



# LA IMMACULADA CONCEPCION SCHOOL

SENIOR HIGH SCHOOL

GRADE 12–APPLIED SUBJECT: PRACTICAL RESEARCH III

TOPIC: ETHICAL CONSIDERATIONS IN THE CONDUCT OF EXPERIMENTS -LESSON #10

May 4-8, 2020

- A. Ethical considerations must be observed in the following experimental aspects:
- Specific experimental procedures to be adopted or to be developed
  - Safe conduct of experiments
  - Safe handling and disposal of test animals
  - Acquisition of analytical test results
  - Development of instrumental test parameters
- B. Never plagiarize experimental procedures.
- C. Secure necessary permits or licenses with regard to the use of test animals and ensure that the policies are enforced in every step of the experiment.
- D. Be ready to undergo induction training before performing an experiment.
- E. Have someone who is knowledgeable enough to orient you on the proper use and maintenance of analytical and advanced experiment.
- F. Never fabricate or falsify experimental data.
- G. Refer to past studies that have unlikely information to enable other researchers to consider what factors may have contributed and influenced the results and to give options to pursue another approach.
- H. Make sure to document results thoroughly and appropriately.

## GUIDELINES IN MAINTAINING A LABORATORY NOTEBOOK

- Properly document activities involving data collection
- Write down notes using a notebook
- Notebook serves as a research diary
- Original idea or concepts, exact time of inception of the work, drawings or designs, experimental procedures, results should be documented
- Document the whole inquiry process

## GUIDELINES IN MAINTAINING THE CORRECTNESS OF ENTRIES IN THE NOTEBOOK

1. Write entries as legibly as possible.
2. Entries should be concise and simple.
3. Always write the date and have it signed. Entries must be chronologically arranged.
4. Do not allow other people to write entries in your notebook.
5. All information, ideas, concepts, analytical procedures, special laboratory conditions, data, analytical results, calculations, tables, charts, supplemental references must be written in the notebook properly dated and labeled.
6. Designs and drawings must be included in the notebook if the inquiry focuses on design and development.
7. Methods or procedures must be accurately outlined and a step-by-step process clearly described.
8. Notebooks must reflect chronological developments, insert pages.
9. Should you make deletions, corrections, or modifications on the entries, draw a single line sign and write the date.
10. If you are working on a commissioned research project, or under a principal investigator/project leader, the notebook becomes the property of the laboratory or institution.

Reference: Inquiries, Investigations, and Immersions

by: Dahlia del Castillo Apodaca pp. 82-84

## ACTIVITY

Directions: Answer the following questions in 2-3 meaningful sentences. Write your answer in one whole sheet of paper.

1. Give instances in which ethics must be instituted in the conduct of experiments.
2. Why should ethics be observed in the conduct of experiments?
3. Is it acceptable to include supplemental information, such as relevant tables, charts, or graphs, from references or literatures in your research notebook? Why?
4. Would it be necessary to include a table of contents (TOC) in your notebook? Specify the contents of your TOC.
5. Would it be ethical to reproduce in the form of photocopies all the content of your laboratory notebook at the completion of your research? Why or why not?



# LA IMMACULADA CONCEPCION SCHOOL

SENIOR HIGH SCHOOL

GRADE 12–APPLIED SUBJECT: PRACTICAL RESEARCH III

TOPIC: COMMUNICATING THE OUTCOME OF A SCIENTIFIC INVESTIGATION -LESSON 11

May 4-8, 2020

## A. IMPORTANCE OF PUBLICATION

- Conveying the outcome of the study gives the public the chance to know the importance of your study and how it affects the community.
- Communicating the outcome is likened to establish bonds with fellow researchers.
- Interconnection with the members of the scientific community allows them to scrutinize the results of your research undertaking.
- The continued growth and advancement in a particular study is sustained by research findings.

## B. MODES OF COMMUNICATION

### 1. JOURNAL/RESEARCH ARTICLE

- reports are usually written following the style of a journal/research article in publications

### 2. THESIS OR DISSERTATION

- is another way of making known of the results of your research project or inquiry
- is revised after the evaluation by a dissertation committee
- is deposited in every school library

## ADVANTAGES OF WRITTEN REPORTS

1. They form permanent records documenting the details of the inquiry.
2. They can be widely circulated.
3. They can be validated and endorsed by the scientific community.

### 3. ORAL PRESENTATION

- limited to a specific audience-scientists, medical professionals, and the academe, not the general public
- researcher is compelled to present his or her findings in so little time
- presenter gets to personally meet those who will validate the findings and endorse them to the experts in the field

### 4. POSTER PRESENTATION

- printed on large-sized boards often made beautifully, colorful, and attractive
- highlight only those important findings of the research study
- required to stand beside your presentation during the designated schedule
- audience have the time to interact via question and answer portion

## ACTIVITY

Directions: Explain briefly the following in meaningful sentences. Write your answer in a whole of sheet of paper.

1. It is commonly said, "Communication is the key to all relationships."
2. Discuss the advantages and disadvantages of each of the presentation techniques
  - a. research report
  - b. talk
  - c. poster
3. Why is there a need to communicate your study to other people?



# LA IMMACULADA CONCEPCION SCHOOL

SENIOR HIGH SCHOOL

GRADE 12–APPLIED SUBJECT: PRACTICAL RESEARCH III

TOPIC: FORMAT OF A SCIENTIFIC PAPER–LESSON 12  
MAY 4-8, 2020

Guide questions in writing a Scientific Paper

1. When do you write a report?
2. Who are your target readers or audience?
3. What is the purpose or reason for writing your report?

Essential components of a well-written report represented by the acronym IMRAD: title; abstract, introduction; (I) experiment or methodology (M); results (R) and (A) discussions (D) conclusion; recommendation; and references or bibliographic entries.

- Title- gives the scope and work performed by the researchers  
-includes the name of the researchers, affiliations and are indicated on the first page
- Abstract-provides a brief overview of the article, is also found on the first page
- Introduction-objectives of the study are outlined
- Experiment or methodology –describes the actual procedures performed in the study  
-choice of procedures must be sufficiently justified by the researchers
- Results -give the data generated from the performance of the procedures, which are represented through graphs and tables
- Discussions –covers the interpretation of the data in relation in the objectives  
-explanations are also provided to account for the inferences drawn from the experimental data
- Conclusion-the summary of the important findings in the form of generalizations
- Recommendation-the researcher delineates the framework that may be pursued to address certain issues concerning the research undertaking
- Acknowledgements and references -the efforts of various people who worked hard and gave technical assistance  
-the authenticity of the study can be vouched for through a complete listing of bibliographic entries

Scientific Paper usually allows these standard elements and format to ensure that you and the readers are well guided in your search or information.

-logical flow of discussion makes certain that the ideas and significant findings are effectively presented and highlighted for the readers benefits

Defense of a Written Research Report

- it is a mode of communicating the results of your research project
- it is usually delivered in a technical or working conferences, symposia, or meetings
- in the academe, a thesis or dissertation is defended before a committee or panel as requirement from graduation

Defending your study means being able to do the following:

- substantiate the need to carry out the study based on your research problem
- justify your approach or chosen methodology to meet your objectives
- clearly explain your findings, with the aid of tables and graphs
- provide a rational conclusion; and
- map out a plan of action leading to a new direction

## Characteristics of a Good Oral Presentation

1. Know your audience.
2. Develop a catchy title to arouse the reader's interest.
3. Organize your presentation.
4. Project a sense of self-confidence to earn the audience's trust by direct eye contact.
5. Manage your presentation time.
6. Speak loudly and clearly.
7. Dress appropriately.
8. Answer the question raised by your audience in the best of your ability.

Reference: Inquiries, Investigations, and Immersions

by: Dahlia Del Castillo Apodaca pp.109-115

## ACTIVITY

Directions: Answer the following questions briefly. Write your answer in one whole sheet of paper.

1. Describe the components of a research report.
2. Explain how your communication skills would be useful in preparing for an effective research report.
3. Why is it essential to consider your audience when writing a report?
4. Think of an instance in which proper timing would be important to writing a research paper.