

MODULE 1 INTRODUCTION TO TECHNIQUES AND STRATEGIES FOR SCIENTIFIC WRITING AND SEMINAR PRESENTATION

- Unit 1 The Criteria and Strategies for a Sound Scientific Writing and Seminar Presentation
- Unit 2 Choosing the Right Techniques for a Sound Scientific Writing and Seminar Presentation
- Unit 3 How to Keep Scientific Writings and Seminar Presentations Clear

UNIT 1 THE CRITERIA AND STRATEGIES FOR A SOUND SCIENTIFIC WRITING AND SEMINAR PRESENTATION

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1.0 INTRODUCTION

Long ago (centuries of developing tradition, scientific ethics) the guideline or format for writing scientific articles had been defined. Scientific writing literally means writing about science, medicine, and technology for general readers. It comprises of basic aspects such as thought, structure and style. To achieve a sound scientific writing, the writer must bear in mind that the writing should be in proper order of a Title, Abstract, Introduction, Materials and Methods, Results, Discussion and Conclusion.

The very first step in writing a scientific document is to think, then read before writing. The writer also needs to know what others think, making

it necessary to develop one's own thinking skills. Most importantly, scientific writing is undertaken to tackle big ideas and important issues, although it is compelling despite its ambitious nature and creativity.

On the other hand, Seminar presentation aims at communicating the presenters' topic to an audience of interest and mixed background. Unfortunately, some seminar presentations are not properly understood / comprehended by the target/audience due to certain lapses on the part of the presenter. Since it becomes pertinent to have a criteria and strategies for a sound scientific writing and Seminar presentation, common errors usually committed in this kind of writing and presentations need to be highlighted and properly resolved.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- list the common errors associated with scientific writing and seminar presentation
- remedy these errors highlighted
- explain the purpose and criteria for a good scientific writing and seminar presentation.

3.0 MAIN CONTENT

3.1 Review

A seminar presentation usually concentrates on educating the audience and it is termed good when the audience understands the message of the presenter. However, there are rules guiding the purpose of seminar presentation: place yourself in the mind of your audience, at least minimum amount of information should be provided to the audience. This in turn helps to rule out the temptation of filling the presentations with details meant to make the audience impressed. Therefore you should ensure that you stick to a major thereby not covering so many ideas. Other criteria are as follows:

1. Do not focus on what you want to tell the audience, rather focus on what the audience need to know about the subject.
2. Unless the method is the main point of the talk, otherwise do not give too many experimental details.
3. For each set of data, do not only show it but discuss the significance of the findings. Therefore do not assume that the audience will know what you mean.
4. Try to keep it simple so as to enable the audience to immediately grasp the information.

5. It is advisable to often repeat important points so as to help the audience remember the points.

In the process of scientific writing, it is very important to keep the writing simple and direct. Direct and simple writing is most easily understood and tend to be the most memorable and forceful. Words should not be used more than necessary and also the use of complicated words should be avoided, most especially if a simpler word will do. A sound scientific word is one that is easy to read, has the information under the correct headings and is visually appealing.

Furthermore, accessibility and readability of a scientific paper go a long way in capturing the interest of the target population (reader). Constructing a well – organised scientific writing is the first step to improving accessibility and readability. Scientific writing that have poor written styles in terms of expression and grammar are unlikely to appeal to editors, fellow scientists or reviewers, and are unlikely to be published in a reputable journal. Having it in mind that the purpose of writing a scientific paper is to answer a specific research question or fulfil a specific research aim, therefore sufficient background or reason for the study, sufficient methods to repeat the study, and sufficient data and adequate explanations should be provided to understand the results. Personal effect should be channelled towards being tempted to deviate from this path. It is unnecessary for readers to know absolutely everything that the writer knows about the research area.

Scientific writing is not a competition in comprehensiveness. One must limit oneself to writing only the essential information that readers need to know about the results being reported by the writer. For instance, when writing a journal article, it is logical to begin by writing the methods followed by the results sections. The introduction and discussion can be pieced together as one progress, and finally it is necessary to condense it all into an abstract.

3.1.1 Process of Writing a Term Paper

A term (research) paper is primarily a record of intelligent reading in several sources on a particular subject. The task of writing a term paper is not as tedious as it seems if it is thought out in advance as definite procedure with systematic preparation for the task. It (term paper) is an original essay presenting your ideas in response to information found in library sources. As research material is being gathered, your ever-increasing knowledge of a topic will allow you to make informed judgments and original interpretations. At each stage of research, you will have a more complete idea of what you have already found and what you are looking for. Midway through the process, the writing tasks

of creating a review of literature will help you focus the direction of your research.

However, there are some procedures that need to be strictly adhered to, so as to achieve success in writing a comprehensive and detailed term paper.

These include:

1. Choosing a subject.
2. Finding sources of materials.
3. Gathering notes.
4. Outlining the paper.
5. Writing the first draft.
6. Editing the paper.

In order to gain information and to discover other writers' thoughts on your subject, you will have to become acquainted with how material is arranged in libraries: Library classification systems, computerised card catalogues, periodical indexes and abstracts, CD – ROM data bases, and similar information is located on library shelves: But only your own growing knowledge of the subject can tell you what information is useful and how that information relates to the questions you are raising.

1. Choosing a Subject

To ensure that a good term (research) paper is written, the paper must be built around questions. Subjects can be found in any good textbook. Some parts of the text that appear interesting should be taken and carefully examined. The following things about the chosen text should be put in question to oneself. Does it tell you all you might wish to learn about the subject? Are you certain of the accuracy? Does the author make any assumptions that need examining? Can two of the more interesting sections in the text be shown to be interrelated in some useful way? A term paper is an attempt to write a well-organised answer to whatever question that has been decided upon, using facts for the purpose of proving one's satisfaction.

However, the most common error usually made by students is choosing subject for term paper is to choose one that is too general. It is worthy to note that a topic must be quite specific subject to be adequately treated in a short paper because the most specific subject will always have enough aspects to furnish a longer paper, if it is given thought for a while.

2. **Finding Sources of Materials**

(i) **Limiting Factors**

Tradition suggests that one limits sources to those available on the campus and to those materials which are not more than 20 years old, unless the nature of the research (term paper) is such that one is examining older writings from an historical point of view.

(ii) **Guides to Sources**

Begin by making a list of subject – headings under which you might expect the subject to be listed.

a. A file card should be started following the format below:

- Subject: Propaganda – Agriculture
- Author: Mary, Swiss Makeba
- Title: South African Agriculture and Propaganda
- Facts of Publication: S.A., Rutledge Press, 1999
- Lib call #: AO348.5B

For periodical record author, title, name of periodical, volume and page number, month and year.

These cards should be sorted into books and each volume of periodicals. Then call numbers of the periodicals should be looked up and those for each branch library should be sorted out. This sorting saves library time.

- b. Library card catalogue should be consulted to locate books. Author, title, publisher, publication date and call number should be recorded.
- c. Education Index, Reader's Guide, International Index to Periodicals and Psychological Abstracts which are guides to periodicals should be checked. These help in getting articles on any subject. Here, subject headings with various titles under them are listed coupled with where you can find each article.

3. **Gathering Notes**

- (i) Examine the books and articles. Checking several volumes at a time will save steps. Skim through your sources, locating the useful material, then make good notes on it, including quotes and information for foot notes. To avoid going back all over again, make these notes on separate cards for each author – Identifying them by the author.
- (ii) Care should be taken in note taking by being accurate and honest. It should be ensured that the author's meanings are not distorted.
- (iii) Get the right kind of material.

- a) Get facts, not just opinions and try to compare the facts with the author's conclusion.
- b) Take note of the methods and procedures in research studies and be courageous enough to criticise them. For quantitative information in a study, there is need to suggest need for objective, quantified, well controlled research.

4. **Outlining the paper**

- i) Do not hurry into writing. Think all over again what your subject and purpose are and what kind of material has been found.
- ii) In order to get major subdivisions of your subject, notes should be reviewed. Each group should be named after sorting the cards into natural groups. Then use these names for main divisions in your outline. For instance, you may have the following subject headings on your cards:
 1. Propaganda – West Africa (History)
 2. Nigerian Bank of Agriculture – Fund misappropriated.
 3. Nigerian Bank of Agriculture – Expenditures
 4. Nigerian Bank of Agriculture –Compared with South African Propaganda.
 5. Nigerian Bank of Agriculture – Statement of purpose.
 6. Nigerian Bank of Agriculture – Structure and organisation.
 7. Nigerian Bank of Agriculture – Offices and duties.
 8. Nigerian Bank of Agriculture – Effect of South Africans
 9. Nigerian Bank of Agriculture - Plans for the future.

The above should be sorted easily into six piles with the following headings:

1. History (card 1)
2. Purpose (card 5)
3. Organisation (6 and 7)
4. Cost (card 2, 3, 4 and 9)
5. Effects (card 8)
6. Future (card 10)

More cards may be gotten than the illustration above. At this juncture, one can possibly narrow down the subject further by taking out one of the piles of card.

- iii) The cards should be sorted – again under each main division to find subsections for the outline.
- iv) By this time, it should begin to look more coherent and to take on a definite structure. If it does not, then try going back and sorting again for main divisions to see if another general pattern is possible.

- v) You may want to indicate the parts of your outline in the following format:

I

A.

1.

a.

D

These designations should only be used in the outline and not in the paper itself, or else it will look more like an extended outline than a paper.

5. **Writing the First Draft**

- (i) The paper should be written around the first draft, being sure that you indicate in the first part of the paper what its purpose is by following this old formula:

1. Statement of purpose (Tell the reader what you are going to say)
2. Main body of paper (Say it)
3. Statement of summary and conclusions (Tell the reader what you have said)

- (ii) A word about composition:

- a. Traditionally, any headings or subheading include nouns, not verbs or phrases.
- b. Keep things together that belong together. Your outline will help you do this if it is well organised. Be sure you don't change the subject in the middle of a paragraph, and be sure that everything under one heading your outlined is about the same general topic. Short, bumpy and long sentences should be avoided. Straggling sentences with more than one main idea.

- (iii) This is the time to decide upon the title of the paper.

6. **Editing the Paper**

- (i) The paper should be read as if it were cold and unfamiliar to you. It is a good idea to do this a day or two after having written the first draft.
- (ii) A good way to be sure that the language is not awkward and it flows well is by rereading the paper aloud.
- (iii) Proper spelling, sentence construction and phrasing should be checked. It should be ensured that pronouns clearly refer to nouns.
- (iv) Foot notes, quotes and punctuations should be properly checked and ensured that they are in proper forms.
- (v) Check to see that quotations serve one of the following purposes.

- a. Show proof of what has been said by an author.
 - b. Restatement by avoiding misrepresentation.
 - c. Save unnecessary writing when ideas have been well expressed by the original author.
- (vi) Proper forms on tables and graphs should be checked and it should be certain that self-explanation of any table or graph should be ensured.

www.ucls.umn.edu.University Counselling & consulting series
University of Minnesota. Procedure for writing a term paper.
Accessed on 17 - 09 - 2015. 02:05pm.

SELF-ASSESSMENT EXERCISE

Briefly explain the steps involved in the process of writing a term paper.

3.1.2 Peer Review and its Importance

Peer review is an important part of scientific research. It is defined as a process of subjecting research methods and findings to the review or scrutiny of experts in the same area of specialisation. In academic journals, the articles submitted are reviewed by scholarly peers. This implies that articles are submitted to the editor which is in turn sent to reviewers who read and evaluate the article. Often all traces of the author's identity are removed from the article draft before it is reviewed in a process referred to as "blind review". Paper review methods are employed to maintain standards of quality, improve performance, and provide credibility. In academia, peer review is often used to determine an academic paper's suitability for publication. Despite being considered an essential process, it has also been described as ineffective, misunderstood and slow. It can be categorised by the type of activity and by the field or profession in which the activity occurs e.g. scholarly peer review, medical peer review, professional peer review and peer review of government policy etc.

The following are considered importance of peer review:

1. It is employed in the evaluation of applications for funding, to determine which applications are successful.
2. It is used to evaluate the quality of work produced by individuals, teams, departments and institutions to help in the determination of appointment, promotions and level of funding.
3. It is useful in evaluation of publications once they have been published, through review and review articles.

4. It is used to evaluate draft conference presentations, journal articles and monographs, prior to publishing, to determine whether they are up to standard.
5. It is useful in reviewing reports submitted by researchers once their funding award has come to an end, to know whether a project has been satisfactorily completed.

SELF ASSESSMENT EXERCISE

Define peer review and highlight its importance.

3.2 Qualities of a Good Seminar Presentation

Seminar presentation is an integral part of scientific activities. They are ways in which scientists promote their current/on – going projects. It is a focused collaborative group discussion of a text or another common academic experience. In addition, a seminar is a forum that brings together an interested group of learners who have done some preparation, including having read, thought about and written about a particularly good book. The individual preparation should include marking the text for interesting passages, reviewing those sections organising one's thoughts on paper and producing significant questions that need to be explored.

The most important quality of a good seminar presentation is opening the presentation with questions about the text. When questions about concepts, terms: word you don't fully understand are asked at the start of the seminar, it makes the presentation qualitatively good. This is important for establishing common ground for facilitating an atmosphere in which it is really not to know everything. Pretending to know what one is ignorant of inhibits participation and flows down the richness and diversity of the group.

Tying up the discussion with a summary is another quality of a seminar presentation. It is often advisable that the presenter takes a few minutes after the presentation in order to summarise the major ideas discussed and the insights and what was concluded. A good way to re-establish a common understanding of what has been learnt in the seminar can also be achieved alternatively by allowing the seminar members an ample time to give their insights and ideas on the seminar presented. Members with big ideas can then collate them, type them and it can in turn be passed to every other members. This method is useful for building skills in summarising, linking ideas and forming them into meaningful generalisations, or conclusions.

Ending a seminar presentation with a brief process discussion is a quality of a good seminar presentation. This can be accessed by asking questions such as how everyone felt about the seminar process, estimation of the quality of the interactions, what worked out, what didn't work out, why? Why not? Most importantly, how it could be improved.

SELF-ASSESSMENT EXERCISE

Briefly explain the qualities of a good seminar.

3.2.1 How to Give a Good Seminar Presentation

Giving a good seminar presentation entails/encompasses gathering of important procedures/ideas that will greatly facilitate the scientist on how to give the presentation. Here are some important procedures to be considered on how to give a good seminar presentation.

1. Preparation of content entails what to include and what not to include in the seminar presentation. Telling a story with a beginning, middle and end will go a long way in capturing the interest of seminar participants.
2. Try to cover a few key points well rather than everything poorly.
3. Present an overview i.e. state all what you are going to tell the audience.
4. Give a summary of what you have presented.
5. Have a sufficient introductory material for non-experts.
6. Get sufficient detailed material for experts.
7. Do not include unnecessary details because people will ask if they need more detail.
8. Do not add to many/any equations.
9. Try asking yourself "what is my main message"
10. Pertaining to timing of presentation, each slide should take 1¹/₂ - 2 minutes i.e. 30 minutes talk should have no more than approximately 20 content slides.
11. Aim for consistent "look and feel" about your slides (same font, layout and design)
12. Show creativity with your ideas not your font/colour choice.
13. Try to have minimum of information on each slide.
14. Make sure graphs are labeled.
15. Prioritise and organise your main points in a logical order.

SELF-ASSESSMENT EXERCISE

Mention the steps involved on how to give a good seminar presentation.

3.2.2 Advantages of Giving a Good Seminar Presentation

Good seminar presentations are effective at communicating the message and achieving desired outcomes. They are also efficient in that they achieve their objectives with the least amount of work on your part and the part of the audience. If the audience is clearly understood, their expectations are being met in a respectful and convincing way. It gives good motivation and learning experience thereby aiding the learners (audience) to get in – depth knowledge of the subject being presented. By so doing, the participants (audience) can prepare and compile their own paper for seminars giving them readiness of mind thereby making learning structured. This in turn makes the learning experience of the audience or seminar participants to be highly structured. Furthermore, giving a good seminar presentation guarantees the understand ability and enhances the capability of the learning students and seminar participants.

SELF-ASSESSMENT EXERCISE

List and discuss the techniques and strategies for scientific writing and seminar presentation.

4.0 CONCLUSION

In this unit, you have learnt that scientific writings and seminar presentations can be achieved by strictly adhering to the necessary techniques and strategies involved to make a good writing and presentation, thus, boosting the writer and presenter's confidences in partaking in the scientific writings and seminar presentation processes.

5.0 SUMMARY

This unit has illustrated that scientific writings and seminar presentations aim at effective communication of new ideas or an important information of interest to the target population (researchers). Hence, the processes of scientific writing, peer review and its importance, seminar presentation and its advantages will all enhance researcher's understanding about the process.

6.0 TUTOR-MARKED ASSIGNMENT

1. Briefly discuss the criteria for seminar presentation.
2. Peer review is pertinent to scientific writings. Explain why it is so.

7.0 REFERENCES/FURTHER READING

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UNIT 2 CHOOSING THE RIGHT TECHNIQUES FOR A SOUND SCIENTIFIC WRITING AND SEMINAR PRESENTATIONS

CONTENTS

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- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Writing Styles
 - 3.2 Writing Tips
 - 3.3 Seminar Presentation Tips
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor–Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This is the second unit of this course; our focus here is on choosing the right techniques for a sound scientific writings and seminar presentations with special reference to writing styles and presentation tips. Writing style majorly entails how scientific papers are written clearly. This should be desired because of reasons such as to be sure that one gets the message correctly across to the readers and for the writer to be sure that he/she knows what he/she meant. The style in which a writer presents his/her paper is of utmost importance in ensuring that one becomes clear and brave in writing. For effective message transfer in written form, it becomes essential to organise your paragraphs both within and between. On the other hand, seminar presentation tips usually aim at taking care of all kinds of things we do when speaking in public that we are not cognisant of which makes our presentation less effective and impactful.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- discuss the necessary tips required to be brave, precise and clear in writing
- describe the basic structure of sentences
- explain the necessary tips used to enhance an effective seminar presentation.

3.0 MAIN CONTENT

3.1 Writing Styles

An understanding of scientific writing style in the field of agriculture provides a tool that sharpens critical thinking about ideas and evaluation of conclusions. Writing styles includes use of topic sentences, subject - verb - object format, tight writing eliminating fog, use of plain English and so on.

a. Topic Sentences

There must be a clear concept of what the paragraph is about to address before starting to write a paragraph. A paragraph can be well constructed but without being organised around a well-defined topic, it can be very difficult to understand. Topic sentences begin a paragraph and explain what it will be by creating an expectation which is filled with the supporting sentences. In view of this, topic sentences are essential tools for organising paragraphs for improving the readability of the paper. They are also useful for writing the introduction and discussion and, to an extent, the result section. However, the need for topic sentences can be replaced by a standard subheadings in the abstract and methods.

Furthermore, if a clear topic sentence is used to start a paragraph, a good idea of what information is likely to follow is quickly gotten. On the other hand, if you cannot write in clear sentence what your paragraph entails, then there is no need for the inclusion of that paragraph. Topic sentences act like mini sub - headings which direct readers to appropriate journals of interest and aid in grasping information contained in the section by mere look.

b. Subjects, Verbs and Objects

This is also an important form of writing style because the simplest and most easily understood sentences are constructed in a subject - verb-object format. The subject is a noun or noun clusters that usually end a sentence. The two parts are then joined by a verb or verb cluster in the centre.

For example in the sentence however, cases are difficult to ascertain through retrospective population studies. It can be seen that this is made up of a conjunction (However), a subject (cases), a verb cluster (are difficult to ascertain) and an object (through retrospective population studies) that is a noun cluster. Similarly, the sentence most farm statistics show that pest infestation occur mostly during the rainy season; has subject (farm statistics), a verb (show) and an object (that pest

infestation occur mostly during rainy season). Both the subject and object are noun clusters.

It is therefore important to understand this construction for analysing sentences to make the flow well and work better. It is also advisable not to deviate too much from the subject -verb -object format, if not your sentences will be weighed down by too many messages which the reader (target population) may not comprehend.

Writing clearly (clarity) depends on a smooth flow of ideas and a smooth transition between sentences and between paragraphs. It is important to create flow because it allows the mind to travel along a path to instant understanding. Writing that flows well and is easy on the mind will always be appreciated by the reader simply because no reader wants to endure endless “stop and think” pauses to decode how an idea in one sentence links to the ideas in the next. Two main methods of maintaining a flow of ideas is the use of conjunctions or transition words to link sentences and linking the beginning (or subject) of the sentence to the end (or object) of the previous sentence. This help to maintain ideas in the reader’s mind because it avoids any change of thoughts when they get to a full stop. On the other hand, the former method (conjunction or transition word linkage) involve using classical transition word such as however, therefore, furthermore, for example etc. which are useful in joining things together. Nevertheless, it is worthy to note that they cannot be used throughout a paragraph.

Tight writing is the art of achieving brevity by using short, brief sentences. Sentences and paragraphs that have a minimum number of words and that only include the information needed are often desires by the readers. Scientific papers or articles must be written tightly in order to please readers. It (tight writing) is a simple process that has to do with putting one’s thought down in one sentence, and then one do self-criticism to see how many words can be left out. When a series of short, brief sentences have been achieved, then one can arrange them in a logical order and join them up to create flow. If this formula is being followed carefully, you will automatically please your readers, reviewers and publishers.

SELF-ASSESSMENT EXERCISE

Briefly discuss some writing styles.

3.2 Writing Tips

This comprises of guidelines to be followed in order to achieve an effective scientific writing. Here are some tips to keep your scientific writing sound and impactful:

1. Write the topic sentence. Begin each paragraph with a topic sentence and use the main subject of the paper as subject of the sentence.
2. Draft the remainder of the paragraph. Follow the topic sentence with supporting sentences.
3. Put the sentences in the correct order. Check for logic in the order in which you present ideas.
4. Eliminate fog. Simplify your thoughts and your sentences, everyday words and avoid jargon and acronyms.
5. Say what you mean by inspecting word orders and meanings.
6. Ensure flow between sentences by linking end of one sentence to beginning of next or use transition words.
7. Write tight: This can be achieved by deleting all non-essential word, phrases and clauses.
8. Use of short sentences of about 20 – 30 words can be appropriate.
9. Ensure maintenance of consistent view points and orders within and between sentences.
10. Make your paper look attractive by chopping up walls of text and keeping changes of topic visual (new paragraph) and new topic sentences.

SELF-ASSESSMENT EXERCISE

Based on your reading of section 3.2, explain seven (7) writing tips.

3.3 Seminar Presentation Tips

Seminar is a perfect opportunity to learn skills and sharpen one's way of communicating effectively. Seminar presentation tips comprises of guides to effective seminar delivery. Here are some tips to achieving a good seminar presentation:

1. Ensure the usage of good diction and speak clearly at a steady pace.
2. When speaking to the audience, they should be faced directly.
3. Your ideas should be expressed fluently using clear and fluent language.
4. Try to maintain a good eye contact with the seminar members.
5. A good posture and positive body language should be maintained.

6. Ensure you present information concisely by avoiding repetition.
7. Use visual aids that present the information clearly, avoid wordy power point slides and stick to the key points.
8. Organise the presentation to comprise of introduction, body and conclusion.
9. There should be an acknowledgement of your sources of information both verbally and on your visual aids (handouts/seminar papers and power points).
10. Above all, keep to time allocated.

SELF-ASSESSMENT EXERCISE

- i. What is a seminar?
- ii. Explain six tips to achieving a good seminar presentation.

4.0 CONCLUSION

Scientific writing techniques encompass writing styles and tips which enhance the writer's capabilities and ideas to be well presented to the readers. This in turn aid in achieving brevity and clarity in scientific write – ups. Seminar presentation tips also give a guide to the presenter in order to achieve a sound presentation and for effective communication to the audience.

5.0 SUMMARY

Writing styles and tips from important aspect of scientific writing techniques and strict compliance with them should aid the writer's understanding of how scientific papers should be effectively written. On the other hand seminar presentation tips can assist the presenter to make impactful and sound presentations.

6.0 TUTOR–MARKED ASSIGNMENT

1. Scientific writing requires clarity, brief and precision. Discuss six tips required to achieve these qualities.
2. Briefly explain the following concept as related to writing tips.
 - (i) Tight writing
 - (ii) Topic sentences

7.0 REFERENCES/FURTHER READING

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UNIT 3 HOW TO KEEP SCIENTIFIC WRITINGS AND SEMINAR PRESENTATIONS CLEAR

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1.0 INTRODUCTION

Scientific writings and seminar presentation are both important ways by which research findings are communicated to a group of similar interest. These processes form a very pertinent aspect of improving the writer and presenter's idea about the research topic being written and presented. However, in executing the above process, clarity should be an important consideration and be given priority. This is because when a scientific writing and seminar presentation are clear, the intended messages will be easily and effectively passed across to the targeted reader and audience. Strict adherence to specific guidelines will aid in carrying out these processes.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- state the procedures of scientific writing and seminar presentation
- discuss several ways of improving scientific writing and seminar presentation.

3.0 MAIN CONTENT

3.1 Need for Improvement in Scientific Writing

As a scientist, there is need to communicate research plans or results to several groups of people such as scientists at large, colleagues, research funding agencies, collaborators etc. Since the major aim of scientific research is to produce novel research results, this necessitates a need in the improvement of this process of writing. By so doing, it makes your communication more effective, increase the influence of your scientific work, and also help to organise and clarify your own thinking. Improving scientific writing requires elementary guidelines to be followed.

3.1.1 Tips for Improving Scientific Writing

Improvement in scientific writing starts from organising information related to your work. This is done by keeping a record of questions, immediate results and arguments. Use of systematic notes in notebooks and/or folders is desirable.

Improvement should also be based on selection of your audience/reader in order to suit their understanding of the topic because confusing papers are not easy to get read. Furthermore, when using new terms, symbols or concepts, for the first time, make sure they are defined. Try to cite examples as it helps readers understand new concepts. Making an outline is also a good way to improve scientific writing. This consists of a list of topic to be discussed. It also offers the merit of portioning the task of writing the whole paper into a number of smaller tasks. It helps in identifying gaps in your information which if present, may necessitate returning to the research.

Writing grammatically correct and complete sentences go a long way in improving scientific writing. Incomplete sentences should be avoided as much as possible. Also long sentences that have potentials of confusing the reader should be avoided by writing short clear sentences.

Try to use active voice. This is because passive voice tends to weaken the presentation of stated facts and inserts indirectness that detracts from the impact of research. Considering the following sentence, it's better to state "After harvesting, all the students rested for some hours" instead of "All the students were allowed to rest for a few hours after harvesting".

Moreover, in presentation of hypothesis, measures and analysis, it is important to be highly consistent. Subsequent confusion should be adequately prevented by preserving the order of measures and variables

wherever they appear throughout the write-up/manuscript/projects (from abstract through tables).

3.1.2 Checklist for Clear Writing

This simply refers to a list of task in scientific writing to be accomplished in a specified order for the scientific writing to be certified clear. It also ensures that no important step is missing. The following checklists can be considered for clear and effective writing.

- A. Are your points clear?
1. Ensure that:
 - (i) Your points are clear enough so that the reader can easily pin point the topic of each paragraph and section.
 - (ii) Information necessary to support your point has been included.
 - (iii) Irrelevant information to your topic should be removed.
 - (iv) You use clear wordings that readers could understand.

- B. Did you clearly express yourself with effective and correct grammar?
2. Ensure that you clearly express yourself by using correct grammatical forms such that:
Every sentence has a subject and a verb. Also subject – verb agreement should be strictly considered.

Every count noun is plural or has a determiner which include a, an, the, any; possessives such as my, your, our, his/her; pointing words such as those, these, that.

Your verb time is clear, Past verb forms should be used to express past time (e.g. to express specific processes or experiments that have been completed or to cite specific research results).

You use appropriate sentences connector to ensure clear and logical writing.

Use if/then structures correctly. For example; (1) Statements of general truth: erosion becomes a problem if the land is overgrazed. (2) Prediction statement- If you allow sheep to overgraze this field, you will have problems with erosion.

- C. Is the assignment or topic, addressed by your writing?
3. Ensure that your writing address the assignment:

Write to help your reader understand what is understood by you about the topic.

Think of what question your reader/audience has and how to answer them.

Are the sources of materials used clearly cited?

4. Ensure clear citation of any material that have been used by:

Following appropriate guidelines in citing materials used e.g. APA styles.

Adding an up - to - date and correct reference list at the end of the write - up.

Paraphrasing information where necessary, this must also be cited clearly mentioning the page numbers.

- D. Is it clearly stated in the abstract why the work is new and worth publishing?
5. In the abstract, it is important to clearly state the reason why the work is being carried out (i.e. the progress that is being made) and the reasons why it is worthy of being published.
- E. In writing introduction, are the previous works being cited?
6. It is very important to cite the existing works (literature review) that has been done before you intend carrying out your own research work. This assist the readers to keep track of what had led to your own present research.
- F. In explaining the methodology of your research work, is enough information that could aid reproducibility of the research provided?
7. It is pertinent to ensure that the entire procedure is being outlined even if some details described must be found in other works.
- G. In presenting the results and discussions, did you make sure that the main results are exposed and new findings compared to existing works are clearly and adequately explained?
8. (i) Result presentations should be aided by the use of mini introductions. This gives a clear insight of the research findings.

- (ii) In the process of discussion, repeating information from the result section should be totally avoided and limitation to your work should be admitted.
 - (iii) It may also be necessary to describe future applications, improvements and generalisation of your research work in the discussion section.
- H. In drafting your conclusion, could a reader deduce necessary information and learn about your work at a glance?
9. (i) Conclusions should be written and presented such that a reader can pick meaningful information by mere flipping through your conclusion.
- I. In figure presentation, is each figure main points appropriately explained by the figure title?
11. (i) Ensure that the figures presented are explanatory by labeling them with appropriate titles.
- (ii) Try to include arrows in the graphic so as for the readers' effort to be as insignificant as possible.

SELF-ASSESSMENT EXERCISE

Briefly illustrate a typical checklist for clear writing.

3.2 Criteria to Improve Seminar Presentation

Improving seminar presentation skills gives room for getting adequate attention of the audience, hence aiding effective communication between the speaker and the audience. Although, this process of improvement is time consuming and require a lot of efforts being channelled towards a successful outcome. It reduces the speaker/presenter's anxiety. It also encompasses personal improvement on preparation, visual aids, organisation and delivery.

1. Preparation requires more time to be dedicated, because the more the time dedicated, the better the presentation. Ensure that everything about preparation is not pushed to the last minute. Specific time should be set aside for preparation and 95 per cent completion of slides at least three days before the presentation should be aimed at. This is to afford the presenter the opportunity to rehearsing and changing little details on the slide if necessary. Jotting down ideas i.e. putting one's ideas into writing often helps in focusing on the task at hand and in clarifying one's thinking. It also assist in organising one's thought into right logical order.

2. Knowing your audience and their background has high impact on the improvement, quality and structure of your presentation. This will determine the amount of time that will be spent on the introduction, explanation of each technique and section of the presentation. If the audience are from a broad range of backgrounds, there will be need to improve on the introduction of your field of research, what it is about and the importance of doing research in your fields. On the other hand, if most of your audience consists of scientists in your field, then novelty of your research should be the major focus.
3. Learning from other speakers greatly helps in improving one's presentation skills. When attending presentations, personal questions such as what makes this presentation great? Why was this presentation bad? What mistakes were made due to the presenter's nervousness? Need to be asked. By personally analysing these questions, you might get enough hints on improving on your own presentation style.
4. Wrong impressions are often created by body languages during seminar presentation. It is however important to make presentation with moderate gesture. Try to loosen up a bit by making effort to also relax when feeling over-excited. Smile also goes a long way to improve body language because it relaxes the body thereby improving presentation skills.
5. Use of laser pointer should be avoided if you have shaky hands. Alternatively you should use two hands; one hand should be used to support the wrist of the hand holding the laser pointer.

SELF-ASSESSMENT EXERCISE

Briefly explain the strategies for improving seminar presentation.

4.0 CONCLUSION

It has been explained in this unit how scientific writing and seminar presentation can be made clear enough for the readers and audience taking cognisance of various strategies that can be of help to agricultural students to achieve these goals.

5.0 SUMMARY

The unit has provided you with an opportunity to understand how scientific writing can be clearly improved through the use of checklists and understanding your audience. Also seminar presentation

improvement criteria could also include knowing your audiences' background, learning from other presenters, preparation etc. all of which will help in ensuring effective communication.

6.0 TUTOR-MARKED ASSIGNMENT

1. Briefly explain the various tips for improving scientific writing.
2. Highlight five (5) checklists for clear writing.
3. Mention five (5) strategies by which seminar presentation can be improved.

7.0 REFERENCES/FURTHER READING

Eric, D'Hocker (2006). *Improving your Scientific Writing*.

Mary Westervelt (2009). *Technical Writer's Checklist*.

Hurley, P. (2013). *5 Techniques to Keep Your Scientific Writing Clear and Impactful*.

MODULE 2 GUIDELINES FOR A GOOD SCIENTIFIC WRITING AND SEMINAR PRESENTATION

- Unit 1 Scientific Writing and Seminar Presentation for
 Agricultural Research
- Unit 2 Scientific Writing and Seminar Presentation Skills
- Unit 3 Guides for Good Scientific Writing (Research Manuscript)
 and PowerPoint Presentation

UNIT 1 SCIENTIFIC WRITING AND SEMINAR PRESENTATION FOR AGRICULTURAL RESEARCH

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Need for a Guide to a Good Scientific Writing
 - 3.1.1 Step-by-Step Guide for a Successful Scientific
Writing
 - 3.2 Seminar Presentation Guidelines
 - 3.3 PowerPoint Presentation
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This unit will give detailed information on the guidelines to achieve a good scientific writing and seminar presentation for agricultural students.

Science and scientific research form a crucial aspect of every developmental process. Likewise, in countries that depend on agriculture, continued agricultural research becomes extremely important to its progress which is solely dependent on dissemination of research findings appropriately. However, the difficulty that arises in such countries is lack of access to information because unless the research results are put to use, they would rather be ineffective. This greatly contradicts the aim of scientific writing which is to document your work for other scientists.

Writing begins when the data obtained and preliminary analysis has provided the basic answers to your research questions, preliminary results have been organised into graphs and tables, some slides have been developed for presentations and some reports have been drafted.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- outline the guide for a scientific writing
- explain the basic steps in preparing power point.

3.0 MAIN CONTENT

3.1 Need for a Guide to a Good Scientific Writing

From our discussion in module 1, you would observe that as there is need for improvement in scientific writing and seminar presentation for clear and effective communication between the writer/presenter and the reader/audience. There is also the need for a guide and for a good scientific writing and seminar presentation for agricultural students. This have an advantage as it offers the greatest potential of properly organising your writing and presentation. It's provide support in form of a step – wise journey through the important aspects involved in writing and presentation. Below is a step – by – step guide for successful scientific writing and seminar presentation for agricultural students.

3.1.1 Step – By – Step Guide for a Successful Scientific Writing

Scientific research articles usually possess a structure which solely depends on journals or institution to which your article or project is to be submitted. These include page and figure limits or specific division of the project or article to which the writer must follow. However, the basic structures include the abstract, introduction, method, result, discussion and conclusion.

Abstract

This is usually bound by specific word limit and single line paragraph. It contains the summary.

1. Attention must be well paid to the abstract writing because the abstract is important to provide an insight to your result in form of a summary. Readers do not go through the whole write up because many rely on reading the abstract to know whether to get

the entire article. It is however important to be sure that the abstract answers pertinent questions about your research such as what the purpose of the study was, the methods used, what the major results are and what they mean.

2. When writing an introduction, try to keep it short and include the reason why the study was undertaken. It should be brief and narrowed down from the broad perspective to a specific aim. Avoid including a lot of material that is meant to be addressed in the discussion.

In the method sections, ensure that precise details of the study design is given, method of analysis and information on where the study was conducted. Also try to document any material used and experimental models should be noted.

- 1) In compiling the results, efforts should be made on supplementing by tables and figures which should be briefly explained. Ensure that no conclusion is drawn and any interpretation is not made.
- 2) In discussing the results, ensure that the problem at hand is restated and the results addressed is properly summarised. Endeavour to discuss the significance of all the results, and their meanings should be interpreted.
- 3) In concluding scientific writing either articles for publication or projects to be submitted, try to discuss the benefits that will be reaped by other scientists in your field, from the results generated. State what future experiment could be carried out based on your research.
- 4) Ensure that the contributors (e.g. reviewers, technical staffs) to the research are appropriately acknowledged.

SELF-ASSESSMENT EXERCISE

The need for a step – by – step guide, to a successful scientific writing is paramount. State the reasons.

3.2 Seminar Presentation Guidelines

These are directives put in place to help the students/presenter in making a good presentation. In universities, there are several possibilities why a student may be asked to present a seminar. This may either be results for Bachelor or Master's thesis, presentation for a course that you have attended with a seminar part, a term paper or chapter of a book written by someone else. Whatever type of seminar the students have to present, it is important to follow certain guidelines.

1. Preparation and presentation on tent. Thesis may be structured into the following part.
2. Title page which should contain the name of the research to be presented, authors, presenter and date.
3. Media such as Microsoft power point, later banner, handout, board, overhead projector etc. may be used for presentation; depending on the specification given by the department or coordinator of the course. In a situation where power point presentation is to be adopted, the following guidelines can be appropriate.
 - a. Ensure that the slides are structured to have an order of title slides, outline, introduction (problem description, motivation), method (important theoretical background), results, summary and conclusions (discussion/future work), references and thank – you slide.
 - b. The layout of the slide should be such that it is not overloaded. Try to export the presentation as a PDF to be sure that it appears the same on different operating systems.

If the use of handout is adopted, ensure that the audience are presented with a copy each. It should not be longer than 2 pages and must contain either the most important facts of the presentation or additional aspect of a topic.
If the board is preferred, ensure that one is present at the announced presentation venue. Make sure that the notes are well structured at the board.
4. Denoting citations is essential if you are citing an article directly.
5. Use appropriate editors to display formula correctly if present. The best way to be sure of this is to prepare a PDF version of the slides to avoid incompatibilities of power point versions.

c. PowerPoint Preparation

A good power point preparation offers a great advantage of simplicity and easily understood presentation. It therefore requires that you have an adequate knowledge about the use of Microsoft power point. The steps presented below provide some basic steps in creating power point slides.

1. Open Microsoft power point.

2. Click new on the file icon to the top of the screen. A box that says “New presentation” should appear on the right side of your screen.
3. In the “New presentation” dialog box, click on “Form Design Template”. You may then look through design templates and choose the desired one.
4. For slide design, choose the design template by clicking on the template you like. You may click on “colour schemes” in the “New presentation” dialogue box to choose a different colour for your template.
5. In changing the slide layout, you may change how information is presented in the slide by going to the top of the screen and clicking on “Format” – “slide layout”. A box will appear on the right side of your screen (where “New Presentation” appears) labeled “slide layout”? You may select a design by clicking on it.
6. When adding text, enter your text by clicking and then typing in the box titled “click to add text” or “click to add title”.
7. If you want to add pictures, click on the text box that says “click to add content”. Inside that box, there will be a smaller box with six open, allowing you to browse for a picture on your computer or a CD. Once you find your picture, click on it and then click insert.
8. You may change the size of your picture by resizing the picture on the slide. The picture will then have black lines surrounding it with bubbles or boxes in the corners. Place your mouse over the bubble or boxes in the corners, and click. Holding the mouse pointer down, drag the picture to the size you want.

SELF-ASSESSMENT EXERCISE

Highlight the steps involved in a power point preparation.

4.0 CONCLUSION

The various guidelines for successful scientific writing and seminar presentations can be of great help to the agricultural students if strictly adhered to. Also the basic steps involved in preparation of power point are essential for a good power point presentation at seminars.

5.0 SUMMARY

The structures possessed by a scientific article are determined by the particular journal where the paper is to be submitted. On the other hand, project write – up format is determined by the faculty specification to which it is to be submitted. However, the similarities among scientific writings are the sections; abstract, introduction, materials and methods,

results, discussion, conclusion and recommendation, acknowledgement and references. Hence, guidelines aid the success of these processes. Presentation guidelines also pre – informs or guides you to achieve good presentation.

6.0 TUTOR-MARKED ASSIGNMENT

1. Briefly explain the guide for a successful scientific writing.
2. What are seminar presentation guidelines?
3. Outline the basic steps involved in preparing a power point slides.

7.0 REFERENCES/FURTHER READING

Chair for Clinical Bioinformatics (2015). Some Guidelines on How to Prepare a Scientific Presentation.

Groote, H. (2001). *How to Write a Great Paper in Agricultural Development and Get it Published*.

Haake, C. J. (2015). *Presentation and Seminar Guide*.

Pahr, D. &Daxner, T. (2011). *Seminar Presentation and Seminar Manuscript*.

Read. Write. Think (2007). Creating a Power Point Slide.

UNIT 2 SCIENTIFIC WRITING AND PRESENTATION SKILLS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Review Articles
 - 3.1.1 Definition
 - 3.1.2 Types or forms of Review Articles
 - 3.1.3 Elements of a Review Article
 - 3.1.4 Steps Involved in Preparing a Review Article
 - 3.2 Seminar Presentation skills
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor–Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This second unit is designed to enable you master the skills involved in scientific writing and seminar presentation. The unit will briefly explain the necessary skills needed in scientific writing and seminar presentation. The writing skills are essential in academia majorly, because they can be used for grant application, project proposals and article publication in scientific journals. Likewise, having an effective seminar presentation skills helps in delivering message with poise and power in turn transforming your ideas and vision into influential presentation.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- write a review article
- state procedures of writing a review article
- explain some seminar presentation skills.

3.0 MAIN CONTENT

3.1 Review Article

3.1.1 Definition

These are articles that discuss previous researches that have been published by other authors instead of reporting new research findings. They are usually associated with academic journals. It is of more benefit to the reader due to its explanatory nature and assessment of how valid and applicable the individual studies are.

3.1.2 Types or Forms of Review Articles

The forms in which review articles come are as follows:-

1. Literature review
This is classed as a secondary review. It summarises author's best and most important perspective before publishing.
2. Systematic review
This is also a secondary review. It determines an object list of criteria gathers and compares the results of previously published original experimental paper that meet the criteria. These results are analysed statistically by strict procedures and pooled using meta – analysis.
3. Narrative review
In this type of review, selected studies are compared and summarised on the basis of the author's experience, existing theories and models.
4. Status quo review entails presentation of the most current research for a given topic/field of research.
5. Model/theory review is about introduction of a new model/theory in a particular research field.

3.1.3 Elements of a Review Article

The basic elements of a review article are:

1. Title
It influences the reader's decision whether or not to read the text. The title must be informative and has to induce important terms. It must indicate that the text is a review article and the message of the article may be included. The title must be short and concise. In a title that portrays the results, the present tense is used to stress the general validity of the result and shows what the author

is trying to achieve with the article; the past tense point out that the results are yet to be confirmed. No citation should be a question if this question remains unanswered at the time of the writing.

2. Author's list

This help to show intellectual owner of the work and the contact details. Authorship is due to everybody that actively participated in the writing process, literature search and or exploration of the article. The first author however is due to the person that might have done most of the research and written major part of the article while authors between the first and last authors are persons who have in any way contributed to the success of the project and the last author usually coordinated the project.

3. Abstract

This tells the reader about the major aim and results of the article reviewed or showed the structure of the text. It describes the subject covered without specific details. A few sentences describe the materials and methods used main outcomes and conclusion (in relation to the objectives). The objectives and conclusions are written in the present tense while past tense is used to present the methodology. Review article usually contain no citation and of 200 -250 words.

4. Table of Contents

This section indicates the order in which the text is been arranged. It aids in orientation among sections.

5. Introduction

This section gives information about the context, defines the focus, the research question, illustrates the structure of the text and indicates what prompted the review. The general topic, issues or area of concern is given to explain the context by a study background. The problems stated in the introduction section shows the trend, gaps, new perspectives, conflicts or a single problem. It is usually written in present tense with many citations included. It occupies a range of 10-20 per cent of the whole text. It is however needed to justify practically/theoretically why the review was carried out.

6. Materials and Methods

Generally, in writing review articles, inclusion of materials and methods section solely depends on the type of review being written. For instance, systemic and best evidence reviews have a method sections which aid repeatability of the review by other

researchers. It also contains information about data sources, the number of studies screened and statistical methods of meta-analysis. On the contrary, narrative reviews do not have a method section although; it is advisable to add some information about applied methods after introduction. It is usually written in past tense with few citation and approximately five per cent of the introduction, body and conclusion.

7. Body

It is important to structure the section of the review body. Therefore it is necessary to coherently structure the topic so as to develop the section structure. The content of different section is shown by the subheadings. Likewise structuring the paragraphs put several studies into consideration and avoids referring to only one study per paragraph. It is usually written with present, simple past and present perfect tenses. Citations can be made and the length should be 70 to 90 per cent of the context.

8. Conclusions

This section helps to answer the research question in the introduction. It shows the implications of the research findings, interpretation by the authors and identifies unresolved questions. It is usually written in present or present perfect tense and there may be few or no citations in it. It usually occupies 5 to 10% of the core text.

9. Acknowledgements.

This shows gratitude to people who participated, one way or the other in the writing process and funding agencies. Their full names and their specific efforts must be mentioned including. It should be written in present tense and it doesn't require citation of any literature.

10. References

This guides interested readers on how to get the literature cited in the text. It acknowledges the work of other scientist and therefore becomes compulsory to avoid charges of plagiarism. It is most appropriate to cite references between the ranges of 50 – 100 in review articles. Every reference cited should be written fully in the reference list. Each reference must give the reader all information required to find the original paper.

3.1.4 Steps involved in Preparing a Review Article

The steps for preparing a review article consist of several stages with general guidelines that must be followed for a good review article to be written. The steps or stages are presented below

1. Preparation stage
Try to narrow the topic, define a few research questions or hypothesis. Refine the research topic and questions while searching for literature. Read, evaluate and make notes. Redefine the focus and research question and compose a preliminary title.
2. Structure development
Finding a structure such as subject matter or experimental procedure for the article is advisable. Prepare an outline and find headings for the section in the body of the text. Plan the content of each paragraph in the different section and prepare tables, concept maps and figures.
3. Writing a draft
Ensure that the method section, body sections, abstract and titles, tables figures and legends. References and citations also need to be revised. Grammar, spellings and punctuations should be checked and the layout be adequately adjusted.

SELF-ASSESSMENT EXERCISE

Highlight and briefly explain the basic structure of a review article.

3.2 Seminar Presentation Skills

There are skills required by a presenter to deliver a good oral presentation to the audience. Good seminar presentation skills require an understanding of some underlying principles which helps you to become more confident. However, in developing/building up these skills, you need to consider some factors before, during and after the presentation. Adequate preparation and constant practice/rehearsal stands as a key to a successful presentation of ideas.

Before presentation, gathering and selecting materials to use for preparation is of paramount importance to this process. Accessing the authors of many sources of information available to you, accuracy of the source before reliance on them to support your points is also of utmost importance.

During presentation, being steady and ensuring that your notes are in order, visual aids and also the organisation of the environment of presentation venue constitutes a great skill. Furthermore, giving some thought to your voice, body, time and audiences are also good presentation skills. Giving thought to your voice means that it is audible. This is usually achieved when you keep your head up and speak slowly and clearly. Keeping to time by ensuring that note is being made and concerning the time scheduled by the panel and keeping eye contact on the clock to avoid exceeding the time limit is also a good presentation skill.

After the presentation, tackling questions with care and giving full attention by appearing to be interested is another good skill that should be employed after the presentation.

Summarising the question by rephrasing it gives an ample time to think and confirm with the questioner that the question asked is understood by you. Therefore, answering questions briefly and straight to the point makes a great skill.

SELF-ASSESSMENT EXERCISE

What are seminar presentation skills?

4.0 CONCLUSION

Review articles are summaries of other researchers' findings in a particular field of interest. The basic sections of these review articles depend on the type of review. However, the several steps involved in writing these review articles serve as guides to students thereby enhancing the abilities to put up a review article. On the other hand, seminar presentation skills requires efforts to be developed, hence adequate presentation skills acquisition by the students enhance a good seminar delivery.

5.0 SUMMARY

In this unit, you have been exposed to seminar presentation skills, writing a review article, types of review articles, elements, basic steps, or guidelines involved in writing it. These steps help in writing a good review article. The seminar presentation skills such as preparation and critical considerations advised to be made before, during and after presentations offers a great opportunity in developing or building up sound skills for presenting.

6.0 TUTOR-MARKED ASSIGNMENT

1. Mention three (3) types of review article
2. Write short note on the following elements of a review article
 - a. Title
 - b. Acknowledgement
 - c. References
3. It is necessary to make some considerations in the process of building up sound seminar presentation skills. Briefly explain.

7.0 REFERENCES/FURTHER READING

Gopen, G. D. & Swam, J. A. (1990). *The Science of Scientific Writing*.

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Mayer, P. (2009). *Guidelines for a Review Article*.

Steve, M. C. (2002). *How to Write a Good Technical Article*.

Turk, C. (1985). *Effective Speaking: Communication in Speech*.

UNIT 3 GUIDES FOR GOOD SCIENTIFIC WRITING (RESEARCH MANUSCRIPT) AND POWERPOINT PRESENTATION

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Common Errors Associated with Scientific Writing
 - 3.2 Common Errors Associated with Research Seminar Presentation
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This is the third unit of this module. Remember that unit two dealt with skills in writing scientific article (review articles) and skills used in presenting, while this unit will deal with common errors associated with the sections of a scientific writing and seminar presentation and how to avoid them.

Across all countries all over the world, every discipline and culture, scientists are united by writing scientific papers, like wise seminar presentation represent a medium where scientists can be more enlighten on a common ground. Therefore, science should be communicated without errors while taking difficult ideas and expressing them with simplicity.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- identify common errors associated with different sections of a scientific write – up and seminar presentation
- avoid these common errors.

3.0 MAIN CONTENT

3.1 Common Errors Associated with Scientific Writings

From our discussion in unit two, you would have observed that most scientific writings generally can be structured into different sections of title, abstract, introduction, materials and methods, results, discussion, conclusion, acknowledgement and references. However, for effective writing or communication to take place, there is need to be familiar with the common errors being made by scientists during the process of writing and how to avoid them. Such errors associated with each section are discussed below:

a. Abstract.

This is a very short section of a scientific writing such as projects, thesis, review articles, journal papers to be submitted for publication. Hence, writers easily make mistakes in writing this section. As described earlier, an abstract is a summary of the whole paper. Sometimes, authors make mistake of including part of the background information in this section with less reference to the results or conclusions of the study. In several areas, most authors frequently miss out important information such as the reason for the study, methods used, major results and interpretations. There may also be too much background information (the problems, methods and implication of the study) included in the abstract.

How to Avoid these Mistakes

1. Make sure an abstract is included in any scientific paper being written.
2. Avoid too much information in the abstract, as interested readers will find the necessary information in the introduction section.
3. Ensure that the abstract addresses information such as reason for the study, methods used, major results and their interpretations.
4. Usually one to two sentences should address each section (introduction, methods, results and conclusions).

b. Introduction

An introduction functions in providing the detail of a paper to a reader. It becomes necessary that you summarise the problem to be addressed, give subject background and precious researches done on the topic and explain what the written paper entail. However, the common mistake associated with this section is the inclusion of too many information and at times sub optimal information. The latter mistake occur when you

assume that your readers understand your topics better thereby leading to a neglect of concepts explanation / enough background information or discuss previous studies. Sometimes, authors develop their introduction thoroughly but it may not be clear, what the remaining part of the paper will capture. Listing materials in paragraph or bullet format, providing information into an introduction without organising or structuring them and also starting this section with an amusing story are also common mistakes to be taken cognisance of.

How to avoid errors in writing introduction

1. Ensure that too much information is not in the introduction, rather short and precise information is advisable.
2. Avoid suboptimal provision of information by putting your audience into consideration.
3. Try to state clearly what the paper entails, the methods used and the reason why the research was done.
4. Avoid listing or bullet points by explaining your study in prose.
5. In scientific writing (research reports), reporting in first person is not allowed rather use active voice.

c. Materials and methods

This section assists the readers to successfully carry out your experiment and come up with results. In view of this, you need to give exact detail of what you did, how you did it, the materials and equipment used, their cost and how often they were used. Sample preparation techniques, origin and sample of the material must be specified. Information on field site description, exact location, data collection protocol, statistical analysis techniques used and, computer programmes used should be stated. However, the major mistake commonly associated with this section is too little information is supplied. Only few authors include too much information. Sometimes an author will include background explanation of concepts or materials and may also get carried away in describing their experiment and ends up reporting results, discussing sources of error and possible causes for results in this section. All of these should be avoided.

How to avoid these errors

1. Ensure that enough information and detailed description of materials used is provided in this section in order to encourage reproducibility of the experimental results.
2. Avoid making references to external works unless during referencing a material or method.

3. Strictly ensure that no result is mentioned in any way in this section.
4. Try to avoid discussing error sources and possible cause for results.

d. Results

This section functions in presenting the real experimental results without interpreting them. However, the major error associated with this section is the inclusion of raw data rather than summarising it with text and tables. Long list of numbers and measurements are often included without being tabulated. Results of statistical analysis are also described in details forgetting that the readers know what null hypothesis, rejection rule and chi - square test are.

How to avoid these errors

1. Ensure that only results such as mean, S. D and percentages should be presented in this section and statistical significance must be included.
2. Make sure that the texts are used to clarify tables and figures.
3. Ensure that the interpretation of results and discussion are not included in the result section.
4. It is important that every section should have at least one table. Therefore ensure that at least a table or figure is included.
5. Strictly ensure that no new materials or methods are mentioned in this section.

e. Discussion

The purpose of this section is to explain the results, thereby relating them to the previous studies that other authors have done. This section should be started by restating the hypothesis being tested. Then the result interpretation can begin on this note. In interpreting the result, you should be able to address certain issues as:

- (i) Are the answers provided to the hypothesis by the result?
- (ii) If yes, what does it mean for the hypothesis?
- (iii) If no, do the results suggest any alternative hypothesis?
- (iv) Have others proposed it before?
- (v) Do those results agree with what have been shown by others?
- (vi) How do the results fit in with results from other studies?

In addition to interpreting the above questions, you should discuss the following questions.

- (i) What factors or sources of error might have influence these results?
- (ii) What anomalous data turned up and how can it be explained?
- (iii) Was this experiment the most effective way to test this hypothesis?
- (iv) How have the results and conclusion of this study influenced your knowledge of understanding.
- (v) What is the next step to be taken in this study?
- (vi) What experiment could be carried out (or data found) that would lead further support to your hypothesis?

This section is not an exception to common error associated. One of these is combining results with this section forgetting the fact that they serve two different purposes. Some authors sometimes include new results that were omitted in the results section into the discussion section and also term some results as inconclusive. More so, critical information are left out from the discussion section. For instance, they might forget to restate their hypothesis and might not make comparison between their work and others'. They may also not discuss sources of error.

How to avoid these errors

1. Make sure that results and discussions are not combined simply because result section is for fact while discussion section is for interpretation.
2. Ensure that all results are reported in the result section.
3. Never report research findings as inconclusive, rather conclusions should be drawn and suggestions on how the experiment should be changed to properly test the hypothesis should be made.
4. Ensure that critical information such as restating hypothesis and motivation are not left out.
5. All results must be compared with other's work and possible sources of errors must be discussed.

f. Figures and tables

The lists of numbers or texts in columns are shown by table and are used to illustrate differences but not similarities. On the other hand, visual presentation of results or concepts / methods illustration (graphs, images and maps) are termed figures. A common error associated with this section is that the writers' sentences direct readers to a figure or table without being numbered orderly or sequentially. The same information is usually put in many places (text, figures and tables). Likewise, tables and figures are made blur, unclear and without caption.

How to avoid these errors

1. Strictly ensure that figures and tables are of high resolution, neat and legibly labeled.
2. Make sure that standard deviation and error bars are included on all tables and graphs.
3. Avoid too much information on tables by keeping them simple.
4. Ensure that tables consists of lines separating them clearly from other pieces (formatting) of the write – up and graphs should have appropriate axes and images.
5. It is important to include captions on the figures to help in conveying the information needed by the reader to aid their knowledge of the figure without reading the whole write – up.

g. References

This section serves to acknowledge other scientists' works and guides readers on how to find the literature included in the write – up. The common error usually associated with this section is the inappropriate formatting and citing most references from non – peer reviewed articles (text books, abstracts, personal communication etc.)

How to avoid these errors

1. Ensure that most references are sourced from peer – reviewed articles and are picked from the textbooks.
2. Strictly ensure that references are appropriately formatted by removing brackets, foot notes and numbers.

SELF-ASSESSMENT EXERCISE

Highlight the common errors associated with the materials and methods and the abstract. Explain how to avoid these errors.

3.2 Common Errors Associated with Research Seminar Presentations

Internal presentations within faculties are quite different from seminar presentation but they are not often addressed. They are important because they inform colleagues about the research being carried out. However, as mentioned earlier in section 3.1, they are common errors committed by the presenters in seminars. These errors and how to avoid them will be summarised in a tabular form as follows:

S/No	Errors	How to avoid them
1.	Speaking in single unvaried speech	- A good presenter should avoid reading exclusively from the notes and genuine enthusiasm should be shown for their topics.
2.	Avoiding eye contact	- Where necessary, notes should be referred to in order to ensure that much direct eye contact is maintained with the audience as possible.
3.	Making slides and visual aids less visible by standing in front of them	- Try to stand to the side of your slides or visual aids. - Consider the angles where you stand so as not to hide the visions of people seated at the extreme end, in case there are large audiences.
4.	Loading each slide with much text.	- Ensure you use simple graphics/short phrases and single words wherever possible. - When the white spaces are thoughtfully used, important data stands out which will enhance the audience to understand the data presented.
5.	Filling blank spaces on the chart with clip art.	- Make sure that every graphic used makes a point that aid in proper message delivery as the function of graphic is to communicate.
6	Keeping the audience guessing as to what the objective is.	- Communicate your objectives and how you are going to approach your topic at the beginning of the presentation. - Ensure that the audience knows your point of view and where you are coming from.
7.	Organising information around personal interests rather than what the audience want to know.	- Ensure that you plan for the audience's knowledge level and interests and encourage audience's active interaction.

8.	Failing to test equipment before hand	-Make sure that all equipment are properly tested before you begin. -Ensure that you arrive early at the venue to allow sufficient time for testing the equipment.
9.	Failure to provide handouts or missing important information out of the annual provided.	-Ensure that handouts that will summarise and enhance your presentation are provided to the audience. -Make sure that information such as financial data, website address, numerical tanks and legal citation are included.
10.	Ignoring time limits	

SELF-ASSESSMENT EXERSIE

List five (5) common mistakes associated with research seminar presentation.

4.0 CONCLUSION

In this unit, you have learnt that some common mistakes / errors are associated unit different sections (abstract, introduction materials and methods, results, discussion, tables, figures and references) of a scientific writing and seminar presentation (content, body language, presentation style, visual aids and questionnaire). Thus these errors can be avoided by the solutions provided in this section.

5.0 SUMMARY

This unit has shown us that most common errors associated with scientific writing are either too many or too little information. Where as in presenting seminars, nervousness and inadequate preparation and practice can be highlighted to be the major sources of errors in presentations. Hence, the various solutions provided for both processes can enhance good writing and seminar presentation.

6.0 TUTOR-MARKED ASSIGNMENT

1. Briefly discuss the various errors associated with the following section of a scientific writing.
 - a. Introduction
 - b. Results

- c. Discussion
2. In a tabular form, explain four (4) errors associated with seminar presentations and show to correct them.

7.0 REFERENCES/FURTHER READING

Luby, S. & Southern, O. (2015). *A Pathway to Publishing: A Guide to Quantitative Writing in the Health Sciences*.

Stortz, C. (2002). *Oral Presentation Skills*.

Volk, M. & Lautenbach, S. (2012). *Writing Scientific Paper. 10 Biggest Mistakes from a Reviewer's Perspective*.

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MODULE 3 THE STEPS AND RULES FOR THUMB FOR SCIENTIFIC WRITING AND SEMINAR PRESENTATION

- Unit 1 Steps to Successful Scientific Writing and Seminar Presentation
- Unit 2 Basic Components of a Scientific Writing and Seminar Presentation
- Unit 3 Basic Rules of Thumb for Scientific Writing and Seminar Presentation

UNIT 1 STEPS TO SUCCESSFUL SCIENTIFIC WRITING AND SEMINAR PRESENTATION

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Definition of Scientific Methods
 - 3.1.1 Steps Involved in a Scientific Method
 - 3.2 Steps Involved in a Seminar Presentation
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This is the first unit of module 3. This unit deals with steps to a successful scientific writing and seminar presentation. As it has been discussed in earliest units 'Scientific writing can be defined in the narrow sense as the reporting of original research in journal, projects thesis etc. more broadly to include alternative ways scientists state research information among themselves through posters, review articles and slide-based presentations. Hence, scientific writing is closely associated with scientific methods. Scientific methods gives rise to the reports or scientific writing which are drawn from the series of steps involved in it.

Likewise, seminar presentation is a type of speech that are usually given in technical, professional, or scientific environments. It is a process that allows you to discuss a theme in peer groups. Both scientific writing and seminar presentation are useful tools used in communicating research ideas and findings to other scientific writing. In our discussion

in this unit, the various steps involved in scientific method which gives rise to scientific writing and seminar presentation will be discussed.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- define and mention the steps involved in scientific methods
- explain how the steps involved in a seminar presentation can aid successful presentation.

3.0 MAIN CONTENT

3.1 Definition of Scientific Methods

Scientific method is a series of steps or systematic approach that scientist use to answer questions and solve problems in science. It is a flexible method allowing the scientists to decide whether to use some or all the steps of it (scientific methods). Some of these steps may also be repeated with the sole aim of getting reliable solutions and answers. It forms the basic step of science projects thereby aiding students in experimentation and project write-up.

3.1.1 Steps Involved in a Scientific Method

These steps include making observation, reading data and analysing the data in a form that can be repeated by other scientific.

Observation and description of a phenomenon

These are made by using your senses or scientific equipment's to gather information. This step requires asking some questions which drives scientific method.

Hypothesis Formulation

This step helps to explain the phenomenon in form of accrual mechanism. Outcome will be predicted by students based on their experience or information collected from sources available.

Procedures/Materials and Method

It involves listing of every item needed for the experiment and step-by-step sequence of what is done. The experiment tests whether your hypothesis is true or false. It is important to repeat the experiment severally to ensure that the first results are correct.

Results and Analysis

This step shows a complete record of your observations (measurements) and analysis done to see if your hypothesis is true or false. In cases where the hypotheses are false, there will need to formulate a new hypothesis thereby starting the whole process of the scientific methods over again.

Conclusion

It involves answering the question asked in the first step (observation) using data from your results.

Result communication

This step completes a scientific method (project). As a student communication of your results to others in a final report/display board is very important. Other professional scientists do the same by publishing their final report in a scientific journal or presentation at scientific meetings.

3.2 Steps Involved in a Seminar Presentation

As mentioned earlier, a seminar is a process that allows a person to discuss a theme in a peer group with subject experts in an objective method. Some of the several activities involved in these steps are:

1. Pre seminar phase (Before seminar)
2. Seminar phase (At the seminar)
3. Post seminar phase (After seminar)

Pre Seminar Phase

In this phase, there should be selection of seminar theme and subthemes, dates and line which should be finalised well in advance. The panel of specialists, subject experts, and seminar observers must be requested from the persons listed panel. A circular regarding the seminar and its information must be prepared with precise details, simplicity and must be circulated on time.

Seminar Phase

In this phase, it should be ensured that physical facilities (stage settings seats, audio-visual equipment) are available for the participants of the seminar. The chief guests, observers, chairman of technical session are welcomed and participants are encouraged to actively participate in the seminar. The abstract or compendium must be distributed to the participants before the beginning of the seminar. Hence, the seminar these and subtheme need to be explained. The presenters are then guided for their location and seminar session time before the seminar. Proper assistance (OHP, PAS, and LCD Projector) must be ensured for

every speaker to facilitate their presentation. At the end of the seminar, the seminar events will be briefed by the Chairman of the seminar to give a clear definition to the seminar conducted and further steps to be done. The Chairman then announces the concept derived by the seminar and delivers the vote of thanks to the participants, seminar committee and all people who directly or indirectly engaged in the seminar.

Post Seminar Phase

This entails correction of the papers presented from the author which must be done by themselves. Clarification received during the discussion is incorporated thereby restructuring the paper. These restructured papers are in turn complied by the panel of experts of expert. The prepared compendium must be sent to the concerned institutes and agencies for further follow up activities.

SELF-ASSESSMENT EXERCISE

Mention threat(s) steps each involved in a scientific and seminar methods.

4.0 CONCLUSION

Even though scientific methods are in sequential steps, it is important to know that they may be repeated at any point during the process provided there is new information at hand. More so, the various steps or activities involved in a seminar method are targeted towards ensuring a well-organised seminar presentation.

5.0 SUMMARY

In this unit, you have learnt that scientific methods form a baseline upon which experimental research is carried out and scientific writings are drawn. The basic steps involved are observation, hypothesis formation, materials and methods, results (hypothesis testing), conclusion and report dissemination either through project write-up (for students) or journal articles (professionals and experts). Furthermore, the steps involved in seminar methods (pre-seminar, seminar and post seminar) are meant to coordinate and facilitate learning process among peer groups.

6.0 TUTOR-MARKED ASSIGNMENT

1. What is scientific method?
2. Highlight five (5) steps involved in a research method
3. Define a seminar

4. Briefly discuss the phases of a seminar

7.0 REFERENCES/FURTHER READING

Hess, K. K. (2088). *Steps of the Scientific Methods*.

Mattgewm, H. R. & Nattgewsm, R.W. (2014). *Successful Scientific Writing A Step-by-Step Guide*. For the Biological and Medical Sciences.

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UNIT 2 BASIC COMPONENTS OF A SCIENTIFIC WRITING AND SEMINAR PRESENTATION

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Laboratory report and its basic Sections
 - 3.2 APA Writing Style
 - 3.3 Structure of an Oral Seminar Presentation
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This unit deals mainly with basic components of some scientific writing such as laboratory reports, scientific writing in APA style and structure/components of a seminar presentation. As you have seen in previous units, scientific writings have similar components with little disparities.

Science being fundamentally a communal process in which individual scientists develop ideas and then convince the scientific community of their valid claims through the medium of scientific journal articles. Hence, there is need to know how to describe the science that you do in a way that convinces the reader how interesting your work is and should be taken seriously. Therefore, the purpose of laboratory reports is to give you practice in writing scientific reports. The format / component of a laboratory report evolves to answer the general questions a potential reader will ask.

Furthermore, APA style of scientific writing is a writing style used by scientists to communicate their findings in a way that generalises across many disciplines utilising this style allows materials to be effectively organised, communications done with clarity, precision and logic and materials cited to avoid plagiarism. However, during the course of your academic career, you will most likely be using APA style to prepare a variety of reports, hence; familiarity with its elements will enhance successful writings and preparation of assignments.

In addition, knowledge of seminar presentation structure/components is important in ensuring that a good oral presentation is made. Generally, seminar presentations have three (3) basic components/structure, which

are the beginning or introduction, the middle or body and the end or conclusion as will be discussed later.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- describe the basic components of a laboratory report and guidelines for writing it
- explain the APA style of scientific writing
- describe the structure/component of a seminar presentation.

3.0 MAIN CONTENT

3.1 Laboratory Report and its Basic Sections

The sections/components of a laboratory report are the title page, abstract, introduction, theoretical background, materials and methods, experimental procedure, results, discussion, conclusion and references/appendices. However, it is worthy to note that laboratory reports are not to be double spaced. Bold faces of each of these sections are usually included, and in cases where references are needed, APA format are usually employed. The contents of the sections most commonly used in undergraduate laboratory report are discussed below:

a. Title Page

It consists of the number and title of the experiment, name of laboratory partners and date(s) on which the experiment was carried out.

b. Abstract

This is usually a short summary of the laboratory report. It should be no more than one paragraph of 100-200 words and should include about one or two sentence on each of the purpose of the experiment, key results, main or points of discussion and main conclusions. Although, the abstract is the first section of a laboratory report, but you may write it lastly because it is a summary.

c. Introduction

This is also known as plan or purpose section which provides the reader with the answers to two very important questions: what is the question that your experiment is supposed to answer? (Purpose or objectives) and why is answering this question important? The objective of the experiment should be expressed clearly in one or two sentences, including the main method used to accomplish it. It can also be written as a separate section from the introduction. Hypothesis (what is

expected to happen in the experiment based on background information) may also be included in the introduction section.

d. Materials and Methods

This section usually contains a lot of equipment used in form of tabulated list, but it should be complete and accurate. It also includes all calculations or formals needed to obtain the final result.

e. Experimental Procedure

The procedures/steps are also listed in order and reason for each is stated. Usually, the procedures are written in one paragraph or step by step in the form of a numbered list.

f. Results

This section contains all the results of the experiment. Raw data (e.g. weight, temperature etc.) are organised into graphs or tables which should be properly labeled and titled.

g. Discussion

This section is the most important part of the result. It is where the results are explained, and a student can prove that he/she thoroughly understands the concept of the experiment and results obtained. The main question to be addressed in this section is “what is the significance of the results?” However, comparing expected results with actual result analysing experimental errors and explaining how the methods could be improved are strategies that can help to focus on your discussion.

h. Conclusion

This section includes only one or two sentences that summarised definitive conclusion from the results. This also justifies itself based on the result.

i. References/Appendices

This Section is important if outside sources have been cited. In cases where there is a significant amount of extra data or calculation, it will be beneficial to put them into an appendix at the end of the report. However, APA citation is mostly used in formatting references.

SELF-ASSESSMENT EXERCISE

Highlight the various components of a laboratory report.

3.2 APA Writing Style

Scientific writing, like all formal writing, requires a firm foundation in English sentence construction. As stated in previous units, scientists use specific scientific writing styles to communicate their findings in a way that generalises across many disciplines, one of which is APA style of writing. It helps to organise ideas about science and presses science – related thoughts with clear formal language. However, this style also specifies guidelines for the order of report sections (title pages abstract, introduction, method, results, discussion (or conclusion) and references. Furthermore, this writing style also specifies various stages (steps such as planning locating, reading and taking notes on source materials), writing the first draft, editing and proofreading and concluding thoughts involved in achieving the right APA writing style.

Basically in the planning stage, it is important to distinguish between scientific material and articles that are not firmly based on scientific research. This is to ascertain that their claims are supported with citations and presence of accuracy of the facts of the arguments. Hence peer-reviewed articles which might have been evaluated by professionals or experts in that particular field must be selected on the particular topic of interests. Outlining the topic for literature review after reading a few materials found will be of help as the outline guides the search process and as the search progresses, you can refine it.

In reading the source materials it takes a considerable time to select and collect sources and to extract appropriate materials from each source. It is advisable to first read the abstract and subsequently concentrating on the research purposes and importance, how it relates to prior research on the topic, the hypotheses, general methodology, major findings and its interpretation. Therefore, as you read, consider how the materials relate to what you plan to write.

Construction of outline and note taking is important especially in developing a topical outline as it helps to overcome the tendency to summarise one article after another. Comparison of other studies on the same topic in a single paragraph can also be enhanced by organising information on a topical basis. Topical outline serves as a frame work for presentation of previous research and provides baseline structure for writing.

During review of literature, note taking helps in writing higher quality paper. It is therefore helpful to categorise note topically and to identify information for the purpose of citation because a source article may address one or more topics. However, to avoid plagiarism in the writing stage, describe the idea and findings of a source material in your own

words. Therefore, ensure that note taking include all the information needed for citation.

In writing a first draft, the focus is on the types of information you need to organise and include in each section of a research report. It begins with general guidelines for formatting and provides more information about formatting of each individual part of the paper.

The rules for margins, line spacing, alignment and font in APA – style formatting should be set before writing your first draft.

For APA-writing style's sections, the words method, results and discussion are typed using level 1 bold face heading. However, the introduction begins with the title of the paper which should be centered and not to be shown in bold face.

a. **The Title Page**

The topic of the manuscript should be clearly indicated on the title page. For a review article, it should contain the major issue under investigation. As stated in previous units, title page should also contain an author's note which should include acknowledgements, departmental affiliation and contact information for the author. However, there may not be need for author's name on student's papers.

b. **Abstract**

This is a specific, concise, self-explanatory section with its length varying across journals (and instructors),it summarises a report in 250 – 300 words depending on the journal and instructors. Reading the abstract gives you a clue about the relevance of the material to your paper or project. It should not include any information not included in the actual paper.

c. **Introduction**

This section usually begins on the page three (3) after the title page and abstract. The opening paragraph highlights general information about the issue under investigation and prepares the readers for the detailed literature review that follows.

d. **Material and Methods**

It gives information for readers to repeat the research and to determine that the results are justified and reliable. It is typically divided into three subsections.

- (i) Participants which include information about the number of participants, coverall groups to which they belong and basic demographic characteristics.

- (ii) Materials and apparatus which provides enough description of the stimuli and fully identifies differences in materials for different groups. This description often includes original source / citation, number of items, sample items and reliability and validity data.
- (iii) Design and procedures which describes how the investigation was conducted. It shows whether the design was between subjects or within subjects. It clarifies how you assign participants to condition for between – subject designs and for within –subject design.

e. **Result**

This section describes the findings in verbal and statistical forms. The types of analysis involved and the research hypothesis determines its organisation. The types of analysis used and clarification of variable analysed is usually contained in the opening paragraph.

f. **Discussion**

This section comprises of the interpretation of results. It sometimes begins with statement regarding whether the hypothesis is supported by the result. Subsequent discussion positions the results in the context of theoretical perspectives and explains similarities and differences associated with previous works. It also proffers suggestions for future investigations that come from questions generated by the results of the current study research.

g. **References**

This comprises of a standardised format of list of all sources that you have read and cited in your work. Each item in the reference contains detailed information that allows reader to get the source material. Reference entries should be in alphabetical order with the surname (last name) of the first author.

When making citation to a journal, it should include the author(s) name(s), year, article title, journal name, volume number, page numbers, and digital object identifier (doi). In writing the title, only proper nouns, the first word, and the first word after a colon are capitalised. The journal name, followed by a comma and a volume number are both italicised. On the other hand, when citations are made from a book, it follows the order of author(s) names, year, book title which should be italicised, publisher's location and names. Capitalisation rules used for article title should also apply when citing an on-line resource such as a webs page or non- periodical web document, the order should be author(s) name(s), year, and title of resource and website address or URL.

h. Editing and Proofreading

Initial proof reading is usually done after writing the first draft. This process includes critically assessing the grammar, sentence construction, spelling, punctuation and use of APA style and also a review of the content. APA – writing have specific and general rules that apply to all formal writing which are available in most grammar books.

i. Concluding Thoughts

This has to do with going through the write up all over again, after sometime. Reading your work aloud to bring out awkward phrases is also advisable. Before submitting your written assignment, it is importance to ensure that all cited sources are included in the main body of the work.

SELF-ASSESSMENT EXERCISE

Highlight the processes/basis of APA writing style.

3.3 Structure of an Oral Seminar Presentation

Structuring an oral presentation in the right manner leads to a good oral presentation. This is solely due to aiding its easy assimilation by the listeners. Majorly, there are three (3) parts to a typical presentation which include:

1. The beginning (introduction)
2. The middle (body)
3. The end (conclusion)

Beginning (Introduction)

This is the most important part of an oral presentation. This is due to the rapport established with the audience thereby capturing their attention.

(a) Getting the audience's attention and signal the beginning is a useful strategy to start an oral presentation. Also, getting your audience involved in your talk either by asking direct questions or rhetorical questions is also a good method of getting your audience's attention.

(b) Greet the Audience

It is important to greet the audience by any of the saying such as good morning, ladies and gentlemen, members of the jury, members of the board, Mr. Chairman/Chairwoman etc.

(c) Self-Introduction

This is done in order to give important information so that people can know you, to establish your authority on the subject and also for the

audience to see your point of view on the subject (whether you are a researcher, layman or student).

(d) **Give the Title and Introduce the Subject**

Try to situate the subject in time and place, in relation to the audience and/or its importance. Try to give insight or a working definition of the subject. You can do this by saying a, plan to speak about, “the subject of my presentation is”, “Today I’m going to talk about” etc.

(e) **Give your Objectives (aim, goals, purpose)**

When the audience understands and easily recollects a great deal of information given in a presentation or information speech, it has therefore fulfilled its aim. Therefore, you should have two purposes: a general purpose which serves to discuss, to outline, to summarise the present situation or to explain how something is done. The specific purpose which is what termed take-home message is for the audience, what you want them to do and what they should remember.

(f) **Announce your Outline**

Two to three main points are usually enough to keep your outline as simple as possible. Hence, the headings of the outline should be of similar grammar form.

(g) Make a transition between the introduction and the body of the presentation. This can be done effectively by referring to your outline.

2. **The Middle (body)**

a. **Content**

Your aim or purpose should be supported by all the information given; content should be limited due to time constraint.

b. **Quantity**

Sufficient information to distinctly develop your idea should be given. Illustration through examples should not be neglected.

c. **Organising your Ideas**

Ideas should be arranged in chronological order, logical order; from general to specific; known to unknown, problem to solution, accepted to controversial. All headings should be in the same grammatical form regardless of the arrangement chosen.

3. **The End (conclusion)**

This part needs to be considered specifically, so it should never come as a surprise to an audience. Therefore, it should be sectioned as thus:

(a) Content

The end should include four parts:

- (i) A short reminder of what you tried to show in your speech/presentation and how you tried to achieve it
- (ii) A short conclusion
- (iii) Thanking the audience for listening
- (iv) Invitation to ask questions, make comments or open discussion.

b. **Tackling Difficult Question**

In dealing with difficult questions, ensure that you properly understood the question by repeating the question in your own words to check that it is understood by you. If not, ask the questioner to repeat.

In answering, delay the answer by saying words such as “just a minute please,” “that’s a good question” etc. to aid pondering well on the question for the appropriate answer to be given.

SELF-ASSESSMENT EXERCISE

List the three (3) main structure of an oral (seminar presentation)

4.0 CONCLUSION

It is obvious that the APA – style is a widely adopted writing style as evident in its application to scientific writings such as laboratory report. Its guidelines may appear difficult continuous practices coupled with feedbacks from instructors and supervisors will enhance your writing skills. In addition, structuring seminar presentation goes a long way in enhancing the better understanding of the audience.

5.0 SUMMARY

The unit has provided you an opportunity to understand the basics of APA style writing, particularly its usage in important scientific writing such as laboratory reports. Also the structures of oral presentation (beginning, middle and end) help to ensure a well-organised seminar presentation.

6.0 TUTOR-MARKED ASSIGNMENT

1. Give a detailed explanation of the components of a laboratory report.
2. Briefly discuss the following concepts as related to APA – style writing
 - i. Conducting thoughts
 - ii. Editing and proof reading

3. Highlight the structures of an oral presentation.

7.0 REFERENCES/FURTHER READING

Mareth, P. (2016). *The Basics of Scientific Writing in APA Style*.

Pechenik, J. A. (2009). *A Sort Guide to Writing about Biology*.

Storz, D. (2002). *Oral presentation Skills; A Practical Guide*.

UNIT 3 BASIC RULES OF THUMB FOR SCIENTIFIC WRITING AND SEMINAR PRESENTATION

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Grammar (parts of a sentence)
 - 3.1.1 Adjectives
 - 3.1.2 Nouns
 - 3.1.3 Verbs
 - 3.1.4 Adverbs
 - 3.1.5 Clauses
 - 3.1.6 Phrases
 - 3.2 Punctuation
 - 3.2.1 The Basic Rules
 - 3.2.1.1 The Apostrophe
 - 3.2.1.2 Caret
 - 3.2.1.3 Dashes and Hyphens
 - 3.2.1.4 Full stop
 - 3.2.1.5 Ellipses
 - 3.2.1.6 Commas
 - 3.3 Paragraphs
 - 3.3.1 Definition
 - 3.3.2 Mechanics
 - 3.3.3 Length
 - 3.3.4 The Topic Sentence
 - 3.3.5 Transitional and Narrative Paragraphs
 - 3.3.6 Unity
 - 3.3.7 Coherence
 - 3.4 Rules of Thumb for Making Seminar Presentation
 - 3.4.1 Organisation
 - 3.4.2 Mechanics
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1.0 INTRODUCTION

Scientific writing and seminar presentation techniques are pertinent process which must not be neglected or taken with levity in the

academics. This is due to the fact that they both form a basic medium through which important research findings are disseminated to other scientists all over the world. Hence, the established rules of thumb are laid down to perfect these processes for researchers and also to be a guide in undertaking them. In writing (scientific writing), correct use of words is very important. Therefore it is necessary to have a solid foundation in English sentence construction, usage, punctuation and paragraphing all of which are incorporated in the rules of thumb in achieving a good scientific writing.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- construct sentences that are grammatically correct
- write appropriate paragraphs and use punctuation marks correctly
- explain some basic rules for making a presentation.

3.0 MAIN CONTENT

3.1 Grammar (parts of a sentence)

Some knowledge of parts of a sentence is important for good writing because it helps you to avoid making mistakes in punctuation, sentence construction and agreements.

A group of words that passes a complete idea is known as a sentence: Grammar comes out of the need for the sentences to be in accordance to a set of specification / rules of organising words. It entails knowing why something reads badly and knowing how to correct it.

3.1.1 Adjectives

These are words that qualify nouns. They are usually easy to identify in a sentence. For instance, considering a phrase “a brown goat”, the word “brown” is an adjective that described the type of goat. The word “the” and “a” are also adjectives but are commonly termed as definite and indefinite article respectively. The word “a” is referred to as indefinite article because its companion “an” refers to an item that has previously been mentioned specifically. On the other hand, “the” is referred to as definite article because it refers to a particular item. Therefore, the use of two or more adjectives used in a list is separated by a comma such as small, unrepresentative samples and in larger cross sectional survey. However, when adjectives are joined by a noun, to form a noun cluster, as in non-insulin dependent diabetes or effective weight loss

intervention strategies, no comma is needed. In some sentences, the adjectives almost act like a noun when it is the object of the sentence. For instance, in the phrase self-supported weights may be unreliable, the word unreliable is an adjective that qualifies (describes) self-supported weights but it acts as the object the sentence. Therefore, when using adjectives, the need to be placed correctly to achieve a specific meaning. For instance, in the sentence “I was the only one who could use the stunning machine”, the world only one is used as an adverb to qualify the very use. By moving the world, the meaning of the sentence have been changed

3.1.2 Nouns

Nouns are words that describe something concrete, such as an object or a person.

It is important to note that the subjects and objects of sentence are noun or groups of word that function/serves as noun. For instance, noun that describe people are student, participant, writer or research. While those that describes objects are computer, ruler, tractors, or incubator. There are also nouns that describe places such as laboratory, home, clinic, farm and nouns that describe intangibles such a temperature, time, health. On the other hand, proper nouns are a special class of nouns. These nouns are the nouns of people or place and always being with capital letter such as Nigeria, Juliet or Janet. Sometimes, nouns are combined together to make noun clusters or phrase such as research study, peer review etc.

Nouns are the concrete materials of our text that we join together with verbs and pronouns and that we beautify with adjectives in most sentences, the subjects and objects are distinctly identified as a noun or noun cluster, although some sentences end in a verb such as ploughed or an adjective such as reliable. The noun cluster International Agricultural Survey, which has two adjectives before the noun, is capitalised because it is a formal name of a study and Nigeria is capitalised because it is a proper noun. Forming word cluster can be useful and efficient but should be used moderately to avoid continuous strings of nouns making the text dense and difficulty to read. Hence, do not be tempted to use some nouns as verbs or adjectives. For instance the word impact is a noun. It is better to write that your presentation had an impact on the audience rather than your presentation impacted on the audience.

Some mistakes also arise from incorrectly using a noun as an adjective. For instance, it is also not a good idea to write in the Colorado study but rather to write in the study undertaken in Colorado in the Nigerian study. The difference is that Nigerian is an adjective; whereas Colorado is a

proper noun that should not be used as adjective. Similarly, the word correlation is a noun. Therefore, you cannot write “the correlation study indicated a significant relation between drug concentration and markers of renal function” in which correlation is used as an adjective”

3.1.3 Verbs

These are action words that form the heart of a sentence. It can also be described as a part of a speech that predicates or asserts an action. Verbs are easily recognised because they describe an action or a thought. When you put the word “to” in front of a verb, an infinitive form is in turn created. For instance, continue is the verb in the sentence “the study has not been continued” and is recognised by its infinitive form “to continue”. If you can create an infinitive form with a word, it is certainly a verb.

Verbs take various forms which are:

1. **Primary verbs are verbs that can be used alone.** The form of this verb is usually related to whether the action was in the past, in the present or will be in the future such as in “I conducted a study, I am conducting a study or I will conduct a study”. In these three verb phrases, the primary verb is to conduct. However, the work conduct is used in conjunction with the auxiliary verbs am or will to convey a sense of time. For instance who really want to get into the language of verbs and grammar, a verb and its related words in a clause or sentence is called the predicate. The predicate describes what the subject of the sentence did. For instance, in the sentence this study was continued for a number of years, the underlines word group is the predicate because it tells us what happened to the study. The word or phrase that is usually a noun or an adjective and that completes the predicate and/or describes the subject is called the complement. In the above sentence, the phrase for a number of years is the complement. This is often a single word such as in the sentence” the man was embarrassed” where was embarrassed is the predicate and embarrassed is the complement.

Furthermore

Verbs can also take an “active” or a “passive” form. One way to recognise the latter is that the verb is usually a cluster of several words and the subject often follows the verb rather than leading the sentence. For instance you can write the people are considered to be at higher risk for having heart disease if they are obese or that obesity is a risk factor for heart disease. In the first sentence, the subject is the people and there is a passive verb cluster “are considered to be”. However, the second sentence correctly has the subject obesity at the beginning and uses an

active verb is. It is therefore advisable to use an active verb rather than passive verb whenever possible.

The use of active verb is a sure way to improve the readability of scientific writing as illustrated in the table below.

Table 3.1 Verb Tenses to Use throughout Scientific Writing

Section	Verb Tense	Illustrations
Introduction	<ul style="list-style-type: none"> • Present or past tense for describing the evidence that exists. • Past tense for describing your hypothesis. 	<ul style="list-style-type: none"> • It is known that ... • There is no evidence that ...
Methods	<ul style="list-style-type: none"> • Past tense throughout. 	<ul style="list-style-type: none"> • Participants were recruited from ...
Results	<ul style="list-style-type: none"> • Past tense for results. • Present tense to refer to tables etc. 	<ul style="list-style-type: none"> • We found that figure 1 shows that ...
Discussion	<ul style="list-style-type: none"> • Present tense for answer to questions. • Present tense to discuss the literature. • Past tense to discuss the findings 	<ul style="list-style-type: none"> • Our findings suggest that ... • Evidence of cohort studies shows that ... • We found that ...

It is therefore important to note that verbs should not be interchanged with prepositions, for instance, in the sentence “participants with allergy who have seasonal symptoms is better written as “participants who have allergy with seasonal symptoms so that the verb is placed correctly in the sentence. Verbs and nouns also get mixed up when their spelling is similar. For instance, affect is usually a verb and effect is usually a noun. An illustration of correct use of both is in the sentence “when you affect something, you have an effect on it”.

3.1.4 Adverbs

These are words that are used to modify verbs, adjectives, or other adverbs. They can be identified in terms of the questions that they answer such as when? Where? What? Why and how? Thus, adverbs can describe time (for example now, soon, immediately) place (here, there, everywhere), manner (ideally, hopefully, boldly) or degree (quickly, quite, very). In these examples, many adverbs end with “-ly”, although not all “-ly” words are adverbs.

Sentences can begin with an adverb that is followed by a comma and which sets the tone of the sentence. For example, in the sentence ideally, your references will have been entered into an electronic filling database. The word ideally is an adverb that modifies the verb to enter. The adverbs that cause most problems are those that merely repeat the meaning of the verb. Examples of such adjectives are ran quickly, shouted loudly and mixed together. In this phrase, the adverb is a repetition. The sentence “we are prospectively measuring growth and diet in a prospective study” with the adverb prospectively changed to its correct function as adjective to describe the study design.

3.1.5 Clauses

Due to the fact clauses have a subject, a verb and an object; they have more impact in a sentence than a phrase. Clauses can be joined together by a conjunction or separated by punctuation marks to make a sentence. Clauses that are known as independent clauses can stand alone but other clauses that need the independent clause for support are known as dependent clauses. When two independent clauses are joined together, the resulting sentence is called a “compound” sentence. For example the sentence “we used electronic scales to measure weight and we used a stadiometer to measure height is a compound sentence because the word could be replaced by a full stop and both short sentences could stand alone. The most common conjunction that are used to join two clauses are because, as, if, who, which, when and where.

Dependent clauses are mostly adjectival clauses. In the same way, that adjectives are “describing words”, adjectival clauses are “describing clauses of words”.

3.1.6 Phrases

Groups of words fall into phrases or clauses, usually depending on whether or not a verb is present. A phrase is a small group of words that cannot stand alone and that does not meet the requirements of being a complete sentence. Because phrases are used to explain little parts of the sentence in more details, they have been described as “simple word groupings – bits of organised thought that are part of a complete idea behind a sentence”. The following two sentences contain the phrases under my chair, through the gate and down the road: I left my book under my chair; I walked through the gate, and down the road. Phrases can be prepositional, verb or noun phrases. There is nothing much to say about phrases except that they should always be short and snappy.

Table 3.2 Summary of the Types of Phrases with Illustrations

Type of Phrase	Illustration
Prepositional phrase	• on the chair, behind the door, in the book.
Verb phrase	• has been seen to be done, was reported.
Noun phrase	• the long and winding road, longitudinal cohort studies, important confounders.

SELF-ASSESSMENT EXERCISE

Define the following verb, adverbs, adjectives and phrases.

3.2 Punctuation

These consist of a series of marks inserted to mark off words from another either to show their grammatical relationship or to give emphasis to them. Some marks such as full stop and the comma, merely indicate the length of a pause; others, like the question mark and exclamation marks, indicate inflexion of the voice; while signs for quotations and parentheses serve to bring external matter into the basic text.

3.2.1 The Basic Rules

The main purpose of punctuation mark is to help you present your ideas clearly and effectively. To achieve this, punctuation marks must be used only when they are necessary. The following general rules about the use of punctuation marks may, therefore be made:

- i. Use few punctuation marks as are necessary. Be able to justify each mark you use.
- ii. Do not use punctuation marks to compensate for bad sentence construction.

Table 3.3 Types of Punctuation Marks

S/N	Punctuation Marks	Symbol or Mark
1.	Apostrophe	'
2.	Caret	^
3.	Colon	:
4.	Comma	,
5.	Dash	-
6.	Ellipsis	...
7.	Exclamation mark	!

8.	Hyphen	-
9.	Parentheses	() or []
10.	Period (full stop)	.
11.	Question mark	?
12.	Quotation marks	“ ”
13.	Semi colon	;

3.2.1.1 Apostrophe

- i) In spelling the possessive case of nouns e.g. Mr. John's car, the farmer's cow;
- ii) In spelling the possessive case of indefinite pronouns e.g. somebody's idea, nobody's issue, everybody's duty.
- iii) To show the omission of one or more letters in contractions e.g. can't (cannot), I'm (I am), don't (do not).

From the above illustrations, the need for an apostrophe is an exception rather than a rule. Nouns and pronouns only have an apostrophe before the final "s" when they indicate possession as stated earlier.

However, when an "s" is added to signal a plural noun, apostrophe is not needed even when it is added to a number. For instance, we write "in the 1970's". The following sentences demonstrate the correct use of apostrophes to indicate possession when writing singular and plural nouns: clear writing is easy on the reader's mind or clear paragraphs are easy on reader's minds. When a plural noun ends with an "s", an apostrophe is added but the final "s" is omitted. Finally, possessive pronouns do not have an apostrophe so you can write hers not her's.

3.2.1.2 Caret

This is primarily an editorial mark used to show that something is missing from the text. We omit important words or phrases from our writing because most times the speed at which we write cannot keep pace with our thought processes which may be noticed when revising our work. At times these works with omission can be submitted without discovering the errors of omission. Whether the errors are discovered by us or our lectures or reviewers, the caret is inserted to indicate the part where a word or phrase essential to the text is missing.

3.2.1.3 Dashes and Hyphens

Dash is a long hyphen, is another punctuation mark that is rarely used in scientific writing. It is usually used to replace a parenthesis or to interrupt the flow of text. For example, in the sentence "flow rates may be limited for many physiological reasons – including loss of elastic

recoil – which need to be examined”, the dashes are used to replace commas. In this sentence, commas would be preferable. It can also be used for other various purposes including:

- i. to mark a turn in thought of a sentence.
- ii. before an interpolated or added phrase as in, “we can supply any quantity you need – five hundred or more – at the price stated”.
- iii. to mark an abrupt change of thought as in “If only I could attend the meeting on Thursday – but then, that is out of the question”.

In addition, the hyphen (short dashes are used to join words or to mean “to” when joining numbers, for example as in 1972 – 1992 or May – July. They can also be used (1) to form compound nouns, as in father – in – law, (2) subject matter, (3) dining - room).

- iv. To form compound adjectives as in:
a head – on – collision
first – aid – equipment
an up – to – date catalogue
- v. After certain prefixes with strong denotative value:
Post – war, co – education, pre – eminent.

As with all punctuations, try to be minimal in your use of hyphens. Hyphens can be used when a word begins with non – such as non – essential, non – discrete etc. Many words factor such as risk factor, breast feeding and birth weight do not need hyphen and in some cases are joined as a single word.

3.2.1.4 Full Stop (period)

This denotes the longest pause in the cause of reading. It is used at the end of every complete sentence which is not a question or an exclamation. It can also be used after abbreviations, e.g. B.A., Rev., Mr., Prof., etc. It is also used to differentiate between units of money such as naira and kobo and hours and minutes e.g. N10.50k and 2.30 p.m. If you are writing short, snappy sentences, the full stop will be by far the most common punctuation mark that will ever use. Occasionally, full stop is replaced by exclamation marks or by question marks. Because all three punctuation marks fulfil the same role of ending a sentence, only one is used at a time.

3.2.1.5 Ellipses

These are a series of full stops that are used to indicate the omission of quoted text. For example, in the sentence “the patient had a stroke ... but after many months of treatment ... returned to work”, the ellipses replace omitted text. Such constructions would rarely be used in a

journal article but may be used for quotations in reviews, letters, and other documents.

3.2.1.6 Commas

These are used to separate parts of a sentence that can't run together. They give readers a time to pause and think about the meaning of the words that have been read. The words between two commas in sentence, between a comma and a full stop, or at the beginning of a sentence before a comma, cordon off information that is additional to the main message of the sentence and that is therefore non – essential.

It is important not to overuse commas and never to use a comma in place of a full stop. Commas are also used to separate adjectives when they appear as a list before a noun, for example, “small, unrepresentative samples of women”. However, commas are not used in word clusters to describe a disease or in word clusters that form a paper noun. For instance Non – insulin dependent diabetes or National nutrition survey, Commas are also not used in dates. Dates are written as 4 January 2002 without comma before the year.

SELF-ASSESSMENT EXERCISE

Briefly highlight the functions of the following PMS

- Comma
- Full stop
- Ellipses and hyphen

3.3 Paragraphs

3.3.1 Definition

A paragraph may be defined as the largest single unit of an essay. It develops one single main idea by means of supporting facts. Each paragraph is a vital part of the whole essay and is closely linked to the paragraphs which go before and after it. Paragraphs aid understanding by underscoring transitions in thought, showing steps in the development of an idea, and isolating divisions of the essay.

3.3.2 Mechanics

The sign of the paragraph is indentation. It is a mechanical device used to break up a piece of writing into smaller units. The break helps both writer and reader to recognise division of thought within the write up. Besides, it facilitates reading and its aids concentration.

Normally, the first line of every paragraph is indented, about two and half centimetres (five to ten spaces if typed) except in business letters which use block forms. The indentation must be uniform for all the paragraphs in the same essay or scientific writing.

3.3.3 Length

Paragraphs vary in length from one to several sentences. A succession of short paragraphs (paragraphs of fifty words or less) produces a choppy effect which is difficult for the reader to isolate the main ideas from the many small units. On the other hand, very long paragraphs include so many ideas that the reader also has difficulty locating the key ideas. You are therefore advised to vary the length of your paragraph by closing proportionately long or short paragraphs in accordance with your main purpose.

3.3.4 The Topic Sentence

A good paragraph must be built around a dominant idea. Although this idea may in certain cases, not be directly stated, it frequently appears in what is known as the topic sentence, which is the statement of the purpose of the paragraph. By expressing the central thought which binds a group of sentences, the topic sentence makes for unity, clarity and effectiveness of the paragraph. The paragraph is really an expansion of the topic sentence or idea.

The topic sentence does not always have to be placed at the beginning of the paragraph. Its position can be varied depending on the experience of the writer. Also the paragraph structure often determines the position of the topic sentence. Where the intention is to pose a question which the paragraph will have to answer or to announce the purpose of the paragraph, the topic sentence is placed near the beginning. If the intention is to summarise, it comes at the end. However, for emphasis, it may occur in both places (beginning and end).

3.3.5 Transitional and Narrative Paragraphs

Transitional paragraph functions to ensure a smooth change from one section to another, or to introduce new idea to be treated succeeding paragraphs.

On the other hand, the narrative paragraph is often used when the dominant purpose is to tell a tale. To hold the reader's interest, the story must have to move at a fast pace; the narrative paragraph aids the easy movement of the story since the arrangement of the materials into fairly large units makes for an easier flow of the story. It does not fit into any

of the rules for the topical paragraph because the former is as a rule, longer than topical paragraph.

3.3.6 Unity

A paragraph is said to have unity when it logically develops only one idea to the satisfaction of the reader. It goes against the ethics of good writing when it rambles from topic to topic. To write a unified paragraph, you must strive to repress all other ideas, you will ensure the unity of the whole composition because if each paragraph develops only one topic which is related to the main topic of the whole essay/scientific writing there will be unity of the whole.

3.3.7 Coherence

This can be achieved by using transition elements. These elements can be used to show contrast ideas (but, yet, in contrast, on the other hand, on the contrary), demonstrate a cause – effective relationship, to summarise (to sum up, in conclusion, as a result of, accordingly), to show continuity of thought from one sentence to another (e.g. in fact, indeed, moreover, likewise, in addition, similarly etc.) and to show comparison or example (e.g. for example, for instance, as in illustration, by way of comparison etc.). Sometimes, we can also use a sentence to link a preceding paragraph, as in; “since we have agreed that certain kind of knowledge may be harmful, let us now attempt to discuss ideas that are harmful to mankind”. These are, indeed, the transition elements you can use to achieve coherence. Apart from the use of transition devices, you may begin the second sentence of a paragraph by repeating an important word or idea from a preceding sentence:

Education is a process by which the mind is liberated. Since education, then, is primarily concerned with the freedom of the mind, one who wishes to be educated must first free his mind from ancient prejudices.” The illustration gains in coherence by the repetition of the idea of education.

SELF-ASSESSMENT EXERCISE

Briefly define a paragraph and when can a paragraph be described as unifying?

3.4 Rules of Thumb for Making Seminar Presentation

These are basic rules that enhance basic seminar presentation. It helps you to unify your ideas on the topic to be presented if they are strictly followed. However, the golden rule here is that human attentions very

limited. Do not cram too much information, either in each slide or the whole talk and try to avoid giving detailed explanations

3.4.1 Organisation

1. Have a clear introduction, to motivate what you do and to present the problem you want to solve.
2. If you have a companion paper, mention it during the talk and recommend it for more details. Don't put all the details in the talk. Present only important ones.
3. Use only one idea per slide.
4. Have a good conclusion slide: include on it the main ideas, the ones you really want people to remember. Use only one "conclusion" slide.
5. The conclusion slide should be the last one. Do not put other slides after conclusion, as this will awaken their impact.
6. Have a periodic "talk outline" slides (to show where you are in the presentation) helps especially for longer presentations/talk.
7. Do not count on the audience to remember any detail from one slide to another (like colour coding, applications you measure, etc.). If you need remember, restate the information a second time.
8. Try to build a unifying thread especially if you have to present many different things. The slide should be sequential i.e. no big conceptual leaps from one slide to the next.
9. Try to cut out as much as possible from the presentation slides; less is better.
10. Help the audience understand where you are going. Often, it is best to give them a high-level over view first, and then go into the details; then, while listening to the details, they can relate to the high -level picture and understand where you are. This also helps them save important brain power for later parts of the presentation which may be more important.

3.4.2 Mechanics

1. Use a good presentation-building tool, like MS PowerPoint.
2. The more you rehearse the talk, the better it will be. On the other hand, try to see what and why people misunderstood your ideas.
3. Not everything has to be written down: speech can and should complement the information.
4. Be enthusiastic.
5. Act your talk: Explain, ask rhetorical questions, act surprised etc.
6. Give people time to think about the important facts by slowing down or even stopping for a moment.
7. Do not go over time under any circumstance.

8. Listen to the questions very carefully; many speakers answer different questions than the ones asked.
9. Do not treat your audience as mentally – impaired: do not explain the completely oblivious things.

3.4.3 Text

1. Slides should have short titles. Along title, shows something is wrong.
2. Use uniform capitalisation rules.
3. All the text on one slide should have the same structure (e.g. complete phrases, idea only, etc.).
4. Put very little text on slide; avoid text completely if you can. Put no more than one idea per slide (i.e. all bullets should refer to the same thing). If you have lots of text, people will read it faster than you talk, and will not pay attention to what you say.
5. Don't use small fonts
6. Use very few formula (one presentation).
7. Do not put useless graphics on each slide: togos, grids, affiliations, etc.
8. Spell-check. A spelling mistake attracts attention easily.

3.4.4 Illustrations

1. Use suggestive graphical illustrations as much as possible.
2. Do not ... in the figure details you will not mention explicitly. The figures should be as schematic as possible. (i.e. no overload of features).
3. Sometimes a matte pastel background looks better than white one.
4. Exploit animation with restraint. Do not use fancy animation effects if not necessary.
5. However, there are places where animation is extremely valuable, e.g. to depict the evolution of a complex system, or to introduce related ideas one by one.
6. Use strong colours for important stuff, pastel colours for the unimportant.
7. Encode information cleverly e.g. make arrow widths showing flows proportionally to the flow capacity.
8. Use thick lines in drawing (e.g. 1¹/₂points or more).

3.4.5 Results

1. Don't put useless information on result graphs (e.g. the 100 per cent bar for each application).

2. Label very clearly the axis of the graphs. Explain the unobvious ones. Use large fonts for labels; the default fonts in Excel are too small.
3. Discuss the result numbers in details; make them explicit as much as possible.

4.0 CONCLUSION

It has been clearly stated in this unit, the basic rules of thumbs required for scientific writing (grammar, punctuation marks, paragraphing and their usage) and seminar presentation all of which assist in improvement of these processes when strictly adhered to. The moment a writer and presenter are comfortable with these rules, writing and presentation will become a simpler task to accomplish.

5.0 SUMMARY

Rules of thumbs for scientific writing encompasses correct use of grammar, punctuation marks and paragraphing while seminar presentation rules involves giving strict attention to the procedures involved. Some of these procedures include organisation, text, mechanics, illustration and results.

6.0 TUTOR-MARKED ASSIGNMENT

1. Write short notes on the following as related to rules of scientific writing.
 - a. Adjectives
 - b. Noun
 - c. Verb
2.
 - a. What are punctuation marks?
 - b. Define a paragraph.
3. Mention three (3) tactics each as involved in the following rules of making seminar presentation
 - a. Result
 - b. Organisation
 - c. Illustration

7.0 REFERENCES/FURTHER READING

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