WRITING KINETIK SCIENTIFIC ARTICLE

1. Scientific Article Structure

The election of scientific article structure depends on each Journal writing format. The writing format will differentiate Journal with the others. Similarly, the format between experimental research and *literature review (survey paper)* is diverse. Thus, KINETIK adopts AIM (RaD) C (*Abstract, Introduction, Methods, Results and Discussion, Conclusion*) model for writing scientific articles. The schema of AIM (RAD) C structure is illustrated in Figure 1. The wider the shape means that the explanation is more general. On the other hand, the smaller the shape aids that the explanation is more specific.

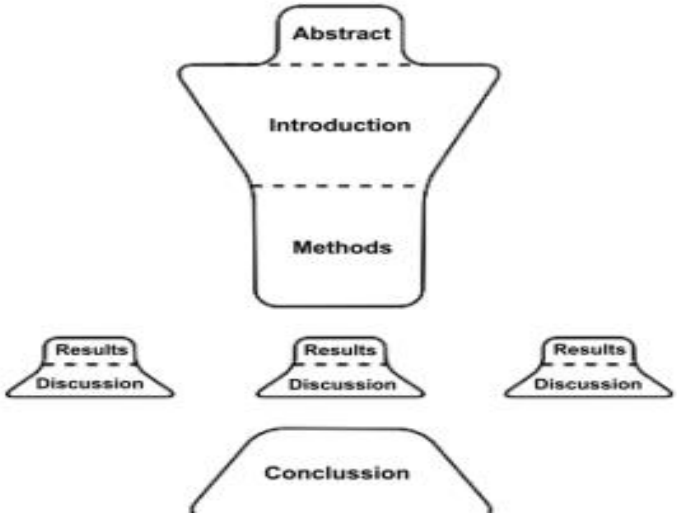

Figure 1. Illustration of AIM (RaD) C Structure [1]

The structure of writing scientific article with AIM (RaD) C scheme can generally be explained as follows:

1. **Abstract**. It is the first part in scientific article. It comprises summary of the whole content of scientific article. It brings a general overview about the content of scientific article to the reader. By reading abstract, readers can decide whether the research topic is relevant with their wish or not.
2. **Introduction.** It begins with general discussion. The first sentence of opening paragraph should make readers appeal and curious. Then, background of research and related previous of study are explained after opening paragraph and before end paragraph. This section logically links the existed research problems with the approach that is operated to solve the problem. Introduction ends with the aim and purpose of research or the activity and main research finding.
3. **Method.** It discusses about how the research be done. This section supports and establishes the explanation which is contained in the finding chapter.
4. **Result and Discussion**. It starts with the description of research finding. Then, data analysis of research finding becomes the next explanation. The data analysis is

based on the research problem that has been presented in introduction. The descriptions in this section can explain whether the hypothesis which is presented in the introduction can be proven or not.

5. **Conclusion.** It is the last section in the AIM (RAD) C model. It summarizes some information of the research finding and discussion.

A more detailed explanation of the AIM (RAD) C components will be explained in the next chapter.

2. The Title of Scientific Article

Title is the most important part in the scientific article. It becomes a key to communicate with the readers, editors, or reviewers which will assess the scientific article. Moreover, it should reflect the entire contents of scientific article, as well as to generate readers' curiosity. It also should extract the information that relates with the entire content of scientific article. Therefore, the appropriate title will assist readers in knowing whether the article is suitable with their topic or not. These following are the guidelines that can be used to write scientific article title:

1. The title of a scientific article should be able to provide information about the entire contents

   The purpose of scientific article title is to provide an appealing information, so that the readers want to read the entire content. Besides, the readers' curiosity is inseparable from how the title can describe the overall discussion in the article. Hence, readers can decide whether the article is suitable with their interest or not.
2. Use clear keywords

   The accurate keyword is very essential because it can attract readers to read the article. Then, the keyword placement has an impact on emphasizing article topic. For example, if the article discusses about certain algorithm, the algorithm name is placed in front of the title.
3. Use correct word, phrase, and sentence

   In general, noun phrase becomes the most use phrase in writing scientific article. Noun phrase is considered effective (clear and informative). Choose a noun phrase that explicitly and specifically can explain about the undertaken research.
4. Avoid ambiguity on phrase or word
5. Avoid using mathematical equations and abbreviations in the title, except the abbreviation of the system's name in the study.

3. Abstract

Abstract can be seen as a concise version of a scientific article. For readers who do not have enough time, the abstract is an important summary of the entire contents of the article. Then, a good abstract should be able to ease readers in identifying the basic content of the article quickly and accurately. The abstract section will determine whether the reader will continue to explore the entire contents of the article or not.

There are some rules in writing abstract. The abstract should not be more than 250 words and consists of one paragraph. The sentence that is contained in the abstract should describe some of the main points, namely: the solid and concise background, the scope and purpose of the study, the methods used, the concise test results, and the main conclusions. The entire sentence in the abstract paragraph should be written in the past tense if it is in English, as it explains the research that has been done. The information described in the abstract must be contained in the article's contents and may not make quotation on certain references.

4. Keywords

Keywords are a tool that can help indexing machine and search engines to find relevant articles [4]. If the search engine database of our article can be found, the reader can easily find the article. The easier the article is found, the opportunity for articles to cite is also bigger. Hence, the selection of keywords used should be effective. To writing effective keyword, the keyword must:

1. Represent the content in the article
2. Specific to the topic or sub-topic
3. Maximum keywords used are 5 keywords that can be words or phrases

5. Introduction

Introduction is the first part of the body (content) of scientific articles. The purpose of the introductory section is to provide background information on why a particular research topic is conducted. In addition, the introduction has a function for the reader to understand and evaluate the results of other studies that have been done as well as the position of research on our research (research gap). Then, the selection of appropriate literature and articles which is related to previous research is needed.

Some of the following rules can be used as a reference for writing introduction:

1. Introduction should first be raised on the content of scientific articles with the clarity of the research problem.
2. Each paragraph must coherent as well as each sentences contained in the paragraph.
3. The introduction should have a literature review. It directs the reader to the topic that being discussed
4. It must explain the results of relevant research and provide the results of the study (the excellence and the weaknesses) of the study.
5. Describing the method used for the research as well as the reason why the method is chosen.
6. The last paragraph explains about the contribution of conducted research as well as research position on previous research (research gap).
7. The final paragraph also describes the structure of the scientific article as a whole which can be provides an overview for readers about the framework of scientific articles.

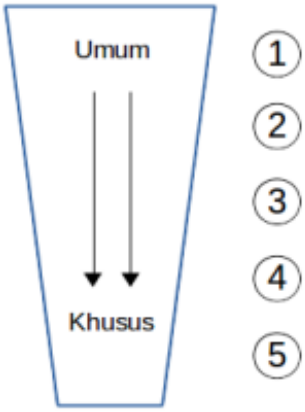

Figure 2. The coverage content in the introduction

The scope of introduction content can be seen in Figure 2. The introduction begins with a sentence that contains a general explanation which is related to the background of the study. The more down, the explanation of the sentence is more specific to explain the scope of research.

According to Figure 2., the following steps are used as a reference for writing an introduction of scientific article:

1. It is discussed about the field or scope of research and the affirmation of how important the issue
2. More specific sentences describe the problems that have been researched by other researchers. It provides the basis information for previous research.
3. The sentence explains the necessity for further research which will create a gap from the research with other research that has been done. This section usually describes the deficiencies that exist in previous studies that have been described in point 2.
4. A statement that provides an explanation of the purpose of the study or describes about
   findings.
5. Sentence explain about the contribution of research. In addition, this section also provides an overview of the positive value of research that has been done. In writing, this section usually becomes a single paragraph with sentences that explain the purpose of the study.
6. Sentences describe the structure of writing scientific articles. This sentence lies at the end of the introduction which describes what chapters will be discussed in a scientific article.

Note: points 2 and 3 are usually described repeatedly with other reviewed scientific articles.

5.1 Writing Quotation (Citation)

Quotations (citation) are used when there is a statement, image, data, table, graph, etc., which is the work of other researchers in our scientific article. Quoting are necessary in the introduction which may indicate that the researcher understands the

scope of another area of research as well as the shortcomings or advantages of other studies. It can also explain the position of research that is being conducted on other research (research gap). By utilizing quotations, the authors can construct arguments about the importance of research.

There are various ways to write a quotation. It is broadly divided into three, namely: by writing the author's name and year, the alphabet-numeric combination, or by writing the sequence number listed in the reference. How to write this quote depends on the reference model used. Some reference models of the most widely used are [3]: WHAT, MLA. Oxford, Harvard, Chicago, IEEE.

Each journals have different references in writing quotation. Then, KINETIK Journal uses the reference from IEEE in writing quotation which includes the citation sequence "sequence number" model. In the "sequence number" rule, the reference list is arranged in order in which it appears in the quotation. Quotations that are made using the sequence number of the reference list are placed between brackets "[...]". Similar to the "alphabet-numeric" quote model, the writing of this quotation can make writing efficient when compared to the "name and year" quotation model. When compared to the "alphabet-lift" quotation model, this quotation is easier for the reader to navigate through the list of available reference as they are positioned according to the order in which they appear in the quotation.

5.2 Plagiarism

In writing a scientific article, the author should be able to describe the sentences that is described in the article. Thus, the reader can distinguish which sentence is the author idea, or the idea of the researcher in another article. If the author takes a statement from another article, the author should do the quotation to avoid plagiarism. In addition, the writer must paraphrase the statement. In writing scientific articles should note the problem of plagiarism when using certain references. Plagiarism can occur in the use of data, ideas, or sentences derived from certain articles without any citations to the article. In the academic range, plagiarism is included in cheating. The article that indicates plagiarism can be canceled for publication. To avoid plagiarism, these following issues can be done by the author [1]:

1. The authors must understand the conditions when they have great potential to do plagiarism.
2. Using special notes when conducting literature studies which are then described with its own language.
3. Paraphrase when quoting statements from another articles.
4. If using sentences or words derived from the researcher or other articles, it should use quotes two at the beginning and at the end of the sentence and provide quotes thereafter.

5.3 Identifying Research Gap

Research Gap is a part of research that has not been studied or explored by other research and it can distinguish research that we do with other studies. Research gaps can be populations or samples, research methods, analyzes, as well as variables or research conditions.

The first stage to identify a research gap is to conduct a literature review in another research that resides on one topic with our research. When we read another research article, we must be able to read and critically analyze the entire contents of the article. This activity can ease in identifying the gap. The purpose of this identification is to looking for gaps or space that will contribute to the new research.

In the literature review process, we can find research gaps in the *Discussion* and *Future Research* section. In this section, we can analyze what has been found or discussed by other researchers related to our research area. We can use the 4 W + 1 H (who, what, when, where, how) method to see the results of previous research. Thus, we can determine the area of research that has never been studied before.

5.4 The purpose of the study (statement of purpose)

The purpose of the study is described at the end of the introduction. In this section, the author gives a picture to the readers about what is expected by the authors in their research.

6. Research Methods

The purpose of the research method is to provide an overview of the methods that is used to solve existing problems in research so, the readers can repeat the same study. In addition, research methods are useful in supporting the results of research by providing an overview of how the study was conducted, and the obtained research data. Hence, it can convince the reader that the research is possible to be reworked.

Research data is contextual. It is valuable if the data is on the context of the procedure that generates the data. If the procedure that is described in the research method is clear and detail, the data will provide complete information about the findings to the reader. However, if the procedure is not detail, the reader will difficult to capture the relevancy between the findings and the research that has been done. This condition means that the valuable information from the research is not delivered.

Every procedure that is taken in the study should be explained in detail in the research methods section. The explanation should be logical, and possible to be reworked. The description of such procedures can be represented in the flowchart, flow diagrams, use cases, schema, pseudocode, etc.

In this section, the authors are possible to explain the methods that are published in other articles. Then, it is obviously that they have to do the quotation correctly. The explanation of the method does not need to be too detailed, unless there are modifications to the method. The explanation of the definition in the research method is prohibited although the sentence is already quoted.

In order to help the reader in evaluating the findings that exist in the chapter of the research, the authors must well-described the explanation so, the research method has a strong connection with the research results. These following are some strategies of writing research methods:

1. Use a reference point item similar to the discussion points that is contained in the findings
2. In the opening paragraph, use the phrase that is related to the purpose of the study

Another strategy that can be used to make the logical flow of the research method clear is to use a deductive paragraph approach. It means that the first sentence in each paragraph describes a particular topic of discussion which is associated with the previous paragraph.

In summary the chapter of the research method contains:
1. Explanation of research data and how to get the data
2. Research method that is described the details about the steps of the research process, the algorithm used, or the method used. The explanation can be added to the picture in the form of flowchart, architectural scheme, pseudocode, story board, etc.
3. Explanation of the hypothesis

6.1 Use of Passive or Active Sentences in Research Methods

In general, the authors of scientific articles explain the method of research in the form of passive sentences. Thus, it is emphasizing the action that is taken not on the actors. But in some scientific articles the author explains in the form of active sentences. In passive sentence form, the statement usually does not include the subject of the sentence, for example: "The triangulation method is used for the determination of the location .....". While in the form of active sentences, it is written explicitly that the subject do something, for example: "In this study, the authors use triangulation method for determining the location ....".

These following are some issues that effect on the choice of passive or active sentence:
1. In a sentence, the authors can decide whether the reader needs to know who is doing the action. If yes uses the active sentence but if not uses a passive sentence. For example: "The researcher performs daily data collection using the sensor", because the subject of the sentence is not important for the reader to know, the sentence can be written as follows: "Data is collected daily and it is using sensors"
2. If there is a possibility of looping the use of subject pronoun, it is better used passive sentences

Based on these explanations, the writing of passive sentences is more advisable to be used in the scientific articles.

7. Results and Discussion

In general, the Results and Discussions section explains some important points, such as:
1.Type of testing
2. Scenario/test scheme conducted in the research
3. Variable/test parameters matched with the type and test scenario
4. Data test results
5. Discussion and analysis of data findings and its relevancy to the hypothesis that has been described in the Introduction section.

Results and Analysis are the most important parts in scientific articles. This section describes the data as a result of the research. Then, it is described in the analysis [2]. In

the arrangement, the Results and Analysis section begins with a brief description of the research overview so, the reader can recall the details of the research methods. Furthermore, the results of research is become the next discussion.

The data describes the results of the study as well as evidence that can support or reject the hypothesis that has been previously submitted. The data will be verified, analyzed, and displayed in the article to generate a useful knowledge for the reader. The process should be done effectively so, only important data is used (not all research data is used) [1].

The style of data representation in a scientific article may vary. It depends on the discipline and reference standards used. If the scientific article is to be published in a journal, it should be written according to the standards of the journal (this reference can usually be seen in the author guidelines or in the article template). Although the technique of data representation in the article not clearly explained, this reference can provide general guidance on the format and style for the representation of research data.

In writing sentences that describe the results of the study, the author should take the points that are important in the study. Authors should avoid using phrases or sentences repeatedly when they explain the available data. Editor or reviewer of the journal will suggest to the author to write down the most important things which is related to the findings in the study. The findings are described in the discussion of the analysis or discussion. It is generally written into one chapter.

The following are some functions of the sentences that describe the results of the study:

1. Underline important findings in the study
2. Determine the location of the image or table where the results of the research can be found
3. Provide comments (not discussions and analysis) on the results of the study

7.1 Use of Images, Tables, and Text

The selection of data representation models whether using images, tables or text depends on what kind of information the author hopes to receive by the reader. Each form or model of data representation has advantages and disadvantages [1].

1. The table is widely used for:

a. Recording more than one data
b. Describe the calculation process, and calculated data
c. Display the actual data and precision
d. Display a comparison of some data elements

2. Image object is used for:

a. Show the trend or pattern of the data (can be presented in the form of chart or graph)
b. Briefly describe a thing or process (can be presented in the form of flowchart, system scheme, etc. it is described in the research method chapter)
c. Display the comparison of data elements

Every image or table contained in a scientific article (including in the Results and Discussions section) should be quoted in paragraphs. In addition, the author should be able to describe the meaning or purpose contained in the Table or Picture that has been quoted. Thus, the reader can understand the purpose of the image.

The purpose of the discussion or analysis is to explain the interrelation between the facts (data) that being observed. In scientific articles, this chapter is the most difficult subject by the writer or researcher. Many scientific articles are rejected by journal editors because of the lack detail or even inaccurate analysis of the data or research results. Although the research data is excellent, the true meaning of the data or research results is obscured by an inappropriate interpretation of the discussion.

These following are some important things that should be in the discussion and analysis section [2]:

1. Present the basic things, the associations, and the general matters of a research finding. The discussion section is a discussion or a deep analysis of the data. It is not explaining the recapitulation of the data
2. In the discussion, point out the points that become exceptions, the data that is less correlated or there is an anomaly in the research.
3. Show the research findings and its interpretations whether it is appropriate or inappropriate with previous research.

Cargill in his book explains that there are several important issues related to the existing design in the discussion section [1], namely:

1. Structure of the discussion section
   Does the journal use the "Result and Discussion" standard to be one or separate into different sub-chapters? Does the journal allow for conclusions when the discussion section is relatively long? Does the journal allow writing a discussion that includes a sub-chapter?
2. The close relationship between the discussion section with the title of the article
   When the authors want the flow of the article to emphasize the discussion section, the title reference can be used to explain the discussion.
3. A close connection between the discussion section and the introduction
   The discussion section should relate to the subject in the introductory chapter namely, in the section describing the research gap (the difference with previous studies), and the sections that explain the purpose of the study. When the draft making of the discussion section is done, it is better to do final check with the discussion contained in the introduction whether it is appropriate or not. If not appropriate, we can change the discussion in the introduction.

Important information contained in the discussion section are as follows [1]:

1. References to research objectives or research hypotheses or summaries of research
2. A statement or review of key findings. It is usually in the order of importance or not:
   a. Does it support the hypothesis? how the statement contributes to the main research? Does it answers the problem formulation or research objectives or not.
   b. Is suitable with the findings produced by other researchers?
3. Statement of findings supported by relevant references and literature

4. Limitations of research. It limits the extent to which research results can generalized the external study.
5. The implications of the research (generalization of the research results: what is the meaning of research in wide scope)
6. Recommendations for the next research

8. Conclusions

In the AIM (RaD) C structure, the conclusion becomes the final chapter of the scientific article. The contents of the conclusions are directly related to the purpose of the study as listed in the introduction. Then, it also summarizes all the important points in the analysis of the research results, and summarizes the results of the analysis [5]
In this chapter the authors should:

1. Explain whether the author can achieve the purpose of research or not
2. Provide clear conclusions about research findings or important information in the study
3. Presenting pressure on the main output of the research and the meaning of the research.
4. Do not repeat the writing of data in the results and discussion

References

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