Research Methods—Design and Analysis

In this paper we develop a base of knowledge about research that will facilitate our developing research skills; we then follow up on these research possibilities in the next chapter with hands-on exercises.

"Upon approaching something that is complex one discovers that it is even more complex then originally thought"

Author Unknown

Under ideal conditions you would select the most appropriate method--field research, survey, experiment or secondary data analysis for your problem. Realities of available money, time, access to information, and your own personal skills often are decisive factors in design choice and data collection. Once the design is firm, you follow through the steps in your design and collect the data. All of us have collected data, though not necessarily precisely and carefully in a scientific manner. Frequently we observe people in a new situation to determine what is
expected of us, such as when we first started college, visited a new city, or started a new job. This method of research is called *participant observation*, a particular type of field research. We may ask friends how and why they are going to vote a certain way in an upcoming election. This research method is known as *interviewing*. We may try different types or amounts of spices in a recipe to find which combination tastes the best. This method is called *experimenting*. Most of us have investigated sources and data in the library to help us in making a decision about a trip, a car, a house, or a major appliance purchase. This method is known as *secondary analysis*, the analysis of data collected by others.

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In all cases of scientific research, the goal is to account for all possible causes in a proposed relationship between variables. Therefore statements can be made about the relationship between the variables of interest based on the data collected. We have all seen the simplest version of experiment models expressed in data for pre and post times for groups selected to be comparative by either random selection or matching. As an example, a classic advertisement proving the efficacy of Crest tooth paste in preventing cavities, evaluations are made of both group A and B for the pre test (all members of both groups are checked by a dentist and cavities filled). The experimental stimulus (variable) is presented only to the experimental group (group A brushes with Crest toothpaste while Group C continues using their normal toothpaste). After a period of time, say six months, group B and D are again checked by a dentist for cavities. Differences in cavities between group B and C are seen as due to using Crest toothpaste.

**My sources:**