How to write compelling scientific review papers

Review Articles

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Content

- **Review paper:**
  - Structure
  - Outline
  - Abstract (indicative)
  - Introduction
  - Main analysis section
  - Conclusion

- **Preprint servers**
  - AfricArxiv
  - bioRxiv
  - arXiv
  - Etc.

Choosing the right journals
Review Articles

About: Review paper outline the overall picture of a particular topic as understood by scientists in the field.

Big picture: Summarising theories and results from a number of research studies. Some review evaluate methods & results.
Source material

- Textbooks, internet (with backing statements)
- Read couples of reviews
- Read editorials and letters to the editor
- Journals articles & theses reports
- Avoid writing on little-known areas of research

Two main approaches to write a review:

- Choose a point and select primary studies based on the chosen area.
- Read all the relevant studies and organise them in a meaningful way.
Review Articles

Content

About: Review paper provide a solid background for a research paper’s investigation.

Problem: It also outline any problems that are currently being addressed and explain the basis of any conflicts that exists between experts.

Propose a new model
Used simple word & avoid technical details
*Have high impact than research papers*

[Hofmann (2010); 359-361 ]
<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title, authors and affiliations etc</td>
<td>1 page</td>
</tr>
<tr>
<td>Abstract (indicative)</td>
<td>½ page</td>
</tr>
<tr>
<td>Introduction</td>
<td>1 to 2 pages</td>
</tr>
<tr>
<td>Main analysis section</td>
<td>3 to 18 pages</td>
</tr>
<tr>
<td>Conclusion and or recommendation</td>
<td>1 to 3 pages</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>1 page</td>
</tr>
<tr>
<td>Figures and Tables</td>
<td>Maximum of 6</td>
</tr>
<tr>
<td>References</td>
<td>40 – 100 lists</td>
</tr>
</tbody>
</table>
Outline of a review paper

**Title**: Transcriptome profiling research in urothelial cells carcinoma

**Abstract** (use indicative abstract)

**Introduction**
- Overview
- Urothelial cell carcinoma
- Sequencing technology (RNA-Seq)

**Main analysis**
- Transcriptome sequencing technology
- RNA-Seq analysis pipelines
- General perspective

**Conclusion**
- Summary of the main findings
- Summary of hypothesis

**Authors contributions**

**Disclosure of interest**

**Funding** (if any provide funding support)

**Acknowledgements**

**References**

[Ahmad *et al* (2020) unpublished work]
Abstract

Indicative

Key Concepts:
- Write an abstract like a table of contents in paragraph form
- Not all review papers required an abstract

Structure:
- Background (optional)
- Problem statement (optional)
- Purpose or state the topic of review
- Overview of content
Example of a review paper abstract

| Background | Aerosol serve as cloud condensation nuclei (CCN) and thus have a substantial effect on cloud properties and the initiation of precipitation. Large concentrations of human made aerosols - |
| Unknown/problem | been reported to both decrease and increase rainfall as a result of their radiative and CCN activities. At one extreme, - |
| Purpose/Topic statement | pristine tropical clouds with low CCN concentrations rain out too quickly to mature into long-live clouds. On the other hand, heavily polluted clouds evaporate much of their water before precipitation can occur, if they form at all given the reduced surface heating resulting from aerosol haze layer. |
| Overview of content | We propose a conceptual model that explains this apparent dichotomy. |

[Hofmann (2010); 362-363 ]
Introduction

An overview

Key Concepts:

- State the general background and the central topic of the review
- Don’t make it longer than 1/5 of the review paper
- Present any recent developments and what is unknown

Structure:

- Background
- Unknown problem
- Purpose or topic statement
- Overview of content
## Example of Introduction in a review paper

<table>
<thead>
<tr>
<th>Background</th>
<th>Mitochondrial genomes differ greatly in size, structural organization and expression both within and between and the kingdoms of eukaryotic organism. The mitochondrial genomes of higher plants are much larger (200-2400 kb) and more complex than those animals (14-42kb), fungi(18-176kb) and plastids (120-200kb) [1-4]. Although -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown/problem</td>
<td>there has been less molecular analysis of the plant mitochondrial genome structure in comparison with equivalent animal or fugal genomes,...........</td>
</tr>
<tr>
<td>Topic statement</td>
<td>the use of a variety of approaches – such as pulsed-field gel electrophoresis (PFGE), moving pictures (movies) during electrophoresis, restriction digestion by rare-cutting enzymes, two-dimensional gel electrophoresis (2DE) and electron microscopy (EM) – has led to substantial recent progress.</td>
</tr>
<tr>
<td>Overview</td>
<td>Here, the implications of these new studies on the understanding of <em>in vivo</em> organization and replication of plant mitochondrial genomes assessed.</td>
</tr>
</tbody>
</table>

[Hofmann (2010); 366]
Main Analysis

Content of the review

Key Concepts:
● Find the best structure of the main analysis section or content
● Mention types of experiments performed & the data obtained
● Address any controversies in the area you are reviewing.
● Used figures or tables (optional)

Logical structure:
● Chronologically
● Thematically
● Methodologically
## Organise the review logically

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Chronologically**  | - Write about topics according to when they were published  
- Or examine the sources under the history of the topic |
| **Thematically**     | Organize around a topic or issue. E.g. from organism, to the organ, to the cell and down to the molecular mechanism within the cell.  
- Sometimes you might consider arranging it chronologically while addressing the topic or issue (i.e. combining thematic & chronological concepts). |
| **Methodologically** | Here, topics are organize based on the methods, techniques or approaches. |
Content of each subheading

Subheading:

Transcriptome sequencing technology

- Context
- Problem/Unknown
- Proposed solution
Conclusion

summarize, generalize & provide some significance

Key Concepts:
- Main conclusions and recommendations
- Summarise and generalise the main lines of arguments & key findings
- Discuss and restate your interpretations.
- Longer than conclusion section of a research paper. However, keep it brief

Structure:
- Summary
- Interpretations & recommendations
Problems in review papers

Most common problems:

- Lack of analysis and commentary
- Review paper is not objective
- Not stating the unknown or problem
- Lack of logical organisation of subtopics
- Referencing errors & missing in-text citations
Preprint Servers

Open Access Repository

About: A computer server where scientists and researchers post manuscripts before peer review by journals
Preprints

*Full draft or complete* scientific manuscripts shared *publicly* online *before* they are peer reviewed by the journals.

**Benefits**

- Publicly free
- Exposure
- Citations
- Credits
- Feedback
With AfricArxiv, we want to

- promote the use of local African languages in science
- bridge language barriers: Arabic, English, French, Portuguese and traditional African languages
- Increase the discoverability of African researches
- highlight the relevance of indigenous and traditional knowledge in a research context

info.africarxiv.org
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Submit via ScienceOpen
Submit via OSF
Submit via Zenodo

info.africarxiv.org/partners/
open source infrastructure for region- and discipline-specific preprint repositories
Choosing the right Journals

Identify the right journal

Key Concepts:
● List the target journals of your choice
● Determine the Journal Impact and whether it is open access
● Make sure the scope and editorial policies of the journal match your needs
● Ensure checking the journal requirements and distribution
● Check the journal’s peer review process
● Check and read the Instructions to Authors thoroughly
Identifying the right journals

ISI journals master list link: https://mj.l.clarivate.com/home

Scopus Index journals link: https://www.scopus.com/sources
Organizers & Sponsors

Abdussamad Abubakar - co-host
PhD student
Department of Microbiology
Universiti Putra Malaysia

Balkisu Ibrahim – finance
PhD student
Department of Economics
Universiti Putra Malaysia

Buhari Ibrahim – host/moderator
PhD student
Department of Molecular Imaging
Universiti Putra Malaysia

Kabiru Bello Ilela – technical
PhD student
Department of Politics & Governance
Universiti Putra Malaysia

Sani Muhammad – technical
PhD student
Department of English
Universiti Putra Malaysia
Questions?