

# MAKING SENSE OF RESEARCH 101

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Having trouble making sense of research articles in academic journals or scientific magazines? This guide will help you navigate your way through all the technical information.

## What is research?

By definition, the term research means to look again. This implies that research is continuous, without end. Research can be defined broadly as "a form of systematic investigation that contributes to knowledge." There are many ways to classify research. For example, research can be categorized by academic discipline (e.g., social science research, medical research, etc.), method of data collection (e.g., quantitative or qualitative), or purpose (e.g., evaluative, action, experimental, etc.). While it would take a very long time to inform you on all the different terminology related to research, this guide is intended to provide a basic introduction to the process of research and to help you think critically about how to use research to inform practice.

## The Anatomy of a Research Article

Generally, social science research articles in the quantitative tradition are consistently organized into sections with headings like these:

- ✕ Abstract
- ✕ Introduction
- ✕ Method
- ✕ Results
- ✕ Discussion
- ✕ References

**Abstract:** This is a brief review of the entire article and is located at the very beginning of the article. As you read the abstract, keep in mind that the researcher is giving you as much information as possible in only a few words. As a result, the researcher can rarely provide you with all the details you need. This shortening can affect the quality and completeness of the information you end up with. Therefore, reading between the lines is important and also applies when reading newspaper or magazine articles that summarize or highlight research studies. Even if they are not intentionally distorting the facts, they must shorten things. While researchers choose their words carefully to avoid misleading people, words change each time an article is edited and rewritten for another source. For example, the original researcher may have written, "Healthy Families shows modest impact in preventing child maltreatment." The newspaper could say, "Discouraging Results for Healthy Families-It's Not Preventing Child Abuse." Though both appear to be saying the same thing, these are two very different statements. Some advice? Question key words that imply or explicitly state an absolute or causal relationship because there are many factors that affect us all each day; it's very difficult to be conclusive or absolutely

A good **Introduction** should tell you:

- ✕ What do we already know about the topic?
- ✕ What are the characteristics of and relationships between the key concepts, factors or variables?
- ✕ What are the existing theories?
- ✕ Where are the inconsistencies or gaps in our knowledge and understanding?
- ✕ What views need to be (further) tested?
- ✕ What evidence is lacking, inconclusive, contradictory or too limited?
- ✕ Why study (further) the research problem?
- ✕ What contribution can the present study be expected to make?

Here are some questions to ask yourself as you read the **Abstract:**

- ✕ What was studied? Is it relevant to your program?
- ✕ Who participated in the study? Do the people who participated in the research seem to be similar to the people that participate in your program?
- ✕ How, when, where, and why was the research done?
- ✕ What did the researchers find?

certain about any one factor or relationship. On the other hand, have more confidence in what you are reading when you see verbs and words like *believe*, *appear*, *seems related to*, *is associated with*, *increases in frequency*, or *decreases in prevalence*.

**Introduction:** Sometimes this section may also be called "Background" or "Literature Review." This is the section in which the researcher will describe what was studied, why it's important, and how it contributes to what is already known or not known about their topic. The researcher will use citations in the text that refer to another person's research or article that

you should be able to trace to the "References" list at the very end of the research article. There you'll find detailed information (e.g., title and publisher) on the articles that the researcher was referring to in the text of the Introduction section. As you read the literature review, you may want to keep an eye on what and how often sources were referenced and how many times each source was referenced. By doing so, you may learn that there are one or two authors listed frequently, which tells you that they've done a lot of work in this particular area. You may also want to pay attention to how many sources were referenced and how the researcher synthesized the literature. Additionally, it may be important to look at where the researcher combines different sources to support a particular point that he/she is trying to make. Another important piece of information you want to look for in the Introduction section is the "rationale" for the study. Is its location within the growth of knowledge *pure*, *applied*, or *developmental*? Is its purpose *descriptive*, *exploratory*, or *predictive*? Is the nature of the evidence *qualitative*, *quantitative*, or *both*?

**Method:** This section is designed to explain *who* participated in the research; *how* they were chosen; the *design* of the research (i.e., what kind of research was done?) How was it done? What tools were used to gather the data (e.g., standardized assessment, survey questionnaire, etc.)? And, *how* the results were examined and statistically analyzed. A few questions to ask yourself while reading the Method section:

- x How similar are your program participants to the people who were studied? Are they enough like your program's participants that what the researcher found is likely to apply?
- x Did the researcher pick participants in a way that their findings are likely to matter to your program or any other program?
- x Did the researcher indicate or explain the psychometric properties of the data gathering instruments? Psychometric properties include the elements that contribute to the statistical adequacy of an instrument in terms of reliability (i.e., the precision with which one gets the same results from the instrument on repeated administrations) and validity (i.e., the extent to which the construct measures what it is purported to measure).

In general, the more people who participated in the study, the better. And, the more that their participation in the study was determined by something other than their own volunteering or the researcher's picking or choosing, the better. Two concepts that are especially important to consider when reading about how participants were chosen for the study are *randomness* and *all-inclusiveness*. Randomness refers to participation by chance and that's a good thing because it means that the findings from a study are likely to be meaningful to a wide range of people. All-inclusiveness reflects the researcher's attempt to include a broad group of participants and that is also a good thing because it makes sure that as wide a range of people as possible participated in the research. Here is an example of a phrase that implies the researcher tried to include a broad group of participants: "All Healthy Families parents with Chicago addresses. "

**Results:** This section tells you what the researchers found. And it's very likely that terminology related to statistics will be used. This is the part of the study that many people who shy away from statistics tend to skip. However, if possible, try to stick with it because it is in this section that the type of data collected and the statistical techniques used to analyze them are described. The results of the analyses are also presented, and general conclusions are made. Many researchers present their data using both written and graphic descriptions. Try using the description that feels the most comfortable but also ask a colleague with a quantitative background to read and discuss the study with you to facilitate your understanding. As described in the following paragraphs, some basic statistical information is provided in this section. Keep in mind that there are a number of statistical guides of varying sophistication that are available in bookstores as well as on the Internet to assist you further.

*Descriptive* statistics are used to describe something and *inferential* statistics are used to examine differences among groups or relationships among characteristics. *Descriptive statistics* in a research article often include *mean*, *median*, and *standard deviation*. The *mean* is the word used by statisticians to refer to the average (i.e., the sum of all the values or scores divided by the number of people in the study or group). The *median* is the score or value that falls closest to the middle. The *median* tells you what is typical. The *standard deviation* tells you how spread out the data is. Other key words to look for are "statistically significant" or "significant" or "not significant." These words are based on the use of *inferential statistics* and tell you whether the researcher's findings may be the result of chance or whether they're likely to really mean something. However, the meaning assigned to the findings is an art not a science. In general, you can count on the researcher to make some sense out of their findings for you. This "making sense of the findings" is usually done in the next section.

**Discussion:** In this section, the researcher interprets what the research findings mean and how they are relevant to, for example, the field or a particular program. Here, the researchers should describe the limitations of their research. Researchers often discuss what you can and cannot conclude, what the research failed to find, and things that may affect how relevant the findings are to other people. As you read through this section, consider how these findings compare to your knowledge of your program.

Do their conclusions and/or recommendations make sense? What factors are they overlooking? Might you have reached a different conclusion?

**References:** Here you'll find detailed information (e.g., title and publisher) on the articles that the researcher referred to in the text of the Introduction section and perhaps other sections. Ask yourself: Are these references relevant and up-to-date? Are there pertinent studies that were not referenced?

### Summing It Up to Critical Thinking

Here are some questions to ask to help you think critically about the research you are reviewing and how to check that the evidence is credible and represented accurately:

- ⌘ Are the research goals properly explained? Is the literature review relevant and up-to-date?
- ⌘ Is the methodology clearly described and implemented? Is there information on sample size and quality (i.e., how the sample was selected)? Is there information on how the data was checked for accuracy?
- ⌘ Is there a rationale given for the data gathering methods, analysis methods and statistical tests chosen?
- ⌘ Does the evidence justify the conclusions and interpretations?

While you may not have the expertise to determine the credibility of the study, these are just some key questions you may want to consider or discuss with proficient colleagues.

### Research in Context

What is the role of research in family support or social care? Research can help you understand:

- ⌘ The social world in which service users (e.g., families) live and why positive and negative events occur in the lives of some families and not others.
- ⌘ The relative success of interventions and their impact on participants and the society at large.

Yet, it is very important to understand that research is only one source of knowledge and, in terms of the policies and practices of organizations and governments which intervene in the lives of vulnerable people, not necessarily the most influential. That's because research has to compete with other sources of varying reliability including personal experience, the influence of colleagues, the media, organizational and government norms, policies, procedures, and priorities. In the relationship between research, policy, and practice, it is important to keep in mind too that research is often retrospective (i.e., examining an event that has already occurred). When research is prospective, the questions with which it is concerned may seem distant from practice realities. Moreover, it is important to realize the inherent challenge that lies in evidence-based practice. That is, the concept of evidence-based practice is rooted in a scientific world-view that depends on elements of practice being measurable, quantifiable, and controllable. However, the reality is that practice is often complex and untidy. Therefore, any unbiased research or evaluation needs to confront scientific rationality in understanding social problems and their solutions.

### Moving Forward

When you think about your own situation, what constraints (if any) do you experience (personal, professional, or organizational) that impede the development of stronger research-practice links? The following questions are intended to encourage a reflective exercise in exploring the relationship between research and practice.

Do these constraints apply to you, your agency or staff?

- ⌘ Lack of confidence in interpreting and evaluating research
- ⌘ Difficulty in keeping up with the volume of research
- ⌘ Difficulty in accessing research literature within your program
- ⌘ Absence of research culture within your program
- ⌘ Low status accorded to undertaking/updating research compared to other work
- ⌘ Practitioner fear and/or disinterest in research
- ⌘ Paperwork requirements which limit time for practitioners to think critically about research
- ⌘ Research is seen as something done by experts
- ⌘ Previous studies have alienated practitioners
- ⌘ Difficulty relating research findings to families served

Some of these challenges can be overcome by incorporating research into regular programmatic activities. For instance, if your state has a researcher or evaluator who is involved with your program, he or she could be invited to a regular staff meeting to discuss a recent research study and create opportunities for all staff to share their thoughts, offer opinions and ask questions.

Or, staff may opt to work closely with a researcher to explore a particular phenomenon that they may be experiencing with their participants. You may also want to consider what new relationships can be forged. For example, perhaps you adopt a strategic approach to research dissemination or establish a consortium to ensure easier access to research findings and to involve practitioners in research agendas.

### Further Reading

This guide was based on information synthesized from the following resources:

- ⌘ Craig Hospital. "Understanding Those Medical and Research Articles." Last accessed on July 19, 2004 from <http://www.craighospital.org/SCI/METS/articles.asp>.
- ⌘ Center for Human Service Technology, Social Care Institute for Excellence, "Research Mindedness in Social Work and Social Care." Last accessed on July 19, 2004 from <http://www.resmind.swap.ac.uk/index.htm>.

The following resource is also recommended for further reading:

- ⌘ Learning & Development, Public Health Resource Unit, NHS. *The Critical Appraisal Skills Programme (CASP)*. Last accessed on July 19, 2004 from <http://www.phru.nhs.uk/casp/casp.htm>. See CASP Appraisal Tools:
  - appraisal tool for [systematic reviews](#)
  - appraisal tool for [randomized controlled trials](#)
  - appraisal tool for [qualitative research studies](#)
  - appraisal tool for [cohort studies](#)
  - appraisal tool for [case control studies](#)
  - appraisal tool for [diagnostic test studies](#)
  - appraisal tool for [economic evaluation studies](#)