

A Guide to Reading Research Articles (for Non-Researchers)

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We often see reports about research in newspapers, popular magazines, or on television. But hearing *about* a research article is not the same as reading it. Journalists try to give the big picture, and may not be accurate on the details. In order to really understand what a study says, you need to read the original article.

The most reliable research is that which has been evaluated by experts in the field (*peer-reviewed*) and accepted for publication in a scientific journal. This is how researchers demonstrate the integrity of their work. It is also why researchers write in a very technical manner: they are writing for other researchers, not for the general public. What I've tried to do here is give you some hints to help you decode research articles published in peer-reviewed scientific journals.

The information below will apply to most articles you read, but each journal has its own way of formatting papers, so the sections or headers may have different names or be organized differently.

1. Abstract

This is a brief summary that appears at the very beginning of the article, right after the author's information. The abstract should give you enough information to decide if you are interested in looking more closely at the article. It will generally include: the purpose of the study; the type of study (observation, experiment, case study, etc.); the population that the study looked at (gender, age, location); and the most important information obtained from the study.

2. Introduction/Literature review

This is where the author gives background about the issue, shows that they're familiar with previous research done in the field, and explains the purpose of the study. The study question (also called the hypothesis) is usually found near the end of this section. There may be more than one study question.

- **Tips: Study Question**

- The purpose tells you why the researcher wanted to do the study. The study question tells you what the researcher was trying to find out.
- The study question should make sense, and follow from the information in the introduction. It should be clear and specific.

3. Methods

In this section the researcher describes the procedures they followed to recruit participants (who, where, and how) and to obtain information (the research method used, the kinds of questions asked, and the opportunities for response—yes/no, multiple choice, or open-ended question, for example). Typical research methods include: conducting in-person or telephone interviews, administering or mailing written surveys, and analyzing *secondary data* (data collected for another purpose, like the U.S. Census.) Participant responses will be affected by how the questions were asked, and the study conclusions will be affected by how they were able to give responses.

- **Tips: Participants**

- The number of participants (sample size or "n" size) is important. The sample should be representative of a whole population (*population* usually means "all people with similar characteristics"). In other words, if you asked everyone in the population, you'd get answers very similar to those given by the sample group. Generally, a study with more participants describes a population better than a smaller study can.
- Researchers should provide a general description of who they included in their study and where the study was conducted. This will help you figure out if the results apply (are *generalizable*) to another group of people. Research is generalizable only to groups similar to those in the study. For example, it would not be a good idea to try to apply results from a study

of married Hispanic men living in New York City to Hispanic teenagers living in Bullhead City. The groups are both Hispanic, but they probably do not have much else in common, so the New York study is not generalizable to the Bullhead City population.

- **Tips: Methods & procedures**

- Researchers should clearly explain how they did everything in their study. Someone might want to repeat the study to test the accuracy of their findings or see if the results would be similar in a different population.

- **Tips: Measures**

- It is important to look at how terms used in the study were defined, and what questions were asked if the researchers interviewed people or collected surveys. For example, asking "Have you been raped?" will get different responses than asking, "Have you ever done something sexual because someone frightened or threatened you?" If a term is used, it should be clear exactly what it meant in the study. In FBI reports of national statistics, "rape" means "completed vaginal penetration by a penis." Reports from other sources may include male and transgender victims, and other kinds of sexual acts. So the number of "rapes" counted and reported will be very different depending on the definitions used.

4. Results

The data from the study are presented here. Usually they are described in a narrative form, and may be presented in tables or graphs as well. It is helpful to see the original numbers (or "n" size) as well as percentages.

- **Tips: Analyzing results**

- The researcher will spend some time describing their analysis of the data. Researchers usually have years of training in the equations and computer programs used in statistical analysis. If you want more information on statistical analysis, the Internet offers excellent resources. I have listed a few at the end of this article.

- **Tips: Reporting significant results**

- Results are *statistically significant* to a researcher only if it is highly unlikely that they could be obtained by chance alone. You will often see a statistic with a p-value next to it. The p-value is written like this: "p>0.05." and is read, "the results were significant at the 0.05 p-value." The smaller the p-value, the less likely it is that the result is due to chance. A value of "p>0.05" is usually considered good; "p>0.01" is very good, and "p>0.001" is as close to certain as a result can be. If the p-value is greater than 0.05 (for example, p>0.056) the result "tends toward significance," and more research must be done before conclusions can be made.

5. Discussion

This is where the researcher summarizes their results and explains what they think the results mean. The *findings* (the most significant results) are highlighted. The *limitations* and strengths of the study may also be presented here. Limitations are reasons the results might need to be interpreted with caution and can include: differences between the people who agreed to participate in the study and those who didn't; reasons why the responses may not accurately reflect a person's experiences (Were the questions asked using language the participant understood? Did the participants try to give the "right" answers? Were the people asking the questions adequately trained?); and special circumstances that might affect how the people reacted to the study in general (for example, having recently watched a news program involving the issues in the study.) Possible alternative explanations of the findings may also be found in this section.

- **Tips: Causation**

- Just because two variables seem to be related doesn't mean that they have a *causal* relationship. For example, a large city has a lot of churches. It also has a lot of bars. Is it likely that being around a lot of churches causes people to want to drink more? Or is it likely that there are a lot of churches and bars because there are a lot of people?

- **Tips: Limitations of the study**

- Researchers can never say they “proved” something. They can only say their results were probably not due to chance or some other reason.
- It’s okay if the results weren’t what the researcher expected, but it’s not okay to cover them up or ignore them. If they got surprising findings, they will usually try to explain why. Good researchers also try to figure out if there were errors or weaknesses in their methods and identify them in the article.

6. Conclusions

These are sometimes combined with the Discussion. Here, the researcher discusses how strong they think their results are. The researcher may compare their findings to other studies. *Implications* (what the results might mean in the real world, and how they might be applied) will be part of the Conclusions. Recommendations for incorporating the study’s results into practice may be given. The researcher may also suggest areas for further research.

- **Tips: Reporting conclusions**

- Conclusions and implications should make sense to you, and should be based on the results. Good researchers are careful not to make broad statements that reflect their beliefs more than their data.

7. References

This lists all of the sources consulted in the author’s literature review and conclusions. It is worth reviewing for other interesting articles on similar topics. It can also give you an idea of how thoroughly the author reviewed the subject.

- **Tips: Using references**

- When you are reading the article, make note of which excerpts and summaries from other articles are of interest to you. Looking up those citations is often rewarding.
- Note the dates on citations. Many social conditions change considerably over time. Some older studies are classics and will be referenced in a lot of articles, but most of the work cited should have been published within the last 7 years. If the research is older, the author should explain in the literature review part of the Introduction why newer literature is missing (maybe the issue hasn’t been looked at recently.)

Helpful Internet Resources

Dressed-down research terms: A glossary for non-researchers. *Program in Consumer Studies and Training, Missouri Institute of Mental Health*

http://www.cstprogram.org/PCS&T/Research%20Glossary/Dressed_Down_Glossary.pdf

Evaluation research references for non-researchers: An annotated bibliography. *Centers for the Application of Prevention Technologies* <http://www.northeastcapt.org/PRODUCTS/other/evalbib.html>

Research methods tutorials. *Cornell University*.

<http://www.socialresearchmethods.net/tutorial/tutorial.htm>

StATs: Steve’s attempt to teach statistics. *Children’s Mercy Hospitals and Clinics*.

<http://www.childrensmemory.org/stats/definitions.asp>