

Reporting the Results of an Animal-based Scientific Investigation

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Information Transfer and Signal Processing

- Information transfer is the process of moving or sending information from one person or location to another person or location using a communication channel
- Writing is a communication device for transferring information between people
- Reading is a form of signal processing in which a written signal is cognitively processed
- A scientific journal is a type of communication channel



Credit: N.Hendrickson / iStockphoto

How to read a scientific paper

By Adam Ruben | Jan. 20, 2016 , 3:15 PM

Science DOI:10.1126/science.caredit.a1600012

Nothing makes you feel stupid quite like reading a scientific journal article

Every week I would sit with the article, read every single sentence, and then discover that I hadn't learned a single thing

Academic papers written on nonscientific subjects are easy to understand, right? Right?

Ten Stages of Reading a Scientific Paper

- 1. Optimism** This can't be too difficult.
- 2. Fear** This is the stage when you realize, "Uh ... I don't think all of these are words."
- 3. Regret** You begin to realize that you should have budgeted much more time for this whole undertaking.
- 4. Corner-cutting** An abstract, all for me? Blessed be the editors of scientific journals who knew that no article is comprehensible.
- 5. Bafflement** What the hell? Was that abstract supposed to explain something?

Ten Stages of Reading a Scientific Paper

6. **Distraction** Shame about David Bowie. Is Paul Simon still alive?
7. **Realization that 15 minutes have gone by and you haven't progressed to the next sentence.**
8. **Determination** All righty. Really gonna read this time. Really gonna do it.
9. **Rage** How could any human brain produce such sentences?
10. **Genuine contemplation of a career in the humanities.**

**A Transmission and/or Reception
Failure?**

Seeking Transmission and Reception Success

How can you ensure high fidelity of a signal and accurate signal processing when writing a scientific manuscript?

The Communication Strategy

- Define the purpose of publication
 - Why are you writing this article?
 - For whom are you writing this article?
- Assess the audience
 - Who are the readers?
 - What is the background knowledge of the readers?
- Establish effectiveness criteria
 - How will the publication be used?
 - Which criteria can be used to judge effectiveness?

Required Content and Organization of Information

Instructions to Authors

Reporting guidelines

IMRaD structure

The IMRaD Structure

- ***Introduction***
 - Providing the investigation's background
 - Delineating the knowledge gap
 - Presenting the hypothesis or the purpose of the investigation
- ***Materials and Methods***
 - Ethical statements
 - Details of the participants and setting
 - Sources and details of materials and equipment
 - Description of study parameters and the methods of measurement
 - Experimental design and methods of analyzing the data
- ***Results***
 - Presentation of descriptive and/or outcome data with displays (tables and/or figures)
- ***Discussion***
 - Summary of main results
 - Interpretation of each result
 - Limitations
 - Conclusions

Clarity

The reader can easily and quickly understand the manuscript's message

The efficiency of information transfer from author to reader is high because the manuscript's noise-to-signal ratio is low

Precision

The fidelity of the message is high by choosing the correct words or being precise

Choosing the incorrect words or being imprecise jeopardizes the message's fidelity

Unambiguity

An unclarity by virtue of having more than one meaning and/or whose meaning cannot be determined from context

Concision

The information density of the text is well-chosen and apt

The target word count of a sentence is between 12 and 20 and should not exceed 40

Coherence

The case is well-designed and convincing and is presented logically with flow of argument and without any orphan sentences

Consistency

Consistency in terminology throughout the narrative eliminates reader confusion

Originality

The text should be original, not contain repetitions, and be free of copied phrases and/or sentences and plagiarisms

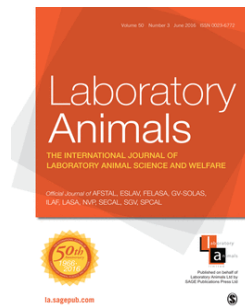
The Narrative is Written in Good and Plain English

The narrative should not contain professional jargon

The narrative is written with correct diction, syntax, spelling, and punctuation

Ambiguities and unclarities are often associated with bad english, long sentences, and grammatical errors

Short sentences eliminate the need for punctuation



Laboratory Animals

Laboratory Animals is an international journal of laboratory animal science and welfare, and publishes peer-reviewed original papers and reviews on all aspects of the use of animals in biomedical research. The journal promotes improvements in the welfare or well-being of the animals used, it particularly focuses on research that reduces the number of animals used or which replaces animal models with in vitro alternatives.



The Tale of the Three Little Pigs

Illustration by L. Leslie Brooke (Library of Congress [1]) [Public domain], via
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[https://commons.wikimedia.org/wiki/File%3AThe_three_little_pigs_1904_straw_ house.jpg](https://commons.wikimedia.org/wiki/File%3AThe_three_little_pigs_1904_straw_house.jpg)

This manuscript was submitted to *Laboratory Animals* and you are invited to review this manuscript on its suitability for publication in the journal

Would you accept, reject, or recommend that the author(s) revise(s) and resubmit(s) the manuscript?

Reasons for Acceptance

1. The housing of pigs is important for their welfare
2. An emergency and disaster plan for threatened pigs is described
3. The experimental design is a repeated measures design and the data are easily analyzed by a one-way ANOVA
4. The take-home message is clear

Reasons for Acceptance

5. The narrative is concise
6. There are no ambiguities
7. The subject matter is presented logically
8. There is consistency in terminology
9. The quality of the English is good

Reasons for Rejection

1. The authors may have selected the incorrect journal
The report does not fall within the aims and scope of *Laboratory Animals*. The authors should consider submitting the report to a journal whose aim and scope are associated with construction and building materials, such as *Construction and Building Materials* or the *Journal of Building Performance*
2. The background and rationale of the study are missing
3. What is the hypothesis that the author(s) are testing?
4. Ethical statements are missing

Reasons for Rejection

5. The manuscript does not contain all the required information
 - What is the pig breed and the pigs' age and sex?
 - What is the wolf species and the wolf's age and sex?
 - What are the sources and who are the suppliers of the building materials?
6. Although the data support the final conclusion, which is based on the outcome, a sample size of one is very small
7. The discussion is deficient and needs to be expanded
 - The discussion is not a formal consideration and critical examination of the study
 - The discussion lacks a compare-and-contrast analysis
 - The study's limitations are not discussed

Recommendation to the Editor

The manuscript in its present form is **unacceptable** for publication in the journal for two main reasons:

1. The manuscript's content and subject seem to be unsuitable for the journal
2. The manuscript requires a major revision

The authors should be invited **to submit a revised version** because the authors can probably resolve and fix almost all of the manuscript's deficiencies

Good Reporting is Not an Optional Extra

Good reporting is an essential component of good clinical practice and research

Good reporting is part of one's professional responsibility to all colleagues and especially to the next generation

Thank you for your
attention and time

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