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HOW TO WRITE A RESEARCH ARTICLE: A STRUCTURED APPROACH

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Abstract
Writing a high-quality research article requires a structured and systematic approach to ensure the clarity, coherence, and scholarly impact. This paper provides a comprehensive guide for researchers aiming to publish in academic journals. It outlines the essential components such as topic selection, literature review, methodology formulation, results presentation, discussion, and conclusion writing. The methodology section emphasizes the significance of transparency and reproducibility by offering a sample case study to illustrate each step. The paper draws from established academic writing principles and integrates practical strategies for enhancing manuscript quality. Through a step-by-step framework, the study helps the beginner and experienced researchers to improve their writing efficiency and publication success. The article also highlights the common pitfalls and provides the tips for formatting, referencing, and submission processes. Overall, this structured guide aims to bridge the gap between research execution and effective communication, supporting authors in producing impactful scholarly articles that contribute meaningfully to their respective fields.

Keywords: academic publishing, journal submission, manuscript preparation, research writing, scientific communication

Introduction
Research articles are the foundation of scientific and academic communication. They serve as a means for scholars to share their findings, advance knowledge in their field, and contribute to the global scientific discourse (Bensimon et al., 2004). A well-written research article follows a structured format to ensure clarity and consistency, making it easier for readers, reviewers, and journal editors to understand and evaluate the study's contributions (Carroll et al., 2024).

Writing a research article is a challenging yet rewarding endeavour that requires a very careful planning and execution. The process involves formulating a research question, performing an extensive literature review, selecting a right methodology, analysing data, and presenting results in a logical manner (Fitzgerald & Shanahan, 2000; Juzwik et al., 2006). Every section of a research article plays a

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vital role in ensuring that the study is well-documented and impactful (Paltridge, 2004).

To provide a structured overview, the Table 1 outlines the key components of a research article and their respective roles:

Table1. Components of a typical research article

Section	Purpose
Abstract	Summarizes the research, highlighting objectives, methods, key findings, and conclusions.
Introduction	Establishes the research context, problem statement, significance, and research objectives.
Literature Review	Provides a critical analysis of previous studies, identifying research gaps and theoretical frameworks.
Methodology	Describes research design, data collection, and analysis methods to ensure reproducibility.
Results	Presents the key findings of the study using tables, figures, and descriptive statistics.
Discussion	Interprets results, compares them with previous research, and highlights implications.
Conclusion	Summarizes key findings, contributions, limitations, and future research directions.
Formatting and Submission	Ensures compliance with journal guidelines, proper citations, and manuscript preparation.

Each of these sections plays a distinct and critical role in structuring a coherent and impactful research paper. In the following sections, we will explore each component in detail to guide researchers in effectively communicating their findings.

Introduction section

Introduction section is one of the most crucial sections of a research paper as it establishes the research context, presents the problem statement, and highlights the significance of the study. A strong introduction is essential to engage readers and provide a clear roadmap for the rest of the paper. The introduction should (Grey & Sinclair, 2006):

- Provide a detailed background of the research area, setting the stage for the study. This includes a discussion of existing knowledge, key theories, and fundamental concepts relevant to the topic.
- Identify the research gap by thoroughly reviewing previous studies and explaining what they lack or fail to address. This justifies the need for the research and highlights its novelty.
- Clearly state the research objectives and questions, outlining what the study aims to accomplish.
- Offer a concise summary of the methodology, explaining how the research problem will be addressed.
- Outline the structure of the article to guide readers through the subsequent sections.

A well-crafted introduction should answer the "why" of the research and establish its importance in the broader scientific context. It should be written in an engaging manner to capture the interest of readers while maintaining academic rigor.

Literature review

A comprehensive literature review is crucial to understanding the existing body of work and positioning the study within it. This section serves multiple purposes (Winchester & Salji, 2016):

- Demonstrates familiarity with relevant research and acknowledges contributions from other scholars.
- Identifies gaps in current knowledge, justifying the need for the study.
- Helps refine research questions and objectives based on previous findings.
- Establishes a theoretical framework or methodological approach for the research.

To conduct an effective literature review, researchers should systematically search academic databases such as Google Scholar, IEEE Xplore, ScienceDirect, and PubMed (Dehdarirad et al., 2020). They should focus on peer-reviewed journal articles, conference papers, and authoritative sources. Using citation management tools like Zotero, EndNote, or Mendeley can help organize references and maintain consistency in citations (Butros & Taylor, 2011).

A well-structured literature review can be organized thematically, chronologically, or methodologically, ensuring a critical analysis of sources rather than mere summarization. Researchers should compare and contrast findings, highlight emerging trends, evaluate methodologies, and discuss conflicting perspectives to construct a comprehensive and insightful evaluation of existing knowledge (Rother, 2007).

Method

The methodology section explains how the research was conducted, providing a detailed account of the research design, data collection, and analysis methods. It is one of the most critical sections, as it determines the reproducibility and validity of the study (Hahn Fox & Jennings, 2014). Key components include (Musa et al., 2015):

- Research Design: Describes whether the study is experimental, observational, theoretical, or computational. It also outlines the study framework and approach.
- Data Collection Methods: Specifies how data was gathered, whether through surveys, experiments, simulations, or secondary sources. If human subjects were involved, ethical considerations must be addressed.
- Data Analysis Techniques: Explains statistical or computational methods used to interpret data, including software or algorithms employed.
- Assumptions and Limitations: Acknowledges constraints in the methodology and potential biases in the study.

A well-documented methodology ensures that the research can be replicated and validated by other scholars, enhancing its credibility. Some of the key aspects to consider are (Lindgreen et al., 2021) are shown in Table 2.

Table 2. Aspects of a good methodology section

Aspect	Description
Replicability	Allows other researchers to repeat the study using the same methods.
Validation	Confirms the accuracy and reliability of the findings.
Transparency	Clearly outlines procedures to avoid ambiguity.
Consistency	Ensures uniform application of research methods.
Ethical Considerations	Maintains integrity by following ethical guidelines.

Illustrative example

To demonstrate the application of this structured methodology, consider a study on "The Impact of Online Learning on Undergraduate Performance in India." The research design was a cross-sectional survey involving 200 students across four engineering colleges. Data were collected using a structured questionnaire distributed online. Descriptive statistics and regression analysis were used to evaluate the relationship between time spent on online platforms and academic performance. This example illustrates how the methodology section can be concretely developed with real data, ensuring transparency and reproducibility.

Findings and discussion

The results section presents the findings of the research objectively, using tables, graphs, and descriptive statistics where necessary. The discussion section, on the other hand, interprets these results, drawing connections to the research objectives and existing literature (Clarke et al., 2002). This section should (Basturkmen, 2012):

- Clearly present findings in an organized manner, using visual aids like charts and figures to enhance readability.
- Compare results with previous studies, highlighting agreements, contradictions, or new insights.
- Explain unexpected outcomes and their possible causes.
- Discuss the implications of the findings, both in theory and practice.

A well-written discussion critically evaluates the results, acknowledges limitations, and suggests improvements for future research (Muff et al., 2022). It is important to avoid overgeneralization and ensure that interpretations are grounded in evidence.

Conclusion

The conclusion serves as a summary of the research and its contributions. It should (Yadav, 2022):

- Recap the key findings without repetition.
- Highlight the significance of the study and its practical applications.
- Address any research limitations and suggest future research directions.
- Provide a strong closing statement that reinforces the impact of the work.

A concise and impactful conclusion leaves a lasting impression on the reader and underscores the value of the research (Article, 2020). Researchers should avoid

introducing new information in the conclusion and instead focus on synthesizing their key arguments.

Formatting and submission

Before submitting the article, researchers must ensure adherence to the target journal's formatting guidelines. This process involves (da Silva, 2020; Thabah & Currie, 2022):

- Structuring the manuscript according to the journal's requirements (e.g., IEEE, Elsevier, Springer, or Wiley formats).
- Checking for grammatical errors and coherence in writing.
- Verifying references and citations for accuracy and consistency.
- Running plagiarism checks using tools like Turnitin, Grammarly, or iThenticate.
- Preparing a cover letter to introduce the research and its significance to the journal's editorial team.

Proper formatting and thorough proofreading improve the chances of acceptance and reduce the likelihood of rejection due to technical issues.

Abstract/summary

An abstract or summary is a concise representation of the research article, providing a snapshot of its key aspects. It is the first section of any research article (Alexandrov & Hennerici, 2007). It should be written in a way that quickly informs the reader of the study's purpose, methodology, results, and conclusions. A well-written abstract should (Tullu, 2019):

- Clearly state the research objective and its significance.
- Summarize the methodology without excessive detail.
- Highlight the key findings and their implications.
- Conclude with a strong statement about the study's impact.
- Be concise, typically within 150-250 words.

An abstract should be self-contained, meaning a reader should understand the study's core contributions without referring to the full article. Researchers should avoid technical jargon and ensure clarity in presenting their work.

Conclusion

Writing a research article is an iterative process requiring careful planning, execution, and revision. Following a structured approach ensures clarity, enhances the research's impact, and increases the likelihood of publication in a reputable journal. By focusing on each section methodically, researchers can effectively communicate their findings and contribute meaningfully to their field. Developing strong writing skills and continuously refining one's approach will result in well-articulated, high-impact research articles that advance knowledge and scientific discourse.

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