The Rhetoric of the Scientific Research Article

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1. Abstract

Best practices:

- Concise; comprehensive and accurate; coherent and able to stand on its own; meets readers' needs.
- Points to social activity of science (dynamic participation of readers in your disciplinary community). A means for circulating information, makes cross-fertilization of ideas possible.
- Both a summary and an initial invitation.

Pitfalls:

- Abstract is hard to follow; issue and/or claim not clear; significance not explained.

Tip:

- Can abstract be understood by those outside of your immediate specialty?

2. Introduction ("Why?")

Best practices:

- Introduction establishes occasion for scientific work. Articulates the problem or question at issue and intent of your work
- Places your work in context of ongoing conversation
- Highlights the research space or gap that your work fills
- Provides background information that can help readers appreciate the significance of your work and its relation to theoretical or experimental issues.
- Argues for relevance
- Sets up following sections (methods, results, discussion) by stating hypothesis/claim

Pitfalls:

- Introduction contains irrelevant information or convoluted discussions that hide issue and claim or hypothesis.
- Introduction fails to provide intellectual context
- Introduction fails to establish relevance or significance.

Tip:

- Focus on information that helps an intelligent reader in your general field understand why you have pursued the research.

3. Methods ("How?")

Best practices:

- Clear, sufficiently detailed (but don't belabor standard or accepted procedures)
- Enables readers to evaluate methodology, elegance of research design
- Permits replication of experiment
- Establishes credibility; demonstrates or explains how you handle variables

Pitfalls:

- Procedure not clear or accepted procedures not followed
- Belabors the obvious

Tip:

- Explain the rationale behind why you proceeded as you did.

4. Results ("What?")

Best practices:

- Clearly communicates key findings with no or minimal interpretive comment
- Provide sufficient detail to justify any conclusions you draw later.
- Report most significant or general results first, then work toward more specific data.
- Group results in categories
- Use visual devices to capture complex information or depict trends or comparisons.

Pitfalls:

- Results/data poorly organized
- Discounts data/results inconvenient to desired or expected outcome

Tip:

- Do your results lay a sufficient foundation for the discussion that will follow?

5. Discussion ("So what?")

Best practices:

- Thorough analysis and interpretation of results in light of questions that prompted your study. Be sure to clarify whether results confirm or refute initial hypothesis.
- Discusses implications of work and its significance; suggests further research.
- Accounts for difficulties and challenges in the research, and problems in the research design. Note limitations of your approach
- Clarifies how your work fits into the ongoing discussions of your field.

Pitfalls:

- Claims made outstrip the actual data.
- Significance or relevance of work not clear

Tip:

- The discussion section should provide the analytic culmination of the more descriptive discussions in the introduction, methods, and results sections.

6. Citations and Acknowledgments ("Who?")

Best practices:

- Highlights the social, collaborative nature of science
- Places your work in the context of an ongoing conversation
- Signals currency of your work; fosters continued collaboration
- By recognizing the authority of others, citations help establish your own authority and credibility

Pitfalls:

- Citations incomplete; citations in improper format or style
- Citations thought of as simply a way to forestall questions about plagiarism

Tip:

- So important and telling are citations that many researchers will turn to the citations first, before reading the article, and can surmise at a glance the focus, relevance, and credibility of your work.