VARIABLES
In quantitative research, the investigator identifies multiple variables and seeks to measure them. In qualitative research, the term variable is not used, and instead the inquirer seeks to gather information on a single concept – a central phenomenon.
Variable

- Element that is identified in the hypothesis or research question
- Property or characteristic of people or things that varies in quality or magnitude
- Must have two or more levels
- Must be identified as independent or dependent
Independent Variables

- Manipulation or variation of this variable is the cause of change in other variables
- Technically, independent variable is the term reserved for experimental studies 
  (Also called antecedent variable, experimental variable, treatment variable, causal variable, predictor variable)
Dependent Variables

- The variable of primary interest
- Research question/hypothesis describes, explains, or predicts changes in it
- The variable that is influenced or changed by the independent variable

(In non-experimental research, also called criterion variable, outcome variable)
Relationship Between Independent and Dependent Variables

- Cannot specify independent variables without specifying dependent variables
- Number of independent and dependent variables depends on the nature and complexity of the study
- The number and type of variables dictates which statistical test will be used
Control Variables

• Factors controlled by the researcher to cancel out or neutralized any effect on DV.
• The effects of control variable are neutralized; those of moderator variables are studied.
• What is the relationship between physical size and social maturity among boys and girls in the same age group?
Moderator Variables

- A special type of independent variable, a secondary variable selected to determine if it affects the relationship between IV and DV.
- A factor measured or selected to discover whether it modifies the relationship.
- What is the difference in achievement between good readers and poor readers after receiving written and oral instructions?
Intervening Variable

Intervening variable

- Presumed to explain or provide a link between independent and dependent variables
- Relationship between the IV and DV can only be explained when the intervening variable is present
- As task interest increases, measured task performance increases. (learning)
Confounding Variable

Confounding variable

- Confuses or obscures the effect of independent on dependent
- Makes it difficult to isolate the effects of the independent variable