

# The Savvy Practitioner

A bulletin for practitioners and teachers of evidence-based practice.

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Target audience this issue:

✓ Faculty in general

Dana J. Lawrence, DC,  
MmedEd, MA  
Associate Provost of  
Education and Research  
Parker University

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## SIMPLIFIED RESEARCH METHODOLOGIES

While I think we are all familiar with the general concepts of quantitative and qualitative research, we may be less familiar with key methodologies that are used in each of these forms of scientific research. One of the heartening things I have seen is a growth in research conducted by chiropractic researchers; we have seen papers from chiropractic faculty presented at conferences such as the Association of Chiropractic Colleges/Research Agenda Conference, the annual conference of the American Public Health Association, and the World Federation of Chiropractic. In this issue of the Savvy Practitioner, I'd like to provide a brief overview of several forms of research methodology.

**Historical Research:** This involves the investigation and study of past events. Generally, this is done in order to bring better understanding to current events or in anticipation of future events. For those who do historical research, they will look for either primary sources (such as eyewitness reports or review of original documents) or through secondary sources (second-hand information, from, say, a friend of an eyewitness). In addition, it becomes necessary to assess the faithfulness of the information and information source. Historical research can be used to look at current issues, investigate individuals (such as D. D. Palmer), institutions or even movements ("straight" chiropractic, for example). Our profession does have an organization dedicated to our history and to historical research within chiropractic, the Association for the History of Chiropractic.

**Descriptive Research:** Here, we gather data in order to test a hypothesis or answer a question. We might ask college faculty about their understanding of, say, the IRB process. Typically, the information is gathered via survey questionnaires or through interviews, and it is sometimes best to use more than one method, in a process called triangulation. Though survey research sounds simple enough- write questions, administer, analyze- it is actually a complicated process involving question development and testing, identifying populations to survey and methodologies to reach that population, and then tracking response rates and finally doing the analysis. However, this is a form of research that faculty may find valuable in their own disciplines.

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**Correlational Research:** Here, our interest is in determining relationships between 2 variables in our data. And then we try to determine its direction and its strength. For example, we might develop a study where we look to see if the presence of a short leg relates to the presence of low back pain. To do so, we'd first need to find a method for determining whether a short leg is present, and once we do that, seeing if the population of those with short legs has a higher rate of low back pain than the population of those without a short leg. Typically, the statistical test used here is the Pearson product moment correlation coefficient. This test ranges from -1.0 (perfect negative correlation) to +1.0 (perfect positive correlation), so the closer to +1.0 we get, the more we can feel comfortable that the two variables are linked.

**Experimental Research:** Here, we control the conditions for the events we are interested in. A randomized trial is a clear example of experimental research; one group is a control group which does not get the experimental intervention (whether therapeutic for biomedical research, or educational for educational research) and one group gets the intervention. As a reminder, the variable we control is the independent variable and the one that changes as a result of this is the dependent variable. Issues we need to consider in experimental research are various forms of bias, and threats to internal and external validity.

**Causal Comparative Research:** This form of research is done to establish cause-effect relations. However, here, the independent variable cannot be manipulated, because it has already happened (for example, past drug abuse), and so we look only to the dependent variable (say, a student's grade in school). The challenge here is that confounding is always potentially present.

**Action Research:** This is a form of research positively suited for educational research. In education, action research has been defined as "systematic inquiry by practitioners to improve teaching and learning." While hard to explain, in action research we gather data and then act upon it while monitoring its effects. The researcher does this while acting, for example, in the workplace (i.e., the classroom).

As always, we need the best tool for our "problem." We need to determine what our research question is, and in doing so, the proper methodology will typically reveal itself. Each has its own challenges, weaknesses and strengths, but proper choice goes a long way to improving rigor and answering the questions in which we are interested.