Reliability, Validity, and Bias

Reliability

- **Reliability** is the extent to which an experiment, test, or any measuring procedure yields the same result on repeated trials.

  - Without the agreement of independent observers able to replicate research procedures, or the ability to use research tools and procedures that yield consistent measurements, researchers would be unable to satisfactorily draw conclusions, formulate theories, or make claims about the generalizability of their research.

Validity

- **Validity** refers to the degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure.

  - While reliability is concerned with the accuracy of the actual measuring instrument or procedure, validity is concerned with the study's success at measuring what the research set out to measure.

- Researchers should be concerned with both *external* and *internal* validity.

External Validity

- **External validity** refers to the extent to which the results of a study are generalizable or transferable.

Internal Validity

- **Internal validity** refers to

    - (1) the rigor with which the study was conducted; the study's design, the care taken to conduct measurements, and decisions concerning what was and wasn't measured

    - (2) the extent to which the designers of a study have taken into account alternative explanations for any causal relationships they explore

- In studies that do not explore causal relationships, only the first of these definitions should be considered when assessing internal validity.

Bias

- Systematic errors in the way the sample represents the population.

    - The police decide to estimate the average speed of drivers using the fast lane of the motorway and consider how it can be done. One method suggested is to tail cars using police patrol cars and record their speeds as being the same as that of the police car. This is likely to produce a biased result as any driver exceeding the speed limit will slow down on seeing a police car behind them.

Bias can be due to...

- **Undercoverage**

- Nonresponse

- Behavior of the interviewer or respondent

- Poorly worded questions