Dependent Variable

The variable that depends on other factors that are measured. These variables are expected to change as a result of an experimental manipulation of the independent variable or variables. It is the presumed effect.

Independent Variable

The variable that is stable and unaffected by the other variables you are trying to measure. It refers to the condition of an experiment that is systematically manipulated by the investigator. It is the presumed cause.

Cramer, Duncan and Dennis Howitt. The SAGE Dictionary of Statistics. London: SAGE, 2004; Penslar, Robin Levin and Joan P. Porter. Institutional Review Board Guidebook: Introduction. Washington, DC: United States Department of Health and Human Services, 2010; "What are Dependent and Independent Variables?" Graphic Tutorial.

Identifying Dependent and Independent Variables

Don't feel bad if you are confused about what is the dependent variable and what is the independent variable in social and behavioral sciences research. However, it's important that you learn the difference because framing a study using these variables is a common approach to organizing the elements of a social sciences research study in order to discover relevant and meaningful results. Specifically, it is important for these two reasons:

You need to understand and be able to evaluate their application in other people's research.

You need to apply them correctly in your own research.

A variable in research simply refers to a person, place, thing, or phenomenon that you are trying to measure in some way. The best way to understand the difference between a dependent and independent variable is that the meaning of each is implied by what the words tell us about the variable you are using. You can do this with a simple exercise from the website, Graphic Tutorial. Take the sentence, "The [independent variable] causes a change in [dependent variable] and it is not possible that [dependent variable] could cause a change in [independent variable]." Insert the names of variables you are using in the sentence in the way that makes the most sense. This will help you identify each type of variable. If you're still not sure, consult with your professor before you begin to write.

Fan, Shihe. "Independent Variable." In Encyclopedia of Research Design. Neil J. Salkind, editor. (Thousand Oaks, CA: SAGE, 2010), pp. 592-594; "What are Dependent and Independent Variables?" Graphic Tutorial; Salkind, Neil J. "Dependent Variable." In Encyclopedia of Research Design, Neil J. Salkind, editor. (Thousand Oaks, CA: SAGE, 2010), pp. 348-349;

Structure and Writing Style

The process of examining a research problem in the social and behavioral sciences is often framed around methods of analysis that compare, contrast, correlate, average, or integrate relationships between or among variables. Techniques include associations, sampling, random selection, and blind selection. Designation of the dependent and independent variable involves unpacking the research problem in a way that identifies a general cause and effect and classifying these variables as either independent or dependent.

The variables should be outlined in the introduction of your paper and explained in more detail in the methods section. There are no rules about the structure and style for writing about independent or dependent variables but, as with any academic writing, clarity and being succinct is most important.

After you have described the research problem and its significance in relation to prior research, explain why you have chosen to examine the problem using a method of analysis that investigates the relationships between or among independent and dependent variables. State what it is about the research problem that lends itself to this type of analysis. For example, if you are investigating the relationship between corporate environmental sustainability efforts [the independent variable] and dependent variables associated with measuring employee satisfaction at work using a survey instrument, you would first identify each variable and then provide background information about the variables. What is meant by "environmental sustainability"? Are you looking at a particular company [e.g., General Motors] or are you investigating an industry [e.g., the meat packing industry]? Why is employee satisfaction in the workplace important? How does a company make their employees aware of sustainability efforts and why would a company even care that its employees know about these efforts?

Identify each variable for the reader and define each. In the introduction, this information can be presented in a paragraph or two when you describe how you are going to study the research problem. In the methods section, you build on the literature review of prior studies about the research problem to describe in detail background about each variable, breaking each down for measurement and analysis. For example, what activities do you examine that reflect a company's commitment to environmental sustainability? Levels of employee satisfaction can be measured by a survey that asks about things like volunteerism or a desire to stay at the company for a long time.

The structure and writing style of describing the variables and their application to analyzing the research problem should be stated and unpacked in such a way that the reader obtains a clear understanding of the relationships between the variables and why they are important. This is also important so that the study can be replicated in the future using the same variables but applied in a different way.

Fan, Shihe. "Independent Variable." In Encyclopedia of Research Design. Neil J. Salkind, editor. (Thousand Oaks, CA: SAGE, 2010), pp. 592-594; "What are Dependent and Independent Variables?" Graphic Tutorial; “Case Example for Independent and Dependent Variables.” ORI Curriculum Examples. U.S. Department of Health and Human Services, Office of Research Integrity; Salkind, Neil J. "Dependent Variable." In Encyclopedia of Research Design, Neil J. Salkind, editor. (Thousand Oaks, CA: SAGE, 2010), pp. 348-349; “Independent Variables and Dependent Variables.” Karl L. Wuensch, Department of Psychology, East Carolina University [posted email exchange]; “Variables.” Elements of Research. Dr. Camille Nebeker, San Diego State University.