and present an answer to the question.[6]

Research has been defined in a number of different ways. A broad definition of research is given by Martyn Shuttleworth – “In the broadest sense of the word, the definition of research includes any gathering of data, information and facts for the advancement of knowledge.[5] The objectives of research may be many; it can be towards partial fulfilment of a curriculum for doctoral dissertation or for any other field like marketing surveys etc. There is a definite procedure for different fields but the structural procedure needs to be followed and a strict scientific analysis is required. The techniques involved in the investigation should also be valid and logical. Answers drawn in this way or the answers to be concluded in this manner also

include creative works in the authentic and verified research, which are done on a systematic basis so that the knowledge store can be increased.

The process of conducting research differs from one discipline to another. The amount of rigidity and control that is required to be applied is also different. In natural science, the researcher is capable of controlling the situation, while not seeing any control in social science, it is important that social science is thus completely controlled. Although partial bias does not mean there is no place for any prejudice in research. An outline of research should be developed highlighting a summary of the research idea including the broad scope of issue to be investigated. Thus, research must contribute to the expansion of knowledge. [1] The contribution can come from either adding to theory on a subject, new findings or validation of previous research in newer contexts or application of methodology that can help other researchers.

The research ideas must be derived from theory. The authors must build their hypothesis on existing body of knowledge and provide arguments for their posited relationships. The method section is an elaboration of a choice of design, data collection and analysis tools to capture the effects that the researcher is interested in. It also informs the reader what are the conditions under which these results can be replicated hence can also be generalized.

Research includes review of literature to gain a holistic view of present state of knowledge, in a given field including what research gaps exist how others have dealt with same research problems and how to deal with writing research papers/Review papers for conferences.

Research papers must describe research methods adopted precisely, through which the reviewers can assess the scientific basis of research and the justification of results. The purpose of describing the procedure is to motivate other researchers to conduct further researches in the field and thereby test the validity of the methods used.

The origin of good research rests on the analysis of research gap that is clear by the questions raised and methodology used. There exist different types of research having varying objectives namely exploratory (to gain familiarity with a phenomenon or to achieve new insights

into it) Descriptive Research (to portray accurately the characteristics of a particular situation) Diagnostic Research (to determine the frequency with which something occurs) further, to test a hypothesis of a casual relationship between variables, Hypothesis testing Research can be used.[8]

## II. STRUCTURE OF A RESEARCH PAPER

The typical structure of a research paper includes [2] the following parts-

- Title
- Abstract
- Introduction
- Review of Literature
- Method
- Results/Conclusion
- Discussion
- References.

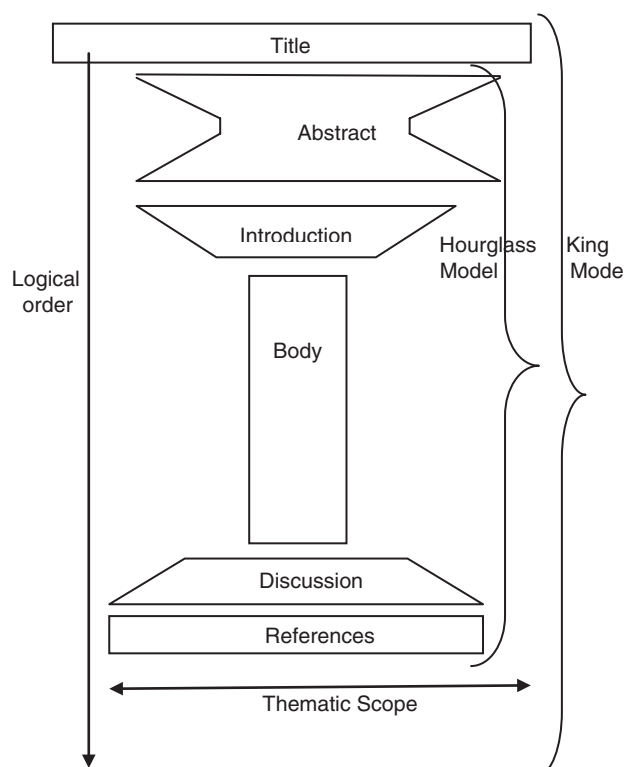


Fig. 1. Outlines the steps involved in writing a research paper

### A. Title

The citation or indexing of a research paper depends on the title of a paper as it is read the most. On the basis of the title the researchers are able to find papers that are relevant to their research. Thus, the title of the research paper should be conceived keeping in mind the central theme of the paper. The title should neither be too long, on the other hand, title which is too short often use words which are too general. In general the title should be appealing, focusing

on the main issue of the paper that motivates the reader to read the paper. If the topic is within a few sentences it provides the reader with an indication of the content of the essay which incites him to read on.[11] It establishes the scope, context and importance of the research being conducted by summarizing current understanding, background, information about the topic, stating the purpose of the work in the form of research problem supported by hypothesis or a set of questions explaining briefly the methodology used to examine the research problem, highlighting the potential outcome the study can reveal[10].

A researcher should keep in mind the following points while framing the title of the paper:-

- Identify the main issue of the paper;
- Begin with attractive keywords that makes the paper unique ,
- Make sure the title is accurate, unambiguous, specific and complete:
- Eliminate abbreviations unless they are well known by the target audience, e.g. HTML or CPU in titles of computer science papers or ADHD in titles of psychology papers;

### B. Writing an Abstract

An abstract always appears at the beginning of the article. "A well prepared abstract enables readers to identify the basic content of a document quickly and accurately to determine its relevance to their interests, and thus decide whether they need to read the document in its entirety" (American National Standards Institute 1979)[13]. It describes the purpose of the articles and is central to research articles. It sets the tone for the rest of the paper and may also influence the acceptance of the articles. It is a statement which summarizes important points of the research article and is often used to help the reader to quickly ascertain the intended purpose.

An abstract can be called a mini version of the paper. It should provide a brief summary of each of the main sections of the paper. It enables the reader to quickly ascertain the content and the purpose of the article. The basic components of an abstract of any discipline must include:

- A motivational problem statement which should incite the researcher to take up the problem and identify the gaps in the research.
- Methods/ procedures - what is the methodology used and the reasons for choosing it should be described at length.
- An abstract must also touch upon the result/findings of the research.
- Conclusions should also be defined.

Broadly, there are two types of abstract informational and descriptive. Informational abstracts communicate contents of reports; include purpose, methods and scope, result, conclusion and recommendations. Descriptive abstracts

indicate what the report contains including purpose, methods, scope but not result conclusion and recommendation are very short. The intent is to introduce the subject to the readers. A good abstract should use few paragraphs that are concise, provide the message and should be able to stand alone within the context.

It should be well structured with a flow that seamlessly connects to the subsequent sections. The structure helps the readers to understand the core, it is important to include the practical implications, limitations and recommended topics for further study.

### C. Writing an Introduction

The introduction of a research paper is a holistic essay that should answer the question why the paper is being written and what it all is about, its purpose is to examine the research gap and connect it with the subject, gather information and share information with readers. Relationship goal is to create a convincing, strong and enlightening article, which people like to read and work upon.

Writing an authentic paper is the first plank towards exploring the topic and gathering in depth information on the particular topic. Any educational professional engaged in Higher Education pursues research on an ongoing basis to keep abreast of the latest developments on topics of interest in their respective profession. The introduction of a paper serves the purpose of leading the reader from a general subject area to a particular field of research. Three phases of an introduction can be identified.

- Underline the importance of the subject of the Research paper - Establish a field and present more consideration on current research and subject matter.
- Establish a role - Oppose an existing belief, reveal a research gap or prepare a research question or a problem or continue the tradition.
- Capture the role - The intention of the sketch work is the outline of the key features, the result and a brief outline of the structure of the paper.

An introduction of a research paper can be the most challenging part of a paper. The length of the introduction may vary according to the type of paper being written. It should announce the topic, provide context and a rationale for the work before stating the hypothesis.

According to Reyes[9] there are 3 goals of an introduction 1) All prior studies about the topic should be summarized 2) It should be clearly explained how the study addresses the gaps in the literature insufficient consideration on the topic or any other deficiency 3) broaden theoretical empirical policy and contribution must be noted and complication implication of research must be mentioned.

Thus, an introduction should be well written so as to make a lasting impression on the reader. It further aims at the logical development of the argument that can be achieved with cohesion in writing style along with validity of the

findings and conclusion. A vague and disorganized error filled introduction will create negative impression whereas a concise engaging and well written introduction will lead to positive impression upon the readers.

### D. How to Write Review of Literature

While the research is going on the researcher comes across already conducted research in the particular field determining the research gap that demonstrates the reader how the research fits within a larger field of study. In the review of literature new interpretation may be given of old concept or old and new interpretation may be combined. Intellectual progression of major debates may be traced in the field under study. Evaluation of the sources can be attempted with an advisory to the readers to consult the most relevant source.

In social sciences it usually has an organizational pattern and combines both summary of the key sources and synthesis. A summary is a review of the important information of the source but a synthesis is a reorganization of that information in a way that informs the procedure to be followed in investigating a research problem.

The structure of a literature review should include the following-

- An outline of the subject, issue that needs to be considered along with the objectives should be kept in mind.
- Division of review on the basis of themes, which supports a particular position, those against and those proposing alternative approaches completely.
- To determine the research gap.
- Drawing conclusions which are best considered on the basis of argument, convincing in their opinion thereby making greatest contribution to the understanding and development of the area of research.

The critical evaluation of each review should be on the basis of (a) derivation – i.e. what are the author's credentials? Supporting the arguments by evidence (b) Methodology – the techniques used to gather and analyze appropriate (c) objectivity: - the author's perspective should be balanced and not prejudicial? (d) Persuasiveness which of the author's thesis most convincing? (e) authors arguments/ conclusions should be convincing enough and last but not least the work should ultimately contribute to an understanding of the subject.

The above criteria should be kept in mind when the sources of literature are being evaluated or being used in the research paper.

### 1) Development of Literature Review

Four stages

- Defining the Problem Question in which topic or field is being examined and what are its components?

- Finding the research gap with the help of Literature review which finding materials relevant to the subject being explored.
- Evaluation of data that determines which literature makes a significant contribution to the topic.
- Making analysis and drawing interpretation – discussing and analyzing the pertinent literature by findings and making conclusions.

## 2) *Ways to organize the Literature Review*

- Publication Chronology - The materials should be categorized on the basis of the date of their publication. This trend follows a clear publication chronological order of development.
- Thematic- Thematic reviews of literature are organized on the basis of themes that the present research focus upon thereby relating it with the topic or an issue concerning the same issue rather than the progress of time.
- Methodological- It focuses on the methods utilized by the researchers in which the researcher uses the primary or secondary sources of data collection.

Once the Review has been structured one must start writing the review. Caution must be taken of the fact that whatever is written should be properly backed by evidence, Cited properly which proves what is being said is valid. The most important points must be selected in each source. To highlight the review they must relate directly to the problem under study whether it is chronological, thematic or methodological. [12] The sources must be properly systematized and synthesized. Review of literature presents others ideas in the writer's perspective. The voice of the writer must be viewed at the center of the discourse.

## E. *Methodology*

The method applied to undertake the research, may include research publications, interviews, surveys conducted and other research techniques, that include both present and historical information. It primarily consists of the primary and the secondary sources on the basis of which research gap is analysed and filled.[4] The research methodology should identify, select, process and analyze information applied to understand the problem thereby allowing the reader to critically evaluate the study, overall validity and reliability of the study.

There are a variety of methods of research and selection of the appropriate method of research is crucial for findings to be valid and reliable. If the method chosen is inappropriate the results shall also be unreliable. The aim of the study should be kept in mind while selecting the methodology. The sample size should be large enough to make generalization possible and also the sample should be representative of the universe. The methodology should also discuss the problems that were anticipated and the steps that were taken to minimize them.

The methodology should aim at the restatement of the research problem and the underlying assumption of the study. This is followed by situating the methods which are to be used to gather, analyze and process information within the particular research design which has been chosen for the study.

The methodology should specify the tools and methods used to identify, collect information, process data and procedures used to analyze data. Finally the specific research tools utilized to study like hypothesis should be explained in detail.

An effective Methodology section should-

- Introduce the overall methodological approach applied for exploring the research problem that specifies whether the study is qualitative & quantitative or a combination of both
- It should indicate how the method fits in the general research design. The method of data collection should have a clear connection with the problem at large.
- Describe the specific methods of data collection that are going to be used in the study, such as surveys, interviews, questionnaires, observation, archival research.
- Explain the process of result analysis that determines the plan to obtain an accurate assessment of each part of research with the other.
- Provide a background and a rationale for methodology. Readers have to be explained the rationale for using the method of analysis,
- Justify the subject selected and procedure used for sampling.
- Describe the limitations of the research undertaken on the basis of literature review.

## F. *Results*

The result section is a statement of the findings of the study based on the methodology utilized. The finding should be arranged logically in a sequence without being biased. However when the results are being formulated it should only confirm or reject the hypothesis of the study. One should be concise and avoid using data irrelevant to the problem that tends to misguide the reader. Thus, the non – textual elements such as figures/ tables should be used properly which can present the results more effectively.

For most research paper formats in social and behavioural science, there are two methods of organizing results.[7]

- Present a synopsis followed by an explanation of key findings
- When there are multiple results having equal significance all the results should be explained properly step by step which becomes an overall synopsis of the paper. This method is more common in long papers as it helps the reader to understand each finding.



- Generally a short paragraph should conclude the result section. The most important finding should be highlighted. This is usually what the readers tend to remember.

#### G. Discussion

The purpose of the discussion is to infer and describe the significance of the generated hypothesis in the light of what has been reviewed. One should also explain the new perceptions about the problem after the findings are taken into consideration. The discussion should connect with the introduction. It should explain how the study has moved the reader and prepared a solution to understand the problem

This section is often considered the most important part of the research paper because –

- It demonstrates the researcher's ability to critically evaluate and develop creative solutions to the problem which is based upon logical synthesis of the findings and formulate a deeper, more preformed understanding of the research problem to be investigated.
- Present the underlying meaning of the research, mention implication in related fields and explore possible improvements that can be made in order to further develop the concerns of research.
- Highlights the importance of the study and how it may contribute to filling the research gaps. The discussion section is where that new gaps of in the study are revealed which had not been addressed by previous studies. It also opens new horizons of further research and extension of knowledge.
- Engages the reader in thinking critically about issues based on evidence interpreted on findings and not governed strictly by objective reporting of information.

The content of the discussion section includes-

- Explanation of results comment on whether or not the results were expected. If any result was unexpected an explanation is needed for the same.
- Review of Literature compares the results with the findings of other studies thereby filling the research gap.
- Deduction- This includes the generalization that can be inferred from the findings of the research, "lessons learnt" and recommendation in the form of solution to the problem must be mentioned.

Objectives of the Discussion Section --

- Restating the research problem and associating it with the major findings followed by solution/ findings of the study.
- Explain the meaning of findings giving their importance. In this section a systematic explanation of the underlying meaning of the problem should be done and it should also be stated why they are

important. The results must be concisely and clearly stated and should invoke the reader to think critically about the problem.

- Relate the findings to similar studies. No study in social Sciences is so unique that it has no reference to any previously conducted research. This section of the research should relate to the connection of the results with previous studies, the comparison with the previous studies helps to support the overall importance of the present findings and also highlights how the present study differs from the previous research.
- Consider Alternative findings. It is important to remember that the purpose of research in social sciences is to discover and not to prove thus all possible explanations must be examined rather than analyzing only those results with fit the hypothesis which has been postulated.
- Acknowledge the Limitation of the Study. These should include any unanswered questions that have not been addressed by the study.
- Make suggestion for further Research. In the concluding part recommendation for further research and extension of Knowledge should be done

After having writing the paper, the following process is used for scrutinizing the paper till it is finally accepted for publication

#### H. Conclusion

The conclusion should focus on the practical utility of the study undertaken. A conclusion is not merely a summary of the main topic covered but a synthesis of the key points and recommendation for new areas of research. A well written conclusion provides important opportunities to the readers to understand the research problem.

It should be the last word on the issues raised in the paper. It should include a summary as well as how the gaps in the problem have been addressed. It should be clear and written in simple language. If the essay deals with a contemporary problem the conclusion can also warn the readers of the possible consequences of not attending to the problem, give solutions and the course of action that can be taken to tackle the problem, explain the consequences of research in a way that elicits action or demonstrates urgency in seeking change. A clear message should be given in the concluding remark.

Research always leads to an extension of knowledge, opens vision for further growth and provides new insights into existing body of knowledge. It lays foundation for an enlightened society.

#### I. References

Acknowledgement is an essential part in the field of research to save oneself from plagiarism. The best way to do is to recognize all such authors by citing them at the end of

your research paper. There are many kinds of references that are available. One should follow the rules of theses styles so that they can be referred when needed.

There are several different styles of referencing:

- APA
- MLA
- Oxford
- Harvard
- Chicago

APA Style of Referencing: American Psychological Association (APA) is commonly used for citing references in the Research paper.[14]

MLA Style of Referencing: Modern Language Association is also commonly used for citing references in the Research paper.

- APA style is commonly used in Education, Business, and some Social Sciences and Humanities disciplines.
- MLA style is often used in English and Media Studies.
- Oxford style is often used in History, Philosophy, and Classics.
- Harvard and Chicago styles are used by some individual disciplines.

Revising the Final Draft

- Check the logical flow of introduction, consistency and depth of discussion in body, efficiency of conclusion.
- Revise the topic sentences, arrangement of ideas within paragraphs, use of details to support simplifications, summary sentences where necessary, and use of transitions within and between paragraphs.
- Go for sentence structure, word choices, punctuation, spelling and grammatical errors.

- Acknowledge consistent use of one system, citation of all material not considered common knowledge, appropriate use of endnotes or footnotes, accuracy of list of works cited.

Thus, one should take utmost care while undergoing research and making a research paper. The above points should be taken into consideration and the argument should be thorough and summarized at the end of the paper. One should move to a general level of consideration that returns the topic to the context provided by the introduction.

## References

- [1] John W. Best and James V. Kahn, *Research in Education*, 10<sup>th</sup> ed. New Delhi: Prentice Hall of India, 2008.
- [2] M. N. Murthy, (1967), *Sampling Theory and Methods*, Calcutta: Statistical Publishing Society, 1967.
- [3] The Oxford Encyclopaedic English Dictionary.
- [4] C. R. Kothari, *Research Methodology: Methods and Techniques*, New Delhi: New Age International, 2004.
- [5] Martyn Shuttle Worth, (2008), Definitions of Research. [Online]. Available: Explorable.com Accessed: Aug. 14, 2011].
- [6] J. W. Creswell, *Educational Research: Planning conducting, and evaluating quantitative and qualitative research*, 3<sup>rd</sup> ed. Upper Saddle River: Pearson, 2008.
- [7] J. Scott Armstrong and Tad Sperry, "Business School Prestige: Research Versus Teaching," *Energy & Environment*, vol. 18, no. 2, pp. 13-43, 1994.
- [8] M. Derntl, "Basics of research paper writing and publishing," *Int. J. Tech. Enhanced Learning*, vol. 6, no.2, pp. 105-123, 2014.
- [9] Victoria Reyes, "Demystifying the Journal Article," *Inside Higher Education*.
- [10] H. R. Jamali and M. Nikzad, "Article title type and its relation with the number of downloads and citations", 2011.
- [11] <https://libguides.unm.edu/>
- [12] <http://libguides.usc.edu/writingguide/literaturereview>
- [13] American National Standards Institute, Council of National Library and Information Association (U.S.). The Institute, 1979, Technical writing
- [14] American Psychological Association (APA) Referencing style guide