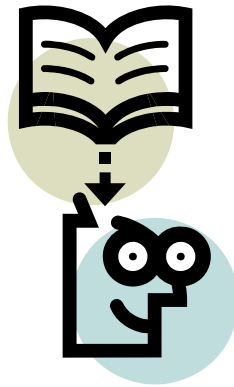


**The P.E.A.R.
(PARENTS EDUCATED ABOUT RESEARCH)
PROJECT**



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[A Project of Parent to Parent of Wisconsin](#)



The P.E.A.R. PROJECT

PARENTS EDUCATED ABOUT RESEARCH

<http://www.p2pwi.org>

ABOUT THE PROJECT

The Parents Educated about Research (P.E.A.R.) Project is based on four guiding beliefs:

The first belief is: **FAMILIES OF** children with special health care needs are the first and most important decision makers in their child's life.

- Professionals working with your child need to include you as parents and other family members in the planning, implementing and evaluation of programs, Treatments and services.

The second belief is: Research is an important tool for families to be better informed about a particular treatment, program or service option.

- Research provides evidence to know if a treatment, service or program will help your child or put your child at risk for harm.

The third belief is: it is difficult to know what is "good" research and what is "bad" research.

- Research has been used to "prove" different things, even opposites. One day research proves eggs are bad for you, the next day research proves eggs are good for you. Since we are bombarded with such conflicting research information, especially in the media, it is good to be skeptical and for us to evaluate the available information.

The final belief is: Specific questions and tips, developed for parents and family members as they use research to make decisions for their child and family, assists in separating the "good" research from the "bad" research.

- Whether you are exploring a new medication, a change in educational service or a recommended medical intervention, you can identify research from rubbish and facts from fibs. I sincerely hope this information assists you in making decisions while on your family's journey.

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THE RESEARCH STUDY FORMAT

In order to be a more informed decision maker for your child, you will sometimes need to use research. The first thing to know is Research, published in journals, is typically presented in a prescribed format, with defined sections. Each section provides you with valuable information about the research study and assists you in assessing the quality and relevance of the research to your child and family.

The Defined sections of the prescribed format are:

- **Abstract**

a summary of the key points in the article and should mention the hypothesis being tested, the guess they are making. Read this to determine whether the article is relevant to the information you need.

- **Introduction**

A context for the study which should tell you what prompted the researchers to study the question at hand and upon which past research they are building. Ask yourself whether there is a logical connection between the study being introduced and past studies.

Parent Pointer: When looking at more than one study, it is important to compare "apples to apples". For example, if two studies examined parent satisfaction, did one study gather information with a paper/pencil survey and the other with a face-to-face interview? Did one study gather information at just one time point and the other multiple times over the course of five years? This should be described in the methods section.



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● **Methods**

sometimes called "Methodology," explains how the researchers set about testing their hypothesis. It should include information about the instruments, procedures, participants and analysis used by the researchers. Ask yourself whether these seem adequate to answer the question posed by the hypothesis. The analysis is the final part of the Methods section and will explain how researchers organized and examined the data they collected. Often this takes the form of statistics, but you do not need to be familiar with statistical analysis to understand the study.

Parent Pointer: All of the instruments (questionnaires, surveys, interview protocols, etc.) should be described. Their appropriateness for use in the study should be justified and their quality verified. The procedures by which the instruments were applied to the participants should be described. Consider who the participants were. Are they similar to your child and family?

● **Results**

The findings of the research. In addition to raw data, the relationships between variables, as outlined in the introduction, should be explained here. Skim this section and note the subheadings used; they should reflect the questions in the introduction and help you organize your thoughts. The results are often depicted in graphs or tables. You might find it helpful to flip to the Discussion section for clarifications of specific findings included in this section.



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- **Discussion/Interpretation**

a summary of the results, written in narrative rather than statistical or numerical form. This section explains whether the results support the hypothesis and what they mean to previous studies on the topic. Often, suggestions for future research are included in this section. Ask yourself whether the conclusions the researchers draw here are supported by their findings. It can be helpful to read this section before reading the *Methods* and *Results* sections to get a better idea of the full scope of the research.

- **Bibliography**

a listing of all the sources cited in the article, as well as relevant articles or books that were not cited. Scan this to find other writings relevant to the information you need.

Parent Pointer: When trying to evaluate the information in an article, you need to know whether the article is a research (reporting the findings of a single study) or review (reporting on a range of related studies) article. Note also whether research is quantitative (dealing with things that can be counted) or qualitative (dealing with interpretation or critique). It is often more reassuring to see "counted" information than "interpreted" information.

Would you rather know 100 of 102 children receiving a medication showed zero side effects OR the medication appeared very helpful to most children?



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TEN TIPS FOR PARENTS
QUESTIONS TO EVALUATE RESEARCH STUDIES

- ❑ Where did you find out about the study?
- ❑ Has the Research study been published?
- ❑ Who paid for the research study?
- ❑ What was the study measuring?
- ❑ How was the study conducted?
- ❑ How many people were included in the study?
- ❑ Who are the people included in the study?
- ❑ Were the results statistically significant?
- ❑ What are the results over time?
- ❑ Was the research done more than once?



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Where did you find out about the study?

Many people learn about research through the media. One of the things to keep in mind is that the source of the information may not be fully accurate or may not accurately summarize the original research. Media coverage is a good example because it seeks to be attention-grabbing and simple and most research is technical and complex. Media reporting of research sometimes oversimplifies the research which leads to misinterpretation. Because of this, one should not assume the media's report of the research is necessarily what the actual study says, particularly if the media coverage is very brief or provocative. It is important to follow up on the information received from the source and get a copy of the original research article or by getting information from additional sources.

Has the Research been published?

Research published in peer-reviewed research journals is more trustworthy because it has been scrutinized by other researchers before being published. Research journals use a peer-reviewed process in which people who are knowledgeable in the topic critically review and provide an independent assessment of the research. (You can tell if a journal is peer reviewed by looking at the information for authors submitting articles, which is generally included in every journal issue.) Unpublished research or research published in publications that are not critically evaluated has not gone through critical scrutiny so may or may not be "good" research. Even good research starts out as unpublished work and is published later, so the fact that a study is unpublished does not mean it is poor quality. It should be viewed as preliminary until it goes through the full publication review process.



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■ Who paid for the research study?

It is important to evaluate the credibility of both the individuals and the organization that produced the research. Research produced by respected researchers and institutions is more likely to be trustworthy. However, research produced or funded by groups with strong personal or commercial agendas (such as a company which manufactures the product being tested) have a vested interest in the study's findings to support their viewpoint. A widely recognized example is easily demonstrated if I ask you this question: Which industry do you think paid for a study that concluded two glasses of red wine every day is good for your heart?

■ What was the study measuring?

In any research study, the topic studied is measured in some specific way. Knowing how the topic was measured helps you to understand what the research was really about. For example, a researcher may study child aggression. This topic could mean a lot of different things to different people (calling someone names, or physically attacking someone, for example). Since a topic such as aggression can be so broadly defined, researchers always come up with a more specific, precise definition of the topic they are studying. The definition of aggression in a study could be the number of times the child displayed five specific behaviors (shouting, hitting, kicking, biting, and pushing), as observed by researchers or as reported by the child's teacher. When the results from a study are reported, the results are really about the precise definition (display of specific behaviors observed by the teacher), rather than the larger topic (aggression).



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In reading research, you want to assess whether the way the researchers defined and measured their topic makes common sense. Much of the time, the specific definition does make common sense and seems reasonable (aggression in children= hitting people), but on occasion, a study defines a term in an unusual way (aggression in children = name-calling). In the latter case, it is important to be aware of the definition, because the study may report its findings as being about the broader topic. Also, different studies may use different definitions for the same topic. It is important to pay attention to these definitions when you are comparing the results from different studies.

How was the study conducted?

Another indicator of the quality of a research study, and the claims that can be made based on it, is the study's Research design. The research design is the way the study is structured to answer a question. There are two broader categories of Research: quantitative Research, and qualitative Research. Quantitative Research uses numbers, and analyzes and reports data in numeric form. Qualitative research typically reports results through story-like descriptions rather than numbers.

Experimental design studies, a type of quantitative study, Offers the strongest evidence about the impact of a program. In an experimental design, Researchers randomly assign individuals from the same population to two groups, a treatment group and a control group, and then compare the two groups on some outcome. Experimental studies, known as the 'gold standard' of Research methodology, produce the strongest evidence that a program produced an effect. Experimental studies, sometimes called control group studies or experiments, are the only type of study that can show a causal relationship.



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Although experimental studies can provide the strongest evidence, there are limitations to the situations in which this research design can be used. Experiments are very expensive to conduct. Also, in the world of social policy, it is often impractical or unethical to assign children to different research treatment groups (children growing up with one versus two parents in the home, for example) to attain the control needed for an experimental study.

Quasi-experimental and survey studies are another type of quantitative research design that are useful for measuring the effects of different programs on children. Quasi-experimental studies do not use random assignment to create the groups being studied. Instead, they find comparable groups in which to study the effects of different programs. These studies can find associations between a program and children's outcomes, but they cannot be used to establish a causal relationship. For example, a quasi-experimental study may find that children who participated in an enrichment program had better social skills than those that did not, but it cannot prove that the program caused the increase in social skills (perhaps the children who participated in the program had better social skills to begin with). Quasi-experimental studies are the best approach for large-scale studies which study larger numbers of people and which study more topics.

Qualitative research, which typically reports data in non-numeric form such as categories or descriptions, can be an important source of information. Qualitative studies often provide descriptive, story-like accounts of people's experiences in a program or in a community. Qualitative research is particularly well-suited to finding out new things you didn't know to look for and want to ask more about.



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■ How many people were included in the study?

The study's sample size is important. The sample size is the number of people in the study. The minimum sample size needed in quantitative research depends on how big the effects being studied are, so there is not one rule, but a general guideline for a minimum sample size might be 30 to 50 people. Just remember: The larger the sample, the better the results.

■ Who are the people included in the study?

Even more important than sample size is the way the sample was collected. Research is based on the assumption that the findings for some people can be generalized to all people. Researchers collect information on a sample of people in order to determine the effects of a program for the full population. For example, a study will select a sample of 100 children in after-school programs, and this sample is intended to represent the population of all children in similar programs. Researchers use careful procedures to select their samples. One appropriate procedure, the most commonly used, is random selection, but there are other appropriate sampling procedures as well. If the sampling procedures aren't done well, we need to determine if the study's findings would apply to our child or family.

When looking at surveys, the response rate indicates the sampling. If a study has a low response rate, then this means that a portion of the carefully selected sample was not studied. It is possible that the people who did not respond are different in some systematic way from the people who did respond. A general guideline for an acceptable response rate would be 50%, and a very good response rate would be 80% or higher.



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■ Were the results statistically significant?

The term significant is seductive, and easy to misinterpret. It is easy to read far too much into the word significant because the statistical use of the word has a meaning entirely distinct from its usual meaning. Just because a difference is statistically significant does not mean that it is biologically or clinically important or interesting. If a result is statistically significant, there are two possible explanations:

- 1) The populations are identical, so there really is no difference. By chance, you obtained larger values in one group and smaller values in the other.
- 2) The populations really are different, so the conclusion is correct. The difference may be large enough to be scientifically interesting Or it may be tiny and trivial.

Statistically significant is rated by a P Value. This number indicates the likelihood that an event will occur. Once you have set a P value for statistical significance, every result is either statistically significant or is not statistically significant. Degrees of statistical significance are not distinguished by most researchers but many scientists are not so rigid, and refer to results as being "barely significant", "very significant" or "extremely significant".

P value	Wording
>0.05	Not significant
0.01 to 0.05	Significant
0.001 to 0.01	Very significant
< 0.001	Extremely significant



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■ What are the results over time?

Because it is costly to observe a group of individuals over their entire lifetime, this is not done. However, many research studies follow the participants for a limited amount of time. It is important to determine if the results were found over a specific length of time and how much is known about the long term effects.

■ Was the research done more than once?

Although we usually come across research one study at a time, research is most valuable when many specific studies are taken together to tell the whole story of what we know on a given topic. Research, as a tool for scientific discovery, is designed to work this way. Science is about the aggregation of specific studies, one building on another to increase our knowledge base. Any single study, no matter how good, needs to be viewed in the context of other research on the topic. Finding articles which summarize and synthesize the results of many studies, called literature reviews, is one good way to get a sense of the bigger picture that research can tell us about a given topic.

When you learn about new research, it is worth asking if there has been other research on this topic before, and if so, what the other past research has found. Some topics have had extensive research and therefore we have substantial evidence to point to. In other topics, there may be little research. If there haven't been numerous studies, it is premature to consider that we really know what works. Studies in new topic areas are important and give us an important indication of what direction things may be going, but they are certainly not definitive; we need to have numerous studies before researchers would say that we have a solid basis of evidence.