Basic Aspects of An Ideal Research Paper

Dr. Irsad Ali Khan

Lecturer, Political Science, Government Bangur College, Didwana

ABSTRACT

In order to understand research papers, readers must understand what research is, and be able to answer questions such as why a particular piece of research was undertaken and what 'lens' the researcher was looking through. This article, the first in a series of three, allows students and novice researchers to increase their understanding of the steps involved in research, and therefore to read and critique a piece of research with increased confidence. In all papers, a structure is required and the argument should flow from one section to the next. Obviously, clear English should be used throughout and jargon should be avoided. Good papers will move from the general to the particular and begin with the context of the work, move through the statement of the problem being investigated, deal with the empirical and/or analytical aspects of the work, then develop the discussion and draw conclusions based upon what has been covered in the paper, relating these back to the original context of the work. Generally, papers will either develop theory or test theory. A paper that does neither will not add to the sum of knowledge and therefore will not fall into the category of a research paper. Issues connected with style, structure and presentation are dealt with extensively elsewhere in the literature and there is no need to reiterate that guidance here, other than to state that the easiest questions can be the most difficult to answer: what have you done, why is it important and how have you gone about it

Key word: *research, aspects, basic, questions, context, issues, literature, guidance, confidence, work*

INTRODUCTION

Key components of a research paper

Research questions : A well-defined and specific research question guides the study design. • A research question should require analysis to provide an answer and should be feasible, specific, focused, measurable, and clear[1,2]

Literature review : Literature reviews show how the study contributes to, challenges, and/or extends the current knowledge base, practice, or methodology in the field. A good literature review provides recent and relevant citations that reference empirical scientific studies.

Research design : Research design is the selection of methods used to collect and analyze data to answer a research question. Research designs falls into one of two broad categories: qualitative research designs, and quantitative research designs. Qualitative research designs focus on things in their natural settings, and seek in-depth understanding of underlying meanings–the why–of social phenomena. Quantitative research designs use numerical data to generate statistical results than can generalize from a smaller group or sample to a larger population.

What is empirical research: Empirical research is based on observed and measured phenomena and derives knowledge from actual experience rather than from theory or belief.

Population and sample : The target population is the overall group being studied and should be well-defined. Most studies are conducted with a part of the target population, a sample. Findings from the sample extend (or generalize) to the population.

Measures : Reliability and validity are critical for helping to evaluate the quality of the measures. Reliability is the extent to which a measure produces stable and consistent results. Validity is the extent to which the scores from a measure represent the variable they are intended to.

Findings/results : The results section provides the answers to the research questions.

Discussion and implications: In the discussion section, authors interpret the findings in relation to other similar studies and explore the implications of the research, practice, or policy. Limitations of the study should be described by the authors[3,4]

Research is a laborious and hard work in reality and it requires great patience and control. Research paper requires rigorousness to maintain its quality. There can be several factors that can effect the quality and the outcome of the research, the researcher should have a control over these factors. Some factors will effect the research positively while other factors can negatively effect the research. Negative factors can decrease the validity of the research, so these factors should be kept in control by the researcher. For example in a study conducted on the effect of humidity on the tensile strength of viscose fabrics the researcher has to test the performance of the fabric under great humidity, less humidity and under standard humidity. The humidity will be kept in control by the researcher to get valid and generalizable results. In another study the researcher has to study the effect of socioeconomic class on the performance of children in school, the researcher will see that no other factors are influencing the performance of the children. There can be many other factors like parenting style, peer group influence or siblings rivalry that is effecting the performance of the child but the researcher should have a strict control over these extraneous factors. Another very important and basic characteristic of a research paper is that it should have to be controlled or measured. Everything that you add in a research paper is preplanned and cannot happen just by chance. The first step in conducting a research is choosing a research topic, from that step till the end, writing the research paper the researcher should keep control over the research study. He should measure the consequences of each step that he has planned to take prior to taking it. A researcher is conducting a research on the effect of permanent press finishes on hte durability characteristics of fabrics. In this research the researcher should accurately measure the effectof permanent press finishes and there should not be any other finishes on the fabric.[5,6] Accuracy is important because without accuracy the research paper cannot be valid and generalizable. In every step of the research the researcher has to check the accuracy. When the researcher is reviewing literature he should write down the references along with the literature review so that when writing those reviews he can accurately write the reference of each review. While testing the hypothesis the researcher should write down the results of the tests accurately so that there is no error. In research the researcher should leave no chances of error by himself. He should ensure the accuracy of his research to 100 percent. Suppose a researcher is conducting a research on the impact of physical disabilities in children on the peer group acceptance. The researcher is using interview as a tool of data collection the researcher should record the responses of the interviewees accurately and he should not invest bias in any way. A research paper should have to be free of ambiguities and it should have great clarity. Clarity is one of the main essences of research and without clarity the research paper is useless. A researcher should be cautious about the clarity of the research. The researcher should first develop a clear research question or research problem and once the research problem is clear and understandable the researcher can conduct the research without hurdles. Suppose the researcher makes the research problem that how media influences child development, in this research question the researcher needs to clarify which development, social, mental, physical or motor. The researcher cannot undertake the study unless he brings clarity to the research problem.

As a researcher you do not need to add a lot to the research paper to make it unique or interesting rather you should add only relevant and original content. The readers will be able to understand a concise research more easily, there should not be unnecessary details in the research. The researcher can write details and lots of explanations but these details and explanations should be of value to the research the researcher should not add unnecessary details in the research. The research paper is more concise in nature than dissertations and thesis. Validity is the most important concern in writing and conducting a research. The actual strength of the research paper is its validity. A valid research is applicable to various situations in general or it can be applied to any specific situation, people or society. The constructs you are

using, to measure attitudes, behavior or other phenomenon, whether they really measure what you want to measure or they measure something else. The data the researcher adds in the research paper should have to be verifiable and provable. The researcher should be able to demonstrate the research paper and there should not be any loopholes in the information.[7,8]

Discussion

The researcher should know from where the data has been taken and how it has been analyzed. Suppose another researcher is trying to repeat similar study to make it more valid he should be able to get information from the previous research, if previous research will be invalid or unverifiable the new research will also get effected. Research is an ongoing process and not only research helps in the general development of the humanity but it more specifically is used by the new researchers to generate more information. The research should have to be conducted and written in a logical manner. The researcher should follow a sequence so that he cannot get troubled in the end as to how to compile this research. It is better if you start writing the research paper as you are conducting it. You cannot write the analysis before writing about the data collection and data processing. You have to follow a procedure and sequence. Preciseness means that the research paper should have completeness and it should contain detailed investigation of the research topic. The research should contain exact answers to the research questions. It is not possible that the researcher formulates a specific research question about women injustice in underdeveloped countries but answers the question about more general topic like gender biases.

The research paper should contain only original content and copy work should be completely avoided. You can add literature from other sources in various forms like in the form of literature review but you should never compromise on the originality of the research paper. Suppose a researcher is conducting a research on the impact of financial resources in family on the personality development of children. The researcher has decided to take black negroes population and he cannot get the required number of sample, in this case, he cannot use other people's findings to justify his research. He has to use truly original data that has been collected from truly representative sample. Coherence is necessary because it makes the research paper a complete and one unit. Every part of the research paper should be so linked that it makes a whole. The researcher should stick to one theme and should not wander from one topic to another.

Writing a research paper is the last step of the research and writing requires rigorousness. The researcher should follow an academic style of writing and any ostentatiousness in writing should be avoided. The language of the research paper should have to be simple and easy to understand. A research paper, thesis or dissertation should have decency and there should have to be least ornamentation. The purpose of the research is to bring into light facts and figures. The researcher should avoid the use of double baralled sentences, complex language or unnecessary details. The research should have to be concise and precise in nature. The research paper findings should be generalizable and the findings should be applicable to the society in one way or other. Sometimes the purpose of the research is to develop new research tools, techniques or data collection instruments. Such research may not be useful for the society in general but in the long run researchers will be bale to use these tools or techniques to conduct more researches. The researcher is conducting a study on the life of transgender class in the society. He has to collect data from different people who belong to this class, the researcher should understand that he cannot generalize his findings until he has selected an unbiased and truly representative sample. He cannot select a sample from one area of the population rather he should select sample from every area of the population to make it representative of the whole population.[9,10]

Results

Research is the methodical investigation into a subject in order to discover facts, to establish or revise a theory, or to develop a plan of action based on the facts discovered. The findings and conclusions of such an investigation appear in the research paper. The term 'research paper' refers to a particular genre of academic writing, in which the writer's own interpretation, evaluation, or argument on a specific issue is given prominence.

A research paper involves surveying a field of knowledge in order to find the best possible information in that field. Such information is then utilised to present a competent argument on a topic. Hence a research paper requires a presentation of one's own thinking backed up by

others' ideas and information. In short, a research paper is:

- focused on a specific issue or problem,
- a presentation of facts that are based upon extensive reading and extraction of information from several sources, and
- original in selection of literature, evaluation, expression and conclusion.[11,12]

Whatever may be the types of research works and studies, one thing that is important is that they all meet on the common ground of systematic method employed by them. One expects systematic research to satisfy certain criteria. Usually a research is considered good when it is:

1. Systematic: It means that research is structured with specified steps to be taken in a specified sequence in accordance with the well defined set of rules. Systematic characteristic of the research does not rule out (discard, prevent) creative thinking but it certainly does reject the use of guessing and intuition arriving at conclusions.
2. Logical: This implies that research is guided by the rules of logical reasoning and the logical process of induction and deduction are of great value in carrying out research. Induction is the process of reasoning from a part to the whole whereas deduction is the process of reasoning from the premise. In fact, logical reasoning makes research more meaningful in the context of decision making.
3. Empirical/Tangible: It implies that research is related basically to one or more aspects of a real situation and deals with concrete data that provides a basis for external validity to research results.
4. Replicable: Replicability is one of the most important yardsticks for judging the quality of a research. The researcher's presentation and explanation of the system, logic, and data collection should be designed in such a way that the reader is able to replicate the study.
5. Reductive: A good research can reduce the confusion of facts that language and language teaching frequently present.
6. Comprehensive: A research can be considered good if it has the ability encompass all important parts of the topic into a complete picture. But it should not present excessive detail which may hamper the development of the thought.
7. Prolific: It suggests that a good research builds on, but also offers something new to, previous research. It should have the potential to suggest directions for future research.
8. Relevant: A good researcher will be able to extract relevant information from large amounts of info. Complete research will have the core information, or sets of core information, which together answers the question directly, and the contextual information, which determines whether or not the core research is applicable to given circumstances. That is, the research must be relevant.
9. Well-executed: The researcher should also be able to convey the research in an accessible format that is, the research must be easy to make use of.

These steps are the building blocks of constructing a good research paper. This section outline how to lay out the parts of a research paper, including the various experimental methods and designs.
The principles for literature review and essays of all types follow the same basic principles.

- Abstract
- Introduction
- Method
- Results
- Discussion
- Conclusion
- Reference List[13,14]

Conclusions

The length of a research paper depends on the topic or assignment. Typically, research papers run around 4,000–6,000 words, but it's common to see short papers around 2,000 words or long papers over 10,000 words.

If you're writing a paper for school, the recommended length should be provided in the

assignment. Otherwise, let your topic dictate the length: Complicated topics or extensive research will require more explanation.

Below is a step-by-step guide to writing a research paper, catered specifically for students rather than professional researchers. While some steps may not apply to your particular assignment, think of this as more of a general guideline to keep you on track.

1 Understand the assignment

For some of you this goes without saying, but you might be surprised at how many students start a research paper without even reading the assignment guidelines.

So your first step should be to review the assignment and carefully read the writing prompt. Specifically, look for technical requirements such as length, formatting requirements (single- vs. double-spacing, indentations, etc.) and citation style. Also pay attention to the particulars, such as whether or not you need to write an abstract or include a cover page.

Once you understand the assignment, the next steps in how to write a research paper follow the usual writing process, more or less. There are some extra steps involved because research papers have extra rules, but the gist of the writing process is the same.

2 Choose your topic

In open-ended assignments, the student must choose their own topic. While it may seem simple enough, choosing a topic is actually the most important decision you'll make in writing a research paper, since it determines everything that follows.

Your top priority in how to choose a research paper topic is whether it will provide enough content and substance for an entire research paper. You'll want to choose a topic with enough data and complexity to enable a rich discussion. However, you also want to avoid general topics and instead stick with topics specific enough that you can cover all the relevant information without cutting too much.

Try not to be robotic about choosing your topic, though; it's still best to pick something that you're personally interested in. Ideally, you'll find a topic that satisfies both requirements, something that provides a suitable amount of content and also keeps you engaged.

3 Gather preliminary research

The sooner you start researching, the better—after all, it's called a research paper for a reason.

To refine your topic and prepare your thesis statement, find out what research is available for your topic as soon as possible. Early research can help dispel any misconceptions you have about the topic and reveal the best paths and approaches to find more material.

Typically, you can find sources either online or in a library. If you're searching online, make sure you use credible sources like science journals or academic papers. Some search engines—mentioned below in the Tools and resources section—allow you to browse only accredited sources and academic databases.

Keep in mind the difference between primary and secondary sources as you search. Primary sources are firsthand accounts, like published articles or autobiographies; secondary sources are more removed, like critical reviews or secondhand biographies.

When gathering your research, it's better to skim sources instead of reading each potential source fully. If a source seems useful, set it aside to give it a full read later. Otherwise, you'll be stuck poring over sources that you ultimately won't use, and that time could be better spent finding a worthwhile source.

Sometimes you're required to submit a literature review, which explains your sources and presents them to an authority for confirmation. Even if no literature review is required, it's still helpful to compile an early list of potential sources—you'll be glad you did later.

4 Write a thesis statement

Using what you found in your preliminary research, write a thesis statement that succinctly summarizes what your research paper will be about. This is usually the first sentence in your paper, making it your reader's introduction to the topic.

A thesis statement is the best answer for how to start a research paper. Aside from preparing your reader, the thesis statement also makes it easier for other researchers to assess whether or not your paper is useful to them for their own research. Likewise, you should read the thesis statements of other research papers to decide how useful they are to you.

A good thesis statement mentions all the important parts of the discussion without disclosing too many of the details. If you're having trouble putting it into words, try to phrase your topic as a question and then answer it.

For example, if your research paper topic is about separating students with ADHD from other students, you'd first ask yourself, "Does separating students with ADHD improve their learning?" The answer—based on your preliminary research—is a good basis for your thesis statement.

5 Determine supporting evidence

At this stage of how to write an academic research paper, it's time to knuckle down and do the actual research. Here's when you go through all the sources you collected earlier and find the specific information you'd like to use in your paper.

Normally, you find your supporting evidence by reading each source and taking notes. Isolate only the information that's directly relevant to your topic; don't bog down your paper with tangents or unnecessary context, however interesting they may be. And always write down page numbers, not only for you to find the information later, but also because you'll need them for your citations.

Aside from highlighting text and writing notes, another common tactic is to use bibliography cards. These are simple index cards with a fact or direct quotation on one side and the bibliographical information (source citation, page numbers, subtopic category) on the other. While bibliography cards are not necessary, some students find them useful for staying organized, especially when it's time to write an outline.

6 Write a research paper outline

A lot of students want to know how to write a research paper outline. More than informal essays, research papers require a methodical and systematic structure to make sure all issues are addressed, and that makes outlines especially important.

First make a list of all the important categories and subtopics you need to cover—an outline for your outline! Consider all the information you gathered when compiling your supporting evidence and ask yourself what the best way to separate and categorize everything is.

Once you have a list of what you want to talk about, consider the best order to present the information. Which subtopics are related and should go next to each other? Are there any subtopics that don't make sense if they're presented out of sequence? If your information is fairly straightforward, feel free to take a chronological approach and present the information in the order it happened. [15]

Because research papers can get complicated, consider breaking your outline into paragraphs. For starters, this helps you stay organized if you have a lot of information to cover. Moreover, it gives you greater control over the flow and direction of the research paper. It's always better to fix structural problems in the outline phase than later after everything's already been written.

Don't forget to include your supporting evidence in the outline as well. Chances are you'll have a lot you want to include, so putting it in your outline helps prevent some things from falling through the cracks.

7 Write the first draft

Once your outline is finished, it's time to start actually writing your research paper. This is by far the longest and most involved step, but if you've properly prepared your sources and written a thorough outline, everything should run smoothly.

If you don't know how to write an introduction for a research paper, the beginning can be difficult. That's why writing your thesis statement beforehand is crucial. Open with your thesis statement and then fill out the rest of your introduction with the secondary information—save the details for the body of your research paper, which comes next.

The body contains the bulk of your research paper. Unlike essays, research papers usually divide the body into sections with separate headers to

facilitate browsing and scanning. Use the divisions in your outline as a guide.

Follow along your outline and go paragraph by paragraph. Because this is just the first draft, don't worry about getting each word perfect. Later you'll be able to revise and fine-tune your writing, but for now focus simply on saying everything that needs to be said. In other words, it's OK to make mistakes since you'll go back later to correct them.

One of the most common problems with writing long works like research papers is connecting paragraphs to each other. The longer your writing is, the harder it is to tie everything together smoothly. Use transition sentences to improve the flow of your paper, especially for the first and last sentences in a paragraph.

Even after the body is written, you still need to know how to write a conclusion for a research paper. Just like an essay conclusion, your research paper conclusion should restate your thesis, reiterate your main evidence, and summarize your findings in a way that's easy to understand.

Don't add any new information in your conclusion, but feel free to say your own personal perspective or interpretation if it helps the reader understand the big picture.

8 Cite your sources correctly

Citations are part of what sets research papers apart from more casual nonfiction like personal essays. Citing your sources both validates your data and also links your research paper to the greater scientific community. Because of their importance, citations must follow precise formatting rules . . . problem is, there's more than one set of rules!

You need to check with the assignment to see which formatting style is required. Typically, academic research papers follow one of two formatting styles for citing sources:

- MLA (Modern Language Association)
- APA (American Psychological Association)

The links above explain the specific formatting guidelines for each style, along with an automatic citation generator to help you get started.

In addition to MLA and APA styles, you occasionally see requirements for CMOS (The Chicago Manual of Style), AMA (American Medical Association) and IEEE (Institute of Electrical and Electronics Engineers).

Citations may seem confusing at first with all their rules and specific information. However, once you get the hang of them, you'll be able to properly cite your sources without even thinking about it.

9 Edit and proofread

Last but not least, you want to go through your research paper to correct all the mistakes by proofreading. We recommend going over it twice: once for structural issues such as adding/deleting parts or rearranging paragraphs and once for word choice, grammatical, and spelling mistakes. Doing two different editing sessions helps you focus on one area at a time instead of doing them both at once.

To help you catch everything, here's a quick checklist to keep in mind while you edit:

Structural edit:

- Is your thesis statement clear and concise?
- Is your paper well-organized, and does it flow from beginning to end with logical transitions?
- Do your ideas follow a logical sequence in each paragraph?
- Have you used concrete details and facts and avoided generalizations?
- Do your arguments support and prove your thesis?
- Have you avoided repetition?
- Are your sources properly cited?
- Have you checked for accidental plagiarism?

Word choice, grammar, and spelling edit:

- Is your language clear and specific?
- Do your sentences flow smoothly and clearly?
- Have you avoided filler words and phrases?

- Have you checked for proper grammar, spelling, and punctuation?

Some people find it useful to read their paper out loud to catch problems they might miss when reading in their head. Another solution is to have someone else read your paper and point out areas for improvement and/or technical mistakes.

Revising is a separate skill from writing, and being good at one doesn't necessarily make you good at the other. If you want to improve your revision skills, read our guide on self-editing, which includes a more complete checklist and advanced tips on improving your revisions.

Technical issues like grammatical mistakes and misspelled words can be handled effortlessly if you use a spellchecker with your word processor, or even better, a digital writing assistant that also suggests improvements for word choice and tone, like Grammarly (we explain more in the Tools and resources section below).

Tools and resources

If you want to know more about how to write a research paper, or if you want some help with each step, take a look at the tools and resources below.

Google Scholar

This is Google's own search engine, which is dedicated exclusively to academic papers. It's a great way to find new research and sources. Plus, it's free to use.

Zotero

Zotero is a freemium, open-source research manager, a cross between an organizational CMS and a search engine for academic research. With it, you can browse the internet for research sources relevant to your topic and share them easily with colleagues. Also, it automatically generates citations.

FocusWriter

Writing long research papers is always a strain on your attention span. If you have trouble avoiding distractions during those long stretches, FocusWriter might be able to help. FocusWriter is a minimalist word processor that removes all the distracting icons and sticks only to what you type. You're also free to choose your own customized backgrounds, with other special features like timed alarms, daily goals, and optional typewriter sound effects.

Google Charts

This useful and free tool from Google lets you create simple charts and graphs based on whatever data you input. Charts and graphs are excellent visual aids for expressing numeric data, a perfect complement if you need to explain complicated evidential research.

Grammarly

Grammarly goes way beyond grammar, helping you hone word choice, checking your text for plagiarism, detecting your tone, and more. For foreign-language learners, it can make your English sound more fluent, and even those who speak English as their primary language benefit from Grammarly's suggestions.

A research paper is a piece of academic writing that analyzes, evaluates, or interprets a single topic with empirical evidence and statistical data.

Many college courses use research papers to test a student's knowledge of a particular topic or their research skills in general. While research papers depend on the course or professor, you can expect to write at least a few before graduation.

If the topic is not assigned, try to find a topic that's general enough to provide ample evidence but specific enough that you're able to cover all the basics. If possible, choose a topic you're personally interested in—it makes the work easier.

Today most research is conducted either online or in libraries. Some topics might benefit from old periodicals like newspapers or magazines, as well as visual media like documentaries. Museums, parks, and historical monuments can also be useful.

The correct formatting for citations depends on which style you're using, so check the assignment guidelines. Most school research reports use either MLA or APA styles, although there are others.[16]

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