

The Scientific Literature In Psychology

As we saw in the reading on science and the scientific method, falsifiability and replication are aspects of the scientific method that give us a way to evaluate the confidence we should have in a given hypothesis. This concern with maintaining the integrity of scientific knowledge extends to the scientific literature – the written record of scientific findings. How can we insure that this literature is credible? Whereas falsifiability and replication are used to evaluate hypotheses, the process of **peer review** is used to evaluate the written records of scientific research.

When a document is peer reviewed, it is critically evaluated by experts who are intimately familiar with the topic. These reviewers look for flaws in the study design and results and also offer suggestions for improvements. Only after the reviewers' concerns have been satisfied is a peer-reviewed document approved for publication. This process helps to insure that poorly conducted studies or poorly interpreted results do not make it into the scientific literature. Because peer review is such a critical aspect of the scientific literature, the following discussion of types of publications is divided into two sections: peer-reviewed and non-peer-reviewed.

Peer-Reviewed Sources

Most of the accepted knowledge of contemporary psychology is contained in peer-reviewed articles published in professional journals (journals read mostly by practicing researchers in the area, rather than the general public). These articles vary in length from 1 to as many as a hundred pages, with most articles being around 20 pages. After a psychologist conducts a study and interprets the results, he or she writes a manuscript and submits it to the current editor of the journal in which the researcher wishes to publish. The editor typically removes any personally identifying information in the manuscript (e.g., author's name and institution) and then sends the article to two or more experts familiar with the research that has been submitted. These reviewers do not know the identity of the submitting researcher and the submitting researcher will not learn the identity of the reviewers. This procedure is called "blind" review and decreases the likelihood that an author's status (or lack thereof) will influence how the manuscript is evaluated. The reviewers reply to the editor with comments about the article and a vote to either (1) immediately accept the manuscript for publication (incredibly rare on a first draft), (2) request that the author "revise and resubmit" the article based on the reviewers' comments, or (3) reject the manuscript (this is the most common response). The reviewers' primary responsibilities are to catch errors and make suggestions for how the manuscript could be improved. Based on the reviewers' responses and his or her own opinion, the editor contacts the author with one of the three decisions listed above. Although this process reduces the errors in the scientific literature, it can result in considerable delays between researchers' discoveries and publication. It is not uncommon for a full year to pass between submission of a manuscript and publication.

Not all peer-reviewed journals are alike, and it is valuable to learn the reputations of the major journals in your area. For example, both *Psychological Reports* and *American Psychologist* publish articles in many areas of psychology, but *Psychological Reports* has a reputation for low-quality articles while *American Psychologist* has a reputation for outstanding articles. Two journals that sound similar – *Personality and Social Psychology Bulletin* and *Social Psychology Quarterly* – publish very different kinds of articles. *PSPB* is a social psychology journal and its editors and contributors tend to be psychologists, whereas *SPQ* editors and contributors tend to be sociologists. Although related, these disciplines have historically relied on different standards of proof and different theoretical perspectives. The bottom line is that it is often insufficient to rely on the name of a journal in determining the type and quality of article that it contains. Later in this document is a review exercise designed to increase your awareness of the differences among journals.

Three Types of Peer Reviewed Articles

Empirical. In an empirical article, the submitting author has collected data and is reporting the analysis of that data in print for the first time. It is "original" research in the sense that it has not been published elsewhere. This is the most common type of peer-reviewed article. Examples of journals that carry primarily empirical articles are the *Journal of Personality and Social Psychology* (the top-tier journal

in personality and social psychology) and *Psychological Science*, the official journal of the American Psychological Society and a source of short, well-written articles on a wide variety of topics.

Review. A review article summarizes many empirical articles that have been conducted on the same topic (e.g., the effectiveness of the foot-in-the-door compliance-gaining strategy). There are two types of review articles: **narrative reviews** and **meta-analyses**. A narrative review offers a *qualitative* summary of major findings in an area. The author tells a story about the major findings in an area, usually offering conclusions, limitations, and possible future directions for the area. In contrast, a meta-analysis is a statistical combination (a *quantitative* summary) of research results on a particular hypothesis. The authors of a meta analysis must specify how they sampled the literature (e.g., “We included all the studies returned by PsycINFO with the search terms ‘foot-in-the-door,’ ‘sequential request,’” etc.). From each study, they collect the test statistics (*t*’s, *F*’s, *r*’s, etc.) used to test the hypothesis. These test statistics are averaged together, with statistics from large-sample studies receiving more weight than those from small-sample studies. Meta analyses produce a statistic called **effect size** (sometimes abbreviated as a *d* or an *r*), which describes the *strength* of an effect (e.g., *how much* better is the foot-in-the-door technique than simply asking for a favor). Effect size is useful because it provides a concise way to summarize the results of many different studies. In addition to statistically summarizing many studies, meta-analyses can be used to examine **moderating variables** – variables that increase or decrease the effect size. For example, consider the case where some studies find support for a hypothesis and other studies find none. Often, the studies will vary in some important way – using student versus non-student samples, using verbal or behavioral measures, etc. Meta analyses can test whether these factors are responsible for the different results, often putting to rest major controversies in a field. Because meta analyses rely on clearly defined tests rather than the authors’ intuitions, they are often preferred as a technique for summarizing the scientific literature. The most respected and exclusive outlet for both narrative and meta-analytic reviews in psychology is the journal *Psychological Bulletin*. It can be an excellent resource if you are trying to find a summary of research in an area.

Theoretical. A theoretical article develops an explanation of a phenomenon based on the results of previous research. It is similar to a review article, but goes beyond simply summarizing research to proposing a new model for understanding the phenomenon. A major outlet for theoretical articles in psychology is *Psychological Review*. For example, in 1995 Judith Harris published a controversial article in *Psychological Review* in which she proposed the theory that the major environmental influence on the development of children’s personality is not their parents but rather their peer group.

Non Peer-Reviewed Sources

Although peer reviewed sources are considered to be the most credible portion of the scientific literature, researchers often communicate their results and ideas in other ways. The following are the most common.

Popular journals / magazines. The articles appearing in popular journals such as *Psychology Today* are generally not screened by professional researchers and may contain more opinion and less evidence than the articles in professional journals.

Edited volumes. An edited volume looks like a book but typically has chapters that are written by different people. Usually, a group of researchers in the same area collaborate to produce an edited volume that presents the latest research and theories in an area. The volume is coordinated by one or more editors who manage the publication of the volume and work to give it a common theme. Edited volumes often contain very readable overviews of research in an area and can be a good place to start when learning about a new area. Many edited volumes are published in an ongoing annual series and have chapters written by leaders in the field on current hot topics. These often have titles that begin with “Annual review of...” or “Handbook of...” or “Advances in...”

Books. Books written by researchers also tend to be more accessible than professional journal articles and can offer more depth, both by elaborating on theory and by offering more examples. However, books are more likely to contain opinions or unsubstantiated interpretations of research than journal articles. The reputation of the author for responsible reporting is more important for books than for articles because material presented in books does not have to satisfy the criticism of others in the field prior to publication.

Unpublished reports. As the name implies, unpublished reports are manuscripts that, for one reason or another, have not been published. They may have been rejected for publication, they may currently be under review or revision for publication, they may have never been submitted because the author didn't get around to it, or they may be **technical reports**. A "tech report" is a progress report submitted to a funding agency. For example, if a researcher receives a five-year grant from the National Science Foundation, the NSF may require tech reports every year as a condition of continued support. These reports can be a rich source of information about an ongoing research program, especially if publications are not yet available.

Conference presentations. While not technically "literature," presentations at professional conferences often contain the results of the latest research and thus contribute to the knowledge base of a field. Professional conferences are often held annually and presentations are of two varieties: **papers** and **posters**. Paradoxically, papers are oral presentations. They come in two varieties: (1) In a **colloquium**, three or more researchers in the same research area each give 15-minute presentations, followed by a question-and-answer period; (2) In an **address**, one speaker gives a presentation, usually for an hour. Posters are usually 6' x 4' (or smaller) vertical spaces in which a researcher presents a highly condensed version of their paper in large font. Posters are presented in 1-2 hour poster sessions, where as many as a hundred posters may be up at the same time. Presenters stand next to their posters to answer questions.

Authorship

The order in which authors are listed communicates their relative contribution to the project and the credit that they receive. The first author gets more credit for an article than the second or third authors. In considering candidates for a faculty position at a prestigious research university, a committee may disregard applications from people who have fewer than two first-author publications in top-tier research journals. Thus, order of authorship can influence a person's job qualifications. Because the order of authorship matters, it is important to preserve the order of the authors in citing a paper and it is important to settle authorship order early in a project so that each researcher is aware of what is expected.

Parts of an Empirical Journal Article

The standard format for reporting the results of psychological research is the format used by researchers who are submitting a manuscript for publication in an empirical journal. We will discuss each of these components in greater detail when you are preparing to report your own research, but it is important to cover them now so that you can make the best use of articles that you read.

Title, author, affiliation. First, there is a title (usually 12-15 words) and the names and institutional affiliations of the authors.

Abstract. The abstract is a 120-words-or-less summary of the article. Abstracts are useful in deciding whether to read the rest of an article and are often available through search engines such as PsycINFO.

Introduction. This is the first major section. In it, the researchers develop their hypothesis by drawing on previous research and theory.

Method. In this section, the researchers describe how the study was done. The method section has three parts: Participants (the people in the study), Materials (any equipment or questionnaires), and Procedure (a step-by-step account of the participants' experience). This can be a source of ideas for how to conduct your study.

Results. The results section provides a narrative description of the researchers' findings, often accompanied by test statistics, tables, and figures.

Discussion. The discussion section offers an interpretation of the results, places the results in the context of previous research, acknowledges the limitations of the study, and discusses the implications of the results for theory and future research.

References. The references section contains the full reference (author, date, source) for any citation (e.g., “Glick and Fiske (1996)”) mentioned in the paper. You can often find sources for your own paper by looking in the references section of articles published on your topic.

Review exercise: Match the publication on the left with its description on the right. ¹	
1. <i>American Psychologist</i>	A. Reviews research, often using meta-analysis
2. <i>Annual Review... or Advances in ...or Handbook of ...</i>	B. A “popular” journal, targeted at the general public and containing more speculation and opinion than research.
3. <i>Psychological Reports</i>	C. A multi-volume series in many areas of psychology containing chapters written by major figures on contemporary issues.
4. <i>Psychological Bulletin</i>	D. Official journal of the American Psychological Society. Very well-done original research on a wide variety of topics.
5. <i>Psychology Today</i>	E. Most prestigious journal in the area of personality and social psychology.
6. <i>Journal of Personality and Social Psychology</i>	F. Contains poorly done studies and often short, poorly written articles. Avoid.
7. <i>Personality and Social Psychology Bulletin</i>	G. Contains <i>theoretical</i> articles on a wide variety of psychological topics.
8. <i>Social Psychology Quarterly</i>	H. Second most prestigious journal in the area of personality and social psychology
9. <i>Psychological Review</i>	I. Contains well-written overview articles on a wide variety of psychological topics targeted at readers with a working knowledge of psychological methods and major theories.
10. <i>Psychological Science</i>	J. Sociology journal focusing on social psychology

¹ Answers: I, C, F, A, B, E, H, J, G, D

Searching the Scientific Literature

PsycINFO

PsycINFO is a searchable database of articles and book chapters in psychology maintained by the American Psychological Association. It is your gateway to finding background readings for your research project. PsycINFO works similarly to a search engine such as Google except that you can be more specific in your search, for example specifying that you only want to search in a particular journal or within a particular date range. PsycINFO finds articles by searching within their titles, abstracts, keywords, and subject terms. You can search within any of 37 such fields or search within several fields at once. Below are some tips for using PsycINFO:

1. *Try different search terms.* Try a variety of different phrasings for the concept you are searching for. For example, if you are looking for articles on the effect of music on studying, you could make one of your search terms “music” and pair it with terms like “studying,” “performance,” “academic,” “memory,” etc.
2. *Search within titles.* If you are getting too many results, try to limit your search by searching only within *titles* of articles and book chapters. If a term shows up in an article’s title, you can bet that it will be a central focus of the article.
3. *Search within subject terms.* Authors sometimes use different terms in their title or abstract to mean the same thing. For example, a researcher studying conformity might not use that word but instead talk about *influence*. If you search only for “conformity,” you would miss this article. Subject terms link articles by using a common set of terms. This is very helpful, but it is not always obvious what these subject terms would be. PsycINFO has a *Thesaurus* feature that can help you find the subject terms for a particular topic. For example, if you wanted to find articles on “luck,” you could type that word into the Thesaurus and it would tell you to search under the subject term “Chance (Fortune).” Another way to find subject terms is to look up the PsycINFO citations for good articles that you already have. These citations will have subject terms that you can then include in your search to find similar articles.
4. *Check the reference section of articles you already have.* Some articles in PsycINFO allow you to see all the references cited in a particular article. If you’ve already found one article that’s a good match to your study, it’s possible that it will have other useful studies in its reference section.
5. *Look for articles that only address your IV or only address your DV.* It’s possible that you are the first person to combine the independent and dependent variables that you have chosen for your study. You may find some useful background readings that address only your IV or only your DV.
6. *Look for review articles.* If there has been a lot of research on your topic, it’s possible that a review of that research has been published. In PsycINFO, there is a feature called “refine search” that allows you to select studies that use particular methodologies, two of which are “literature review” and “meta-analysis.”
7. *Articles that are available online.* Depending on your library’s electronic subscriptions, you may be able to immediately download articles. This is obviously an incredibly useful feature, but it’s possible that there are better articles that you will need to inter-library loan. Make sure you don’t sacrifice quality for convenience. Online articles are available in two formats: HTML and PDF. HTML downloads very quickly and looks okay on a computer screen but doesn’t print nicely. PDF files are exact copies of the printed article and print very well but, especially for older articles, can be quite large (several megabytes).
8. *Don’t give up!* Finding articles can be very challenging and can take a long time. Sometimes you will search for a week and suddenly stumble upon one article that cites ten more that you can use. Faculty members (including your instructor) have a lot of experience in using PsycINFO and may be able to suggest search terms that you have not considered.

Google, Google Scholar, and Google Books

Google is an Internet search engine that can pull up references to articles if these references are discussed on a website. After being unable to find an article through PsycINFO, I have occasionally found useful references by typing my search terms into Google. Google maintains a specialized search option just for scholarly articles called *Google Scholar* that you should also try. Finally, Google has scanned in millions of pages of text and you can read some of these through *Google Books*. You can generally only read a few pages from a book because of copyright limitations, but those pages can often be the only ones you need. If you set up a personalized Google account, the number of pages you can access is greater than if you do not have an account.