

必勝の要旨を書く方法

How to Write a Winning Research Abstract

名古屋大学教養教育院
Institute of Liberal Arts and Sciences, Nagoya University

ライ ウェイリン
LAI Wai Ling

Abstract

It has been a common practice to see abstract of a research paper as a succinct summary of the paper. But it remains unclear as to what exactly should be summarized in order for an abstract to effectively advertise the corresponding paper. The aim of this paper is to report a method that I have been teaching at my research writing course since 2011. In particular, the paper will first explain why an abstract is a succinct summary of five major components. Then it will go on to explain, through step-by-step instructions, how the five components are constructed and put together to form a one-paragraph abstract. The method has been tested for more than 10 years. The feedbacks from those who have used it suggest that it is effective for producing a winning abstract.

研究論文の要旨とは一般的に論文全体の簡潔な要約だとみなされることが多い。しかし、研究論文を効果的に伝えるためには実際に何を要約すればいいのかについては明らかになっていない。本論文の目的は2011年度から Research Writing の科目で指導してきた方法について報告することである。特に、本論文では初めに要旨が5つの主要なトピックの簡潔な要約である理由について述べる。次に、ステップバイステップの手順を通して、5つのトピックがどのように構築され1段落の要約としてまとめられるのかについて述べる。この方法は10年以上指導したもので、使用者からのフィードバックでは、効果的な要約の必勝法であることを示している*。

Keywords

Abstract (要旨), Research Writing (リサーチライティング), Logical Thinking (ロジカルシンキング)

* The abstract was translated into Japanese by Akiyo Minami.

1. What is a Research Abstract?

A research abstract is the abstract of a research paper such as a dissertation, journal paper, conference proceeding, grant application, etc. Usually submitted independently from a research paper, it represents the first line of communication between the writer and potential readers of the paper. Whether the readers are interested in reading the rest of a research paper primarily depends on the quality of its abstract; i.e., how effectively the abstract advertises the paper.

To effectively advertise a research paper, the common practice is to have an abstract presented as a succinct summary of the paper. However, what remains unclear is this: what exactly should such an abstract summarize? Should it summarize the main ideas of a research paper? Or should it summarize the important results obtained? Or is there something else that should be summarized? Let us answer this question by taking the following aspects into consideration.

1.1. The Readership

To write a satisfactory abstract, a primary consideration is its readership. No doubt, a published abstract could be read by anyone. But before it is accepted for publication and made available to everyone, its readership contains only a very small and exclusive group of people. If an abstract is written for a dissertation, then the readers are the dissertation supervisors and other committee members of the research. If it is written for a journal paper, then the readers are journal editors and reviewers. If it is written for a conference presentation, then the readers are conference organizers and review committee members. In short, the readers are specialists! In order to effectively communicate with these specialists and win their approval, the content of an abstract should be presented in a smart way.

1.2. Research Originality

The smart way of presenting an abstract of course includes the smart choice of words and phraseology in the presentation. A competent research writer would need to know, among other things, how to use the academic vocabularies and phrases that are commonly

used in the research field, so that the content expressed can be accurately communicated to the specialists. However, no matter how well the writer has mastered the use of an academic language, unless the content contains research originality, the abstract could hardly win the approval and recognition from the specialists.

Research originality necessarily implies research difference, or how your research is different from the others in the same field. The difference should not be just superficial variations such as the different choices of vocabularies and phrases to express basically the same idea. The difference should be about something more significant, which is directly concerned with the core of the research. For example, your research would be significantly different from the others if it presents some unique research findings, or used some novel but more effective research method, etc. Regardless of what exactly the originality is, it should be presented in a smart way to win the approval and recognition.

A smart way of presenting research originality is through a thesis statement, or a single sentence that concisely and precisely summarizes the most essential and important elements of the research. However, because of the conventional ways of writing an abstract, usually there is not a singular place designated for presenting a thesis statement in an abstract. In an abstract, research originality is usually presented through five major components connected together in a systematic way.

2. The Five Major Components

The five major components are objective, background, method, results and conclusion. Let us look at them in turn.

2.1. Research Objective

The objective of your research is *what you are aiming to accomplish in your research*. As a general principle, having a reasonably clear idea about what you aim to accomplish would help the readers understand how your research will be carried out (see research method below). But most importantly, it is one of the preliminary steps that give rise to the development of the central idea and originality of your research. Thus,

it needs to be clearly specified in the abstract of your research regardless of what the research is about. For example, you may aim to *solve an ongoing problem* in your research field, or *compare between the causal impact* of the greenhouse gases emitted by human and natural activities upon global warming, or *offer a new interpretation* on a historical event, or *develop a more effective method* to grow bananas, etc. Whatever the objective is exactly, make sure that it can be clearly understood by the readers, and the readers can know what to expect as a result. The biggest mistake in summarizing your research is to use the phrases like “such and such will be discussed”, or “so and so will be considered”, etc., without letting the readers know what to expect as a result. Note that abstract is not a place for waffling. It should report exactly what you did in the research. The objective is usually presented in just one single sentence, and is usually placed right before or after the research background.

2.2. Research Background

Research background is closely connected to a research objective. It explains *why you carry out your research*. There could be many reasons for the research. But here it specifically refers to the historical background that led to the objective of your present research. For example, if your research interest lies in the area of quantum gravity, and you aim to provide a better understanding about the structure of singularities in general relativity, then the historical background that led to your present research may be the studies done by Roger Penrose and Stephen Hawking. Providing the historical background for your research would establish a continuity between your research and the previous ones, hence enabling your research to be a part of the global development of the research field. But more importantly, the background is a place that shows how your research is significantly different from the others in the same field. By highlighting the difference, your goal is to justify why your research needs to be carried out, which also serves to show that your research is original. The biggest mistake here is to write about some previous studies that do not bear

any direct relation to your present research. Note that the background of an abstract is not a place to show off how much you know about the previous studies. Its primary goal is to highlight the necessity for your research. No matter what you write, the length of the background in an abstract should not exceed thirty percent of the length of the abstract.

2.3. Research Method

Specifying the research method is to let the readers know *how exactly you carried out your research*. There are many different kinds of research methods. For example, there are laboratory experiments, computer simulations, interviews, questionnaires, literature reviews, etc. Whatever your research method is, it should be implemented for the purpose of accomplishing the research objective. In other words, what you aim to accomplish in research should be closely connected to how the research is carried out. When specifying the research method in an abstract, it is important to highlight the details that would help the readers make sense of the results. Note that the ultimate goal of specifying the research method is to show how the data are collected and results obtained. For example, if your research method is an experiment to investigate a particular physical phenomenon, then you need to specify the details of the experiment arrangement, control conditions, etc.

2.4. Result and Conclusion

The last two components of an abstract are research result and conclusion. The importance of presenting result and conclusion in an abstract is obvious. It is to let the readers know what your research has found and concluded. The reason that result and conclusion are put together is because they cannot be separated from each other. Regardless of whether the results are obtained after performing some empirical investigation (e.g., experiments, etc.) or some logical analysis (e.g., literature reviews, etc.), they constitute the premises for inferring the conclusion of the research. The relationship between the results and conclusion of the research forms the logical argument of the research. In other words, whatever the conclusion of your research is, it

should be an inferential product that is confined by the results obtained in your research. One common mistake is overgeneralization of the research conclusion, which basically means that the conclusion was reached based on inadequate evidence or a sample size that is too small. Although it is a common practice in scientific research to generalize a research conclusion based on some limited results, the generalization should be kept as modest as possible. If the gap between the results and conclusion is huge, then the readers might find the conclusion confusing if not irrelevant. Here is a simple example of overgeneralization: “I once saw a corporation lawyer who drove a really expensive car. Based on what I saw, I can conclude that all corporation lawyers are really wealthy.”

3. Other Important Information

3.1. Abstract should be written in only one paragraph, as precise as possible

Since abstract is a succinct summary of your research, its length should not be very long. Normally, it should be written in only one paragraph. The number of words in an abstract normally ranges from 150 to 200 in a typical science paper, and from 200 to 300 in a typical humanities paper. The reason for the short length can be seen from the perspective of an abstract reviewer. Usually abstract reviewers, especially those experienced ones, have to review many abstracts in a short period of time. For example, at a recent international conference that my colleague organized. He had to share the burden of reading and reviewing more than one hundred abstracts submitted to the conference. And he had to do it in less than one week, in his spare time. How did he do it? He read the shortest ones first and left the longest ones to the last. Indeed, this is a common strategy adopted by many reviewers when time is of the essence. To make sure that your abstract gets the adequate attention from its reviewers, try to make it as short and precise as possible.

3.2. Abstract should be an independent piece of writing

Although it is a common practice to place the abstract of a research paper in the beginning of the

paper, it should not be regarded as the first section of the paper. As a succinct summary of the paper, an abstract is an independent piece of writing on its own. Almost all the submission guidelines of a journal paper or conference require that an abstract is to be submitted independently from the rest of a research paper. This would enable some of the review decisions to be made purely based on an abstract. For example, a conference committee usually makes the decision of whether to accept or reject a conference proposal purely based on the abstract submitted. Accordingly, the information provided in an abstract should be adequate for the readers to grasp a basic picture of the research.

3.3. Things that should not be included in an abstract

It is important to exclude the information that is not necessary for understanding the main argument of your research. Unless they are absolutely essential to understanding the main idea or research results of your research, you should avoid using the following information in your abstract:

- (i) *bibliographic references*
- (ii) *footnotes*
- (iii) *citations or quotations (paraphrase instead)*
- (iv) *abbreviations, symbols, etc (spell out all terms)*

4. How to write a Research Abstract: Step by step guide

Now let us see how exactly the five components of an abstract can be constructed step by step. First of all, it is sensible to begin the construction with a set of guiding questions that form the five components. The answers to these questions will pave the crucial ground for the five components.

4.1. The Guiding Questions

{Objective} What is the primary objective of your research? In other words, what are you aiming to accomplish in the current research? **{Background}** What is the main reason for conducting your current research? In particular, is there any problem or

inadequacy found in the existing or previous research that motivates you to find a solution or improvement? What is your hypothetical solution or hypothesis to the problem? **{Method}** What is/are the method(s) that you use to confirm the hypothesis (e.g., experiment, questionnaire, etc.)? Can you break down the method(s) into some major steps? **{Result}** What is/are the result(s)? **{Conclusion}** What is the conclusion based on the result(s)? Is the conclusion logically inferred from the result(s)?

4.2. The Recipe

The main objective of this recipe is to help you produce a **SUCCIENT SUMMARY** that highlights the main argument of your research paper. You are required to have the following questions covered in order for the abstract to cover all the essential elements:

1. *Why did you carry out your research?*
2. *What is the main objective of your research?*
3. *How did you carry out your research?*
4. *What are the results of your research?*
5. *What have you concluded based on the results?*

Note:

- (i) Your answers to the five questions above should be closely connected, one after another.
- (ii) The abstract to be built is only preliminary. The results of your research in (4) is not necessary in the preliminary abstract. In that case, the conclusion in (5) will be purely a hypothesis, serving to direct the research and writing process.
- (iii) Continual modifications of the hypothesis in (5) are expected throughout the writing process, until the research is completed, and all the results are finalized. In that case, the hypothesis will be turned into a confirmed conclusion.
- (iv) While working on the following steps, you are encouraged to interact with a peer writer in order to make your writing process more effective and fruitful.
- (v) After completing all the following steps, there is a checklist to make sure that you have completed all the required tasks. Please ask your peer writer to go through the checklist with you.

4.2.1. Step 1: Research Background

Research background is the first element to be highlighted in this abstract. Its purpose is to point out the historical background that inspired or motivated your research so that people could see why the research is carried out.

Step 1-1: Please answer the following three questions as precisely as possible.

(1) *What is the name of the theory or method (or something else) in the previous research that directly inspired your current research?*

Your answer: _____

(2) *Who is/are the researcher(s)?*

Your answer: _____

(3) *What has the research achieved, or what is great about the research?*

Your answer: _____

Step 1-2: Please answer the following question in one sentence.

(4) *What is the problem or inadequacy of the previous research? (i.e., weakness of the theory, limitation of the approach, etc.)*

Your answer: _____

4.2.2. Step 2: Research Objective

Following from the research background, research objective is the second element to be highlighted in a research abstract. It is a sentence that highlights the goal of your research, or what your research aims to achieve. The sentence should immediately follow from the sentence about the problem or inadequacy found in the previous research, so as to display a continuity between the previous research and yours.

Step 2-1: Please answer the following question in one sentence.

Based on the problem or inadequacy of the previous research, what is the objective of your research?

Your answer: _____

4.2.3. Step 3: Research Method

Following from the research objective, research methods is the place to highlight the means or tools by means of which the research objective can be implemented and accomplished. In order to properly and realistically accomplish the objective, most likely you will have to plan a set of specific research methods to collect the data.

Step 3-1: Please answer the following question as precisely and specifically as possible.

(1) What is the general research method by means of which the research objective can be implemented and accomplished?

Your answer: _____

(2) Can you break the research method into specific steps?

Your answer: _____

4.2.4. Step 4: Research Results

The importance of presenting research results in your abstract needs no explanation. Results are the outcomes of the methods you carried out to implement the objective. However, there is no need to specify the results in a preliminary abstract. You may leave the spaces blank until the results are ready.

Step 4-1: Please answer the following question as precisely and specifically as possible.

What are the results using the research method you carried out?

Your answer: _____

4.2.5. Step 5: Research Conclusion

Research conclusion, or the central claim of your research, is the heart of your research paper as well as abstract of the paper. Everything else in your paper is ultimately connected to the conclusion. Ultimately, there should be an inferential relation linking the research results and the conclusion. In other words, the results and conclusion must be logically related. But before the research is completed and the results finalized, the conclusion is just a hypothesis waiting to be confirmed.

Step 5-1A: Please answer the following question in one sentence.

Based on the results obtained, what is your research conclusion?

Your answer: _____

(If the results are not available, try to answer the following questions instead.)

Step 5-1B: Please answer the following question in one sentence.

(1) Based on the problem or inadequacy you found in the previous research, what is your research question?

Your answer: _____

(2) What is your hypothetical answer to the research question

Your answer: _____

4.2.6. Step 6: Putting the five components together

After completing all the five steps above, you can now put all the five components together using the Abstract Template below.

4.3. The Abstract Template

{Background} Many studies on [specific research focus] have found/demonstrated/concluded that [main discovery/achievement of the previous studies] However, there is a problem [inadequacy of the previous studies] **{Objective}** Solving the problem requires a different method/approach/perspective. The aim of our research is to investigate [research goal] ... It is assumed that [hypothesis] ... **{Method and Result}** To test the hypothesis, we conducted [experiments/questionnaires/interviews/etc.] ... In particular, firstly, we conducted [method part 1] ... We found that [result part 1] ... Secondly, we conducted [method part 2] ... We found that [result part 2] ... Finally, we conducted [method part 3] ... We found that [result part 3] ... **{Conclusion}** Based on the results found, we can conclude that [conclusion]... The conclusion suggests that [implication] ...

4.4. Important! The Correct Way of Using the Abstract Template

The purpose of the abstract template is to free you from thinking about what components are required to be included in a research abstract, so that you can focus on polishing and strengthening the logical connections among them.

The words and phrases provided in the template SERVE ONLY AS A GUIDE to help you generate your ideas behind the text. Once you have your ideas generated, developed, and arranged in the coherent order outlined on the template, then you must replace the provided text with your own words, and transform the template into an original piece of writing.

To avoid plagiarism, you SHOULD NOT USE the text provided by the template in the final version of your abstract!

4.5. The Check List

- (1) Is your abstract written in one paragraph? If not, why can't it?
- (2) Has your abstract highlighted why you carried out your present research? If not, why not?
- (3) Has your abstract highlighted the main objective of present research? If not, why not?
- (4) Has your abstract highlighted how you carried out your present research? If not, why not?
- (5) Has your abstract presented the results and conclusion of your present research? If not, why not?