

How to critically evaluate research articles

REFRESHER

Reminder: Academic Levels

Level	What does it look like?
Level 4	Description • Opinion and research findings used to illustrate points but taken 'at face value' • Theories and experiences described
Level 5	Discussion • Compare and contrast different research findings, opinions and experiences
Level 6	Critical analysis • View different research findings, opinions and experiences critically • Emphasis on importance of 'good' evidence as a basis for drawing conclusions
Level 7	Critical analysis, synthesis and evaluation • In depth critical analysis of research findings, opinions and experiences used to construct an argument • Justifying a particular viewpoint or conclusion as a result of 'weighing up' the evidence

Descriptive qualities		Critical qualities
<i>Lists in any order</i>	<i>---X-----</i>	<i>Structures information in order (e.g. of importance)</i>
Stating what happened	-----	Identifying the significance
Stating what something is like	-----	Evaluating (judges the value) strengths and weaknesses
Noting the method used	-----	Indicating whether something is suitable or not
Listing details	-----	Evaluating the relative significance of details
Stating information	-----	Drawing conclusions
Listing information in any order	-----	Structuring information in a logical order
Stating links between items	-----	Showing the relevance of links between items
Stating when something happened	-----	Identifying why timing is important
Stating the different components	-----	Judging the importance of the components
Stating options	-----	Evaluating the options and stating which should be selected

Differences between MSc and Undergrad

Critical reading

As you read your module materials follow these three steps.

- **Analyse** - Examine how key components within your module materials fit together and relate to each other.
- **Compare** - Explore the similarities and differences between the ideas you are reading about. Do some ideas conflict with or complement each other?
- **Synthesise** - Bring together different sources of information to serve an argument or idea you are constructing. Make logical connections between the different sources that help you shape and support your ideas. Are there any inferences you can draw from the material and apply to an assignment question?

Critical Thinking – Analysis

‘Detailed examination of elements’

Critiquing different viewpoints – other people’s positions, arguments and conclusions

Evaluating the reliability and validity of the literature/evidence

Viewing everything you read critically – not taking anything at face value

Weighing up opposing arguments

Structured reflection on personal experience

Critical Thinking – Synthesis

Combining elements into a whole

Drawing conclusions about whether arguments put forward are valid, evidence based and justifiable

Consider whether arguments are realistic

Deciding based on the argument, the evidence and the practice context what your point of view is or what you will recommend

Present your point of view in a clear, well reasoned way
with justification

Characteristics of an Argument

Position – author has a position that they want the audience to accept (may or may not be stated at the beginning)

Reasons (propositions) are given to support (justify) the author's position

Line of reasoning is the logical 'unpacking' of the reasons why 'on balance', considering everything, this argument (viewpoint) is justifiable

Conclusions – not just a summary of the essay but makes the author's position clear. You will often have several smaller arguments/conclusions, leading to one overall conclusion

What is Good Evidence?

Contemporary
research evidence
– valid and reliable

Seminal research
evidence

Published in peer
reviewed journals

Primary research
as opposed to
secondary citation

But don't overlook
the value of other
forms of
evidence.....

Key questions when critically analysing an academic paper

What is the main line of reasoning (the main argument)?

What is the key evidence used to support the line of argument?

When was the evidence produced? Is it up to date? Is it still relevant?

Is the evidence presented in a way that develops the argument and leads clearly to the conclusion?

Critically analysis of papers...

What were the key findings?

How do these relate to the aims of the study i.e., what are the implications of these findings for theory and practice (where appropriate)

How robust are these findings? Methodological considerations/limitations

Which theories/literature do the findings provide support for? Which ones do they not support? Why?

Where should research and/or practice go next?

The basics...

What type of
article is it?

Research paper?

- Research study?
- Systematic review?
- Meta analysis?

Position piece?

Policy document?

Editorial?

Blog?

The basics...

Who are the authors?

Where are they from?

- Which university?
- Which country?

Was it a funded study?

- If so who funded it?

The basics...

When was it published?

- Old or new article?
- “classic study”?
- New theory/model?

What journal is it published in?

- Impact Factors/Prestige

Key questions when critically analysing a research paper (qualitative or quantitative)

What is the main line of reasoning (the main argument)?

What is the key evidence used to support the line of argument?

When was the evidence produced? Is it up to date? Is it still relevant?

Is the evidence presented in a way that develops the argument and leads clearly to the conclusion?

The study

Qualitative

Quantitative

Mixed
Methods

Experimental

Longitudinal

Qualitative Research

Be wary of drawing conclusions from small qualitative studies

Qual studies tend to provide an in-depth understanding of a particular issue but cannot be easily generalised

Qual studies often extremely important if exploring a new/emerging area/issue (can inform future quantitative studies)

Quantitative Research

Need to understand specific design

Experimental, quasi-experimental, non-experimental?

Prospective, longitudinal, cross-sectional

Between or within groups

The Sample

Small or large sample size?



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graph TD; A[Small or large sample size?] --> B[How generalisable are the results?]; B --> C[Who were included/excluded?]; C --> D[What were the characteristics of the sample?]; D --> E[how representative are they?];
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How generalisable are the results?

Who were included/excluded?

What were the characteristics of the sample?

how representative are they?

The analysis

Are the research questions and analyses clearly explained?

How valid do the results seem to be?

How reliable do the results seem to be?

- Researcher bias?
- Failure to consider alternative positions of frameworks?

The Data

Interview data? Words? Images?

Standardised psychometric scales?

- Valid? Reliable? Robust?

Experimental data (reaction times, IATs etc)

Tests of models and theories?

Methodological Critique

How could the study
have been done better?

Do the authors
acknowledge the
limitations of their work?

No such thing as a
perfect study!

What are the limitations of the paper?

How can I get the knowledge claims of the paper into some kind of perspective?

What are the aspects of the paper that may be ambiguous and open to different interpretations, and point toward a need for further research?

Synthesising the literature...

A single piece of research
cannot just be considered on
its own

Important to view the piece
in its relation to a broader
picture

Your research study can be
viewed as a piece of a
mosaic – the pattern only
emerges when standing and
looking at the mosaic as a
whole



A research study can be viewed as a piece of a mosaic – the pattern only emerges when standing and looking at the mosaic as a whole



Your task (in groups)

Critically appraise the supplied paper on Moodle and evaluate the extent to which you feel:

- That the paper has demonstrated clear processes of quality and verification
- That the results and key findings are robust and generalisable outside of this paper
- That the paper is useful for informing the related professional field