Making sense of scientific studies

Science reporting quick tips from SciLine and The Open Notebook

When you're reading a scientific paper, you don't have to understand everything perfectly. Allow yourself to reread sections and look up words you don't know. Next, gather questions to ask experts who do understand the details. Remember: As a reporter, you already have the skills needed to figure those questions out.

Start at the top, then read the introduction.

- You'll find a list of the authors' names and affiliations under the title of the study. One author—often a senior scientist—will usually be designated the corresponding author, and their email address will be listed.
- The abstract is right underneath the authors. It's a summary, with a sentence or two each about the problem to be solved, what the researchers did, what they found, and the significance of the findings.
- The abstract can help you figure out if there's a newsworthy story buried in the results and orient you as you read the rest. But don't only read the abstract—treat it as a starting point, not an end point.
- The introduction (sometimes called "background") describes the big picture problem, previous research on it, why the new work is important, and what the researchers intend to do. This section can help you get up to speed on the reasoning behind a specific study and the bigger context.
- The other papers cited in the introduction are a great way to find additional information and experts to interview.

Skip down to the discussion.

- The discussion section (or "conclusions") summarizes the findings and puts them in context of other studies. The researchers might also hypothesize about why they found these results and what may have influenced them.
- It will tell you what's particularly new or interesting about the findings, possible weaknesses of the study, and what the researchers think the next steps should be—all great interview question fodder.

Head back up to the results section.

- This is where you'll find the actual findings the researchers recorded, which may be presented as numbers or as written summaries of the data.
- There will often be statistical terms accompanying the results, which experts can help you interpret.
- This section usually includes figures and graphs—don't ignore these! Read the captions closely to understand what the researchers are showing.

Now take in the methods section.

- This is where you'll find the step-by-step details of how the study was done.
- Good questions to ask from this section are why someone might have chosen this method and what its limitations are.

Take a look at the end of the paper.

- The reference list will be at the bottom of the paper with links to the studies cited.
- There will usually be a section describing funding sources and potential conflicts of interest, such as patent filings or a company funding their own research. Examine these critically as you would any potential COI.
- Some papers may have links to supplementary information, including extra analyses, images, videos, or more detailed methods. They aren't critical to understanding the paper but can have interesting details.

➤ Further reading: how to read a scientific paper and advice for journalists.