

How to Read a Scientific Article

By

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• **Worst way:** **X**
no reflection or criticism (textbook)

- **Right way:** **✓**
1. Skimming
 2. author's main points.
 3. Generate questions before, during, and after reading.
 4. Draw inferences based on your own experiences and knowledge.
 5. Take notes as you read

Skimming

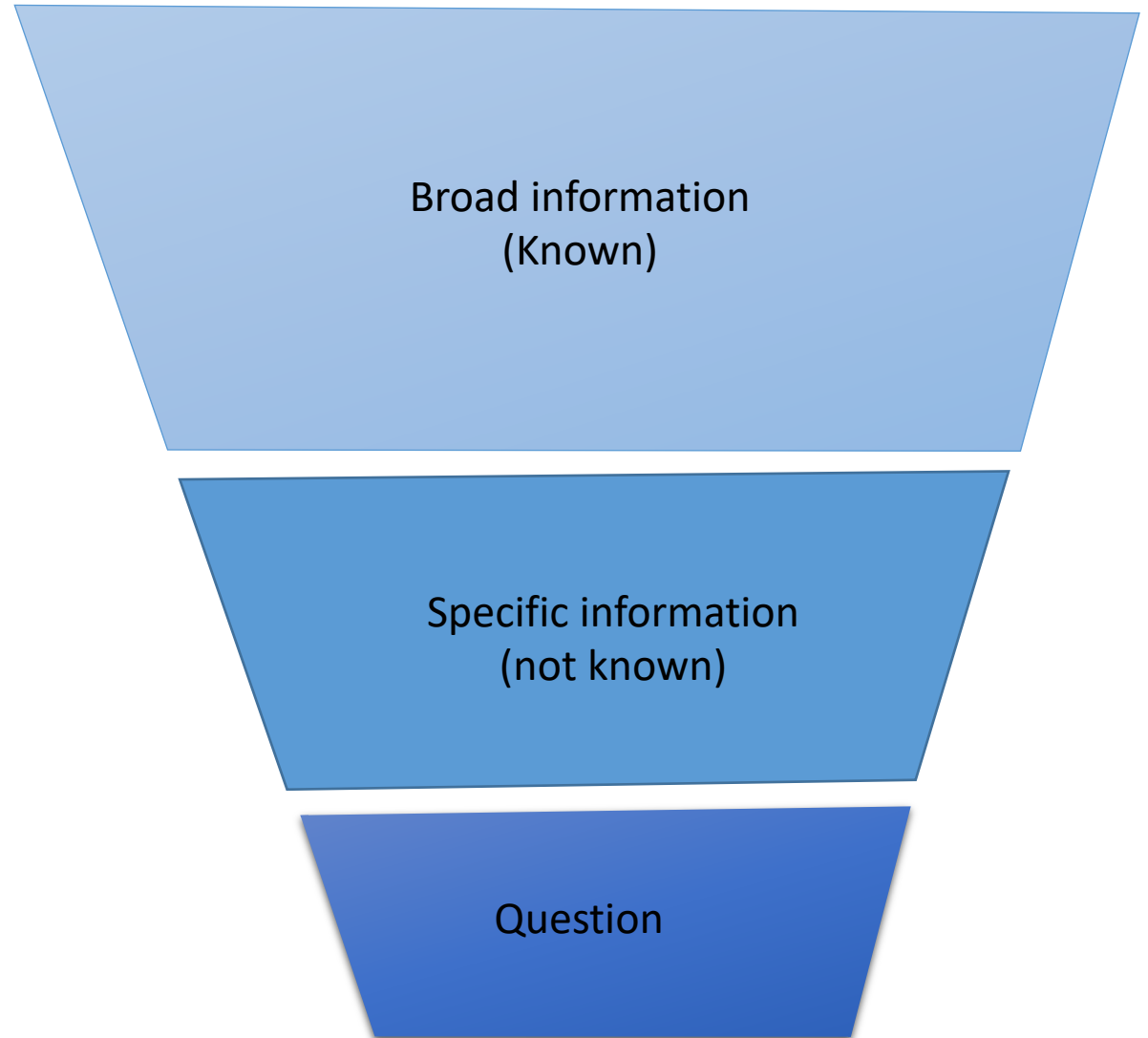


Abstract

- purpose or rationale of study (why they did it)
- methodology (how they did it)
- results (what they found)
- conclusion (what it means)

Introduction

Topic information flow



Methods

- experiments were done
- technical language and detailed

Results

- Outcomes
- Figure & tables

Discussion

- Clear answer to Q
- Support the conclusion

Author's main points

Document level

- Title
- Abstract
- Keywords
- visuals (especially figure and table titles)
- 1st sentence or the last 1-2 sentences of the Introduction

Paragraph level:

words or phrases to look for

- surprising
- unexpected
- in contrast with previous work
- has seldom been addressed

Questions

- During reading
- After reading

Draw inference

Example:

Rett Syndrome is a childhood neurodevelopmental disorder and one of the most common causes of mental retardation in females *Comment: Hmmm...must be related to a gene on the X-chromosome*, with an incidence of 1 in 10000-15000. *Comment: How common is that? Not too likely to happen to me*, but there must be several such children born in Houston every year. Rett syndrome patients are characterized by a period of normal growth and development (6-18 months) followed by regression with loss of speech and purposeful hand use. *Comment: What happens? Something must be triggered or activated at late infancy.*

Take notes



Thanks



HOW TO READ SCIENTIFIC PAPERS

Much of a scientist's work involves reading research papers. Because scientific articles are different from other texts, like novels or newspaper stories, they should be read differently. Here are some tips to be able to read and understand them.

1 SKIM



First get the "big picture" by reading the title, key words and abstract carefully; this will tell you the major findings and why they matter.

- Quickly scan the article without taking notes; focus on headings and subheadings.
- Note the publishing date; for many areas, current research is more relevant.
- Note any terms and parts you don't understand for further reading.

RE-READ 2

Read the article again, asking yourself questions such as:



- What problem is the study trying to solve?
- Are the findings well supported by evidence?
- Are the findings unique and supported by other work in the field?
- What was the sample size? Is it representative of the larger population?
- Is the study repeatable?
- What factors might affect the results?

If you are unfamiliar with key concepts, look for them in the literature.

3 INTERPRET



- Examine graphs and tables carefully.
- Try to interpret data first before looking at captions.

- When reading the discussion and results, look for key issues and new findings.
- Make sure you have distinguished the main points. If not, go over the text again.

SUMMARIZE 4



- Take notes; it improves reading comprehension and helps you remember key points.
- If you have a printed version, highlight key points and write on the article. If it's on screen, make use of markers and comments.

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