PSYCH 1140 - Reading strategy I: which section to focus first

Tuesday, 1 February 2022

What is a scientific paper?

There are two main flavors of scientific research papers (at least within psychology):

- Empirical research articles: scientists report on results from experiment(s) they have conducted.
- Review articles: authors summarize and discuss many different research articles for the purpose of describing where the field stands, putting forward new unifying theories, or suggesting further fruitful avenues of research.

Other types of papers you may see out there:

- Methods paper: researchers propose a new method to analyze/ quantify some measure.
- Meta-analysis: report analysis on combination of results from multiple studies.

All of these types of papers are subject to review by a community of fellow scientists in their field (the so-called peer review process) before they are published. Peer review is important because it provides a chance for other experts in the field to feedback on new research and evaluate whether it has met good scientific standards (e.g. well motivated, build on previous work, rely on sound reasoning and sufficient evidence, well designed, etc). This peer review process is a form of trusted science communication. That doesn't mean that you should just blindly accept their

conclusions, of course, but it does give you more confidence in the data they have collected. Importantly, peer review should facilitate building of cumulative scientific knowledge.

When you hear people talk about reading or reviewing "the literature", they are referring to the scientific papers published within a particular field.

What does a typical research article look like?

There's a typical format for primary research articles that is largely similar across disciplines, though the sections might vary in order. Each study will have:

- An Abstract – summary of the paper.
- An Introduction – lays out the background and motivation for the paper. The section usually ends with their hypothesis.
- A Methods section – this one is fairly self-explanatory. It tells you the design of the experiment, ideally in sufficient detail that you could go out and replicate the experiment yourself if you wanted.
- A Results section – again, fairly self-explanatory. Here's where the data will be presented. Don't worry if you don't understand the statistical tests that they did. If you start to get stuck or confused, just skim over it until you get back to stuff you do understand. Certain words like "ANOVA" and "post hoc tests" will get more familiar with time.
- A Discussion section – this is where the authors will discuss what their findings might mean for the theory they are proposing/ testing, for future research or for practical applications.

Adapted from course materials originally authored by Katerina Faust
Works consulted:

- Scrutinizing science: Peer review. Understanding Science website. https://undsci.berkeley.edu/article/intro_01

How to read a scientific paper

Remember that reading a scientific paper means you're joining the broader conversation about a certain topic/ research. This means that reading is not a pursuit of passive absorption of information, rather an active involvement in the evaluation and discussion of scientific discourse.

Let's try one reading strategy: where to start

We'll read this paper together: Zacks J.M. & Swallow K. M. (2007). Event Segmentation. *Current Direction in Psychological Science* 16(2), 80-84.

Group exercise sheets:

Let's go through the following exercises one point at a time:

1. Read the introduction (first paragraph of main text) part of the paper (3 minutes).
2. Break out into groups, discuss and write the main claim this review paper is trying to convey (5 minutes). Return to the main room when done.
3. Read the conclusion ("In the course of events" section) part of the paper (5 minutes).

4. Break out into groups, discuss and write (5 minutes):
    a. The main conclusion of the paper
    b. The implication of this paper
5. Stay in your groups, discuss and write: considering the main claim of the paper, conclusion and implications gathered from the introduction and conclusion, what do you expect to see in the main text body? Try to be as detailed as you can in writing your expected points (5 minutes). Return to the main room when done.
6. Regroup, try to look for one of the points you've listed as expected points in the main text body. What did the authors actually say? (7 minutes). Return to the main room when done.

Homework (individual)

Write a 0.5 -1 page reflection (12 pt, double spaced) about today's exercise. Do you think this strategy of reading a scientific paper works? Try to explain your answer in detail (e.g. by providing examples), why do you think it works or doesn't work? There is no right or wrong answer, this writing homework is meant as a point to reflect on ONE way to read a scientific paper effectively. Upload it on canvas by Friday, 4 February 2022, 11:59 PM.