

Chapter 05

INITIATING WRITE UP

The write up for a scientific paper or thesis is initiated as soon as necessary literature is collected and organized. Best approach for writing is to read the reference material and start writing without considering any grammar, sequence or appropriate words. Once the first draft has been written, it should be read and checked for all necessary details. This can then be improved upon to give it a final shape.

5.1 INTRODUCTION

Scientific writing is designed to communicate new scientific findings. Successful scientific experimentation is the result of a clear mind attacking a clearly stated problem and producing clearly stated conclusions. Ideally, clarity should be the characteristic of any type of scientific communication. A scientific experiment is not complete until the results have been published and understood. It should be clear, simple and have appropriate language. The scientific paper is a written and published report describing original research results. It must be written and published in a certain manner. It is useless unless it is both received and understood by its intended audience. Although the ultimate result of any scientific research is publication, scientists often neglect this responsibility. A scientist spends months or years of hard work to secure data. Then unconcernedly he lets the work go down the drain because of lack of presentation skills or interest in the communication process.

5.2 COLLECTED LITERATURE

The collected literature consists of original articles, abstracts, book chapters and other material. By now this must have been separated into different files according to the proposed contents of the assignment or research work. This literature would be useful for writing the assignment – synopsis, thesis, special problem, research

paper and others. It is not essential that first portion of the assignment, paper or thesis be written first. The best solution is to write whichever section one finds easy to attempt.

5.3 PROCEEDING TO WRITE

Class assignments, special problems, case studies and other similar tasks for science students must be prepared with the principles of clarity and brevity in mind. The write up should be to the point and must answer the question that has been actually asked. One should, right in the beginning, differentiate between "discuss", "compare", "analyze" or "describe."

For reporting experimental work, experience has shown that Materials and Methods section of a research report is easiest to write. It is written in the past tense and should adequately describe the experimental procedures. Normally, standard analytical methods are used; hence these are directly copied from the literature. Where a method has been modified, or a modified method is used, full details are required to be written. The procedure should preferably be listed and not written in a paragraph form.

While the work is in progress, next part that can be attempted is the Review of Literature. An outline for the write up similar to table of contents in a book should be prepared. Files containing all material useful for the review should be separated from the literature collected. This literature should be separated into groups, sub-groups and topics according to the contents with each reference marked appropriately. All articles on one topic should be collected in one lot, and rearranged or organized in the desired order.

Introduction can be attempted next or simultaneously. It may begin at a very general level and narrowed down to specific topic that would lead to the hypothesis or objectives. Introduction should provide background to the work, describe the problem and identify main focus of the study and its scope. The objectives need to be elaborated and importance of the problem highlighted. Simultaneously, list of sources used for writing References or Bibliography may be prepared. This must contain full details to help in retrieving the original work when needed.

The opening lines of each section, as well as paragraph, are important and hence must be carefully selected. Usually ideas for these lines come from relevant papers or from treatment of the topic in the lab manuals or textbooks. Sometimes a little history is useful.

5.4 STARTING WRITE-UP

Before writing is started, it is advisable to look at a few reports, theses, papers or projects written on similar topics. It is necessary to become familiar with the sources available that will help in the write up. A provisional outline must be prepared for every topic. This would keep you on the track. Furthermore, the hypothesis or objectives must also be provisionally defined since during and after the write up there may be need to redefine and revise them.

First step towards writing is to analyze the topic so that what is written is relevant. Having analyzed what is needed, gather the required literature and extract desired information from it after going through each one. This will help to collect ideas and select and evaluate the works. At this stage, one can start writing. However, details should be restricted to ones own requirements. There is no need to copy everything from a document. Only facts relevant to the project must be chosen from the literature, paraphrased, and reassembled into ones own logical sequence. The sources must be cited to support each statement. The objectives of the study should be maintained. Writing should be done in your own words giving specific pattern. For class assignments, the topic must be kept in mind and only relevant material must be described.

Place the selected literature in a single pile. Rearrange the pile in the order you feel it should be written. Select literature that is closely related to the topic to be discussed or written. Start writing using words from the literature and connecting phrases from your own self. Keep writing till the pile is exhausted. Do not worry about syntax – language, grammar, sentence structure, sequence of words or statements or spellings. References including page numbers or even file names must be cited in the initial draft so that the original material can be easily retrieved and checked at a later stage. In the final document only the sequence number (Vancouver system) or author and year (Harvard system) are required. Once the write up on a topic or sub topic is completed, put away the literature. The write up needs to be presented orderly through logical organization of the material and communicated with maximum degree of clarity and brevity.

This is the first or rough draft that may look shabby. It does not have to be impressive or correct English. This will only be seen by you and it will be revised several times and proofread before submission. Therefore, in the first draft, there is no need to worry about the right word, correct spellings or phrases since this has to be rewritten and

revised several times. What is important is that the relevant material is transferred from the collected literature and your mind into your own draft.

5.5 REVIEWING THE WRITE-UP

The first or rough draft will lack order. It will not probably be grammatically correct or even divisions into paragraphs would be missing. It is a good idea to look over this draft the next day. This draft needs to be revised to correct the misspelled words, wordiness, awkward writing and others. This will also place the material in your long-term memory and, therefore, will be more readily retrievable.

The editing session gives a chance to rethink about the reading material. Read the notes again, and add additional comments where necessary. Double check to ensure that all reference-information has been included. Go through the draft and make necessary corrections. Check authenticity of the write up with the literature. Now make sure that language, spellings and grammar are correct. There is a need to concentrate on relevancy over quantity.

Distribute the written material into proper paragraphs. A paragraph is defined as an orderly and logical arrangement of sentences designed to express an idea and to explain it with supporting details. In scientific writing, paragraphs usually follow an introduction-body-conclusion pattern. The topic sentence introduces the central idea. The body of paragraph contains supporting details that explain and expand the central idea. The concluding statement signals readers that the discussion of the central idea stated in the topic sentence is ending.

One paragraph should convey one thought that constitutes the topic sentence. The remaining thoughts in a paragraph elaborate and reinforce the basic thought expressed in the topic sentence. All these supporting thoughts must be arranged in a well-knit, logical, and pleasing pattern that develops the main thought. The sentences within a paragraph may be linked by means of connectives – conjunctions, prepositions and linking phrases – or the use of pronouns. Often, logical transition from one idea to the next is itself a link and a formal connective is not needed.

This is the second draft. This needs to be edited and re-edited till the final version is prepared. Of course, this does not mean that merely writing or rewriting two or three times would give a meaningful document. Sometimes one has to write about 10 versions to have a good final document.

5.6 FINALIZING THE WRITE-UP

Having written, revised and edited the manuscript several times, the task has to be finished and submitted. Make sure that the presentation or write up is orderly through logical organization of the material. Ensure that the information has been communicated with maximum degree of clarity and brevity; the objectives have been maintained and necessary details have been provided. Before submitting ensure that each paragraph has a topic sentence and a single subject. Once again, check the spellings and grammatical errors. Computer programmes are doing wonderful job, but cannot differentiate between "food", "foot" or "fool" in a sentence, hence need for human element to ensure correctness of the manuscript. References must be double-checked – there should be no error between citation and reference list. Author's spelling and the year in the text must be the same as in the list of references.

5.7 USE OF ACRONYMS AND ABBREVIATIONS

Acronyms and abbreviations are permitted in the scientific literature. Accepted acronyms and standard abbreviations do not need defining. For example, FAO, WHO or UNESCO are standard and accepted acronyms that can be used without defining in the first use. However, abbreviations must meet the rules or must be accepted ones. Chemical Abstracts, Index Medicus and numerous other services provide lists of abbreviations that are acceptable without defining. Other acronyms or abbreviations should be written as complete at first use and acronym or abbreviation placed in parenthesis, if required to be re-used in the later text.

5.8 SOME USEFUL TIPS

Computer has made the task of writing an easy one. Every science student and scientist should be computer-literate, at least to the extent that data can be fed in a word processing programme, accessed, corrected and saved. For thesis writing, use standard word processing and bibliographic programmes. Microsoft Word is the most commonly used computer programme in Pakistan and is available almost everywhere. Before starting, prepare a style sheet according to the style defined for the document to be written, or use templates that come with the programme.

The style sheet must include heading style, paragraph and heading spacing and information on which words are capitalized. Font type and size can also be fixed for the text and various levels of headings. The required spell check or dictionary (British or American) should

be selected as default. Efforts have been made to comply with this in this book. However, you may still find a mixture of American and British spellings. The writing guide should contain which acronyms will be used; where and how tables and figures will be labelled. This will provide consistency in the work. More of such specifications can be added as the work progresses. Such style sheets can be exchanged with others. Bibliographic programme such as "EndNote" can be used from the beginning for all references. This ensures that all references are written in the same style. It is hoped that by following these tips tedious work of checking and editing can be reduced. This will save time and labour.

Do one thing at a time and while doing it put your whole soul into it to the exclusion of all else.