PEER REVIEW

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CONTENT EDITING

COPY EDITING

"*There is no such thing as an inarticulate idea waiting to have the right words wrapped around it.*"

Northrop Frye

CONTENT EDITING

DISCUSSION

What questions should we be asking during the process of content editing?

Content Editing

- What is the main question addressed by the research? Is it relevant and interesting?
- How original is the topic? What does it add to the subject area compared with other published material?
- Are the conclusions consistent with the evidence and arguments presented? Do they address the main question posed?
- If the author is disagreeing significantly with the current academic consensus, do they have a substantial case? If not, what would be required to make their case credible?
- If the paper includes tables or figures, what do they add to the paper?

Major flaws and considerations

- Drawing a conclusion that is contradicted by the author's own statistical or qualitative evidence
- The use of a discredited method
- Ignoring a process, perspective, and/or method that is known to have a strong influence on the area under study

QUESTION

What can we examine to ensure that the methodology described is sound?

Reviewing the Methodology

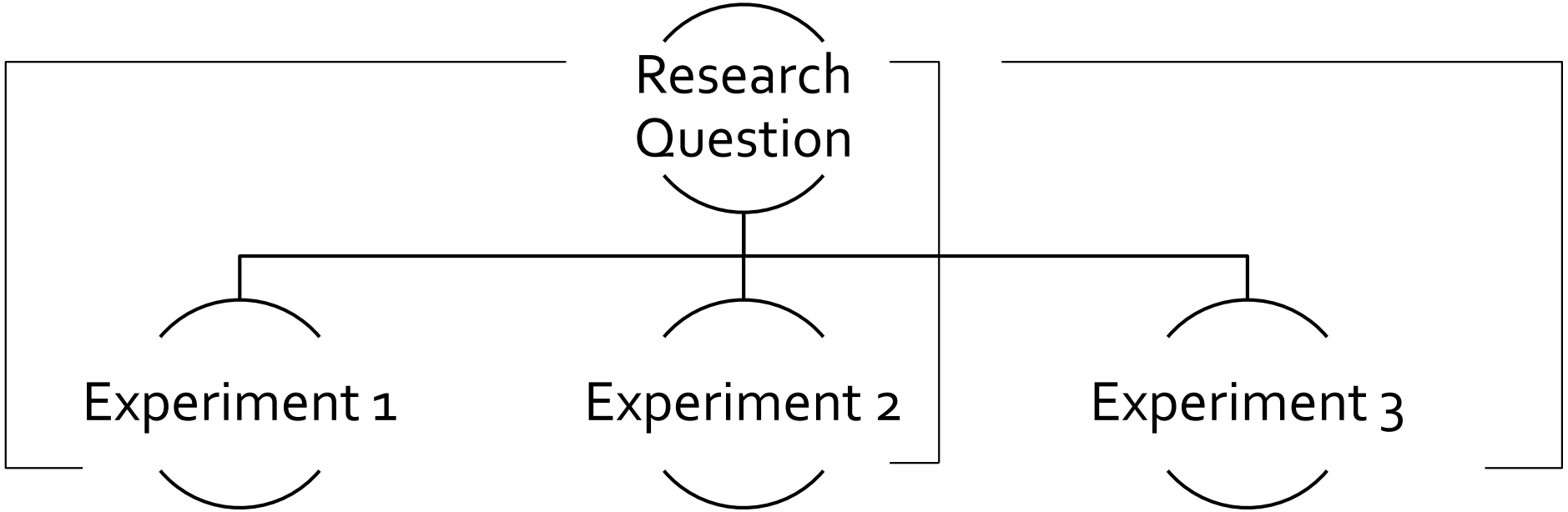
- Sampling protocol in analytical papers
- Positive & negative control experiments
- Repeated analyses and/or experiments
- In qualitative research, validity & reliability of questions, the use of a detailed methodology and process of data analysis
- Qualitative research extends beyond the author's opinions, with sufficient descriptive elements and appropriate quotes from interviews or focus groups
- Methodology described in language that allows for replicability
- (Standard guidelines are followed, health and safety requirements are met, ethical standards are maintained)

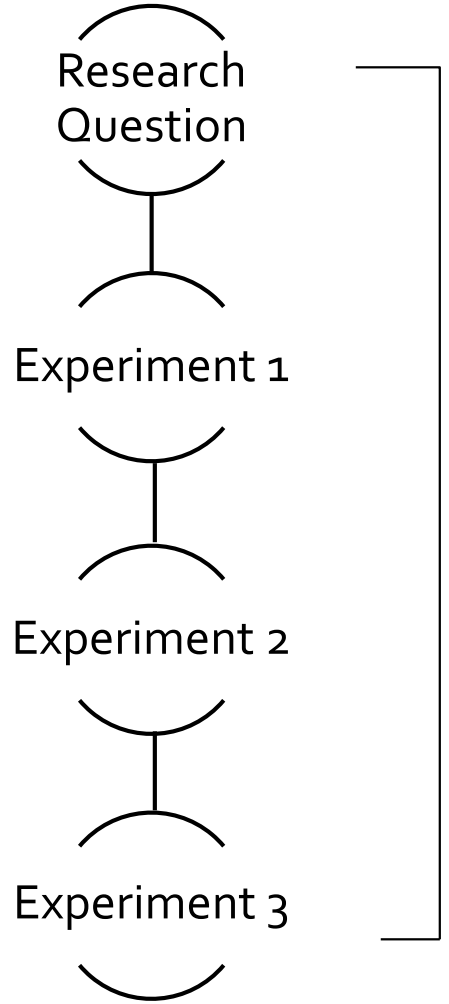
QUESTION

What questions should we be asking when trying to determine if the data, and the subsequently drawn conclusions, are sound?

Reviewing the Data

- Conclusions drawn based on insufficient data
- Statistically non-significant variations
- Unclear data tables
- Contradictory data that either are not self-consistent or disagree with the conclusions
- Confirmatory data that adds little, if anything, to current understanding
  - (Unless author also presents strong arguments for why such repetitions are made)


Research Question
Experiment 1
Experiment 2
Experiment 3


Research Question
Experiment 1
Experiment 2
Experiment 3

- Research question:
  - How does sunlight affect plant growth?
- Method:
  - Grow one batch (n = 10) of Arabidopsis thaliana plants with 8 hours of sunlight per day for 4 weeks (control)
  - Grow another batch of Arabidopsis thaliana plants (n = 10) with 3 hours of sunlight per day for 4 weeks (experimental)
  - Measure plant height after 4 weeks (our variables are amount of sunlight and plant height)
- Experiment's research question:
  - How does sunlight affect plant height in Arabidopsis thaliana plants?
- Data:
  - Experimental group's avg. height was 5.3 cm
  - Control group's avg. height was 16.06 cm
- Experiment's conclusion: The data suggests that Arabidopsis thaliana plants grown in conditions with greater sunlight grow to a greater height
- Research conclusion: The data suggests that sunlight has a positive effect on plant growth

Think-Pair-Share

Methodological criticisms?
Are the conclusions grounded in sufficient data?
How can this study be improved?

COPY EDITING

QUESTION

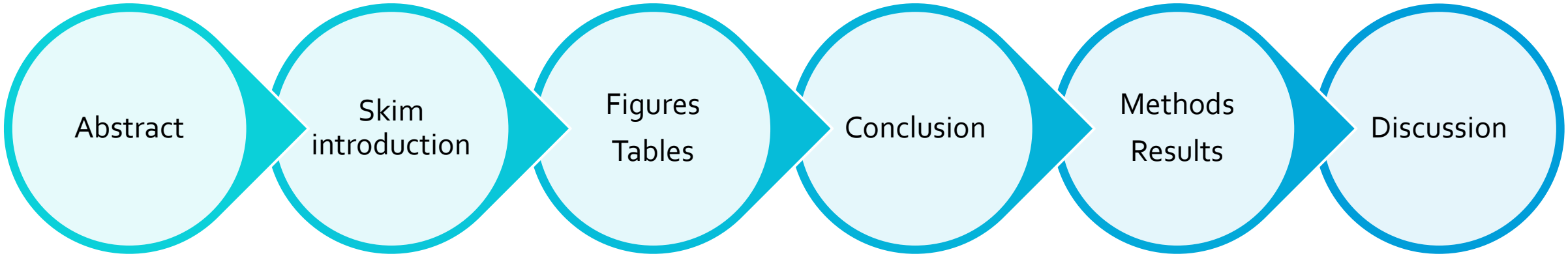
How have you approached reading scientific literature?

What works?

What doesn't work?

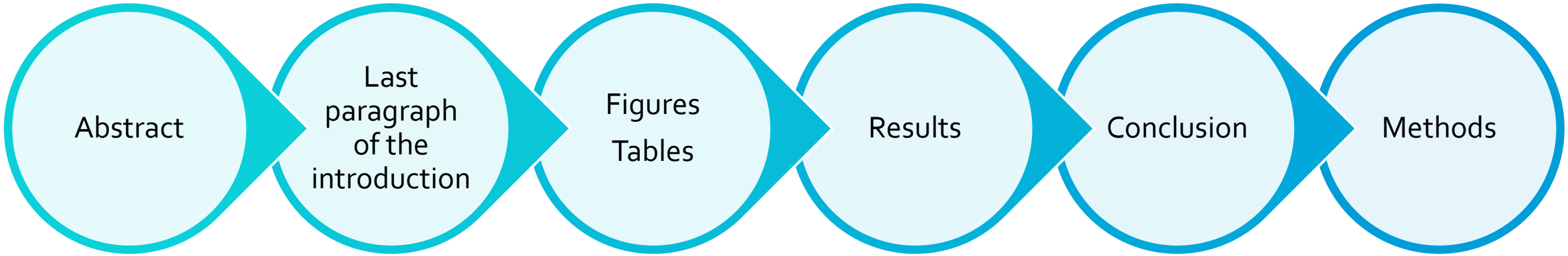
Varied approaches

***Charles W. Fox**, professor in the Department of Entomology at the University of Kentucky in Lexington*



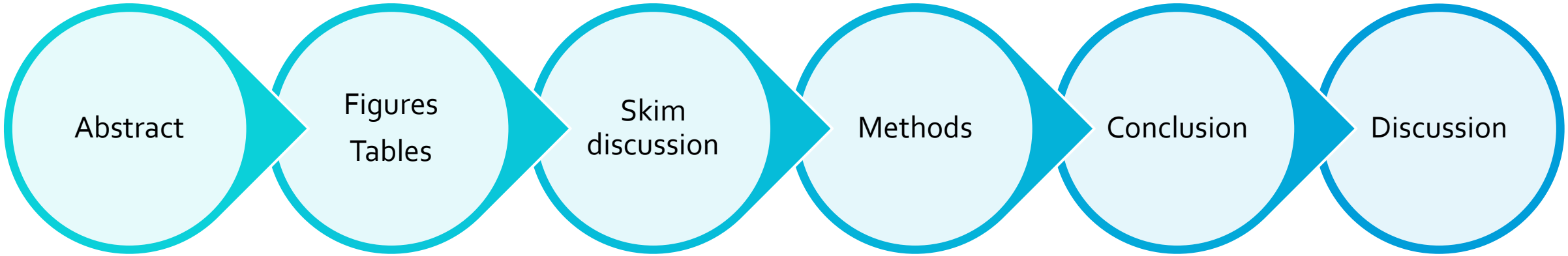
Varied approaches

Jeremy C. Borniger, doctoral candidate in neuroscience at Ohio State University, Columbus



Varied approaches

***Lina A. Colucci**, doctoral candidate at the Harvard-MIT Health Sciences and Technology program*



Different sections of the scientific paper serve different purposes

Abstract

- Research aims
- Key data
- Main conclusions

Introduction

- Sets out the argument
- Summarises recent research related to the topic
- Highlights gaps or conflicts in current knowledge
  - Cite recent(-ish) literature
- Establishes the originality & demonstrates need for investigation
  - Cite recent(-ish) literature
- Introduction usually ends by restating the research aims
  - These should not come as a surprise

Materials and Methods

- Replicable research
  - Controls, sampling, analyses, etc.
- Repeatable methods
  - Methods used described with enough detail that other researchers can carry out the experiment(s)
  - Equipment, sampling methods, collection sites, etc.

Results & Discussion

- Big questions to answer
- What happened? Why it happened? New discoveries?
- Author(s) should first describe, in simple terms, what the data show
- Author(s) should reference statistical analyses, such as significance or goodness of fit
- Author(s) should evaluate trends observed, explain the significance of the results to wider understanding.
  - **Must** be done by referencing published research
- The outcome should be a critical analysis of the data collected

Conclusions

- Separate section, or part of the discussion section
- Author(s) should reflect on research aims – were they met?
- Research conclusions should
  - Be evidence-based
  - Not come as a surprise

Images, graphs, data tables

- Titles, labels, statistical notations, image quality, figure captions
- Do the data trends support the paper's discussion and conclusions?
  - How does the data presented align with and support the narrative the author(s) describes?

References

- Relevant
- Recent
- Retrievable
- What parts of the argument/discussion are poorly supported?

FEEDBACK

Structuring your feedback

- Give positive feedback first.
- Summarise basic findings
- Put the research findings into the context of the existing literature and current knowledge
- Indicate the significance of the work (novel or confirmatory)
- Indicate the work's strengths, its quality and completeness
- State any major flaws or weaknesses and note any special considerations. For example, if previously held theories are being overlooked

Structuring your feedback

- Write clearly
- Avoid complex or unusual words
- Focus the criticism on the research, not the author(s)
- Number your points and refer to page and line numbers in the manuscript when making specific comments
- Offer recommendations when appropriate and possible
- **Treat the author's work the way you would like your own to be treated**

GET HELP

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