

Evaluating and Presenting a Paper for Journal Club

Here are some general guidelines for evaluating a paper. You may not answer all of these questions in all cases, and other questions may arise specific to the paper you are reading. This is simply to help you approach a paper for the purpose of evaluation and/or presentation:

Introduction

- Background: Consider background both provided by the authors and obtained on your own.
- Did they provide a thorough, relevant, clear and balanced presentation of the background?
- Is there any bias in their presentation of background? If so, is it justified, or is it inappropriate?
- Are the most appropriate references cited? Are there omissions? Is self-citation excessive?
- Did the organization of the introduction lead logically to the question(s) they will address?
- **What are those questions, and what are the hypotheses? What is the purpose of the paper?
- **Are the questions important and necessary? Does the central purpose of the paper move the field forward? What is the potential impact for health or knowledge? Or is this an incremental advance, with minimal or even trivial extension or replication of previous work?

Methods

- Do they use the most appropriate approaches to address the questions they ask?
- Is the experimental design complete and appropriate to address the questions they ask?
- Are adequate control groups represented? Are all groups necessary? Does every experiment and every treatment within each experiment “fit” with the overall purpose of the study?
- Did they use proper techniques and procedures? Will the results be reliable and valid?
- Are the methods described in sufficient detail, both to judge the quality and validity of the data, and to be replicated by others? Are important details missing? If there is a problem, is it in the science itself, or is it in the presentation of the science?
- **Statistics: Are they appropriate to the nature of the data (e.g., parametric vs. non-parametric) and to the experimental design (ANOVA, t-test, correlation, etc.)? Are they described sufficiently to understand how the data were analyzed and interpreted? Do they state how significance was determined? Have post hoc tests been described and applied appropriately?

Results

- For each experiment, and for each figure and results section, what did they find?
- **Are the results presented correctly and completely? Is what you see consistent with what they say? Are any important results or analyses left out?
- Are the results clearly and objectively presented, in both the text and the figures? Is there unnecessary redundancy in text and figures? Are all of the figures informative and necessary?
- **Do the results answer the questions they asked in the intro?

Discussion

- **Is their interpretation consistent with the results they presented?
- Is the discussion appropriate to the scope of the results, or does it overreach?
- Is there a good balance between concrete description and speculation?
- Do they fit their findings into a bigger picture? Do they answer the questions asked in the Intro?
- Is the discussion organized, logical, understandable, repetitive, verbose, necessary, or relevant?
- Do they address alternative explanations? Discrepancies or inconsistencies in the data? Do they address disagreement, opposing evidence, differing theories or opinions in the literature?

Overall assessment and priority

- How important is the paper?
- What impact will it have on the field?
- Would you cite it?
- Would you base your own future experiments on these findings?