

What is a variable?

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You won't be able to do very much in research unless you know how to talk about variables. A variable is any entity that can take on different values. OK, so what does that mean? Anything that can vary can be considered a variable. For instance, age can be considered a variable because age can take different values for different people or for the same person at different times. Similarly, country can be considered a variable because a person's country can be assigned a value.

Some variables can be quite concrete such as gender, birth order, weight, or shoe size. Others can be considerably more abstract, vague, and formless. For example, sense of well being, self-esteem, strength of belief in religion, or intelligence quotient (IQ). Basically, variables are the things about people that we can say one person has more—or less—than another. So we find that people vary in their gender and shoe size, their self-esteem, and their IQ.

Variables aren't always quantitative or numerical. The variable gender consists of two text values: male and female. We can, if it is useful, assign quantitative values instead of the text values, but we don't have to assign numbers in order for something to be a variable. It's also important to realize that variables aren't the only things that we measure in the traditional sense.

An attribute is a specific value on a variable. For instance, the variable sex or gender has two attributes: male and female. Or, the variable agreement might be defined as having five attributes:

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Another important distinction having to do with the term variable is the distinction between an independent and dependent variable. This distinction is particularly relevant when you are investigating cause-effect relationships. It took me the longest time to learn this distinction. (Of course, I'm someone who gets confused about the signs for “arrivals” and “departures” at airports—do I go to arrivals because I'm arriving at the airport or does the person I'm picking up go to arrivals because they're arriving on the plane!). I originally thought that an independent variable was one that would be free to vary or respond to some program or treatment, and that a dependent variable must be one that depends on my efforts (that is, it's the treatment). But this is entirely backwards! In fact, the independent variable is what you (or nature) manipulate—a treatment or program or cause. The dependent variable is what is affected by the independent variable—the effects or outcomes. For example, if you are studying the effects of a new educational program on student achievement, the program is the independent variable and your measures of achievement are the dependent ones. A useful hint for determining which variable is which in a study is to ask whether you are trying to either influence or predict one variable from some other variable or variables. If so, that variable is probably the dependent variable. The variable that you are using to make the predictions or to determine if it influences (rather than is influenced by) some other variable in the study is typically the independent variable.

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