Overview

✔ Nature and purpose of scientific writing

✔ Classification of scientific publications

✔ Structure of scientific papers

✔ Questions
Scientific Writing

Writing for Scientists, Engineers and academics, focuses primarily on authoring original manuscripts for publication in reputable journals.
The main purpose of scientific writing is to document observations, experiences, experiments, special skills and unique insights of advancements to peers/communities – for the creation and dissemination of \[\text{KNOWLEDGE}.\]
A Sound Academic is judged primarily by his scholarly publications that are accessible to his colleagues, peers, students and the society.
Classes of Publications

- **Journal Articles**
  - Original Investigations
  - General Review
  - Short Communications
  - Letters to the Editor
  - Editorials and Commentaries

- **Books and Chapters in Books**
- **Monographs & Essays**
- **Technical Reports**
- **Theses and Dissertations**
- **Patents**
Weighting of Scientific Publications

• **Patents**

• **Journal Articles**
  - ✓ Original Research
  - ✓ Systematic Review & Meta-analysis
  - ✓ General Review/Editorials and Commentaries
  - ✓ Letters to the Editor

• **Books and Chapters in Books**

• **Monographs, Essays & Technical Reports**

• **Theses and Dissertations**

**N.B.: Publishers must be Reputable**
Journal Articles

- **Original Research**
  - **Observational Studies**
    - Prospective
    - Retrospective
  - **Experimental Studies**
    - Trials (Biological, Clinical, Toxicological etc)
    - Population Intervention
An ‘Author’ must have made valuable contribution to any of

- Conceptualization
- Design
- Data Collection
- Analysis
- Write-up

An ‘Author’ must be able to claim OWNERSHIP** of the manuscript

**Getting Funds or Owning the Laboratory, or Editorial Correction of the Script are NOT qualifications for Ownership.
The Title

The Title is the manuscript in microcosm

– Concise, of high density, specific, informative and capture the attention of readers

– Types of Title
  • Declarative
  • Non-Declarative

– Length of 40 – 60 Characters (including spaces)
The Abstract (Summary)

Two Major Types

– Narrative (Non-Structured)

– Structured
  • Background
  • Objectives
  • Methods
  • Results
  • Conclusions

– Inclusion of Key Words
The "Introduction"

The Introduction brings up the research problem into full perspective.

- It highlights the significance of the study by providing a good background of the study theme or other object of interest.
- It is buttressed with references arranged in chronological order.
What the “Introduction” must do

The Introduction ought to provide a description of the current situation of the environment of study vis-à-vis the subject of the research.

It must go on to highlight the significance of the problem in the environment and frame the research question clearly.
Components of the “Introduction”

- The issue(s) of interest in the context of the environment of the study
- Significance of the problem
- A mini review of available literature on the problem
- Statement of Objective(s)
- Scope and Location of the Study
Issue of Interest

- The subject being studied must be obvious from the first paragraph of the Introduction.
- Background information about the issue should be brief and straight to the point.
- Relevant literature should be cited to show the significance of the issue to the scientific and general community.
In citing the relevant literature

- References should start with the oldest to the most recent when buttressing the same point

- Manuscripts of standard size reporting clinical/epidemiological studies should have between 5-15 references

- Laboratory studies may have more, depending on the complexity of the issues
The Most Important Portion of the Introduction is the objectives:

- Objectives should be clear
- They should be attainable
- Must bear relevance to the description of the investigation/problem as contained in the earlier parts of the Introduction
- May be rounded off with a simple statement of why these particular goal should be pursued
The scope or limits of the study ought to be stated along with the aims/objectives.

This will allow readers to gauge the applicability of the findings to different settings.

It also establishes a clear link between the introduction and the methods that are described in the subsequent sections.
Materials and Methods

- This section describes in simple, clear terms exactly how you performed the study.

- All the details required to reproduce the study elsewhere should be stated.

- Every new or modified method should be described in detail and/or have relevant references cited.

- It should state details of sampling and designs.

- It should also state appropriate statistics and cutoffs and units of measurements.
The Results section is written in the past tense; it is a report of a work done.

- **Results presented as Text, Tables and Figures (Graphs & Pictures)**
- Could be presented under appropriate sub-headings for clarity
- Should tell a story that flows in a sequence.
- No references cited
- Main finding(s) presented early and given prominence
The “Discussion”

The Discussion is meant to highlight the following:

- **Significance of the Results**

- **Implications of the Findings**: The implications (future effects, possible/useful applications of the findings) based on the results of the study

- **Conclusions**: The main facts that may be inferred from the findings. The conclusions must have a clear link to the findings of the study
"Structure" of the Discussion

The main parts of a Structured Discussion:

- The Main Finding(s)
- Strengths and Weaknesses of the Study Design
- The Significance and Implications of the Findings
- Citation of Relevant References
- Limitations Encountered
- Unanswered Questions (Areas for Further studies)
- Conclusions
Acknowledgement

Who & What Should be Acknowledged?

- funders
- benchwork
- data collection
- secretarial
- proof-reading
- cheerleading

Spiritual guide????
The final part of the manuscript:

- There are now many types of software that help authors insert references into their manuscripts.
- Many journals lay emphasis on the correctness of references. This may delay publication of a manuscript.
- Citation of only the Relevant References reduces the tedium of listing references.
- Different Listing Styles –
  - Harvard,
  - Vancouver
  - APA
  - MLA etc.
Further Reading

Guide to Publishing a Scientific Paper
Ann M. Körner

A Guide to Publishing for Academics
Inside the Publish or Perish Phenomenon
Edited by Jay Liebowitz

Methods in Scientific Research
&
A Guide to Writing an Excellent Paper

George K. Toworfe, PhD
Further Reading

- How to Write a Paper
  - Edited by George M. Hall

- How to Survive Peer Review
  - By Elizabeth Wager, Fiona Godlee, Tom Jefferson
thanks

questions?