

This glossary provides definitions of many of the terms used in research across the curriculum.

Accuracy

A term used in survey research to refer to the match between the target population and the sample.

Anonymity

A research condition in which no one, including the researcher, knows the identities of research participants.

ANOVA (Analysis of Variance)

A method of statistical analysis broadly applicable to a number of research designs, used to determine differences among the means of two or more groups on a variable. The independent variables are usually nominal, and the dependent variable is usually an interval.

Baseline

A control measurement carried out before an experimental treatment.

Bell curve

A frequency distribution statistic. Normal distribution is shaped like a bell.

Benchmarking

Systematically measuring and comparing the operations and outcomes of organizations, systems, processes, etc., against agreed upon "best-in-class" frames of reference.

Bias

The research findings will not be representative of, or generalizable to, a wider population.

Case Study

The collection and presentation of detailed information about a particular participant or small group, frequently including the accounts of subjects themselves.

Causal Relationship

The relationship established that shows that an independent variable, and nothing else, causes a change in a dependent variable. Establishes, also, how much of a change is shown in the dependent variable.

Causality

The relation between cause and effect.

Central Tendency

These measures indicate the middle or center of a distribution.

Chi-square Analysis

A common non-parametric statistical test which compares an expected proportion or ratio to an actual proportion or ratio.

Claim

A statement, similar to a hypothesis, which is made in response to the research question and that is affirmed with evidence based on research.

Classification

Ordering of related phenomena into categories, groups, or systems according to characteristics or attributes.

Cluster Analysis

A method of statistical analysis where data that share a common trait are grouped together. The data is collected in a way that allows the data collector to group data according to certain characteristics.

Cohort Analysis

A group by group analytic treatment of individuals having a statistical factor in common to each group. Group members share a particular characteristic [e.g., born in a given year] or a common experience [e.g., entering a college at a given time].

Confirmability

Objectivity; the findings of the study could be confirmed by another person conducting the same study

Confounding Variable

An unforeseen, and unaccounted-for variable that jeopardizes reliability and validity of an experiment's outcome.

Construct

Refers to any of the following: something that exists theoretically but is not directly observable; a concept developed [constructed] for describing relations among phenomena or for other research purposes; or, a theoretical definition in which concepts are defined in terms of other concepts. For example, intelligence cannot be directly observed or measured; it is a construct.

Construct Validity

Seeks an agreement between a theoretical concept and a specific measuring device, such as observation.

Continuous Variable

A variable that may have fractional values, e.g., height, weight and time.

Control Group

A group in an experiment that receives not treatment in order to compare the treated group against a norm.

Convergent Validity

The general agreement among ratings, gathered independently of one another, where measures should be theoretically related.

Correlation

A common statistical analysis, usually abbreviated as r , that measures the degree of relationship between pairs of interval variables in a sample. The range of correlation is from -1.00 to zero to +1.00. 2) A non-cause and effect relationship between two variables.

Covariate

A product of the correlation of two related variables times their standard deviations. Used in true experiments to measure the difference of treatment between them.

Credibility

A researcher's ability to demonstrate that the object of a study is accurately identified and described, based on the way in which the study was conducted

Criterion Related Validity

Used to demonstrate the accuracy of a measuring procedure by comparing it with another procedure which has been demonstrated to be valid; also referred to as instrumental validity.

Data

Recorded observations, usually in numeric or textual form

Data Mining

The process of analyzing data from different perspectives and summarizing it into useful information, often to discover patterns and/or systematic relationships among variables

Deductive

A form of reasoning in which conclusions are formulated about particulars from general or universal premises.

Dependability

Being able to account for changes in the design of the study and the changing conditions surrounding what was studied.

Dependent Variable

A variable that receives stimulus and measured for the effect the treatment has had upon it.

Design flexibility

A quality of an observational study that allows researchers to pursue inquiries on new topics or questions that emerge from initial research.

Deviation

The distance between the mean and a particular data point in a given distribution.

Discourse Community

A community of scholars and researchers in a given field who respond to and communicate to each other through published articles in the community's journals and presentations at conventions. All members of the discourse community adhere to certain conventions for the presentation of their theories and research.

Discrete Variable

A variable that is measured solely in whole units, e.g., gender and siblings.

Discriminate Validity

The lack of a relationship among measures which theoretically should not be related.

Distribution

The range of values of a particular variable.

Effect Size

The amount of change in a dependent variable that can be attributed to manipulations of the independent variable. A large effect size exists when the value of the dependent variable is strongly influenced by the independent variable. It is the mean difference on a variable between experimental and control groups divided by the standard deviation on that variable of the pooled groups or of the control group alone.

Electronic Text

A "paper" or linear text that has been essentially "copied" into an electronic medium.

Empathic neutrality

A quality of qualitative researchers who strive to be non-judgmental when compiling findings.

Equivalency Reliability

The extent to which two items measure identical concepts at an identical level of difficulty.

Ethnography

Ethnographies study groups and/or cultures over a period of time. The goal of this type of research is to comprehend the particular group/culture through observer immersion into the culture or group. Research is completed through various methods, which are similar to those of case studies, but since the researcher is immersed within the group for an extended period of time more detailed information is usually collected during the research.

Ethnomethodology

A form of ethnography that studies activities of group members to see how they make sense of their surroundings.

Existence or Frequency

This is a key question in the coding process. The researcher must decide if he/she is going to count a concept only once, for existence, no matter how many times it appears, or if he/she will count it each time it occurs. For example, "damn" could be counted once, even though it appears 50 times, or it could be counted all 50 times. The latter measurement may be interested in how many times it occurs and what that indicates, whereas the former may simply looking for existence, period.

Experiment

Experimental Research A researcher working within this methodology creates an environment in which to observe and interpret the results of a research question. A key element in experimental research is that participants in a study are randomly assigned to groups. In an attempt to create a causal model (i.e., to discover the causal origin of a particular phenomenon), groups are treated differently and measurements are conducted to determine if different treatments appear to lead to different effects.

External Validity

The extent to which the results of a study are generalizable or transferable. See also validity.

Face Validity

How a measure or procedure appears.

Factor Analysis

A statistical test that explores relationships among data. The test explores which variables in a data set are most related to each other. In a carefully constructed survey, for example, factor analysis can yield information on patterns of responses, not simply data on a single response. Larger tendencies may then be interpreted, indicating behavior trends rather than simply responses to specific questions.

Field Studies

Academic or other investigative studies undertaken in a natural setting, rather than in laboratories, classrooms, or other structured environments.

Focus Groups

Small, roundtable discussion groups charged with examining specific topics or problems, including possible options or solutions. Focus groups usually consist of 4-12 participants, guided by moderators to keep the discussion flowing and to collect and report the results.

Framework

The structure and support that may be used as both the launching point and the on-going guidelines for investigating a research problem.

Generalizability

The extent to which research findings and conclusions from a study conducted on a sample population can be applied to the population at large.

Grounded theory

Practice of developing other theories that emerge from observing a group. Theories are grounded in the group's observable experiences, but researchers add their own insight into why those experiences exist.

Hypothesis

A tentative explanation based on theory to predict a causal relationship between variables.

Independent Variable

A variable that is part of the situation that exist from which originates the stimulus given to a dependent variable. Includes treatment, state of variable, such as age, size, weight, etc.

Inductive

A form of reasoning in which a generalized conclusion is formulated from particular instances.

Inductive analysis

A form of analysis based on inductive reasoning; a researcher using inductive analysis starts with answers, but forms questions throughout the research process.

Internal Consistency

The extent to which all questions or items assess the same characteristic, skill, or quality.

Internal Validity

The rigor with which the study was conducted [e.g., the study's design, the care taken to conduct measurements, and decisions concerning what was and was not measured]. It is also 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.

Interrater Reliability

The extent to which two or more individuals agree. It addresses the consistency of the implementation of a rating system.

Interval Variable

A variable in which both order of data points and distance between data points can be determined, e.g., percentage scores and distances.

Interviews

A research tool in which a researcher asks questions of participants; interviews are often audio- or video-taped for later transcription and analysis.

Irrelevant Information

One must decide what to do with the information in the text that is not coded. One's options include either deleting or skipping over unwanted material, or viewing all information as relevant and important and using it to reexamine, reassess and perhaps even alter the one's coding scheme.

Kinesics

Kinesic analysis examines what is communicated through body movement.

Level of Analysis

Chosen by determining which word, set of words, or phrases will constitute a concept. According to Carley, 100-500 concepts is generally sufficient when coding for a specific topic, but this number of course varies on a case by case basis.

Level of Generalization

A researcher must decide whether concepts are to be coded exactly as they appear, or if they can be recorded in some altered or collapsed form. Using Horton as an example again, she could code profanity individually and code "damn" and "dammit" as two separate concepts. Or, by generalizing their meaning, i.e. they both express the same idea, she could group them together as one item, i.e. "damn words."

Life History

A record of an event/events in a respondent's life told [written down, but increasingly audio or video recorded] by the respondent from his/her own perspective in his/her own words. A life history is different from a "research story" in that it covers a longer time span, perhaps a complete life, or a significant period in a life.

Margin of Error

The permissible or acceptable deviation from the target or a specific value. The allowance for slight error or miscalculation or changing circumstances in a study.

Measurement

Process of obtaining a numerical description of the extent to which persons, organizations, or things possess specified characteristics.

Meta-Analysis

An analysis combining the results of several studies that address a set of related hypotheses.

Matching

Process of corresponding variables in experimental groups equally feature for feature.

Mean

The average score within a distribution.

Mean Deviation

A measure of variation that indicates the average deviation of scores in a distribution from the mean: It is determined by averaging the absolute values of the deviations.

Median

The center score in a distribution.

Mental Models

A group or network of interrelated concepts that reflect conscious or subconscious perceptions of reality. These internal mental networks of meaning are constructed as people draw inferences and gather information about the world.

Methodology

A theory or analysis of how research does and should proceed.

Methods

Systematic approaches to the conduct of an operation or process. It includes steps of procedure, application of techniques, systems of reasoning or analysis, and the modes of inquiry employed by a discipline.

Mode

The most frequent score in a distribution.

Mixed-Methods

A research approach that uses two or more methods from both the quantitative and qualitative research categories. It is also referred to as blended methods, combined methods, or methodological triangulation.

Multi-Modal Methods

A research approach that employs a variety of methods; see also triangulation.

Narrative Inquiry

A qualitative research approach based on a researcher's narrative account of the investigation, not to be confused with a narrative examined by the researcher as data.

Naturalistic Inquiry

Observational research of a group in its natural setting.

Norm

The norm in statistics is the average or usual performance. For example, students usually complete their high school graduation requirements when they are 18 years old. Even though some students graduate when they are younger or older, the norm is that any given student will graduate when he or she is 18 years old.

Nominal Variable

A variable determined by categories which cannot be ordered, e.g., gender and color.

Normal distribution

A normal frequency distribution representing the probability that a majority of randomly selected members of a population will fall within the middle of the distribution. Represented by the bell curve.

Null Hypothesis

The proposition, to be tested statistically, that the experimental intervention has “no effect,” meaning that the treatment and control groups will not differ as a result of the intervention. Investigators usually hope that the data will demonstrate some effect from the intervention, thus allowing the investigator to reject the null hypothesis.

Ontology

A discipline of philosophy that explores the science of what is, the kinds and structures of objects, properties, events, processes, and relations in every area of reality.

Ordinal Variable

A variable in which the order of data points can be determined but not the distance between data points, e.g., letter grades.

Parameter

A coefficient or value for the population that corresponds to a particular statistic from a sample and is often inferred from the sample.

Participant

Individuals whose physiological and/or behavioral characteristics and responses are the object of study in a research project.

Peer-Review

The process in which the author of a book, article, or other type of publication submits his or her work to experts in the field for critical evaluation, usually prior to publication. This is standard procedure in publishing scholarly research.

Phenomenology

A qualitative research approach concerned with understanding certain group behaviors from that group’s point of view.

Philosophy

Critical examination of the grounds for fundamental beliefs and analysis of the basic concepts, doctrines, or practices that express such beliefs.

Population

The target group under investigation, as in all students enrolled in first-year composition courses taught in traditional classrooms. The population is the entire set under consideration. Samples are drawn from populations.

Precision

In survey research, the tightness of the confidence limits.

Pre-defined or Interactive Concept Choice

One must determine whether to code only from a pre-defined set of concepts and categories, or if one will develop some or all of these during the coding process. For example, using a predefined set, Horton would code only for profane language. But, if Horton coded interactively, she may have decided to half-way through the process that the text warranted coding for profane gestures, as well.

Predictive Measurement

Use of tests, inventories, or other measures to determine or estimate future events, conditions, outcomes, or trends.

Principal Investigator

The scientist or scholar with primary responsibility for the design and conduct of a research project.

Probability

The chance that a phenomenon has a of occurring randomly. As a statistical measure, it shown as p (the "p" factor).

Quantitative Research

Empirical research in which the researcher explores relationships using numeric data. Survey is generally considered a form of quantitative research. Results can often be generalized, though this is not always the case.

Quasi-experiment

Similar to true experiments. Have subjects, treatment, etc., but uses nonrandomized groups. Incorporates interpretation and transferability in order to compensate for lack of control of variables.

Questionnaire

Structured sets of questions on specified subjects that are used to gather information, attitudes, or opinions.

Quixotic Reliability

Refers to the situation where a single manner of observation consistently, yet erroneously, yields the same result.

Random sampling

Process used in research to draw a sample of a population strictly by chance, yielding no discernible pattern beyond chance. Random sampling can be accomplished by first numbering the population, then selecting the sample according to a table of random numbers or using a random-number computer generator. The sample is said to be random because there is no regular or discernible pattern or order. Random sample selection is used under the assumption that sufficiently large samples assigned randomly will exhibit a distribution comparable to that of the population from which the sample is drawn.

Randomization

Used to allocate subjects to experimental and control groups. The subjects are initially considered not unequal because they were randomly selected.

Range

The difference between the highest and lowest scores in a distribution.

Reliability

The extent to which a measure, procedure or instrument yields the same result on repeated trials.

Representative Sample

Sample in which the participants closely match the characteristics of the population, and thus, all segments of the population are represented in the sample. A representative sample allows results to be generalized from the sample to the population.

Response Rate

In survey research, the actual percentage of questionnaires completed and returned.

Rigor

Degree to which research methods are scrupulously and meticulously carried out in order to recognize important influences occurring in an experiment.

Sampling Error

The degree to which the results from the sample deviate from those that would be obtained from the entire population, because of random error in the selection of respondent and the corresponding reduction in reliability.

Sample

The population researched in a particular study. Usually, attempts are made to select a "sample population" that is considered representative of groups of people to whom results will be generalized or transferred. In studies that use inferential statistics to analyze results or which are designed to be generalizable, sample size is critical--generally the larger the number in the sample, the higher the likelihood of a representative distribution of the population.

Saturation

A situation in which data analysis begins to reveal repetition and redundancy and when new data tend to confirm existing findings rather than expand upon them.

Selective Reduction

The central idea of content analysis. Text is reduced to categories consisting of a word, set of words or phrases, on which the researcher can focus. Specific words or patterns are indicative of the research question and determine levels of analysis and generalization.

Serial Effect

In survey research, a situation where questions may "lead" participant responses through establishing a certain tone early in the questionnaire. The serial effect may accrue as several questions establish a pattern of response in the participant, biasing results.

Short-Term Observation

Studies that list or present findings of short-term qualitative study based on recorded observation.

Skewed Distribution

Any distribution which is not normal, that is not symmetrical along the x-axis.

Social Theories

Theories about the structure, organization, and functioning of human societies.

Stability Reliability

The agreement of measuring instruments over time.

Standard Deviation

A term used in statistical analysis. A measure of variation that indicates the typical distance between the scores of distribution and the mean; it is determined by taking the square root of the average of the squared deviations in a given distribution. It can be used to indicate the proportion of data within certain ranges of scale values when the distribution conforms closely to the normal curve.

Statistical Analysis

Application of statistical processes and theory to the compilation, presentation, discussion, and interpretation of numerical data.

Statistical Bias

Characteristics of an experimental or sampling design, or the mathematical treatment of data, that systematically affects the results of a study so as to produce incorrect, unjustified, or inappropriate inferences or conclusions.

Subcultures

Ethnic, regional, economic, or social groups exhibiting characteristic patterns of behavior sufficient to distinguish them from the larger society to which they belong.

Survey

A research tool that includes at least one question which is either open-ended or close-ended and employs an oral or written method for asking these questions. The goal of a survey is to gain specific information about either a specific group or a representative sample of a particular group. Results are typically used to understand the attitudes, beliefs, or knowledge of a particular group.

T-Test

A statistical test. A t-test is used to determine if the scores of two groups differ on a single variable. For instance, to determine whether writing ability differs among students in two classrooms, a t-test could be used.

Thick Description

A rich and extensive set of details concerning methodology and context provided in a research report.

Transferability

The ability to apply the results of research in one context to another similar context. Also, the extent to which a study invites readers to make connections between elements of the study and their own experiences.

Treatment

The stimulus given to a dependent variable.

Triangulation

The use of a combination of research methods in a study. An example of triangulation would be a study that incorporated surveys, interviews, and observations. See also multi-modal methods.

Validity

The degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure. A method can be reliable, consistently measuring the same thing, but not valid. See also internal validity and external validity.

Variable

Observable characteristics that vary among individuals. See also ordinal variable, nominal variable, interval variable, continuous variable, discrete variable, dependent variable, independent variable.

Variance

A measure of variation within a distribution, determined by averaging the squared deviations from the mean of a distribution.

Variation

The dispersion of data points around the mean of distribution.

Verisimilitude

Having the semblance of truth; in research, it refers to the probability that the research findings are consistent with occurrences in the "real world."

Weighted Scores

Scores in which the components are modified by different multipliers to reflect their relative importance.

White Paper

An authoritative report that often states the position or philosophy about a social, political, or other subject, or a general explanation of an architecture, framework, or product technology written by a group of researchers. A white paper seeks to contain unbiased information and analysis regarding a business or policy problem that the researchers may be facing.