

Critical Appraisal of A Research Paper

BAE 815

Zifei Liu

What is critical appraisal?

“Critical appraisal is the process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision”

(Hill and Spittlehouse, 2001)

What is critical appraisal?

It is

- Balanced assessment of the reliability/validity, significance/relevance, strengths/weaknesses of a study.
- Assessment of both research process and results.

It is not

- Negative dismissal of any piece of research.
- Assessment on results alone.

Why we do critical appraisal?

- Putting research into practice
- Conducting a literature review for your own research
 - Adapt cutting edge ideas and techniques to your own research
 - Consider and discuss work that supports or opposes your ideas
 - Further refine your own research question
 - Textbooks are often years out of date

How much should I believe in a published paper?

- Believe everything that is published
- Believe peer reviewed papers
- Believe papers in high quality journals
- Let other people read and decide for you
- Read and decide yourself
- Make a structured critical appraisal

What is meant by critical?

Just because it's published,
doesn't mean it's right.



Reliability and
validity

Evaluate the value of others'
work to you research.



Significance and
relevance

All research is "evidence" and
there are no "perfect" studies.



Strengths and
weaknesses

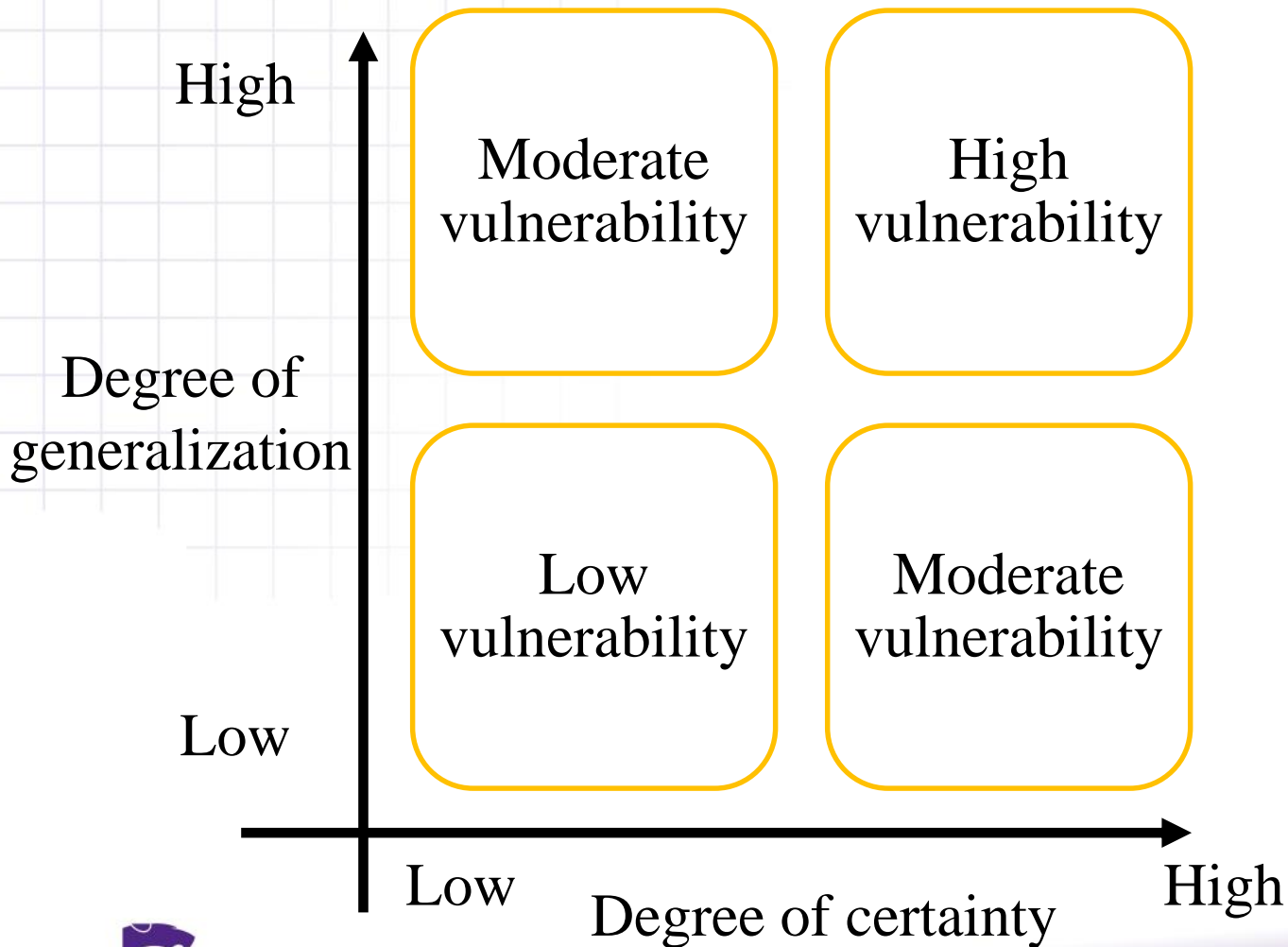
Reliability and validity

- Peer-reviewed?
- Does the researcher have the knowledge to work in this area?
- Documentation and assumptions
- Reliable data collection?
- Conflict of interest?
- Is the research biased?

Significance and relevance

- Is the study significant?
- Who is the target reader?
 - Public, academic peers, policy makers
- Are the theories or methods relevant to my research?
- Are the results relevant to my research?
 - Interesting, but does it help?

Strengths and weaknesses



How far the results can be generalized?

What are limitations of the research?

Read by sections

Abstract



Introduction



Methods

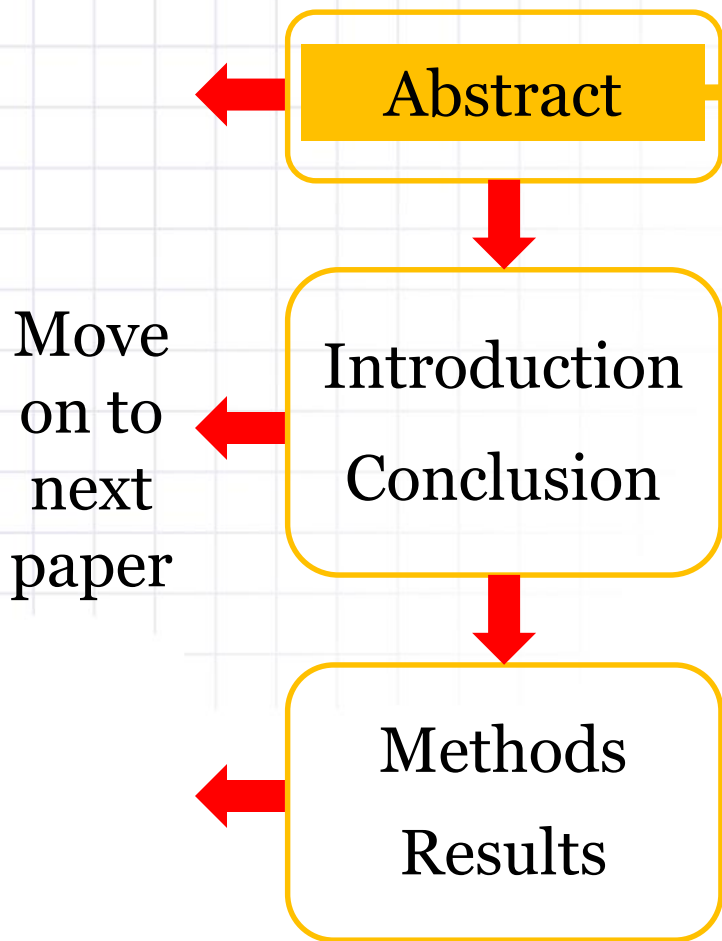


Results



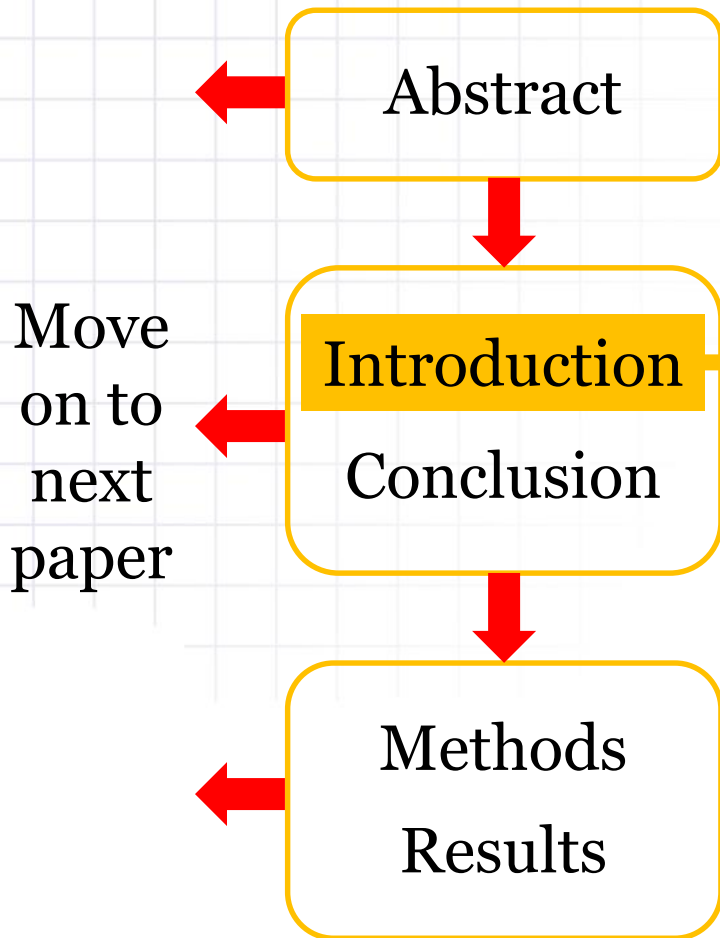
Discussion/Conclusion

- Keep your goals in mind.
 - Why you are reading determines how you should read and how much detail do you need.
- Focusing selectively.
 - This is not a novel. No need for a linear approach.

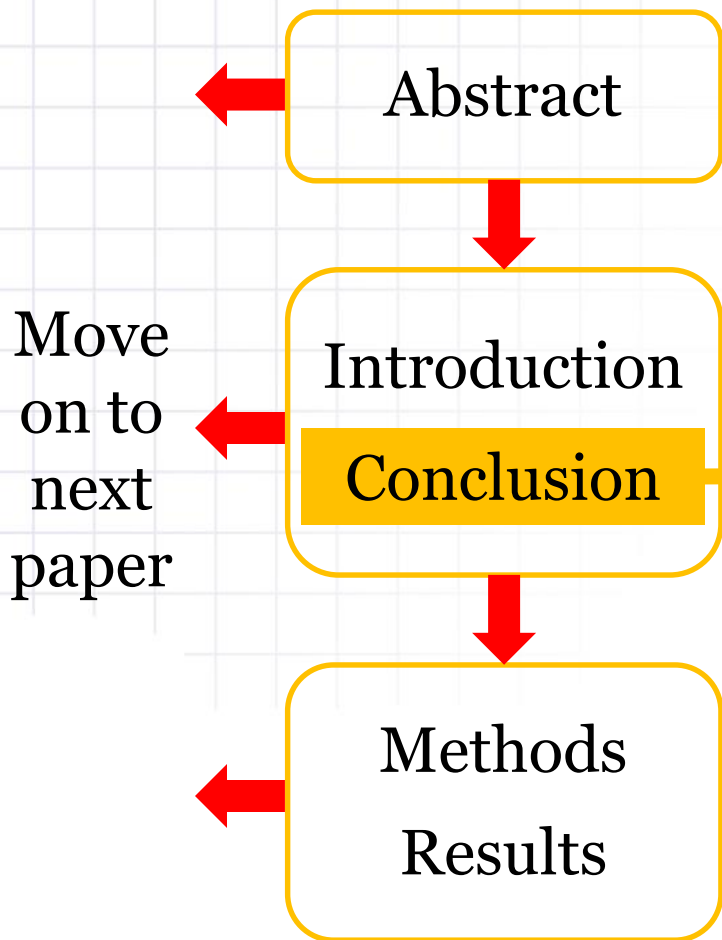


- Are your issues discussed there?
- What are the main findings of the research?
- Do you want to know more after reading the abstract?

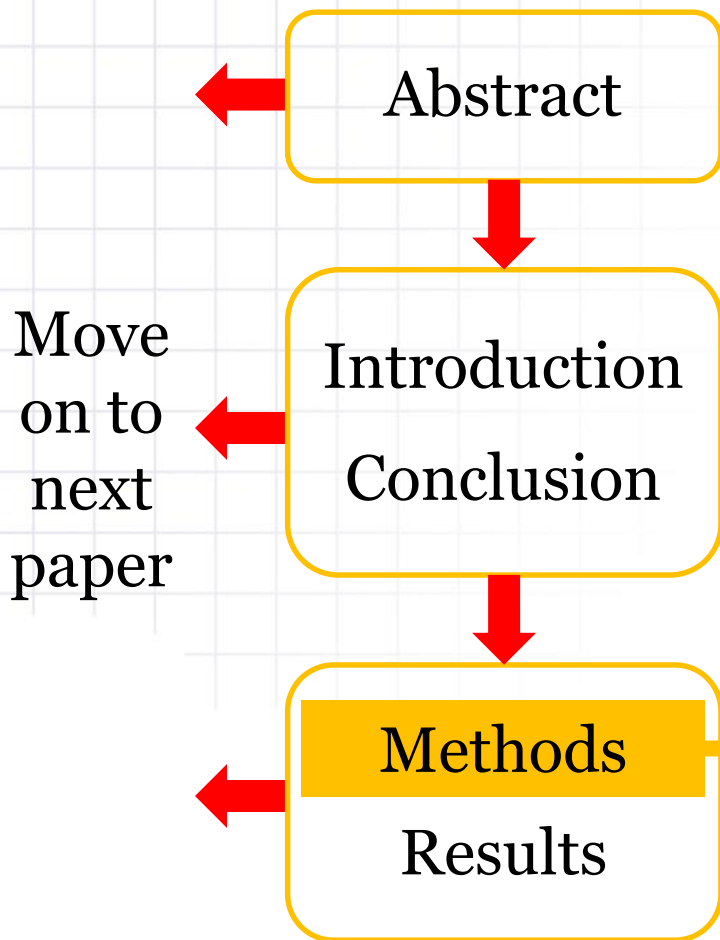
The function of an abstract is to allow you to judge whether or not the paper is of relevance to you.



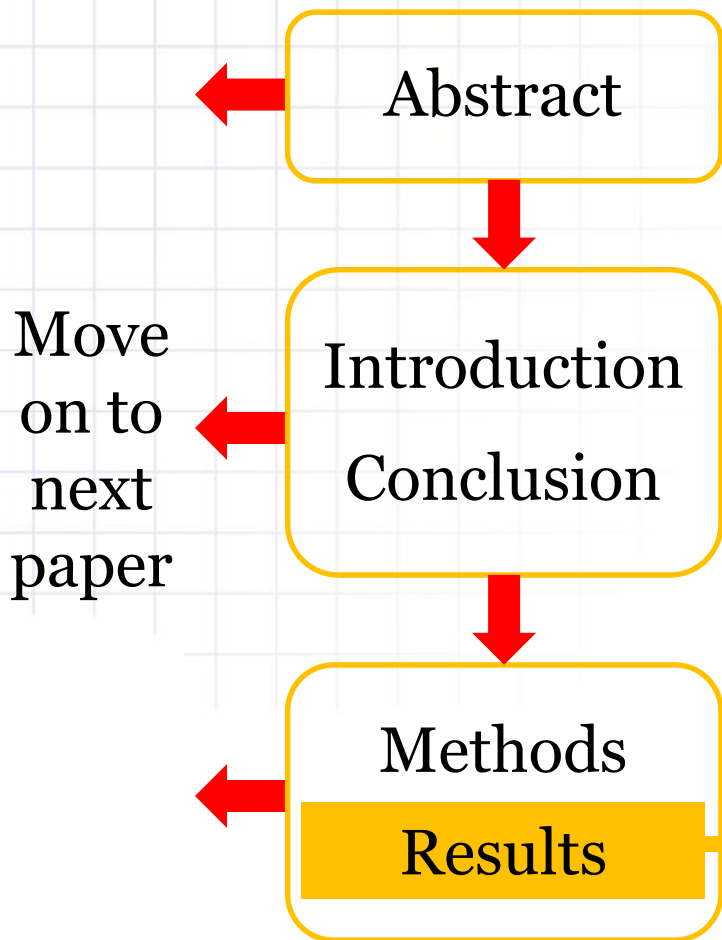
- Look for a clear statement of the **purpose of the study**.
- How similar is the study population or setting to yours?
- Is there a fair reflection of the literature?



- Are the aims in the introduction addressed in the conclusions?
- Does the discussion refer back to points raised in the lit review?
- **Limitations** of the research and possible implications.
- **Implications** of the study. Is the work a significant advance?



- Are the methods valid, reliable, and appropriate?
- Do the measures reflect what the researcher was trying to measure (validity)?
- Does they include enough details for generalizability & reproducibility?



Data may be believable but not support the conclusion the authors wish to reach

- Do the data justify the interpretations?
- Are there other possible interpretations?
- How these results compare with prior research?
- Flaws and inconsistencies.

Being constructively critical

- Separate results from interpretation, distinguish between fact and opinion.
- Proactive vs. passive reading.
- Document assumptions, reading between lines.
- There is always something you can learn from others. Some researchers are not great writers. It may take you more efforts to find what you need.

Appraisal of a literature review

- Does it set out to answer a specific question?
- Do they reflect fairly and appropriately the current state of knowledge?
 - Does the literature review uncover gaps or inconsistencies in knowledge?
 - Is important work ignored? Are references up to date?
 - Do they include references that are counter to their own opinion? Have the authors been objective?
 - What are the inclusion and exclusion criteria?
- Does it use clear referencing?

Critical report of a study

- Brief summary of the work
- Your opinion of the work
 - Make clear the criteria you used to judge it
 - Support your opinion with evidences from the text
 - Give a balanced view of the work by including both its strengths and weaknesses
- Conclude with a recommendation