Scientific Writing: What is the Discussion? What Should I Address?

- The discussion section is the **interpretation and analysis** of the results.
- The discussion is like a "**framing section**", which returns to the significance of the **hypotheses** set up in your introduction. How have the hypotheses been demonstrated by the new research? Do the results support or reject the hypotheses?
- Highlight the main points of the **thesis statement (argument**), if relevant/ appropriate. Provide a statement of acceptance or rejection of your unifying thesis, i.e. explain how your results affirm or contradict any arguments you were trying to make.
- Describe the **principal results** that led to your conclusions, but avoid re-describing the results in detail, i.e. analyse them instead (what, how, why, and so what?).
- **Compare** results between experiments / integrate experiments with each other.
- Identify any exceptions or any lack of correlation. Do not try to conceal **negative results**; deal with them openly.
- Comment on any potential **practical applications** of your work.
- Consider the **theoretical implications** of your research.
- Summarise the **major findings** of the thesis and explain their **significance**, i.e. explain (with confidence) how knowledge in the field or industry has been impacted by the addition of this new data.

How to Analyse the Findings Critically:

1. WHAT?

What were the findings? (Brief recap)

4. SO WHAT?

What is the broader significance of the findings? Why should the reader care about these findings?

2. HOW?

How did those findings emerge? (Brief description)
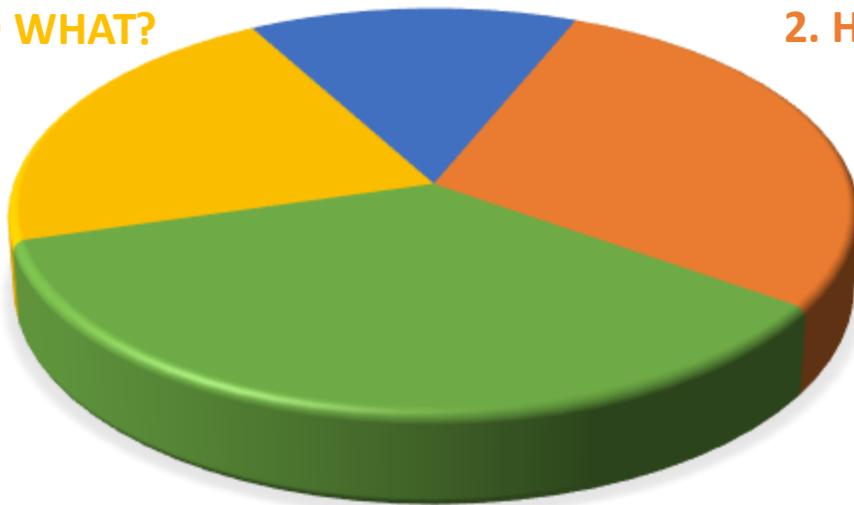
3. WHY?

Why did you get those findings? What trend or pattern do they identify/ suggest?

Structuring the Discussion

Recap Goals + Key Findings

1. Remind the reader about your central research questions, goals, and hypotheses.

2. Summarise the main results and findings.

3. Explain structure of Discussion (i.e. group the findings and explain order of the analysis).

Interpret + Analyse Results

1. WHAT: What were the findings? Were they positive or negative? (Brief recap from previous section).

2. HOW: How did those findings emerge? (Brief description).

3. WHY: Why did you get those findings? What trend or pattern do they identify/ suggest? How do they relate to the field and existing literature?

4. SO WHAT: What is the broader significance of the findings? Why should the reader care about these findings?

LIMITATIONS: Throughout the research, were there any limitations or obstacles that impacted the findings and, thus, your interpretations?

Conclusion

1. Summarise your key findings and their implications (your interpretation).

2. Argue for the significance of your findings.

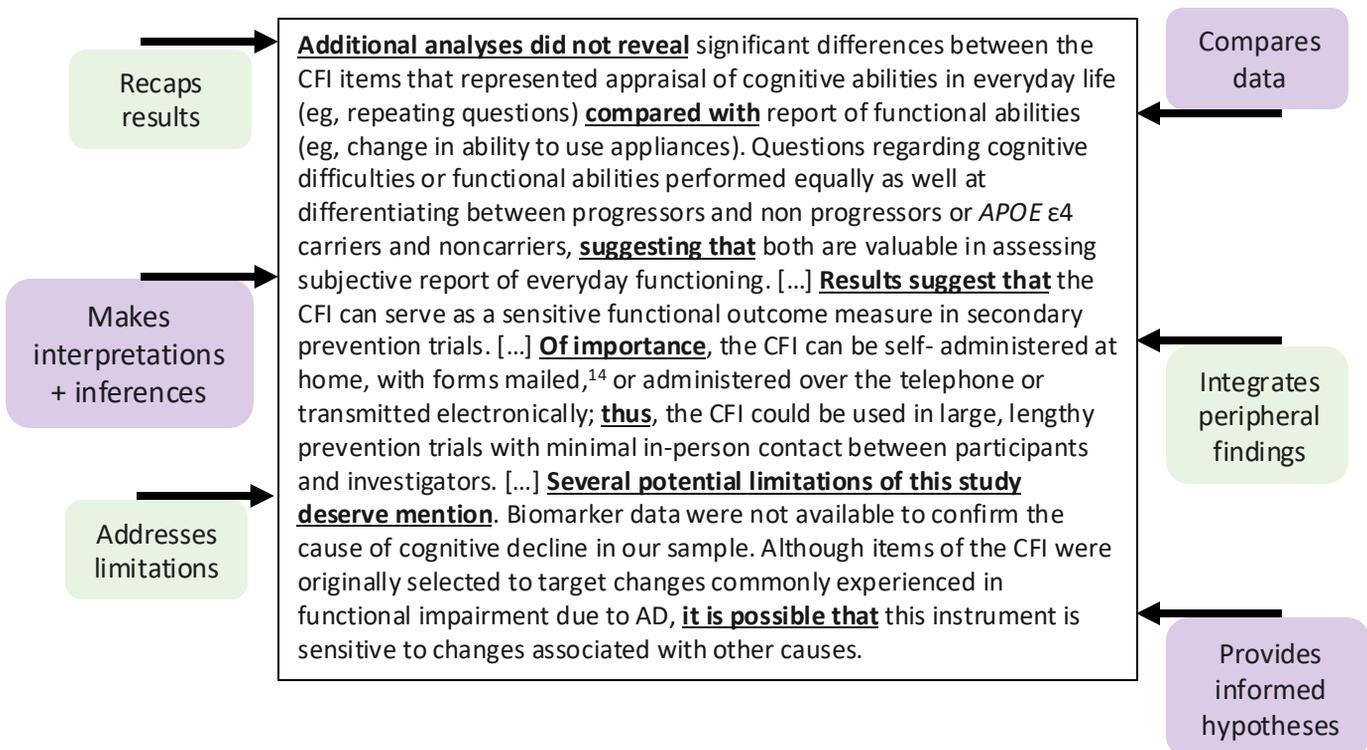**3.** Make further research recommendations (noting any relevant gaps in research).

REMEMBER: This structure is merely a foundational recommendation, and you should always consult the rubrics provided by your lecturer.

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Effective Argumentation

To ensure you are being critical in your interpretation of the results, it is important that you "take an angle" or "take a stance" on the results, i.e. you need to use the results to make an argument, and be careful that you are not simply describing or explaining results. See the table below.

	Definition + Function	Example
Description	A detailed and informative account of an observed object or phenomenon.	*The planet named Earth is the third planet from its sun.*
Exposition (Explanation)	A detailed account of the causality of a phenomenon made valid by statements that carry the strength of natural law.	*Earth is exactly the correct distance from its sun to sustain life for the human inhabitants.*
Analysis (Argumentation)	A proposed resolution for a dilemma, a problem, or an inquiry, which uses a series of statements intended to prove validity (of premise) and which is based on evidence. In academia, the resolution is primarily, but not exclusively, contingent on establishing significance.	*The perception of time for the inhabitants of Earth is specific to the planetary orbit of the sun only, proving that the human construct of time is anthropocentric and assuming that construct applies to any other part of the universe is erroneous and hubristic.*

Example Discussion

Recaps results →

Makes interpretations + inferences →

Addresses limitations →

Additional analyses did not reveal significant differences between the CFI items that represented appraisal of cognitive abilities in everyday life (eg, repeating questions) **compared with** report of functional abilities (eg, change in ability to use appliances). Questions regarding cognitive difficulties or functional abilities performed equally as well at differentiating between progressors and non progressors or *APOE* ε4 carriers and noncarriers, **suggesting that** both are valuable in assessing subjective report of everyday functioning. […] **Results suggest that** the CFI can serve as a sensitive functional outcome measure in secondary prevention trials. […] **Of importance**, the CFI can be self- administered at home, with forms mailed,[14] or administered over the telephone or transmitted electronically; **thus**, the CFI could be used in large, lengthy prevention trials with minimal in-person contact between participants and investigators. […] **Several potential limitations of this study deserve mention**. Biomarker data were not available to confirm the cause of cognitive decline in our sample. Although items of the CFI were originally selected to target changes commonly experienced in functional impairment due to AD, **it is possible that** this instrument is sensitive to changes associated with other causes.

← Compares data

← Integrates peripheral findings

← Provides informed hypotheses

Amariglio, Rebecca E. "Tracking Early Decline in Cognitive Function in Older Individuals at Risk for Alzheimer Disease Dementia", *JAMA Neurology*, vol. 72, no. 4, 2015, pp. 446-454.