GLOSSARY OF KEY TERMS IN EDUCATIONAL RESEARCH

by

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Glossary of Key Terms in Educational Research

The purpose of this Glossary of Terms is to help novice researchers in understanding basic research terminologies in educational research. It provides definitions of many of the terms used in the guidebooks to conducting qualitative, quantitative, and mixed methods of research. The terms are arranged in alphabetical order.

- ❖ **Abstract** A brief summary of a research project and its findings. A summary of a study that describes its most important aspects, including major results and conclusions.

- ❖ **Accessible population** The population from which the researcher can realistically select subjects for a sample, and to which the researcher is entitled to generalize findings.

- ❖ **Acculturation** refers to the process of adapting to another culture, particularly in reference to blending in with the majority population [e.g., an immigrant adopting American customs].

- ❖ **Achievement test** An instrument used to measure the proficiency level of individuals in given areas of knowledge or skill.

- ❖ **Action plan** A plan to implement change as a result of an action research study.

- ❖ **Action research** A type of research focused on a specific local problem and resulting in an action plan to address the problem.

- ❖ **Adjusted R-Squared**: A measure of how well the independent, or predictor, variables predict the dependent, or outcome, variable.

- ❖ **Administrative Data**: Information about individual children, families, and/or providers of early care and education and other family benefits that are collected and maintained as part of the operation of government programs.

- ❖ **Adult Supervisor**   An adult who oversees a student experiment. This person should be familiar with the student's project and the student's area of research.

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- ❖ **Affective Measures** procedures or devices used to obtain quantified descriptions of an individual's feelings, emotional states, or dispositions.

- ❖ **Age-equivalent score** A score that indicates the age level for which a particular performance (score) is typical.

- ❖ **Aggregate** a total created from smaller units. For instance, the population of a county is an aggregate of the populations of the cities, rural areas, etc. that comprise the county. As a verb, it refers to total data from smaller units into a large unit.

- ❖ **Alpha Level** The probability that a statistical test will find significant differences between groups (or find significant predictors of the dependent variable), when in fact there are none.

- ❖ **Alternating-treatment design** A single-subject design for studying two or more treatments.

- ❖ **Alternative Hypothesis** The experimental hypothesis stating that there is some real difference between two or more groups. It is the alternative to the null hypothesis, which states that there is no difference between groups.

- ❖ **Anecdotal records** Records of observed behaviors written down in the form of anecdotes. The best anecdotes tell exactly what the participant did or said without making evaluative statements in the process of reporting this information.

- ❖ **Anonymity** a research condition in which no one, including the researcher, knows the identities of research participants.

- ❖ **Anonymity**: The identity of the research participant remains unknown and is not linked with the information provided by the participant.

- ❖ **Appetency** Clear, understandable representation of the data

- ❖ **Aptitude test** An instrument used to predict performance in a future situation.

- ❖ **Association** A relationship between objects or variables.

- ❖ **Association:** A relationship between objects and variables.

- ❖ **Associational research** A general type of research in which a researcher looks for relationships having predictive and/or explanatory power. Both correctional and causal-comparative studies are examples.

- ❖ **Assumption** Any important assertion presumed to be true but not actually verified; major assumptions should be described in one of the first sections of a research proposal or report.

- ❖ **Attitude scale** A set of statements to which the participant responds.

- ❖ **Attrition** The rate at which participants drop out of a longitudinal study. If particular types of study participants drop out faster than other types of participants, it can introduce bias and threaten the internal validity of the study.

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- ❖ **Attrition**: The loss of sample members over time from a longitudinal study or experimental research with follow up tests.

- ❖ **Audit Trail** The systematic presentation of material gathered within a naturalistic study that allows others to follow and audit the researcher's thinking and conclusions about the data.

- ❖ **Autonomy:** The capacity to think, decide and act on the basis of such thought and decision freely and independently and without let or hindrance.

- ❖ **Average** A single value (mean, median, mode) representing the typical, normal, or middle value of a set of data.

- ❖ **Average Measures:** There are three main measures of the average of a set of numerical data. These are the mode, the median and the mean.

- ❖ **Axiom** A statement widely accepted as truth.

- ❖ **Background question** Question asked by an interviewer or on a questionnaire to obtain information about a respondent's background (age, occupation, etc.).

- ❖ **Bar graph** A graphic way of illustrating differences among groups.

- ❖ **Baseline** a control measurement carried out before an experimental treatment.

- ❖ **Behaviorism** school of psychological thought concerned with the observable, tangible, objective facts of behavior, rather than with subjective phenomena such as thoughts, emotions, or impulses. Contemporary behaviorism also emphasizes the study of mental states such as feelings and fantasies to the extent that they can be directly observed and measured.

- ❖ **Beliefs** ideas, doctrines, tenets, etc. that are accepted as true on grounds which are not immediately susceptible to rigorous proof.

- ❖ **Bell curve** A frequency distribution statistics. Normal distribution is shaped like a bell.

- ❖ **Bell-Shaped Curve** A curve characteristic of a normal distribution, which is symmetrical about the mean and extends infinitely in both directions. The area under curve=1.0.

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

- ❖ **Beta Level** The probability of making an error when comparing groups and stating that differences between the groups are the result of the chance variations when in reality the differences are the result of the experimental manipulation or intervention.

- ❖ **Between-Group Variance** A measure of the difference between the means of various groups.

- ❖ **Between-Subject Design** Experimental design in which a different group of subjects are used for each level of the variable under study.

- ❖ **Bias** a loss of balance and accuracy in the use of research methods. It can appear in research via the sampling frame, random sampling, or non-response. It can also occur at other stages in

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research, such as while interviewing, in the design of questions, or in the way data are analyzed and presented. Bias means that the research findings will not be representative of, or generalizable to, a wider population.

- ❖ **Bibliography** A list of the books referred to in a research project. It usually appears at the end, or as a separate section, known as an appendix.

- ❖ **Bimodal Distribution** A distribution in which two scores are the most frequently occurring score.

- ❖ **Biography/biographical study** A form of qualitative research in which the researcher works with the individual to clarify important life experiences.

- ❖ **Bootstrapping** A popular method for variance estimation in surveys. It consists of subsampling from the initial sample. Within each stratum in the sample, a simple random subsample is selected with replacement.

- ❖ **Bracketing** A process used by researchers working within the Husserlian phenomenological tradition to identify their preconceived beliefs and opinions about the phenomenon under investigation in order to clarify how personal biases and experience might influence what is seen heard and reported.

- ❖ **Case Study** the collection and presentation of detailed information about a particular participant or small group, frequently including data derived from the subjects themselves.

- ❖ **Case Study** An intensive investigation of the current and past behaviors and experiences of a single person, family, group, or organization.

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

- ❖ **Categorical Data** Variables with discrete, non-numeric or qualitative categories (e.g. gender or marital status). The categories can be given numerical codes, but they cannot be ranked, added, multiplied or measured against each other. Also referred to as nominal data.

- ❖ **Categorical variables** (variables) that differ only in kind, not in amount or degree.

- ❖ **Causal Analysis** An analysis that seeks to establish the cause and effect relationships between variables.

- ❖ **Causal Explanation:** An attempt to explain the occurrence of a particular phenomenon or event by identifying the cause.

- ❖ **Causal Hypothesis** a statement hypothesizing that the independent variable affects the dependent variable in some way.

- ❖ **Causal Model** A model which represents a causal relationship between two variables.

- ❖ **Causal Relationship** the relationship established that shows that an independent variable, and nothing else, causes a change in a dependent variable. It also establishes how much of a change is shown in the dependent variable.

- ❖ **Causal-comparative research** Research to determine the cause for, or consequences of, existing differences in groups of individuals; also referred to as ex post facto research. **Census** An attempt to acquire data from each and every member of a population.

- ❖ **Causality** The relation between cause and effect.

- ❖ **Ceiling** The highest limit of performance that can be assessed or measured by an instrument or process. Individuals who perform near to or above this upper limit are said to have reached the ceiling, and the assessment may not be providing a valid estimate of their performance levels.

- ❖ **Census** The collection of data from all members, instead of a sample, of the target population.

- ❖ **Central Limit Theorem** A mathematical theorem that is central to the use of statistics. It states that for a random sample of observations from any distribution with a finite mean and a finite variance, the mean of the observations will follow a normal distribution. This theorem is the main justification for the widespread use of statistical analyses based on the normal distribution.

- ❖ **Central Tendency** any way of describing or characterizing typical, average, or common values in some distribution.

- ❖ **Central Tendency:** The central tendency of a frequency distribution is the average, middle or most common score. Measures of central tendency include the mean, the median and the mode.

- ❖ **Chaos theory** A theory and methodology of science that emphasizes the rarity of general laws, the need for very large data bases, and the importance of studying exceptions to overall patterns.

- ❖ **Chi Square** A statistic used when testing for associations between categorical, or non-numeric, variables. It is also used as a goodness-of-fit test to determine whether data from a sample come form a population with a specific distribution.

- ❖ **Chi-square Analysis** a common non-parametric statistical test which compares an expected proportion or ratio to an actual proportion or ratio.

- ❖ **Chi-square test** A non-parametric test of **statistical significance** appropriate when the data are in the form of frequency counts; it compares frequencies actually observed in a study with expected frequencies to see if they are significantly different.

- ❖ **Citation:** The act of acknowledging or documenting a reference source used in preparing an assignment, report or project. It is also described as documentation. A full citation lists accurate information about author, title, publication date and related facts. There are a number of different citation styles.

- ❖ **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.

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- ❖ **Classification** ordering of related phenomena into categories, groups, or systems according to characteristics or attributes.

- ❖ **Closed Question:** The question is followed by predetermined response choices into which the respondent's reply is placed.

- ❖ **Closed-ended question** A question and a list of alternative responses from which the respondent selects; also referred to as a closed-form item.

- ❖ **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.

- ❖ **Cluster Sampling** A type of sample that is usually used when the target population is geographically disperse. First, clusters of potential respondents are randomly selected, and then respondents are selected at random from within the pre-identified clusters.

- ❖ **Cluster sampling/cluster random sampling** The selection of groups of individuals, called clusters, rather than single individuals. All individuals in a cluster are included in the sample; the clusters are preferably selected randomly from the larger population of clusters.

- ❖ **Codebook** Any information on the structure, content, and layout of a data set. The codebook typically provides background on the project, describes the data collection design, and gives detailed information on variable names and variable value codes.

- ❖ **Codes** Values, typically numeric, that are assigned to different levels of variables to facilitate analysis of the variable.

- ❖ **Coding** A procedure for transforming raw data into a standardized format for data analysis purposes. Coding qualitative data involves identifying recurrent words, concepts or themes. In positivist research, coding involves attaching numerical values to categories.

- ❖ **Cohort** A group of people sharing a common demographic experience who are observed through time. For example, all the people born in the same year constitute a birth cohort.

- ❖ **Cohort Analysis** 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].

- ❖ **Cohort study** A design (in survey research) in which a particular population is studied over time by taking different random samples at various points in time. The population remains conceptually the same, but individuals.

- ❖ **Collaboration:** Research in which service users and careers are active partners and share some of the responsibilities and control. The opinions of service users and careers have equal weight with those of professionals and there is collaboration at every stage of the research process.

- ❖ **Collective case study** One that studies multiple cases at the same time.

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- ❖ **Comparability** The quality of two or more objects that can be evaluated for their similarity and differences.

- ❖ **Comparison group** The group in a research study that receives a different treatment from that of the experimental group.

- ❖ **Completion Rate** In survey research, this is the proportion of qualified respondents who complete the interview.

- ❖ **Computer search of the literature** A method whereby key terms are used to locate research literature about a topic.

- ❖ **Conclusions** A brief summary of how the results of an experiment support or contradict a hypothesis.

- ❖ **Concurrent validity (evidence of)** The degree to which the scores on an instrument are related to the scores on another instrument administered at the same time, or to some other criterion available at the same time.

- ❖ **Confidentiality** a research condition in which no one except the researcher(s) knows the identities of the participants in a study. It refers to the treatment of information that a participant has disclosed to the researcher in a relationship of trust and with the expectation that it will not be revealed to others in ways that violate the original consent agreement, unless permission is granted by the participant.

- ❖ **Confidentiality:** Protection of the identity of human participants and their individual responses from disclosure.

- ❖ **Confirming sample** In qualitative research; a sample selected to validate or extend previous findings.

- ❖ **Conformability Objectivity** the findings of the study could be confirmed by another person conducting the same study.

- ❖ **Confounding Variable** A variable that is not of interest, but which distorts the results if the researcher does not control for it in the analysis.

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

- ❖ **Consent:** The process whereby a patient freely agrees without coercion or pressure to be involved in a research project.

- ❖ **Consistency** The process in surveys whereby a question should be answered similarly to previous questions.

- ❖ **Constant** A value that stays the same for all the units of an analysis.

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- ❖ **Constant Comparative Method** A procedure used during grounded theory research whereby newly gathered data are continually compared with previously collected data in order to refine the development of theoretical categories.

- ❖ **Constitutive definition** The explanation of the meaning of a term by using other words to describe what is meant.

- ❖ **Construct** A concept. A theoretical creation that cannot be directly observed.

- ❖ **Construct Validity** Seeks an agreement between a theoretical concept and a specific measuring device, such as observation.

- ❖ **Construct Validity** This refers to the degree to which a research instrument measures a theoretical concept (or construct) under investigation.

- ❖ **Constructivism** the idea that reality is socially constructed. It is the view that reality cannot be understood outside of the way humans interact and that the idea that knowledge is constructed, not discovered. Constructivists believe that learning is more active and self-directed than either behaviorism or cognitive theory would postulate.

- ❖ **Consultation:** Service users and carers are asked for their opinions or views. These are then taken into account but are not necessarily used. Service users and carers are seen as consultants who may have some influence but no control over the research.

- ❖ **Content Analysis** the systematic, objective, and quantitative description of the manifest or latent content of print or non-print communications.

- ❖ **Content Analysis:** The systematic analysis of observations obtained from records, documents and filed notes.

- ❖ **Content Validity** Similar to face validity except that the researcher deliberately targets individuals acknowledged to be experts in the topic area to give their opinions on the validity of the measure.

- ❖ **Content Validity:** The extent to which a test or assessment matches the real requirements of the situation.

- ❖ **Context Effects** The change in the dependent variable which is resulted from the influence of the research environment. This influence is external to the experiment itself.

- ❖ **Context Sensitivity** awareness by a qualitative researcher of factors such as values and beliefs that influence cultural behaviors.

- ❖ **Contextualization** Placing information/data into a larger perspective, especially in ethnography.

- ❖ **Contingency coefficient** An index of relationship derived from a cross break table.

- ❖ **Contingency question** A question whose answer depends on the answer to a prior question.

- ❖ **Continuous Variable** A variable that may have fractional values, e.g., height, weight and time.

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- ❖ **Control** A duplicate setup, sample or observation treated identically to the rest of an experiment except for the variable being tested. And the control variable is meant to represent what's normal or unchanged. For instance, if one wanted to see the effect of adding fertilizer to a plant's soil, the control would be the growth of a plant with no fertilizer.

- ❖ **Control** Efforts on the part of the researcher to remove the effects of any variable other than the independent variable that might affect performance on a dependent variable.

- ❖ **Control Group** the group in an experimental design that receives either no treatment or a different treatment from the experimental group. This group can thus be compared to the experimental group.

- ❖ **Control** The processes of making research conditions uniform or constant, so as to isolate the effect of the experimental condition. When it is not possible to control research conditions, statistical controls often will be implemented in the analysis.

- ❖ **Control Variable** A variable that is not of interest to the researcher, but which interferes with the statistical analysis. In statistical analyses, control variables are held constant or their impact is removed to better analyze the relationship between the outcome variable and other variables of interest.

- ❖ **Controlled Experiment** A form of scientific investigation in which one variable, termed the independent variable, is manipulated to reveal the effect on another variable, termed the dependent or responding variable, while all other variables in the system are held fixed.

- ❖ **Convenience samples** A sample that is easily accessible.

- ❖ **Convenience Sampling (also referred to as Accidental Sampling)** A non-probability sampling strategy that uses the most easily accessible people (or objects) to participate in a study. Purposive/Purposeful sampling is a non-probability sampling strategy in which the researcher selects participants who are considered to be typical of the wider population (sometimes referred to as judgmental sampling).

- ❖ **Convenience Sampling** A sampling strategy that uses the most easily accessible people (or objects) to participate in a study. This is not a random sample, and the results cannot be generalized to individuals who did not participate in the research.

- ❖ **Convergent Validity** The general agreement among ratings, gathered independently of one another, where measures should be theoretically related.

- ❖ **Cooperation Rate** In survey research, this is the ratio of completed interviews to all contacted cases capable of being interviewed.

- ❖ **Core Category** The central category that is used to integrate all the categories identified in grounded research.

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- ❖ **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. Also, a non-cause and effect relationship between two variables.

- ❖ **Correlation** The degree to which two variables are associated. Variables are positively correlated if they both tend to increase at the same time. For example, height and weight are positively correlated because as height increases weight also tends to increases. Variables are negatively correlated if as one increases the other decreases.

- ❖ **Correlational research** Research that involves collecting data in order to determine the degree to which a relationship exists between two or more variables.

- ❖ **Counterbalanced design** A design in which all groups receive all treatments. Each group receives the treatments in a different order, and all groups are post-tested after each treatment.

- ❖ **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.

- ❖ **Coverage** In survey research, this is the process of selecting a sample of individuals that reflect the larger population that the researchers wish to describe.

- ❖ **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?

- ❖ **Criterion variable** The variable that is predicted in a prediction study; also any variables used to assess the criterion-related validity of an instrument.

- ❖ **Criterion-referenced instrument** An instrument that specifies a particular goal, or criterion, for students to achieve.

- ❖ **Criterion-Related Validity** This requires the researcher to identify a relevant criterion or 'gold standard', which is it reliable and valid, to provide an independent check of the new measure (i.e. to compare the results from a well-established and a new measuring instrument).

- ❖ **Critical researchers** Researchers who raise philosophical and ethical questions about the way educational research is conducted.

- ❖ **Critical sample** In qualitative research; a sample considered to be enlightening because it is unusual.

- ❖ **Critical Theory** an evaluative approach to social science research, associated with Germany's neo-Marxist "Frankfurt School," that aims to criticize as well as analyze society, opposing the political orthodoxy of modern communism. Its goal is to promote human emancipatory forces and to expose ideas and systems that impede them.

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- ❖ **Critical Theory:** In qualitative research, critical theory explains how personal meanings and actions are influenced by a person's social environment.

- ❖ **Cross-Sectional Data** Data collected about individuals at only one point in time. This is contrasted with longitudinal data, which is collected from the same individuals at more than one point in time.

- ❖ **Cross-sectional survey** A survey in which data are collected at one point in time from a predetermined population or populations.

- ❖ **Cross-Tabulation** A method to display the relationship between two categorical variables. A table is created with the values of one variable across the top and the values of the second variable down the side. The numbers of observations that correspond to each cell of the table are indicated in each of the table cells.

- ❖ **Cross-validation** Validation of a prediction equation with at least one group other than the group on which it was based.

- ❖ **Crystallization** Occasions, especially in ethnography, when different kinds of data 'fall in place' to make a coherent picture.

- ❖ **Culture** The sum of a social group's observable patterns of behavior and/or their customs, beliefs and knowledge.

- ❖ **Curvilinear** A statistical relationship between two variables that is not linear when plotted on a graph, but rather forms a curve.

- ❖ **Curvilinear relationship** A relationship shown in a scatterplot in which the line that best fits the points is not straight.

- ❖ **Data** factual information [as measurements or statistics] used as a basis for reasoning, discussion, or calculation.

- ❖ **Data Analysis** The process by which data are organized to better understand patterns of behavior within the target population. Data analysis is an umbrella term that refers to many particular forms of analysis such as content analysis, cost-benefit analysis, network analysis, path analysis, regression analysis, etc.

- ❖ **Data analysis** The process of simplifying data in order to make it comprehensible.

- ❖ **Data** Any information obtained about a sample or a population.

- ❖ **Data Book (also Logbook)** A documentation of the work done during an experiment. It includes the findings, called data, collected during an experiment, as well as any observed responses, reactions and results.

- ❖ **Data Collection** The observation, measurement, and recording of information in a research study.

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- ❖ **Data Imputation** A method used to fill in missing values (due to nonresponse) in surveys. The method is based on careful analysis of patterns of missing data. Types of data imputation include mean imputation, multiple imputations, hot deck and cold deck imputation. Data imputation is done to allow for statistical analysis of surveys that were only partially completed.

- ❖ **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.

- ❖ **Data Quality** this is the degree to which the collected data [results of measurement or observation] meet the standards of quality to be considered valid [trustworthy] and reliable [dependable].

- ❖ **Data Saturation** The point at which data collection can cease. This point of closure is arrived at when the information that is being shared with the researcher becomes repetitive and contains no new ideas, so the researcher can be reasonably confident that the inclusion of additional participants is unlikely to generate any new ideas. (Sometimes simply referred to as saturation.)

- ❖ **Deception:** Intentionally misleading or withholding information about the nature of a research study.

- ❖ **Deduction** The process of reasoning from the more general to the more specific.

- ❖ **Deductive Method** A method of study that begins with a theory and the generation of a hypothesis that can be tested through the collection of data, and ultimately lead to the confirmation (or lack thereof) of the original theory.

- ❖ **Deductive Reasoning** A logical process of developing specific predictions (hypotheses) from general principles. This type of reasoning moves from the general to the particular.

- ❖ **Degrees of Freedom** The number of independent units of information in a sample used in the estimation of a parameter or calculation of a statistic. The degrees of freedom limit the number variables that can be included in a statistical model. Models with similar explanatory power, but more degrees of freedom are generally preferred because they offer a simpler explanation.

- ❖ **Demographics** Characteristics of a sample or population (e.g., age, ethnicity, education).

- ❖ **Demonstration Project** A project that retests an experiment already conducted by someone else. A demonstration project can also show how something works. Adding a variable to a demonstration can make it into an experiment.

- ❖ **Dependability** being able to account for changes in the design of the study and the changing conditions surrounding what was studied.

- ❖ **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 varies due, at least in part, to the impact of the independent variable. In other words, its value "depends" on the value of the independent variable.

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- ❖ **Derived scores** A score obtained from a raw score in order to aid in interpretation. Derived scores provide a quantitative measure of each student's performance relative to a comparison group.

- ❖ **Descriptive field notes** Notes that describe what the researcher has observed.

- ❖ **Descriptive Statistics** Basic statistics used to describe and summarize data. Descriptive statistics generally include measures of the average values of variables (mean, median, and mode) and measures of the dispersion of variables (variance, standard deviation, or range).

- ❖ **Descriptive studies** Research to describe existing conditions without analyzing relationships among variables.

- ❖ **Descriptors** Terms used to locate sources during a computer search of the literature.

- ❖ **Design flexibility** A quality of an observational study that allows researchers to pursue inquiries on new topics or questions that emerge from initial research

- ❖ **Determinism** The belief that everything is caused by specified factors (antecedent factors) in a predictable way rather than haphazardly; a key assumption within the positivist paradigm.

- ❖ **Deviation** The distance between the mean and a particular data point in a given distribution.

- ❖ **Dichotomous Variables** Variables that have only two categories, such as gender (male and female).

- ❖ **Direct Effect** The effect of one variable on another variable, without any intervening variables.

- ❖ **Direct Observation** A method of gathering data primarily through close visual inspection of a natural setting. Direct observation does not involve actively engaging members of a setting in conversations or interviews. Rather, the direct observer strives to be unobtrusive and detached from the setting.

- ❖ **Directional hypothesis** A relational hypothesis stated in such a manner that a direction, often indicated by "greater than" or "less than," is hypothesized for the results.

- ❖ **Disconfirming Evidence** A procedure whereby, during an open-ended interview,\ a researcher actively seeks accounts from other respondents that differs from the main or consensus accounts in critical ways

- ❖ **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.

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- ❖ **Discrete Variable** a variable that is measured solely in whole units, such as, gender and number of siblings.

- ❖ **Discrete Variables** A variable that can assume only a finite number of values; it consists of separate, indivisible categories. The opposite of discrete is continuous.

- ❖ **Discriminate Validity** The lack of a relationship among measures which theoretically should not be related.

- ❖ **Discriminates Analysis** A grouping method that identifies characteristics that distinguish between groups. For example, a researcher could use discriminant analysis to determine which characteristics identify families that seek child care subsidies and which identify families that do not.

- ❖ **Dispersion** The spread of a variable's values. Techniques that describe dispersion include range, variance, standard deviation, and skew.

- ❖ **Distribution** The frequency with which values of a variable occur in a sample or a population. To graph a distribution, first the values of the variables are listed across the bottom of the graph. The number of times the value occurs are listed up the side of the graph. A bar is drawn that corresponds to how many times each value occurred in the data.

- ❖ **Double Barreled Question** A survey question whereby two separate ideas are erroneously presented together in one question.

- ❖ **Double Blind Experiment** A research design where both the experimenter and the subjects are unaware of which is the treatment group and which is the control.

- ❖ **Dummy Coding** A coding strategy where each value of a categorical variable is turned into its own dichotomous variable. The dichotomous variable is coded as either 0 or 1. Dummy coding is used in regression analysis to measure the effect of a categorical variable on the outcome when the categorical variable has more than 2 values.

- ❖ **Dummy Variables** Categorical variables that are assigned a value of 0 or 1 for use in a statistical analyses.

- ❖ **Duration Models** A group of statistical models used to measure the length of a status or process.

- ❖ **Dynamic systems** Qualitative observational research is not concerned with having straight-forward, right or wrong answers. Change in a study is common because the researcher is not concerned with finding only one answer.

- ❖ **Ecological Fallacy** False conclusions made by assuming that one can infer something about an individual from data collected about groups.

- ❖ **Ecological generalizability** The degree to which results can be generalized to environments and conditions outside the research setting.

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- ❖ **Econometrics** A field of economics that applies mathematical statistics and the tools of statistical inference to the empirical measurement of relationships postulated by economic theory.

- ❖ **Educational Resources Information Center (ERIC) Effect size (ES)** An index used to indicate the magnitude of an obtained result or relationship.

- ❖ **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.

- ❖ **Effect Size** A measure of the strength of the effect of the predictor (or independent) variable on the outcome (or dependent) variable.

- ❖ **Effectiveness:** Effectiveness describes how well a particular treatment or other intervention works to the benefit of the patient/research subject.

- ❖ **Efficacy:** The ability of an intervention to produce beneficial effects on the duration or course of a disease. Efficacy is measured by evaluating the clinical and statistical results of clinical tests.

- ❖ **Electronic Text** A "paper" or linear text that has been essentially "copied" into an electronic medium.

- ❖ **Emic perspective** The view of reality of a cultural 'insider'; especially in ethnography.

- ❖ **Empathic neutrality** A quality of qualitative researchers who strive to be non-judgmental when compiling findings

- ❖ **Empirical** Based on observable evidence.

- ❖ **Empirical Research** the process of developing systematized knowledge gained from observations that are formulated to support insights and generalizations about the phenomena being researched.

- ❖ **Empirical:** This describes any value based on the observation of a subject.

- ❖ **Endogeneity** A threat to the assumption that the independent (exogenous) variable actually causes the dependent (or endogenous) variable. Endogeneity occurs when the dependent variable may actually be a cause of the independent variable.

- ❖ **Endpoint:** Overall outcome that the protocol is designed to evaluate. Common endpoints are severe toxicity, disease progression, or death.

- ❖ **Epistemology** concerns knowledge construction; asks what constitutes knowledge and how knowledge is validated.

- ❖ **Equitable:** Fair or just; used in the context of selection of subjects to indicate that the benefits and burdens of research are fairly distributed

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- ❖ **Equivalency Reliability** The extent to which two items measure identical concepts at an identical level of difficulty.

- ❖ **Equivalent forms** Two tests identical in every way except for the actual items included.

- ❖ **Error Term** The part of a statistical equation that indicates what remains unexplained by the independent variables. The residuals in regression models.

- ❖ **Error** The difference between the actual observed data value and the predicted or estimated data value. Predicted or estimated data values are calculated in statistical analyses, such as regression analysis.

- ❖ **Errors of measurement** Inconsistency of individual scores on the same instrument. referred to as alternate-forms reliability.

- ❖ **Estimated Sampling Error** The predictable and built-in level of error that accompanies all samples of a given size.

- ❖ **Estimation** The process by which data from a sample are used to indicate the value of an unknown quantity in a population.

- ❖ **Ethics:** The philosophical study of morality.

- ❖ **Ethnographic Decision Models** A qualitative method for examining behavior under specific circumstances. An EDM is often referred to as a decision tree or flow chart and comprises a series of nested ¿if-then¿ statements that link criteria (and combinations of criteria) to the behavior of interest.

- ❖ **Ethnographic Interviewing** A research method in which face-to-face interviews with respondents are conducted using open-ended questions to explore topics in great depth. Questions are often customized for each interview, and topics are generally probed extensively with follow-up questions.

- ❖ **Ethnography** A research methodology associated with anthropology and sociology that systematically describes the culture of a group of people. The goal of ethnographic research is to understand the natives' / insiders' view of their own world (an emic view of the world).

- ❖ **Ethnography/ethnographic research** The collection of data on many variables over an extended period of time in a naturalistic setting, usually using observation and interviews.

- ❖ **Ethnomethodology** A form of ethnography that studies activities of group members to see how they make sense of their surroundings

- ❖ **Etic Perspective (Etic View)** A term used by ethnographers to refer to the outsider's view of the experiences of a specific cultural group.

- ❖ **Etic perspective** The 'outsider' or 'objective' view of a culture's reality, especially in ethnography.

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- ❖ **Evaluation Research** The use of scientific research methods to plan intervention programs, to monitor the implementation of new programs and the operation of existing programs, and to determine how effectively programs or clinical practices achieve their goals.

- ❖ **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.

- ❖ **Expectancy Effect** any unconscious or conscious cues that convey to the participant in a study how the researcher wants them to respond. Expecting someone to behave in a particular way has been shown to promote the expected behavior. Expectancy effects can be minimized by using standardized interactions with subjects, automated data-gathering methods, and double blind protocols.

- ❖ **Expectancy table** A table used to analyze data obtained from a categorical variable and a criterion that is categorical.

- ❖ **Experience questions** Questions a researcher asks to find out what sorts of things an individual is doing or has done.

- ❖ **Experiment** A research study in which one or more independent variables is systematically varied by the researcher to determine the effects of this variation.

- ❖ **Experimental Control** Processes used to hold the conditions uniform or constant under which an investigation is carried out.

- ❖ **Experimental Design** A research design used to establish cause-and-effect relationships between the independent and dependent variables by means of manipulation of variables, control and randomization. A true experiment involves the random allocation of participants to experimental and control groups, manipulation of the independent variable, and the introduction of a control group for comparison purposes. Participants are assessed after the manipulation of the independent variable in order to assess its effect on the dependent variable (the outcome).

- ❖ **Experimental Group** In experimental research the group of subjects who receive the experimental treatment or intervention under investigation.

- ❖ **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.

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- ❖ **Experimental research** Research in which at least one independent variable is manipulated, other relevant variables are controlled, and the effect on one of more dependent variables is observed.

- ❖ **Experimental variable** The variable that is manipulated (systematically altered) in an intervention study by the researcher.

- ❖ **Explanatory Analysis** A method of inquiry that focuses on the formulating and testing of hypotheses.

- ❖ **Explanatory mixed method design** A study in which quantitative data are collected first and findings tested with subsequent quantitative data.

- ❖ **Exploratory mixed method design** A study in which qualitative data are collected first and further clarified with qualitative data.

- ❖ **Exploratory Study** A study that aims to identify relationships between variables when there are no predetermined expectations as to the nature of those relations. Many variables are often taken into account and compared, using a variety of techniques in the search for patterns.

- ❖ **External audit** An individual outside the study is asked to review the methods and interpretations of a qualitative study.

- ❖ **External criticism** Evaluation of the genuineness of a document in historical research.

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

- ❖ **External Validity** The degree to which the results of a study can be generalized beyond the study sample to a larger population.

- ❖ **Extraneous Variable** A variable that interferes with the relationship between the independent and dependent variables and which therefore needs to be controlled for in some way.

- ❖ **Extraneous variable** A variable that makes possible an alternative explanation of results; an uncontrolled variable.

- ❖ **Extraneous variable** A variable that makes possible an alternative explanation of results; an uncontrolled variable.

- ❖ **Extrapolation** Predicting the value of unknown data points by projecting beyond the range of known data points.

- ❖ **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

- ❖ **Factorial design** An experimental design that involves two or more independent variables (at least one of which is manipulated) in order to study the effects of the to a smaller number of factors.

- ❖ **Falsification** To change information or evidence to mislead.

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- ❖ **Feelings questions** Questions researchers ask to find out how people feel about things.

- ❖ **Field diary** A personal statement of a researcher's opinions about people and events he or she comes in contact with during research.

- ❖ **Field jottings** Quick notes taken by an ethnographer.

- ❖ **Field log** A running account of how an ethnographer plans to, and actually does, spend his or her time in the field.

- ❖ **Field Notes** A text document that detail behaviors, conversations, or setting characteristics as recorded by a qualitative researcher. Field notes are the principle form of data gathered from direct observation and participant observation.

- ❖ **Field Research** Research conducted where research subjects live or where the activities of interest take place.

- ❖ **Field Studies** academic or other investigative studies undertaken in a natural setting, rather than in laboratories, classrooms, or other structured environments.

- ❖ **Field Work** Observing human behavior or interviewing individuals within their own communities. Field work is generally used in collecting qualitative data. It generally involves the researchers long-term relocation to the community under study. Data collection generally takes place over an extended period of time.

- ❖ **Findings** results (of a study).

- ❖ **Five-number summary** Consists of the lowest score, the first quartile, the median, the third quartile, and the highest score. This summary provides a quick overview about the central tendency, variability, and shape of the distribution with just five numbers.

- ❖ **Fixed Effects Regression** Regression techniques that can be used to eliminate biases associated with the omission of unmeasured characteristics. Biases are eliminated by including an individual-specific intercept term for all cases.

- ❖ **Floor** The lowest limit of performance that can be assessed or measured by an instrument or process. Individuals who perform near to or below this lower limit are said to have reached the floor, and the assessment may not be providing a valid estimate of their performance levels.

- ❖ **Flowchart** Types of tally sheets used to indicate the frequency and direction of a participant's remarks.

- ❖ **Focus Group** An interview conducted with a small group of people to explore their ideas on a particular topic.

- ❖ **Focus Group** An interview conducted with a small group of people, all at one time, to explore ideas on a particular topic. The goal of a focus group is to uncover additional information through participants' exchange of ideas.

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- ❖ **Focus group interview** An interview conducted with a group in which respondents hear the views of each other.

- ❖ **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.

- ❖ **Follow-up study** A study conducted to determine the characteristics of a group after some period of time.

- ❖ **Forecasting** The prediction of the size of a future quantity (e.g., unemployment rate next year).

- ❖ **Foreshadowed problems** The problem or topic that serves, in a general way, as the focus for a qualitative inquiry.

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

- ❖ **Frequency distribution** A tabular method of showing all the scores obtained by a group of individuals.

- ❖ **Gain score** The difference between the pretest and posttest scores of a measure.

- ❖ **General references** Sources that researchers use to identify more specific references (e.g., indexes, abstracts).

- ❖ **Generalizability** the extent to which research findings and conclusions conducted on a specific study to groups or situations can be applied to the population at large.

- ❖ **Gini Coefficient** A measure of inequality or dispersion in a group of values (e.g.; racial inequality in a population). The larger the coefficient the greater the dispersion.

- ❖ **GIS (Geographical Information Systems)** A computer system that enables one to assemble, store, manipulate, and display geographically referenced information.

- ❖ **Grade-equivalent score** A score that indicates the grade level for which a particular performance (score) is typical.

- ❖ **Graph** A diagram that illustrates a relationship, typically between two variables. Each variable is measured along one of two axes, positioned at right angles.

- ❖ **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.

- ❖ **Grounded Theory** The development of social science theory from the inductive analysis of data. This approach is generally used in qualitative research. The specific and detailed observations in

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the data are studied and understood to such an extent that a theory of more general patterns of behavior can be generated.

❖ **Group Behavior** behaviors of a group as a whole, as well as the behavior of an individual as influenced by his or her membership in a group.

❖ **Hawthorne effect** A positive effect of an intervention resulting from the subjects' knowledge that they are involved in interpretations.

❖ **Hawthorne effect** A positive effect of an intervention resulting from the subjects' knowledge that they are involved in a study or their feeling that they are in some way receiving "special" attention.

❖ **Heterogeneity** The degree of dissimilarity among cases with respect to a particular characteristic.

❖ **Hierarchical Data:** This is data on different levels or layers (e.g. sports team, individual player in a sports team etc).

❖ **Hierarchical Linear Modeling (HLM)** A multi-level modeling procedure that works well for nested circumstances (e.g., estimating the effects of children nested within classrooms nested within schools). HLM enables a researcher to estimate effects within individual units, formulate hypotheses about cross level effects and partition the variance and covariance components among levels.

❖ **Histogram** A graphic representation, consisting of rectangles, of the scores in a distribution; the height of each rectangle indicates the frequency of each score, or group of scores.

❖ **Historical research** The systematic collection and objective evaluation of data related to past occurrences to determine causes, effects, or trends of those events that may help explain present events and anticipate future events.

❖ **History threat** The possibility that results are due to an event that is not part of an intervention, but which may affect performance on the dependent variable, thereby affecting internal validity.

❖ **Holistic perspective** Taking almost every action or communication of the whole phenomenon of a certain community or culture into account in research

❖ **Homogeneous sample** In qualitative research, a sample selected in which all members are similar with respect to one or more characteristics.

❖ **Hypertext** A non-sequential text composed of links and nodes

❖ **Hypothesis** a tentative explanation based on theory to predict a causal relationship between variables.

❖ **Hypothesis (or Research Question)** A proposed explanation for a phenomenon. In science, a hypothesis is an idea that hasn't yet been rigorously tested. Once a hypothesis has been extensively tested and is generally accepted to be the accurate explanation for an observation, it becomes a scientific theory.

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- ❖ **Hypothesis** A tentative explanation based on theory to predict a causal relationship between variables.

- ❖ **Hypothesis** A tentative, testable assertion regarding the occurrence of certain behaviors, phenomena, or events; a prediction of study outcomes.

- ❖ **Hypothesis Testing** Statistical tests to determine whether a hypothesis is accepted or rejected. In hypothesis testing, two hypotheses are used: the null hypothesis and the alternative hypothesis. The alternative hypothesis is the hypothesis of interest; it generally states that there is a relationship between two variables. The null hypothesis states the opposite, that there is no relationship between two variables.

- ❖ **Hypothesis**: A statement which research sets out to prove or disprove. There are two types of hypothesis: 'experimental' where the hypothesis is a positive statement, such as 'carers who attend a support group have better coping skills' or 'null' where the statement contains a negative statement, for example, 'carers who attend a support group do not have better coping skills.'

- ❖ **Implementation threat** The possibility that results are due to variations in the implementation of the treatment in an intervention study, thereby affecting internal validity.

- ❖ **Imputed Response** A missing survey response that is filled in by the data analyst. The method to fill in the missing response is based on careful analysis of patterns of missing data. Imputation is done to allow for statistical analysis of surveys that were only partially completed.

- ❖ **Incidence:** The proportion of new cases of a target disorder being investigated in a population at risk during a specified time interval.

- ❖ **Independence** The lack of a relationship between two or more variables. For example, annual snow fall and the Yankee's season record are independent, but annual snow fall and coat sales are not independent.

- ❖ **Independent and Identically Distributed (IID)** A collection of two or more random variables {X1, X2, . . . , } is independent and identically distributed if the variables are independent and also have the same probability distribution.

- ❖ **Independent Research Project**   An experiment designed, carried out and interpreted on one's own.

- ❖ **Independent Variable** the conditions of an experiment that are systematically manipulated by the researcher. A variable that is not impacted by the dependent variable, and that itself impacts the dependent variable. In the earlier example of "gender" and "academic major," gender is the independent variable.

- ❖ **In-depth Interviewing** A research method in which face-to-face interviews with respondents are conducted using open-ended questions to explore topics in great depth. Questions are often customized for each interview, and topics are generally probed extensively with follow-up questions.

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- ❖ **Index** A type of composite measure that summarizes several specific observations and represents a more general dimension.

- ❖ **Index Variable** A variable that is a summed composite of other variables that are assumed to reflect the same underlying construct.

- ❖ **Indicator** An observation assumed to be evidence of the attributes or properties of some phenomenon. Indicators allow assessment of progress toward the achievement of intended outputs, outcomes, goals, and objectives.

- ❖ **Indicator Variable** A variable that has two values, which are typically coded 0 and 1. Also referred to as a dummy variable.

- ❖ **Indirect Effect** A condition where one variable affects another indirectly through an intervening variable. For example, gender may have an indirect effect on income if gender affects wage rates.

- ❖ **Individualism** a theory or policy having primary regard for the liberty, rights, or independent actions of individuals.

- ❖ **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 formulates questions throughout the research process.

- ❖ **Inductive Method** A method of study that begins with specific observations and measures, from which patterns and regularities are detected. These patterns lead to the formulation of tentative hypotheses, and ultimately to the construction of general conclusions or theories

- ❖ **Inductive Reasoning** A logical process of reasoning used to develop more general rules from specific observations; this type of reasoning moves from the specific to the more generalized.

- ❖ **Inferential statistics** Data analysis techniques for determining how likely it is that results based on a sample or samples are similar to results that would have been obtained for the entire population.

- ❖ **Informal interviews** Less-structured form of interview, usually conducted by qualitative researchers. They do not involve any specific type or sequence of questioning, but resemble more the give and take of a casual conversation.

- ❖ **Informed Consent** The agreement between concerned parties about the data-gathering process and/or the disclosure, reporting, and/or use of data, information, and/or results from a research experiment.

- ❖ **Informed Consent** The process of obtaining voluntary participation of individuals in research based on a full understanding of the possible benefits and risks.

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- ❖ **Informed Consent**: An agreement to take part in research which is based on a full explanation and understanding of why the research is being undertaken and any potential impact/effects it might have on participants.

- ❖ **Insiderness** a concept in qualitative research that refers to the degree to which a researcher has access to and an understanding of persons, places, or things within a group or community based on being a member of that group or community.

- ❖ **Instrument** Any device for systematically collecting data, such as a test, a questionnaire, or an interview schedule.

- ❖ **Instrument decay** Changes in instrumentation over time that may affect the internal validity of a study.

- ❖ **Instrument Error** A type of non-sampling error caused by the survey instrument (or questionnaire) itself, such as unclear wording, asking respondents for information they are unable to supply or the instrument being changed in some way during the course of the research.

- ❖ **Instrumental case study** One that focuses on a particular individual or situation with little effort to generalize.

- ❖ **Instrumentation** Instruments and procedures used in collecting data in a study. **Instrumentation threat** The possibility that results are due to variations in the way data are collected, thereby affecting internal validity.

- ❖ **Interaction** An effect created by unique combinations of two or more independent variables; systematically evaluated in a factorial design.

- ❖ **Interaction Effect** A situation where the effect of the independent variable on the dependent variable varies depending on the value of another, additional variable.

- ❖ **Interaction:** The direction and/or the magnitude of the association between two variables depends on the value of one or more of the variables.

- ❖ **Interactive Theory:** A theory that requires maximum conceptualization and maximum factual evidence.

- ❖ **Intercept** The expected value of a dependent variable when all the independent variables are equal to zero.

- ❖ **Interjudge reliability** The consistency of two (or more) independent scorers, raters, or observers.

- ❖ **Internal Consistency** the extent to which all questions or items assess the same characteristic, skill, or quality.

- ❖ **Internal Consistency** The extent to which all questions or items assess the same characteristic, skill, or quality.

- ❖ **Internal criticism** Determining if the contents of a document are accurate.

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- ❖ **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.

- ❖ **Internal-consistency methods** Procedures for estimating reliability of scores using only one administration of the instrument.

- ❖ **Inter-Rater Reliability** A measure of the consistency between the ratings or values assigned to a behavior that is being rated or observed; usually expressed as a percentage of agreement between two raters/observers, or as a coefficient of agreement which can be stated as a probability.

- ❖ **Interrater Reliability** The extent to which two or more individuals agree. It addresses the consistency of the implementation of a rating system.

- ❖ **Interval Scale** A scale of measurement where the distance between any two adjacent units of measurement is the same but the zero point is arbitrary. Scores on an interval scale can be added and subtracted but cannot be meaningfully multiplied or divided.

- ❖ **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

- ❖ **Interval Variable** A variable wherein the distance between units is the same but the zero point is arbitrary.

- ❖ **Intervention study/research** A general type of research in which variables are manipulated in order to study the effect on one of more dependent variables.

- ❖ **Intervention** The situation or variable introduced to the dependent variable; manipulations of the subject or the subject¿s environment that are performed for research purposes.

- ❖ **Interview** A form of data collection in which individuals or groups are questioned orally.

- ❖ **Interview** A method of data collection involving an interviewer asking questions of another person (a respondent) either face-to-face or over the telephone.

- ❖ **Interviewer Error** A type of non-sampling error caused by mistakes made by the interviewer. These may include influencing the respondent in some way, asking questions in the wrong order, or using slightly different phrasing (or tone of voice) than other interviewers. It can include intentional errors such as cheating and fraudulent data entry.

- ❖ **Intrinsic case study** One that attempts to generalize beyond the particular case.

- ❖ **Investigator**: A researcher conducting the project. Investigators can be Principal Investigators or Co-Principal Investigators. Students are always Co-Principal Investigators

- ❖ **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

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information as relevant and important and using it to reexamine, reassess and perhaps even alter the one's coding scheme.

❖ **Item validity** The degree to which each of the items in an instrument measures the intended variable.

❖ **Jackknife Technique** A (usually) computer-intensive method to estimate parameters, and/or to gauge uncertainty in these estimates. The name is derived from the method that each observation is removed (i.e. cut with the knife) one at a time (or two at a time for the second-order Jackknife, and so on) in order to get a feeling for the spread of data.

❖ **Justification (of a study)** A rationale statement in which a researcher indicates why the study is important to conduct; includes implications for theory and/or practice.

❖ **Key informants** Individuals identified as expert sources of information, especially in qualitative research.

❖ **Kinesics** Kinesics analysis examines what is communicated through body movement

❖ **Knowledge questions** Questions interviewers ask to find out what factual information a respondent possesses about a particular topic.

❖ **Kurtosis** A statistical equation that measures how peaked a distribution is. The kurtosis of a normal distribution is 0. If kurtosis is different than 0, then the distribution is either flatter or more peaked than normal.

❖ **Latent content** The underlying meaning of a communication.

❖ **Leading Question:** This is a question that is phrased in such a manner that leads the interviewee to believe that a particular response should be given.

❖ **Least Squares** A commonly used method for calculating a regression equation. This method minimizes the difference between the observed data points and the data points that are estimated by the regression equation.

❖ **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 confidence** The probability associated with a confidence interval; the probability that the interval will contain the corresponding parameter. Commonly used confidence levels in educational research are the 95 and 99 percent confidence levels.

❖ **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.

❖ **Level of Implication** One must determine whether to code simply for explicit appearances of concepts, or for implied concepts, as well.

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- ❖ **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.

- ❖ **Likert Scale** A method used to measure attitudes, which involves respondents indicating their degree of agreement or disagreement with a series of statements. Scores are summed to give a composite measure of attitudes.

- ❖ **Limitation** An aspect of a study that the researcher knows may influence the results or generalizability of the results, but over which he or she has no control.

- ❖ **Linear Regression** A statistical technique used to find a linear relationship between one or more (multiple) continuous or categorical predictor (or independent) variables and a continuous outcome (or dependent) variable.

- ❖ **Linear relationship** A relationship in which an increase (or decrease) in one variable is associated with a corresponding increase (or decrease) in another variable.

- ❖ **Link** In hypertext, a pointer from one node to another

- ❖ **Literature Review** A comprehensive survey of the research literature on a topic. Generally the literature review is presented at the beginning of a research paper and explains how the researcher arrived at his or her research questions.

- ❖ **Literature review** The systematic identification, location, and analysis of documents containing information related to a research problem.

- ❖ **Literature Search**   An organized review of books, articles and published research on a specific topic.

- ❖ **Location threat** The possibility that results are due to characteristics of the setting or location in which a study is conducted, thereby producing a threat to internal validity.

- ❖ **Logic** Using knowledge to create new knowledge.

- ❖ **Logistic Regression** A special form of regression used to analyze the relationship between predictor variables and a dichotomous outcome variable. A dichotomous variable is a variable with only two possible values, e.g. gender (male/female). Same as logit.

- ❖ **Longitudinal survey** A study in which information is collected at different points in time in order to study changes over time (usually of considerable length, such a several months or years).

- ❖ **Main Effect** The effect of a predictor (or independent) variable on an outcome (or dependent) variable.

- ❖ **Manifest content** The obvious meaning of a communication.

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- ❖ **Manipulated variable** A nonparametric inferential statistic used to determine whether two uncorrelated groups differ significantly.

- ❖ **MANOVA (Multivariate Analysis of Variance)** A statistical test that measures that varying group effects on many dependent variables.

- ❖ **Margin of Error** the permittable or acceptable deviation from the target or a specific value. The allowance for slight error or miscalculation or changing circumstances in a study.

- ❖ **Matched Samples** Two samples in which the members are paired or matched explicitly by the researcher on specific attributes, such as IQ or income. Also refers to samples in which the same attribute or variable is measured twice on each subject under different circumstances; also referred to as repeated measures.

- ❖ **Matched T-Test** A statistical test used to compare two sets of scores for the same subject. A matched pairs T-test can be used to determine if the scores of the same participants in a study differ under different conditions. For instance, this sort of t-test could be used to determine if people write better essays after taking a writing class than they did before taking the writing class.

- ❖ **Matching** Consists of two groups of items listed in columns. Respondents are required to match the item in the left column that corresponds most closely with an item in the right column.

- ❖ **Matching design** A technique for equating groups on one or more variables, resulting in each member of one group having a direct counterpart in another group.

- ❖ **Matching** Process of corresponding variables in experimental groups equally feature for feature.

- ❖ **Maturation threat** The possibility that results are due to changes that occur in subjects as a direct result of the passage of time and that may affect their performance on the dependent variable, thereby affecting internal validity.

- ❖ **Maxima** The maxima are points where the value of a function is greater than other surrounding points.

- ❖ **Maximal variation sample** In qualitative research, a sample selected in order to represent diversity in one or more characteristics.

- ❖ **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.

- ❖ **Mean** The average score within a distribution.

- ❖ **Mean/arithmetic mean** The sum of the scores in a distribution divided by the number of scores in the distribution; the most commonly used measure of central tendency.

- ❖ **Measurement** process of obtaining a numerical description of the extent to which persons, organizations, or things possess specified characteristics.

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- ❖ **Measurement Error** The difference between the value measured in a survey or on a test and the 'true' value, if the difference is due to factors beyond the control of the respondent.

- ❖ **Measures of Association** Statistics that measure the strength and nature of the relationship between variables. For example, correlation is a measure of association

- ❖ **Measures of central tendency** Indices representing the average or typical score attained by a group of subjects; the most commonly used in educational research are the mean and the median.

- ❖ **Measures of central tendency** Indices representing the average or typical score attained by a group of subjects; the most commonly used in educational research are the mean and the median.

- ❖ **Measures of variability** Indices indicating how spread out the scores are in a distribution. Those most commonly used in educational research are the range, standard deviation, and variance.

- ❖ **Mechanical matching** A process of pairing two persons whose scores on a particular variable are similar.

- ❖ **Median** That point in a distribution having 50 percent of the scores above it and 50 percent of the scores below it.

- ❖ **Member Checking** During open-ended interviews, the practice of a researcher restating, summarizing, or paraphrasing the information received from a respondent to ensure that what was heard or written down is in fact correct.

- ❖ **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.

- ❖ **Mentor** An experienced and trusted adviser who provides advice and counseling.

- ❖ **Meta-Analysis** A statistical technique that combines and analyzes data across multiple studies on a topic.

- ❖ **Method Slurring** This term is used to describe the tendency of some researchers to combine qualitative research approaches without adequately acknowledging the epistemological origins and assumptions that underpin the methodologies they are blending.

- ❖ **Methodology** a theory or analysis of how research does and should proceed.

- ❖ **Methodology (or Research Methods)** A particular procedure or set of procedures. These may include the methods, techniques and instruments used in a research experiment.

- ❖ **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.

- ❖ **Metropolitan Statistical Area (MSA)** A term used by the U.S. Census Bureau to designate an area of adjacent counties (except in New England where they are defined by adjacent cities).

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Metropolitan Statistical Areas (MSAs) are often used to geographically understand labor markets because individuals often look for work outside of the city or county in which they live.

❖ **Minima** The minima are points where the value of a function is less than other surrounding points.

❖ **Missing Completely at Random (MCAR)** The term implies that all respondents are equally likely/unlikely to respond to the item and that the estimate is approximately unbiased. To ignore the missing data and restrict analyses to those records with reported values for the variables in the analysis, implicitly invokes the assumption that the missing cases are a random subsample of the full sample, that is, they are missing completely at random (MCAR). This is a strong assumption.

❖ **Missing Data** Values in a data set values that were not recorded. Missing values can have many causes including a respondent's refusal to answer survey questions, an interviewer incorrectly coding a response, or questions that do not apply to a respondent. The more missing data there are in a data set, the greater the likelihood of bias. There are several coding strategies that can "fill in" missing data for statistical analyses. These strategies are called imputation.

❖ **Misspecification** Misspecification occurs when the predictor (independent) variables in a statistical model are incorrect. The most common cause of model misspecification is that important predictor (independent) variables are left out of the model. Misspecification often leads to incorrect estimates of the effects of the predictor (independent) variables that are included in the model on the outcome (dependent) variable.

❖ **Mixed-method design** A study combining quantitative and qualitative methods.

❖ **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.

❖ **Mode** A descriptive statistic that is a measure of central tendency. It is the value that occurs most frequently in the data. For example, if survey respondents are ages 21, 33, 33, 45, and 76, the modal age is 33.

❖ **Modeling** the creation of a physical or computer analogy to understand a particular phenomenon. Modeling helps in estimating the relative magnitude of various factors involved in a phenomenon. A successful model can be shown to account for unexpected behavior that has been observed, to predict certain behaviors, which can then be tested experimentally, and to demonstrate that a given theory cannot account for certain phenomenon.

❖ **Models** representations of objects, principles, processes, or ideas often used for imitation or emulation.

❖ **Moderator variable** A variable that may or may not be controlled but has an effect on the research situation.

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- ❖ **Mortality threat** The possibility that results are due to the fact that subjects who are for whatever reason "lost" to a study may differ from those who remain so that their absence has an important effect on the results of the study.

- ❖ **Moving Average** A form of average which has been adjusted (or ¿smoothed¿) to allow for seasonal or cyclical components of a time series.

- ❖ **Multilevel Modeling** A model involving variables measured at more than one level of a hierarchy. An obvious hierarchy consists of children nested in classes, and classes nested in schools. Measurements can be obtained for child characteristics, class and teacher characteristics, or school characteristics. Multilevel models are also known as hierarchical linear models or random coefficient models. Multilevel are use to solve the statistical problems caused by dealing with hierarchically nested data.

- ❖ **Multi-Modal Methods** A research approach that employs a variety of methods;

- ❖ **Multinomial Distribution** A distribution that arises when a response variable is categorical in nature. For example, if a researcher recorded the type of child care a child used, then the distribution of the counts in these categories would be multinomial. The multinomial distribution is a generalization of the binomial distribution to more than two categories. If the categories for the response variable can be ordered, then the distribution of that variable is referred to as ordinal multinomial.

- ❖ **Multinomial Logit Model** A special form of regression used to analyze the relationship between predictor variables and a categorical outcome variable. The multinomial logit is used when the categorical outcome variable has more than two values, e.g., marital status could be never married, married, or divorced.

- ❖ **Multiple correlation (R)** A numerical index describing the relationship between predicted and actual scores using multiple regression. The correlation between a criterion and the "best combination" of predictors.

- ❖ **Multiple perspectives** The recognition and acceptance of multiple views of reality, especially in ethnography.

- ❖ **Multiple-baseline design** A single-subject experimental design in which baseline data are collected on several behaviors for one subject, after which the treatment is applied sequentially over a period of time to each behavior one at a time until all behaviors are under treatment. Also used to collect data on different subjects with regard to a single behavior, or to assess a subject's behavior in different settings.

- ❖ **Multivariate Analysis** Any of several statistical methods for examining more than one predictor (independent) variable or more than one outcome (dependent) variable or both. Allows researchers to examine the relation between two variables while simultaneously controlling for the influence of other variables.

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- ❖ **Mutually Exclusive** Said of variables, events or conditions that can be placed into one category and no other. If there is no overlapping part between two events, we say they are mutually exclusive. However, mutually exclusive doesn¿t mean the two events are independent.

- ❖ **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

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

- ❖ **Natural setting** A specific place in which events and interactions

- ❖ **Naturalistic Inquiry** Observational research of a group in its natural setting

- ❖ **Naturalistic Observation** observation of behaviors and events in natural settings without experimental manipulation or other forms of interference.

- ❖ **Naturalistic Paradigm** This paradigm assumes that there are multiple interpretations of reality and that the goal of researchers working within this perspective is to understand how individuals construct their own reality within their social context.

- ❖ **Negatively skewed distribution** A distribution in which there are more extreme scores at the lower end than at the upper, or higher, end.

- ❖ **Node** In hypertext, each unit of information, connected by links

- ❖ **Nominal scale** A measurement scale that classifies elements into two or more categories, the numbers indicating that the elements are different, but not according to order or magnitude.

- ❖ **Nominal Variable** A variable determined by categories which cannot be ordered, e.g., gender and color

- ❖ **Non-directional hypothesis** A prediction that a relationship exists without specifying its exact nature.

- ❖ **Nonequivalent control group design** An experimental design involving at least two groups, both of which may be pretested; one group receives the experimental treatment, and both groups are posttested. Individuals are not randomly assigned to treatments.

- ❖ **Nonparametric technique** A test of **statistical significance** appropriate when the data represent an ordinal or nominal scale, or when assumptions required for parametric tests cannot be met.

- ❖ **Nonparticipant observation** Observation in which the observer is not directly involved in the situation to be observed

- ❖ **Nonrandom sample/sampling** The selection of a sample in which every member of the population does not have an equal chance of being selected.

- ❖ **Nonresponse Error** A type of error that is caused when a portion of the sample with particular characteristics do not respond to a survey.

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- ❖ **Nonresponse Rate Bias** A source of bias that occurs when non-respondents differ in important ways from respondents.

- ❖ **Nonsampling Error** Errors that can occur at any phase of the sampling process. Nonsampling error can result from nonresponse to surveys or from mis-measurement of survey responses.

- ❖ **Nonsignificant Result** The result of a statistical test that indicates that there is not sufficient evidence to conclude that the predictor (independent) variable had an impact on the outcome (dependent) variable.

- ❖ **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.

- ❖ **Norm group** The sample group used to develop norms for an instrument.

- ❖ **Normal Curve** The bell-shaped curve that is formed when data with a normal distribution are plotted.

- ❖ **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.

- ❖ **Normal distribution** A theoretical "bell-shaped" distribution having a wide application to both descriptive and inferential statistics. It is known or thought to portray many human characteristics in "typical" populations.

- ❖ **Norm-referenced instrument** An instrument that permits comparison of an individual score to the scores of a group of individuals on the same instrument.

- ❖ **Norms** Descriptive statistics that summarize the test performance of a reference group of individuals and permit meaningful comparison of individuals to the group.

- ❖ **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.

- ❖ **Null hypothesis** A statement that any difference between obtained sample statistics and specified population parameters is due to sampling error, or "chance."

- ❖ **Null Hypothesis** This hypothesis states that there is no difference between groups. The alternative hypothesis states that there is some real difference between two or more groups.

- ❖ **Objectivity** A lack of bias or prejudice.

- ❖ **Observation** A method of data collection in which data are gathered through visual observations.

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- ❖ **Observation Unit** The actual unit observed during a study.

- ❖ **Observational data** Data obtained through direct observation.

- ❖ **Observer bias** The possibility that an observer does not observe objectively and accurately, thus producing invalid observations and a threat to the internal validity of a study.

- ❖ **Observer effect** The impact of an observer's presence on the behavior observed.

- ❖ **Observer expectations** The effect that an observer's prior information can have on observational data.

- ❖ **Odds Ratio** A way to express a probability; the ratio of the odds of having a response or experience to the odds of not having it.

- ❖ **Odds Ratio(OR):** The ratio of odds of having the target disorder in an experimental group relative to the odds in favor of having the target disorder in a control group (in cohort studies or systematic reviews).

- ❖ **Odds:** A ratio of the number of people incurring an event to the number of people who have non‑‑events.

- ❖ **Omitted Variable Bias** A form of bias in research resulting from the absence of key variables into the research design that would influence the results. When there is omitted variable bias, the results of the study could be due to alternative explanations that are not addressed in the study.

- ❖ **One-group pretest-posttest design** A weak experimental design involving one group that is pretested, exposed to a treatment, and

- ❖ **One-shot case study design** A weak experimental design involving one group that is exposed to a treatment and then post tested.

- ❖ **One-tailed test** The use of only one tail of the sampling distribution of statistic – used when a directional hypothesis is stated.

- ❖ **One-Way ANOVA** A test of whether the mean for more than two groups are different. For example, to test whether the mean income is different for individuals who live in France, England, or Sweden, one would use a one-way ANOVA.

- ❖ **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.

- ❖ **Open-Ended Data** Data derived from open-ended inquiries, such as interview questions, to which responses are not predetermined, such as would be the case with multiple choice or true/false questions.

- ❖ **Operational definition** Defining a term by stating the actions, processes, or operations used to measure or identify examples of it.

- ❖ **Opinion questions** Questions a researcher asks to find out what people think about a topic.

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- ❖ **Opportunistic sample** In qualitative research, a sample chosen to take advantage of conditions that arise during a study.

- ❖ **Oral statements** Some form of oral expression.

- ❖ **Ordinal Data** Data that is discrete categories, but that can also be ranked. For example, if a survey ask individuals whether they "strongly agree", "agree", "disagree", or "strongly disagree" with a statement, the responses would be ordinal because they are in categories, but they can also be ranked.

- ❖ **Ordinal Scale** A scale that allows for classification and labeling into mutually exclusive categories based on features that are ranked or ordered with respect to one another, although equal differences between numbers do not reflect an equal magnitude of difference.

- ❖ **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

- ❖ **Ordinary Least Squares Estimation** A commonly used method for calculating a regression equation. This method minimizes the difference between the observed data points and the data points that are estimated by the regression equation.

- ❖ **Outcomes** Measured behaviors; the behaviors that experimental research seeks to explain.

- ❖ **Outlier** An observation in a data set that is much different than the other observations in the data set. The data point is unusually larger or an unusually smaller compared to the other data points.

- ❖ **Outlier** Scores or other observations that deviate or fall considerably outside most of the other scores or observation in a distribution or pattern.

- ❖ **Oversampling** A sampling procedure in which a large proportion of subjects with a particular characteristic are sampled. Oversampling is used to ensure that researchers have enough data from groups with particular characteristics to yield good estimates for that group.

- ❖ **Paired T-Test** This test is usually used to determine whether an intervention brought about a change in some characteristic of respondents (e.g., respondents' math knowledge). To perform a paired t-test, respondents' math knowledge would be measured prior to the intervention, then the intervention would be performed (e.g., teaching a class on math), then respondent's math knowledge would be measured after the intervention. The change from before to after the intervention is used to assess whether the intervention was successful.

- ❖ **Panel Study** a longitudinal study in which a group of individuals is interviewed at intervals over a period of time.

- ❖ **Paradigm** Kuhn defines a paradigm in two ways: first as the entire constellation of beliefs, values and techniques shared by a specific community; and secondly as the procedures used to solve specific problems and take theories to their logical conclusion.

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- ❖ **Parameter** A characteristic of a population.

- ❖ **Parametric technique** A test of significance appropriate when the data represent an interval or ratio scale of measurement and other specific assumptions have been met.

- ❖ **Partial correlation** A method of controlling the subject characteristics threat in correlational research by statistically holding one or more variables constant.

- ❖ **Participant** individuals whose physiological and/or behavioral characteristics and responses are the object of study in a research project.

- ❖ **Participant Observation** A field research method whereby the researcher develops knowledge of the composition of a particular setting or society by taking part in the everyday routines and rituals alongside its members. A principle goal of participant observation is develop an understanding of a setting from a member¿s perspective, which may be accomplished through both informal observations and conversations as well as in-depth interviews.

- ❖ **Participant-As-Observer** The investigator takes part in the group activity that the researcher plans to study. The researcher also reveals to the group that s/he is studying the group's activities.

- ❖ **Participatory action research** Action research intended not only to address a local problem but also to empower individuals and to bring about social change.

- ❖ **Path Analysis** A special use of multiple regression to help understand and parcel out the sources of variance. Path analysis is a form of analysis that looks explicitly at cause.

- ❖ **Path analysis** A type of sophisticated analysis investigating causal connections among correlated variables.

- ❖ **Peer Review:** A process by which research studies are examined by an independent panel of researchers for review. The purpose of such is to open the study to examination, criticism, review and replication by peer investigators and ultimately incorporate the new knowledge into the field.

- ❖ **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.

- ❖ **Percentage** A proportion times 100.

- ❖ **Percentile rank** An index of relative position indicating the percentage of scores that fall at or below a given score.

- ❖ **Percentile** The percent of observations in a sample that have a value below a given score.

- ❖ **Performance checklist** Used to keep track of behaviors that occur.

- ❖ **Performance test** Measures an individual's performance on a particular task.

- ❖ **Phenomenology** a qualitative research approach concerned with understanding certain group behaviors from that group's point of view.

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- ❖ **Phenomenology** A research methodology which has its roots in philosophy and which focuses on the lived experience of individuals.

- ❖ **Phenomenology/phenomenological research** A form of qualitative research in which the researcher attempts to identify commonalities in the perceptions of several individuals regarding a particular phenomenon.

- ❖ **Philosophy** critical examination of the grounds for fundamental beliefs and analysis of the basic concepts, doctrines, or practices that express such beliefs.

- ❖ **Phonology** the study of the ways in which speech sounds form systems and patterns in language.

- ❖ **Pie chart** A graphic method of displaying the breakdown of data into categories.

- ❖ **Pile Sorting** A task used to elicit judgments of similarity among items in a specific domain. The technique uses a set of index cards on which the name or short description of a domain item is written; the respondent is asked to sort them into piles according to their similarity.

- ❖ **Pilot study** A small-scale study administered before conducting an actual study _ its purpose is to reveal defects in the research plan.

- ❖ **Point Estimate** A statistic calculated from a sample that is an estimate of some single characteristic of the population. For example, the sample mean is the point estimate of the population mean.

- ❖ **Poisson Distribution** A distribution that describes the number of events that occur in a certain time interval or spatial area. For example, the number of child care arrangements during a given period of time.

- ❖ **Policy** governing principles that serve as guidelines or rules for decision making and action in a given area.

- ❖ **Policy Analysis** systematic study of the nature, rationale, cost, impact, effectiveness, implications, etc., of existing or alternative policies, using the theories and methodologies of relevant social science disciplines.

- ❖ **Population** the target group under investigation. The population is the entire set under consideration. Samples are drawn from populations.

- ❖ **Population** A clearly defined group of people or objects. Samples are drawn from the population and statistical results that are derived from random samples can be generalized to the whole population.

- ❖ **Population generalizability** The extent to which the results obtained from a sample are generalizable to a larger group.

- ❖ **Portraiture** A form of qualitative research in which the researcher and the individual being portrayed work together to define meaning.

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- ❖ **Position Papers** statements of official or organizational viewpoints, often recommending a particular course of action or response to a situation.

- ❖ **Positively skewed distribution** A distribution in which there are more extreme scores at the upper, or higher, end than at the lower end.

- ❖ **Positivism** A philosophic viewpoint emphasizing an 'objective' reality which includes universal laws governing all things including human behavior.

- ❖ **Posttest-only control group design** An experimental design involving at least two randomly formed groups; one group receives a treatment, and both groups are posttested.

- ❖ **Power of a statistical test** The probability that the null hypothesis will be rejected when there is a difference in the populations; the ability of a test to avoid a Type II error.

- ❖ **Power** The degree to which a statistical test will detect significant differences between groups in a sample, when the differences do in fact exist. Sometimes statistical tests are not "powerful" enough to detect significant differences between groups in a sample that actually do exist in the population. The primary reason that a statistical test is not powerful is a small sample.

- ❖ **Practical action research** Action research intended to address a specific local problem.

- ❖ **Practical significance** A difference large enough to have some practical effect. Contrast with **statistical significance**, which may be so small as to have no practical consequences.

- ❖ **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.

- ❖ **Predicted score** The score a researcher predicts that someone will obtain when measured on one variable after it is known what score the person obtained when measured on another variable.

- ❖ **Prediction equation** A mathematical equation used in a prediction study.

- ❖ **Prediction** The estimation of scores on one variable from information about one or more other variables.

- ❖ **Predictions study** An attempt to determine variables that are related to a criterion variable.

- ❖ **Predictive Measurement** use of tests, inventories, or other measures to determine or estimate future events, conditions, outcomes, or trends.

- ❖ **Predictive validity (evidence of)** The degree to which scores on an instrument predict characteristics of individuals in a future situation.

- ❖ **Predictive Validity** A measure of whether a test assesses what is intended that is based on the correlation between the test score and some external criterion The higher the predictive validity, the more useful the test.

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- ❖ **Predictor variable** The variable from which projections are made in a prediction study. **Predictor variable(s)** The variable(s) from which projections are made in a prediction study.

- ❖ **Predictor Variable** The variable whose effect on an outcome variable is being modeled. A predictor variable is also called an "independent" variable.

- ❖ **Pretesting** Measure taken at the outset of research, before the experimental manipulation or condition is applied or takes place.

- ❖ **Pretest-posttest control group design** An experimental design that involves at least two groups; both groups are pretested, one group receives a treatment, and both groups are posttested. For effective control of extraneous variables, the groups should be randomly formed.

- ❖ **Pretest-treatment interaction** The possibility that subjects may respond or react differently to a treatment because they have been pretested, thereby creating a threat to internal validity.

- ❖ **Primary Sampling Units** The pieces into which an area frame sampling divides land. It is these pieces, typically called PSUs, out of which a set of representative samples is taken.

- ❖ **Primary source** Firsthand information such as the testimony of an eyewitness, an original document, a relic, or a description of a study written by the person who conducted it.

- ❖ **Principal Investigator** the scientist or scholar with primary responsibility for the design and conduct of a research project.

- ❖ **Probability** the chance that a phenomenon will occur randomly. As a statistical measure, it is shown as p [the "p" factor].

- ❖ **Probability of Selection** In probability samples, the probability of selection is the probability that a member of the population will be selected to participate in the study sample.

- ❖ **Probability Sampling** A random sample of a population, which ensures that each member of the population has a chance of being selected for the sample.

- ❖ **Probability** The relative frequency with which a particular event occurs among all events of interest.

- ❖ **Probability:** A description of the likely occurrence of a particular event. Probability is conventionally expressed on a scale from 0 to 1; a rare event has a probability close to 0, a very common event has a probability close to 1.

- ❖ **Problem statement** A statement that indicates the specific purpose of the research, the variables of interest to the researcher, and any specific relationship between those variables that is to be, or was, investigated; includes description of background and rationale (justification) for the study.

- ❖ **Procedures** A detailed description by the researcher of what was (or will be) done in carrying out a study.

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- ❖ **Program Evaluation** Research that is conducted in order to determine the effectiveness of an intervention program.

- ❖ **Projection** Estimates of the future size and other demographic characteristics of a population, based on an assessment of past trends and assumptions about the future course of demographic behavior.

- ❖ **Protocol**: The specific set(s) of goals and procedures that define what will happen in a clinical trial. Protocols are developed before a trial begins so that participants know what will happen and other researchers can follow the same protocol. A protocol describes eligibility; the schedule of tests, procedures, medications, and treatment dosages; and the length of the study.

- ❖ **Proxy Variable** A variable used to ¿stand in¿ for another variable. Proxy variables are used when the variable of interest is not available in the data, either because it was not collected in the data or because it was too difficult to measure in a survey or interview.

- ❖ **Purpose (of a study)** A specific statement by a researcher of what he or she intends to accomplish.

- ❖ **Purposive Sampling** A sampling strategy in which the researcher selects participants who are considered to be typical of the wider population. Since the sample is not randomly selected, the degree to which they actually represent the population being studied is unknown.

- ❖ **P-Value** The probability that the results of a statistical test were due to chance. A p-value greater than .05 is usually interpreted to mean that the results were not statistically significant. Sometimes researchers use a p-value of .01 or a p-value of .10 to indicate whether a result is statistically significant. The lower the p-value the more rigorous the criteria for concluding significance.

- ❖ **Qualified Scientist**   An expert in a student's field of research who also is familiar with any regulations that govern that field.

- ❖ **Qualitative Data** Information gathered in narrative (nonnumeric) from (e.g. a transcript of an unstructured interview).

- ❖ **Qualitative Research** A field of social research that is carried out in naturalistic settings and generates data largely through observations and interviews. Compared to quantitative research, which is principally concerned with making inferences from randomly selected samples to a larger population, qualitative research is primarily focused on describing small samples in non-statistical ways.

- ❖ **Qualitative variable** A variable that is conceptualized and analyzed as distinct categories, with no continuum implied.

- ❖ **Quantitative data** Data that differ in amount or degree, along a continuum from less to more.

- ❖ **Quartiles** A set of three values that divide the total frequency into four equal parts

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- ❖ **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.

- ❖ **Quasi-experimental designs** A type of experimental design in which the researcher does not use random assignment of subjects to groups.

- ❖ **Quasi-Experimental Research** Research in which individuals cannot be assigned randomly to two groups, but some environmental factor influences who belongs to each group.

- ❖ **Questionnaire** A survey document with questions that are used to gather information from individuals to be used in research.

- ❖ **Quixotic Reliability** Refers to the situation where a single manner of observation consistently, yet erroneously, yields the same result.

- ❖ **Quota Sampling** A non-probability sampling strategy where the researcher identifies the various strata of a population and ensures that all these strata are proportionately represented within the sample to increase its representativeness

- ❖ **Quota Sampling** A sampling method in which interviewers are each given a quota of subjects of specified type to attempt to recruit. Widely used in opinion polling and market research.

- ❖ **Random assignment** The process of assigning individuals or groups randomly to different treatment conditions.

- ❖ **Random Coefficient** A variable that varies in ways the researcher does not control. For instance, if research subjects sign up for a study after seeing a posting asking for people between the ages of 20 and 24, age would not be a random coefficient, but factors such as gender and race would be.

- ❖ **Random Error** An error that affects data measurements in a non-systematic way because of random chance.

- ❖ **Random numbers, table of** A table of numbers that provides one of the best means of random selection or random assignment.

- ❖ **Random sample** A sample selected in such a way that every member of the population has an equal chance of being selected.

- ❖ **Random sampling** Methods designed to select a representative sample by using chance selection so that biases will not systematically alter the sample.

- ❖ **Random Selection** A technique used to choose subjects at random so as to get a representative sample of the population. In random selection, each individual in the eligible population has a fixed and determinate probability of selection into the sample.

- ❖ **Random selection sampling** The process of selecting a random sample.

- ❖ **Random Variable** A variable that numerically measures some characteristic of a sample, or population (e.g., height). The value of the variable will differ depending on which individual is

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measured (i.e., people are of different heights). The variable is said to be random because the variation in the value of the variable is due, at least in part, to chance (i.e., some people are just taller than other people).

❖ **Randomization** Assigning individuals in a sample to either an experimental group or a control group at random.

❖ **Range** A measure of dispersion of data. The range is calculated by subtracting the value of the lowest data point from the value of the highest data point.

❖ **Rank Order** A scale of objects presented to research subjects,. whereby they are asked to rank the objects according to a specific criterion.

❖ **Rating Scale** A rating scale is a measuring instrument for which judgments are made in order to rate a subject or case at a specified scale level with respect to an identified characteristic or characteristics.

❖ **Rating scale** The rating scale is an instrument on which a researcher or participant or observer can record a rating of a behavior, a product, or a performance.

❖ **Ratio** The quotient of two values.

❖ **Raw Score** A score obtained from a test, assessment, observation, or survey that has not been converted to another type of score such as a standard score, percentile, ranking, or grade. By itself, a raw score provides little useful information about a subject.

❖ **Reflective field notes** A record of the observer's thoughts and reflections during and after observation.

❖ **Refusal Rate** The percentage of contacted people who decline to cooperate with the research study. This is the opposite of the Response Rate.

❖ **Regressed gain score** A score indicating amount of change that is determined by the correlation between scores on a posttest and a pretest (and/or other scores). It provides more stable information than a simple posttest-pretest difference.

❖ **Regression Analysis** A statistical technique that measure the relationship between a dependent (outcome) variable and one or more independent (predictor) variables .

❖ **Regression Equation** An mathematical equation that indicates the relationship between a dependent (outcome) variable and one or more independent (predictor) variables. The equation indicates the extent to which the dependent variables can be predicted by knowing the value of the independent variables.

❖ **Regression line** The line of best fit for a set of scores plotted on coordinate axes (on a scatterplot).

❖ **Regression threat** The possibility that results are due to a tendency for groups, selected on the basis of extreme scores, to regress toward a more average score on subsequent measurements, regardless of the experimental treatment.

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- ❖ **Relationship** A connection between two qualities or characteristics (e.g., motivation and learning).

- ❖ **Relationship study** A study investigating relationships among two or more variables, one of which may be a treatment (method) variable.

- ❖ **Reliability** The degree to which scores obtained with an instrument are consistent measures of whatever the instrument measures.

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

- ❖ **Relics** Any object that can provide some information about the past.

- ❖ **Replication** Refers to conducting a study again; the second study may be a repetition of the original study, using different subjects, or may change specified aspects of the study.

- ❖ **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.

- ❖ **Representative sample** A sample that is like the population in terms of relevant characteristics.

- ❖ **Representativeness** The extent to which a sample is identical (in all characteristics) to the intended population.

- ❖ **Research design** The overall plan for collecting data in order to answer the research question. Also the specific data analysis techniques or methods that the researcher intends to use.

- ❖ **Research hypothesis** A prediction of study outcomes. Often a statement of the expected relationship between two or more variables.

- ❖ **Research Method** Specific procedures used to gather and analyses research data.

- ❖ **Research Methodology** Different approaches to systematic inquiry developed within a particular paradigm with associated epistemological assumptions (e.g. experimental research, grounded theory, and ethnomethodology).

- ❖ **Research problem** A problem that someone would like to research; it is the focus of a research investigation.

- ❖ **Research proposal** A detailed description of a proposed study designed to investigate a given problem. **Research question** A question that we can answer by collecting and analyzing data.

- ❖ **Research Question** A clear statement in the form of a question of the specific issue that a researcher wishes to analyze.

- ❖ **Research Question** A clear statement in the form of a question of the specific issue that a researcher wishes to answer in order to address a research problem. A research problem is an issue that lends itself to systematic investigation through research.

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- ❖ **Research report** A description of how a study was conducted, including results and conclusions.

- ❖ **Research** The formal, systematic application of scholarship, disciplined inquiry, and most often the scientific method to the study of problems. **R**

- ❖ **Researcher bias** A situation in which the researcher's hopes or expectations concerning the outcomes of the study actually contribute to producing various outcomes, thereby creating a threat to internal validity.

- ❖ **Researcher bias Bibliography** A list of references that pertain to a topic.

- ❖ **Respondent** The person who responds to a survey questionnaire and provides information for analysis.

- ❖ **Response Categories** The valid values on a variable.

- ❖ **Response Rate** In survey research, the actual percentage of questionnaires completed and returned.

- ❖ **Results** A statement that explains or interprets the data produced in an experiment.

- ❖ **Results (of a study)** A statement that explains what is shown by analysis of the data collected; includes tables and graphs when appropriate.

- ❖ **Retrospective interview** A form of interview in which the researcher tries analysis of the data collected; includes tables and graphs when appropriate.

- ❖ **Rhetorical Inquiry** "entails...1) identifying a motivational concern, 2) posing questions, 3) engaging in a heuristic search (which in composition studies has often occurred by probing other fields), 4) creating a new theory or hypotheses, and 5) justifying the theory" (Lauer and Asher, 1988, p. 5)

- ❖ **Rigor** Degree to which research methods are scrupulously and meticulously carried out in order to recognize important influences occurring in a experiment.

- ❖ **Robustness** The state whereby a statistic remains useful even when one or more of its assumptions are violated.

- ❖ **R-Squared** A measure of how well the independent, or predictor, variables predict the dependent, or outcome, variable. A higher R-square indicates a better model. The R-square denotes the percentage of variation in the dependent variable that can be explained by the independent variables. An Adjusted R-squared is a better comparison between models that have with different numbers of variables and different sample sizes than is the R-Squared.

- ❖ **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.

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- ❖ **Sample Size** The number of subjects in a study. Larger samples are preferable to smaller samples, all else being equal.

- ❖ **Sampling** A probability sampling strategy involving successive sampling of units (or clusters); the units sampled progress from larger ones to smaller ones (e.g. health authority/health board, trust, senior managers).

- ❖ **Sampling Bias** Distortions that occur when some members of a population are systematically excluded from the sample selection process. For example, if interviews are conducted over the phone, only individuals with telephones will be in the sample. This could produce bias if the researcher intends to draw conclusions about the entire population, including those with a phone and those without a phone.

- ❖ **Sampling Design** The part of the research plan that specifies how and how many respondents will be selected for a study.

- ❖ **Sampling Distribution** The frequency with which data values appear in the sample. The sampling distribution can be characterized by the mean and the variance of the sample.

- ❖ **Sampling distribution** The theoretical distribution of all possible values of a statistic from all possible samples of a given size selected from a population.

- ❖ **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.

- ❖ **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 (Alreck, 454).

- ❖ **Sampling Frame** A list of the entire population eligible to be included within the specific parameters of a research study.

- ❖ **Sampling interval** The distance in a list between individuals chosen when sampling systematically.

- ❖ **Sampling** The process of selecting a number of individuals (a sample) from a population, preferably in such a way that the individuals are representative of the larger group from which they were selected.

- ❖ **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.

- ❖ **Scale** A group of survey questions that measures the same concept. For example, a researcher may be interested in individuals' gender role attitudes, and use several questions to their attitudes. This group of questions make up a gender role attitude scale.

- ❖ **Scaled Score** A mathematical transformation of a raw score so that scores can be compared across individuals and over time.

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- ❖ **Scatter Plot** A display of the relationship between two quantitative or numeric variables. A scatter plot shows the value of one variable plotted against the value of another variable.

- ❖ **Scatterplot** The plot of points determined by the crosstabulation of scores on coordinate axes; used to represent and illustrate the relationship between two quantitative variables.

- ❖ **Scientific method** A way of knowing that it is characterized by the public nature of its procedures and conclusions and by rigorous testing of conclusions.

- ❖ **Scientific Research**   The organized investigation of questions raised by scientific theories and hypotheses.

- ❖ **Scientific Theory**   In science, a theory is a well-supported model or explanation of a natural phenomenon. A scientific theory is based on observations, experiments and reason. Repeated experiments can confirm the validity of a scientific theory.

- ❖ **Secondary source** Secondhand information, such as a description of historical events by someone not present when the event occurred.

- ❖ **Selection Bias** Error due to systematic differences in the characteristics of those who are selected for a study and those who are not.

- ❖ **Selective Observation** The act of only attending to observations that correspond to current belief.

- ❖ **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.

- ❖ **Self-checklist** A list of characteristics or activities that the participants in a study reads and then checks to identify those characteristics that they possess or the activities that they have engaged in.

- ❖ **Semantic Differential Scale** A type of categorical, non-comparative scale with two opposing adjectives separated by a sequence of unlabelled categories.

- ❖ **Semantics** the relationship between symbols and meaning in a linguistic system. Also, the cuing system that connects what is written in the text to what is stored in the reader's prior knowledge.

- ❖ **Semi-Structured Interview** A method of data collection in which the interviewer uses a pre-determined list of topics or questions to gather information from a respondent. The interviewer, however, may stray from the list to follow-up on things the respondent says during the interview.

- ❖ **Sensitivity:** Proportion of people with the target disorder who have a positive test. It is used to assist in assessing and selecting a diagnostic test/sign/symptom.

- ❖ **Sensory questions** Questions asked by a researcher to find out what a person has seen, heard, or experienced through his or her senses.

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- ❖ **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-answer items** A type of supply item in which the respondent is required to supply a word, phrase, number, or symbol that is necessary to complete a statement or answer the question.

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

- ❖ **Sign test** A nonparametric inferential statistic used to compare two groups that are not independent.

- ❖ **Significance Level** The probability that a relationship observed in statistical analyses were actually due to chance.

- ❖ **Simple Linear Regression** A statistical technique that measure the relationship between a dependent (outcome) variable and one independent (predictor) variable.

- ❖ **Simple Random Sampling** The basic sampling technique where a group of subjects (a sample) for study is selected from a larger group (a population). Each individual is chosen entirely by chance and each member of the population has an equal chance of being included in the sample.

- ❖ **Simple Random Sampling** This probability sampling method gives each eligible element/unit an equal chance of being selected in the sample; random procedures are employed to select a sample using a sampling frame.

- ❖ **Simulation** A process whereby a researcher uses either a table or a computer program to produce random digits to be used in studying random phenomena.

- ❖ **Single-subject designs** Designs applied when the sample size is one; used to study the behavior change that an individual exhibits as a result of some intervention or treatment.

- ❖ **Single-subject research** Research that focuses on individual study participants, rather than groups.

- ❖ **Skewed Distribution** Any distribution which is not normal, that is not symmetrical along the x-axis

- ❖ **Skewness** The tendency of a distribution to depart from symmetry or balance.

- ❖ **Slope** The coefficient of the independent variable indicating the change in dependent variable per unit change in the independent variable.

- ❖ **Snowball sample** In qualitative research, a sample selected as the need arises during a study.

- ❖ **Social Desirability Bias** The tendency for respondents to give answers that are socially desirable or acceptable, that may not be accurate.

- ❖ **Social Theories** theories about the structure, organization, and functioning of human societies.

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- ❖ **Sociogram** A display of networks of relationships among variables, designed to enable researchers to identify the nature of relationships that would otherwise be too complex to conceptualize.

- ❖ **Sociolinguistics** the study of language in society and, more specifically, the study of language varieties, their functions, and their speakers.

- ❖ **Specificity:** Proportion of people without the target disorder who have a negative test. It is used to assist in assessing and selecting a diagnostic test/sign/symptom.

- ❖ **Split-half procedure** A method of estimating the internal-consistency reliability of an instrument; it is obtained by giving an instrument once but scoring it twice – for each of two equivalent "half tests." These scores are then correlated.

- ❖ **SPSS:** One of a number of commercially available statistical packages.

- ❖ **Spurious Relationship** A statistical association between two variables is produced by a third variable rather than by a causal link between the two original variables. For example, children start school at the same time of year that the leaves begin to fall from the trees. This does not mean that leaves falling from trees affects when children start school or vice versa, instead both leaves falling from trees and children starting school occur during autumn.

- ❖ **Stability Reliability** The agreement of measuring instruments over time.

- ❖ **Stability** The extent to which scores are reliable (consistent) over time.

- ❖ **Standard Deviation** a measure of variation that indicates the typical distance between the scores of a 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.

- ❖ **Standard Error** A measure of the extent to which the sample mean fluctuates. The standard error is the standard deviation (SD) of the sample means. Conceptually, the standard error of the mean would be calculated by selecting multiple samples at random from a population, calculating the mean for each of the samples, then calculating the standard deviation of these sample means

- ❖ **Standard error of a statistic** The standard deviation of the sampling distribution of a statistic.

- ❖ **Standard error of estimate** An estimate of the size of the error to be expected in predicting a criterion score.

- ❖ **Standard error of measurement (SEMeas)** An estimate of the size of the error that one can expect in an individual's score.

- ❖ **Standard error of the difference (SED)** The most stable measure of variability; it takes into account each and every score in a distribution.

- ❖ **Standard score** A derived score that expresses how far a given raw score is from the mean, in terms of standard deviation units.

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❖ **Standardization** A scale transformation procedure that involves manipulating data from different types of scales so that they can then be compared. It consists of subtracting the sample mean from each score and dividing by the standard deviation.

❖ **Standardized Test** A form of measurement whose scores have been based on its administration within a specific population. Standardization is obtained by administering the test to a given population and then calculating means, standard deviations, standardized scores, and percentiles. Comparisons can then be made between an individual score and the group's performance.

❖ **Standardized Variables** The values of variables from different types of scales are transformed so that they can be compared with one another.

❖ **Static-group comparison design** A weak experimental design that involves at least two nonequivalent groups; one receives a treatment and both are post tested.

❖ **Static-group pretest-posttest design** The same as the static-group comparison design, except that both groups are pretested.

❖ **Statistic** A measure of the characteristics of a sample (e.g., the mean is a statistic that measures the average of a sample). It gives an estimate of the same value for the population from which the sample was selected.

❖ **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.

❖ **Statistical Control** A variable that is not of interest to the researcher, but which interferes with the statistical analysis. In statistical analyses, control variables are held constant or their impact is removed to better analyze the relationship between the outcome variable and other variables of interest. For example, if one wanted to examine the impact of education on political views, a researcher would control income in the statistical analysis. This removes the impact of income on political views from the analysis.

❖ **Statistical matching** A means of equating groups using statistical prediction.

❖ **Statistical Significance** the probability that the difference between the outcomes of the control and experimental group are great enough that it is unlikely due solely to chance. The probability that the null hypothesis can be rejected at a predetermined significance level [0.05 or 0.01].

❖ **Statistical Tests** researchers use statistical tests to make quantitative decisions about whether a study's data indicate a significant effect from the intervention and allow the researcher to reject the null hypothesis.

❖ **Statistically significant** The conclusion that results are unlikely to have occurred due to sampling error or "chance;" an observed correlation or difference probably exists in the population.

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- ❖ **Statistics** A numerical index describing a characteristic of a sample.

- ❖ **Stratification** Grouping the study population into subgroups by their homogenous characteristics before sampling so as to improve the representativeness of a sample.

- ❖ **Stratified random sampling** The process of selecting a sample in such a way that identified subgroups in the population are

- ❖ **Stratified Sampling** A statistical method for testing different theorized models, including the "structures" of relationships among the observed indicators and their underlying concepts.

- ❖ **Structural Model** A theoretical model assumed to underlie the data that expresses the relationship between the dependent variable and the independent variables.

- ❖ **Structured interview** A formal type of interview, in which the researcher asks, in order, a set of predetermined questions.

- ❖ **Structured Observation** The researcher determines at the outset precisely what behaviors are to be observed and typically uses a standardized checklist to record the frequency with which those behaviors are observed over a specified time period.

- ❖ **Subcultures** ethnic, regional, economic, or social groups exhibiting characteristic patterns of behavior sufficient to distinguish them from the larger society to which they belong.

- ❖ **Subject characteristics threat** The possibility that characteristics of the subjects in a study may account for observed relationships, thereby producing a threat to internal validity.

- ❖ **Subjectivity** A reflection of the person¿s mind, or thoughts, which is the result of his/her experiences, moods or attitudes.

- ❖ **Subjects** Individuals whose participation in a study is limited to providing information.

- ❖ **Subsample** A sample selected from a sampling frame, that is itself a sample of the population. Often the original sample is broken down into smaller groups (subsamples) to be sampled at different rates.

- ❖ **Survey** A method of collecting information by asking a sample of participants questions in order to find out information about a population.

- ❖ **Survey Research** A research approach designed to collect systematically descriptions of existing phenomena in order to describe or explain what is going on; data are obtained through direct questioning of a sample of respondents.

- ❖ **Survey study/research** An attempt to obtain data from members of a population (or a sample) to determine the current status of that population with respect to one or more variables.

- ❖ **Survival Study:** Statistical procedures for estimating survival (prognosis) in a population under study.

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- ❖ **Synchronic Reliability** The similarity of observations within the same time frame; it is not about the similarity of things observed.

- ❖ **Systematic Bias** When the recorded data from a sample is systematically higher or lower than the true data values within the population.

- ❖ **Systematic Review:** A summary of the medical literature that uses explicit methods to perform a comprehensive literature search and critical appraisal of individual studies and that uses appropriate statistical techniques to combine these valid studies

- ❖ **Systematic Sampling** A probability sampling strategy involving the selection of participants randomly drawn from a population at fixed intervals (e.g. every 20th name from a sampling frame). **Cluster**

- ❖ **T Distribution** A symmetrical bell-shaped distribution that is used for testing samples smaller than 30 or where the variance is unknown.

- ❖ **T score** A standard score derived from a z score by multiplying the z score by 10 and adding 50.

- ❖ **Table of random numbers** A table of numbers that provides one of the best means of random selection or random assignment.

- ❖ **Tally sheet** A device used by researchers to report the frequency of student behaviors, activities, or remarks.

- ❖ **Target Population** The population to which the researcher would like to generalize her or his results based on analysis of a sample. The sample is selected from a target population.

- ❖ **Target population** The population to which the researcher, ideally, would like to generalize results.

- ❖ **Test of significance** A statistical test used to determine whether or not the obtained results for a sample are likely to represent the population.

- ❖ **Testing** the act of gathering and processing information about individuals' ability, skill, understanding, or knowledge under controlled conditions.

- ❖ **Testing threat** A threat to internal validity that refers to improved scores on a posttest that are a result of subjects having taken a pretest.

- ❖ **Test-retest method** A procedure for determining the extent to which scores from an instrument are reliable over time by correlating the scores from two administrations of the same instrument to the same individuals.

- ❖ **Test-Retest Reliability** The degree to which a measure produces consistent results over several administrations.

- ❖ **Theme** A means of organizing and interpreting data in a content analysis by grouping codes as the interpretation progresses.

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- ❖ **Theme** A recurring issue that emerges during the analysis of qualitative data.

- ❖ **Theoretical Framework** The conceptual underpinning of a research study which may be based on theory or a specific conceptual model (in which case it may be referred to as the conceptual framework).

- ❖ **Theoretical Notes** Notes about the observer's interpretation of observed activities found in field notes.

- ❖ **Theoretical sample** In qualitative research, a sample that helps the researcher understand or formulate a concept or interpretation.

- ❖ **Theoretical Sampling** The selection of individuals within a naturalistic research study based on emerging findings as the study progresses to ensure that key issues are adequately represented.

- ❖ **Theoretical Sampling** The selection of individuals within a naturalistic research study, based on emerging findings as the study progresses to ensure that key issues are adequately represented.

- ❖ **Theory** a general explanation about a specific behavior or set of events that is based on known principles and serves to organize related events in a meaningful way. A theory is not as specific as a hypothesis.

- ❖ **Thick Description** A rich and extensive set of details concerning methodology and context provided in a research report.

- ❖ **Thick description** In ethnography, the provision of great detail on the basic data/information.

- ❖ **Time Series** A sequence of observations which are ordered in time or space.

- ❖ **Time-and-motion logs** Reporting of what is observed and the time it is observed.

- ❖ **Time-series design** An experimental design involving one group that is repeatedly pretested, exposed to an experimental treatment, and repeatedly post tested.

- ❖ **Transferability** Equivalent to external validity in positivist research (it may also be referred to as applicability). A study is said to be transferable if the findings 'fit' contexts beyond the immediate study situation. In order to transfer the findings elsewhere, readers need sufficient information to be able to assess the extent to which a specific research setting is similar to other settings.

- ❖ **Translation Rules** If one decides to generalize concepts during coding, then one must develop a set of rules by which less general concepts will be translated into more general ones.

- ❖ **Treatment** the stimulus given to a dependent variable.

- ❖ **Treatment Effect** Change in the outcome variable that is due to some intervention. Sometimes used to describe the change in an outcome variable that is due to changes in the independent (predictor) variable, even if the independent variable is not an intervention.

- ❖ **Trend Samples** method of sampling different groups of people at different points in time from the same population.

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- ❖ **Trend study** A longitudinal design (in survey research) in which the same population (conceptually but not literally) is studied over time by taking different random samples.

- ❖ **Trial**   One of a number of repetitions of an experiment.

- ❖ **Triangulation mixed method design** A study in which quantitative and qualitative data are collected simultaneously and used to validate and clarify findings.

- ❖ **Triangulation** Using of a variety of research methods to gain a diverse source of data pertaining to a specific research problem or question. This process helps to enhance the validity of data since it does not overly rely on any particular method.

- ❖ **True-false item** A statement that is either true or false and the respondent must indicate which it is.

- ❖ **Trustworthiness** A term used to describe whether naturalistic research has been conducted in such a way that it gives the reader confidence in the findings. It can be assessed using the criteria of credibility, dependability and transferability.

- ❖ **T-Test** A statistical test that is used to compare the means of two samples or the mean of one sample with some fixed value. The test is appropriate for small sample sizes (less than 30).

- ❖ **Two-stage random sampling** A process in which clusters are first randomly selected and then individuals are selected from each cluster.

- ❖ **Two-Tailed Test** A type of test that is used when a researcher is unsure of whether the independent (predictor) variable has a positive or negative effect on the dependent (outcome) variable.

- ❖ **Two-Way ANOVA** A statistical test to study the effect of two categorical independent variables on a continuous outcome variable. Two-way ANOVAs analyze the direct effect of the independent variables on the outcome, as well as the interaction of the independent variables on the outcome.

- ❖ **Type I Error** An error that occurs when a researcher concludes that a statistically significant relationship between two variables exists (based on the analysis of the sample), when in fact it the relationship does not exist in the population from which the sample was selected. The probability of making a type I error is decided at the outset of the statistical analysis. This probability is also called a significance level.

- ❖ **Type II error** The failure of a researcher to reject a null hypothesis that is really false. Also called beta error.

- ❖ **Type II error** The failure of a researcher to reject a null hypothesis that is really false. Also called beta error.

- ❖ **Typical sample** In qualitative research, a sample judged to be representative of the population of interest.

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- ❖ **Typology** A descriptive, categorical scheme that may serve as the foundation for data coding or data analysis in a qualitative study. The types or categories comprising a typology should be mutually exclusive ¿ separate and distinct with no overlap ¿ and exhaustive ¿ all the data must fall into some category.

- ❖ **Unbalanced Scale** A scale where the number of favorable and unfavorable categories is not the same.

- ❖ **Unbiased** A statistic that is free of systematic bias. Systematic bias occurs when the recorded data from a sample is systematically higher or lower than the true data values within the population. Systematic bias can occur as a result of sampling bias or measurement bias. Bias is a serious error in data collection and should be handled through a researcher's careful attention to sources of bias.

- ❖ **Unique case orientation** A perspective adopted by many researchers conducting qualitative observational studies; researchers adopting this orientation remember every study is special and deserves in-depth attention. This is especially necessary for doing cultural comparisons.

- ❖ **Unit of Analysis** the basic observable entity or phenomenon being analyzed by a study and for which data are collected in the form of variables.

- ❖ **Unit of analysis** The unit that is used in data analysis (individuals, objects, groups, classrooms, etc.).

- ❖ **Univariate Analysis** Examination of the properties of one variable only and not the relationship between variables. Generally univariate analysis is performed by examining the mean and standard deviation of a variable.

- ❖ **Unobtrusive Measures** Measures obtained without subjects being aware that they are being observed or measured, or by examining inanimate objects (such as school suspension lists) that can be used in order to obtain desired information.

- ❖ **Unstructured Interview** An interview in which the researcher asks open-ended questions. The researcher aims to give respondents the latitude to talk freely on a topic and to influence the direction of the interview. There is no predetermined plan about the specific information to be gathered from these types of interviews.

- ❖ **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.

- ❖ **Validity coefficient** An index of the validity of scores; a special application of the correlation coefficient.

- ❖ **Validity** The degree to which data and results are accurate reflections of reality. Validity refers to the concepts that are investigated, the people or objects that are studied; the methods by which data are collected; and the findings that are produced.

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- ❖ **Variable**   In research, something that can be changed or altered during an experiment. Each variable that is to be tested would represent a different test condition. For instance, if you were testing the effects of fertilizer on plant growth, the variable might be amount of fertilizer used: such as none, the normal amount, twice the normal amount and five times the normal amount.

- ❖ **Variable** A characteristic that can assume any one of several values, for example, cognitive ability, height, aptitude, teaching method.

- ❖ **Variance** A commonly used measure of dispersion for variables. The variance is calculated by squaring the standard deviation. The variance is based on the square of the difference between the values for each observation and the mean value.

- ❖ **Voluntary** Free of coercion, duress, or undue inducement or influence. Used in the research context to refer to a subject's decision to participate (or to continue to participate) in a research activity.

- ❖ **Weighted Score** A score adjusted by such factors as the importance of the attribute assessed or the reliability and validity of the assessment from which the score was derived, or a combination of such factors.

- ❖ **Weighting** A process used to ensure that statistics produced from a sample are representative of the population from which the sample was drawn. Most large surveys include weights and descriptive statistics produced from such surveys should be based on weighted data.

- ❖ **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.

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