Introduction to Graduate Research
Educational Foundations 6481 (3 credits)

I.   The Nature of Educational Science

A. Four kinds of knowledge that research brings to education

1. **Description**: The description of natural or social phenomena.

2. **Prediction**: Being able to predict phenomena that will occur based upon evidence collected at an earlier time.

3. **Improvement**: Concerned with the effectiveness of interventions.

4. **Explanation**: Subsumes the previous three kinds of knowledge.

   a. **Theory**: an explanation of a certain set of observed phenomena in terms of a system of constructs and laws that relate these construct to one another.

   b. **Theoretical construct**: a concept that inferred from observed phenomena

   c. **Constitutively defined construct**: a construct defined by referring to other constructs

   d. **Operationally defined construct**: a construct defined by specifying the activities used to measure or manipulate it.

   e. **Variable**: a quantitative expression of a construct, usually measured in terms of scores on an instrument such as an achievement test or attitude scale or in terms of categories of a construct (e.g., public versus private schools, females versus males, "in reading program" versus "not in a reading program").

   f. **Law**: a generalization about the causal, sequential, or other relationships between two or more constructs.

B. Basic versus Applied Research

Comroe and Dripps's study to identify 2,500 scientific reports that led to the development of the 10 most important advances in the treatment of cardiovascular and pulmonary diseases.

C. Philosophy of Science

1. <u>**Epistemology**</u>: A branch of philosophy that studies the nature of knowledge and the process by which knowledge is acquired and validated.

2. <u>**Objective reality**</u>: Features of our environment exist independently of the individuals who observe or create them.

3. <u>**Positivism**</u>: the epistemological doctrine that physical and social reality is independent of those who observe it, and that observations of this reality, if unbiased, constitute scientific knowledge.

4. <u>**Postpositivism**</u> (i.e., constructivism): epistemological doctrine that social reality is constructed and that it is constructed differently by different individuals as they interact in a social environment. So there are multiple <u>**constructed realities**</u>. Many educational researchers who subscribe to this constructivist position believe that these realities cannot be studied by the analytic methods of positivist research.

5. <u>**Positivist research**</u>: grounded on the assumption that features of the social environment constitute an independent reality and are relatively constant across time and settings. But what's more positivists believe that if features of the environment exist, they can be measured or observed.

6. <u>**Postpositivist research**</u>: grounded on the assumption that features of the social environment are constructed as interpretations of individuals and that these interpretations tend to be transitory and situational.

7. <u>**Quantitative research**</u>: many researchers believe that this is virtually synonymous with positivist research.

8. <u>**Qualitative research**</u>: many researchers believe that this is virtually synonymous with postpostivist research.

II. The Structure of a Research Study

A. The five stages of a research study

1. Identify a significant research problem
2. Write a research proposal that describes what you plan to study and how you plan to study it (This includes the Literature Review and Method section).
3. Conducting a pilot study in order to develop and try-out data collection methods and other procedures
4. Conduct the main study
5. Prepare a report

B. Purposes of Reviewing the Literature

1. Delimiting the research problem
2. Seeking new lines of inquiry
3. Avoiding fruitless approaches
4. Gaining methodological insights.
5. Identifying recommendations for future research

C. Strategies for identifying a research problem

1. Formulate a research problem that tests a theory that you or someone else developed.
2. Replicate and extend the study of a problem investigated by other researchers.

   Extensions of a study include

   a. Checking the findings of a "breakthrough" study.

   b. Checking the validity of research findings across different populations.

   c. Checking trends or change over time.

   d. Checking important findings using different methodology.

   e. Developing more effective or efficient interventions than previously used.

D. Four Major steps in a literature review

1. Search preliminary sources
2. Use secondary sources.
3. Search primary sources.
4. Synthesize the literature

E. Basic Definitions

1. **<u>Preliminary source</u>**: An index or bibliography or nearly any non-professional printed source (Magazines, Newspaper clippings, Web sites, etc.) that refer to or summarize research findings reported more officially elsewhere. Often, the intended audience is nonprofessionals (outside of bibliographies or indices).

2. **<u>Secondary source</u>**: A published review or summary of published research addressing a particular topic. This review or summary is presented by an expert in the area for other professionals, usually in a journal or book. The most trustworthy secondary sources have survived the scrutiny of other experts (outside reviewers). The intended audience is professionals who are interested in an overview of an area.

3. **<u>Primary source</u>**: A publication written by the individual(s) who actually conducted the research or witnessed the events presented in the publication. A primary source is most trustworthy when the publication survived the scrutiny of other experts (outside reviewers) and when it provides the procedural details of the research conducted and a professional presentation of the findings, along with a theoretical discussion of the meaning of the findings. The intended audience is other professionals.

F. Types of scores (4 levels of Measurement)

<u>Measurement</u>: the assignment of numbers to properties of persons, objects or events according to rules. Consider the scales of measurement.

1. **<u>Nominal</u>** <u>scales / Categories</u>: scales in which numbers are used purely as labels. The labels represent the <u>Categories</u>.

2. **<u>Ordinal</u>** <u>scales / Rank scores</u>: scales in which numbers are assigned to designate the order (or rank). The values you get by the procedure are called <u>Rank scores</u>.

3. **<u>Interval</u>** <u>scales / Continuous scores</u>: scales that possess the qualities of ordinal and nominal scales, but also require that distances between the numbers have meaning with respect to the property being measured. The values you get by the procedure are called <u>Continuous scores</u>.

4. **<u>Ratio</u>** <u>scales / Continuous scores</u>: scales that possess the qualities of all other scales, but also possess a fixed origin or zero point. In other words, on such scales, a score or measurement of zero means total absence of the property being measured. The ratio is so named because once the location of the absolute zero is known, nonzero measurements on this scale may be expressed as ratios of one another. The values you get by the procedure are called <u>Continuous scores</u>.

III. Operational Definitions, Validity, and Reliability

A. **Operational Definition:** Defining a Construct in terms of a variable.

B. **Tests and Self-Report Measures**

1. <u>**Test**</u>: a standard procedure, structured to elicit the same kind of performance from any person who takes it so that they may be evaluated with respect to how much they differ on the construct measured.

2. <u>**Self-report measures**</u>: Paper and pencil instruments that measure personality, self-concept, learning styles, attitudes, values, interests, and other constructs. Unlike tests, individuals do not perform, but instead they are request to report their traits, thoughts, or feelings. Despite this difference, self-report measures are constructed and administered just like tests. For this reason, the term test is regularly applied to self-report measures as well, and so, unless otherwise indicated, assume that test does indeed apply to self-report measures as well. This holds true for the criteria specified below.

3. **Criteria for Test Selection:**

   Objectivity: The scored are undistorted by biases of the individuals who administer it.

   Standardized Administration and Scoring procedures: Specifying the conditions under which a test should be given with sufficient detail to ensure that all test takers receive the same test under comparable conditions, regardless of who administers or scores the test.

   Norm-Referenced (based upon normative data): Tests are norm-referenced when they are given to a large group of people who are thought to represent the population at large so that future individual performances may be compared to the performances of the entire group, the norm group.

   Reliability: Indicates how ***consistently*** a test measures what it is supposed to measure (over time, across different versions of the test or across items on the same measure).

   Validity: Indicates how ***truthfully*** a test measures what it is supposed to measure. This is determined in many ways. It is judged by how relevant the items are to the purpose of the measure. It is also determined by correlating the measure with direct observations of the behaviors that the measure concerns or with reputable measures previously proven to be valid.

Furthermore, it is determined by studying whether it is as appropriate for certain groups of people as for others.

Note - Reliable test scores are not always used and interpreted in a valid manner, just as consistency does not guarantee truthfulness. You can consistently shoot an arrow at a target (a reliable performance), but instead of consistently hitting the target, you consistently hit a tree behind the target (your not accurately hitting the desired target, not truly hitting the construct).

C. **Question for Validity:** To what degree are we truly measuring the attribute or ability we think we are measuring with our measure (e.g., test, questionnaire, scale, rubric, or interview records)?

1. **Content Validity:** How well do the questions on a measure (test, questionnaire, or instrument) actually represent the content they are supposed to?

One way to find out is to have several experts in an area independently assess the questions for content, and then compare how much they agree.

2. **Predictive Validity:** How well does one measure predict future behaviors or scores?

One way to find out is to correlate scores that people get on a measure of concern given in the past behaviors or measure results occurring later in time. We would hope to get correlations that are at least moderately high, ranging from .50 to 1.00. For example, scores on the SAT should be able to predict **to some degree** scores on the GRE. (There are always other factors like how hard one studies).

As another example, how well do SAT scores predict college grades?

3. **Concurrent Validity:** How well does a measure correlate with another measure assessing the same construct given at the same time?

For example, scores on a teacher-made 9th grade math test can be correlated with the 9th grade math FCAT scores. We would hope to get correlations that are at least moderately high, ranging from .50 to 1.00. We wouldn't want correlations that are from .00 to .50, and we would especially not want correlations from -1.00 to .00

4. **Construct Validity:** How well does a measure (test, questionnaire, or instrument) actually assess the construct it is supposed to? This is the crème de la crème of validity results.

If a measure has content validity, predictive validity, and concurrent validity, we may argue that there is corroborating evidence suggesting that it actually has construct validity.

D. **Question for Reliability:** To what degree does is our measuring procedure consistent in assessing attributes or abilities? (By consistent, we are referring to the consistent application of our rules).

1. **Alternate Form reliability:** Do people who complete one version of a measure gets the same scores with another version of that measure?

When you took the SAT, it should have been administered under controlled conditions at a particular site on a given date. Because cheating on the exam must be controlled, examinees in adjacent seats should have taken different forms of the exam covering the same content. The question is just how fair was it to give two different forms of a test to the examinees? Did one group receive an easier exam? or a more understandable exam? One way to answer this question is to use Alternate Form reliability. A correlation coefficient between two forms of the same measure of .80 or higher is desirable.

2. **Test Retest Reliability:** How well does a measure give the same scores for the same people over time?

If you were to take the same version of the GRE two times in a row, assuming that you did not study in between, the GRE would be thought to have high test retest reliability if your scores were very close to being the same. A correlation coefficient calculated on scores collected on two occasions would be desirable if the correlation coefficient were .80 or higher.

3. **Cronbach's alpha reliability:** The two reliability procedures described above required that a measure is given twice. There is a way of calculating reliability with only one administration of a measure. It involves looking at how well the questions on that measure correlate with one another. This procedure is referred to as Cronbach's alpha or Coefficient alpha. A Cronbach's alpha of .80 or higher is most desirable.

IV: Posing Research Questions/Hypotheses and Sampling.

A. Research Questions and Hypotheses

B. Quantitatively selecting randomly a sample from the population

1. **Simple Random Sampling:** From one list of names, randomly choosing individuals to serve as a sample representative of the population.

2. **Systematic Random Sampling:** From one list of names, randomly choosing ***one*** individual from some fraction of the total number of individuals. The random selection of this one individual will directly determine all the remaining members of the sample. For example, if you want a sample of 10 people from a population of a hundred, you may randomly choose 1 of the first 10 people in your list. If you randomly chose person 3, the third person in every remaining group of 10 persons would be included in the study (i.e., person # 13, 23, 33, 43, 53, 63, 73, 83, and 93).

3. **Stratified Random Sampling:** From two or more list of names, randomly choosing individuals to serve as a sample representative of each population. This strategy is used when one intends to compare different groups in terms of how they responded to the survey.

4. **Cluster Random Sampling:** Not having a list of names, individuals are randomly chosen according to group membership (cluster). You may randomly choose classrooms in a school and use the students in each randomly selected classroom as your study participants. Here, we assume you have a list of the classrooms, but not a list of names.

C. Convenience Sampling

Choosing participants for your study on the basis of how easy they are to involve because of their immediately availability and willingness to participate (i.e., because when you casually run across each participant, you ask them to do so and they say "What the heck! I've got a few moments to burn.")

D. Purposive Sampling: Qualitatively selecting sample (Chapter 14, p. 348; Chapter 15, p. 382)

1. **Intensity sampling**: select participants who permit study of different levels of the research topic. (e.g., good and bad students, experienced and inexperienced teachers.)

2. **Homogeneous sampling**: select participants who share very similar experiences, perspectives, or outlooks

E. Purposive Sampling: Qualitatively selecting sample (Chapter 14, p. 348; Chapter 15, p. 382; Continued)

3. **Criterion Sampling**: selecting all cases that meet some criterion or have some characteristic (e.g., female administrators who have more than 15 years of experience)

4. **Snowball Sampling**: selecting a few people who can identify other people who can identify still more people

5. **Purposive Random Sampling**: selecting by random means participants who were purposely selected and who are too numerous to include all in the study.

V. Descriptive and Causal-Comparative Designs.

A. Descriptive Research: Survey and Observational

1. **Descriptive Research Studies** determine and describe the way things are. Most often descriptive studies involve surveying people (through questionnaires or interviews) or observing phenomena such as the behavior of middle school students, African squirrels, galaxies, neutrons, airline passengers, glacier movement, the use of technology in corporations, the Dow-Jones Average.

2. Descriptive research is typically exploratory in nature. It is typically used when researchers are trying to understand something new or historically puzzling. Hypotheses are typically inappropriate. Research questions alone are typically asked- perhaps several questions at once. Recall that there are four kinds of knowledge that research offers and that the first is descriptive. In a descriptive research study, phenomena are studied and all the factors that potentially influence the phenomena are recorded. Descriptive research is like fishing, because you may not know what you are going to catch in terms of an explanation for the variation in a given phenomenon studied. Descriptive research is often not very theoretical because the phenomenon studied is new, is not understood.

3. Descriptive research questions are NOT relationship questions. Relationships are not usually noted in the questions as posed because the researcher is not able to identify particular causal factors to isolate and specifically attend.

4. Typical Descriptive research studies in the social sciences include the use of (1) surveys to assess attitudes, opinions, preferences, demographics, practices, or behaviors and (2) note taking or rating scales to record the observation of human behavior such as obedience in a classroom, the exercise habits of high school students, maladaptive communication styles in persons seeking therapy, consumer purchasing trends, how college students make use of available technology, or the driving safety practices of motorists at a stop sign.

5. Surveys are used in many fields, including political science, sociology, economic, education and psychology.

6. Surveys are often viewed with disdain because many people have encountered poorly planned and poorly executed survey studies using poorly developed instruments.

7. **The steps involved in conducting Descriptive research include:**

   a. Identify a topic or problem.

   b. Review the related literature.

   c. State the research question(s).

   d. Identify the population of people who hold the desired information (the target population). The target population is a group of people who exist in theory, but whom you may never see, may never even have the opportunity to get your hands on.

   e. Identify your accessible population (members of the population you can get your hands on).

   f. Determine the sample size needed (this can get very mathematical, but, if you're willing to let loose of some rigor, does not have to be).

   g. Select a sample from the accessible population using some sampling technique

   h. Collect reliable data about which you may make valid interpretations.

   i. Analyze and report the conclusions

8. **Survey Research:** A common misconception.

   Questionnaires are **<u>not</u>** surveys, though we often mistakenly consider them to be the same. A survey is a kind of descriptive research and it may or may not make use of questionnaires. Interviews may instead be used.

9. **Purposes of Surveys**

   a. **Public opinion polls** are descriptive surveys that are used to determine how different groups of people feel about political, social educational or economic issues.

   b. **Developmental surveys** are concerned primarily with variables that differentiate children at different levels of age, growth, or maturation along a number of dimensions such as intellectual, physical, emotional, or social development.

   c. **Follow-up surveys** are conducted to determine the status of a group after some period of time.

10. Types of Surveys

1. **Cross sectional surveys:** involve the collection of data on a single occasion from people who are of different ages or developmental stages.

2. **Longitudinal surveys:** involve collecting data multiple times to measure change over time. Developmental surveys tend to be longitudinal in nature.

    a. <u>Trend studies</u>: involve surveying multiple groups of people at a particular stage in their life. Each group of people included in the study differs from the other groups in the study via the time at which they are surveyed. So that a trend may be detected over time, a different group of people may be surveyed every year for several years. What makes these groups similar is that they are all at the same developmental level; what makes them different is that they are surveyed at different times.

    b. <u>Cohort studies</u>: involve surveying the same population of people over time as they grow and change. The trick here is that each time the survey is administered a different set of people from the same population is participating in the study. In other words, each sample from this population is different.

    c. <u>Panel studies</u>: involve surveying the same group of people over time as they grow and change. The same participants involved in the study are surveyed time and time again until the conclusion of the study.

11. Four Data Collection Methods in Descriptive Research

1. **Questionnaires (Survey research)**

    a. *Advantages*
        i.   Inexpensive
        ii.   Can be confidential or anonymous
        iii. Easy to score most items
        iv.   Standardized items and procedures

    b. *Disadvantages*
        i.   Response rate may be small
        ii.   Cannot probe or explain items
        iii. Only used by people who can read
        iv.   Possibility of response sets

2. Interviews (Survey research)

a. Advantages
   i.   Can probe and explain items
   ii.   Usually high return rate
   iii. Can be recorded for later analysis
   iv.   Flexibility of use

b. Disadvantages
   i.   Time-consuming to use
   ii.   No anonymity
   iii. Bias of the interviewer
   iv.   Complex scoring of unstructured items
   v.   Training items

3. Telephones (Survey research)

a. Advantages
   i.   High response rate
   ii.   Quick data collection
   iii. Can reach a wide range of locales and respondents

b. Disadvantages
   i.   Requires phone numbers
   ii.   Difficult to get in-depth data
   iii. Requires training

4. Observations (Observational Research)

a. Advantages
   i.   Usually unobtrusive
   ii.   Examines naturalistic behaviors
   iii. Tend to be provide a true picture of those observed

b. Disadvantages
   i.   Time consuming and expensive
   ii.   Interpretation can be difficult
   iii. Training needed
   iv.   Observer bias and effects

12. A distinction between Descriptive Research questions and other types of research questions.

A dramatic change occurs when any kind of research beyond descriptive research is considered. Unlike most other kinds of research descriptive research focuses only on one variable at a time. It does not by definition focus on the relationship <u>between</u> variables, but instead focuses on one variable at a time. Descriptive research answers questions like:

    a. How many high school students use tobacco?
    b. How many sports utility vehicles roll over on US highways each year?
    c. What are the overall approval ratings of the President during this time of crisis?
    d. How often is Johnny off-task within each 15 minute period during his 1rst grade class?
    e. What is the state of the U.S. economy?
    f. What are the side effects of the red blood cell medicine known as Procrit?

Descriptive research does <u>NOT</u> answer questions like:

    a. What is the relationship between high school truancy rates and school violence rates?
    b. To what degree do home schooled children score higher on the SAT than children who receive a public education?
    c. How well do 3rd grade Reading decoding scores on the K-ABC predict 5th grade Reading Comprehension scores on the same test?
    d. How much better does

B. Causal Comparative Research

1. **Descriptive research** at the most involves the recording of a myriad of possible factors potentially connected to a phenomenon studied- because it is more of an exploratory endeavor. **Causal comparative** research is the first kind of research we will discuss that focuses on answering relationship questions.

2. According to philosophers of science, whenever a relationship between two variables exists it does so for one of two reasons. (1) Either one variable <u>causes</u> the other OR (2) both variables are caused by a third variable, perhaps undetermined. Therefore it may be said that whenever a study focuses on the relationship between variables, **the relationship studied may either be one of "<u>cause and effect</u>" or it is merely <u>correlational</u>.**

   • **<u>Research focusing on Cause Effect relationships:</u>** There are three kinds of research that focus on answer questions regarding cause and effect: (1) Causal-comparative research, (2) Experimental Research, and (3) Quasi-experimental research. Variables that are viewed as the <u>cause</u> are called **independent variables**; variables viewed as the <u>effects</u> are called **dependent variables**. Causes influence effects, therefore Causes must occur first in time. Effects follow. Whatever I do to bring about change is an independent variable. The thing that changes is the dependent variable. ***An important point to make here is that in causal comparative, experimental and quasi-experimental research the independent variable is either nominal or ordinal***. This is because the independent variable consists of categories that may or may not be ordered, categories that are to be contrasted in the research with respect to the dependent variable. The dependent variable, on the other hand, is usually either measured on an interval or ratio scale.

   • **<u>Correlational Research</u>** is the umbrella name for the other types of research that are simply correlational. Correlations are not able to tell us which variable causes which. It should be firmly noted in advance, however, that if a well-developed theory is in place and many correlations are analyzed at one time, some advanced types of correlational research are capable of indeed testing cause-effect relationships. These types of correlational research remain classified, however, as correlational research because they nonetheless are based upon correlations, which are on their own unable to provide information about cause and effect.

3. **Causal Comparative Research:** Research in which groups of people who already differ according to some attribute or other grouping variable (e.g., learning style, gender, past participation in study workshop or not, smokers versus non-smokers, ethnicity, SES, or introverts versus extroverts) are compared with respect to some other variable (i.e., performance on academic measures, anxiety, satisfaction, attitude, opinion, curiosity, typing speed, rate of developing Alzheimer's, or happiness). We assume with this kind of research that the attribute has already occurred or is not disposed to be manipulated (we can't decide beforehand who will be male or female, or who will smoke for 20 years and who will not). Sometimes it is not ethical to create the conditions that would make people differ on the attribute in question. If you were interested in the affects of lead poisoning on children, you could not ethically give some children lead and other children no lead to compare the two groups.

4. It is helpful to clarify just what causal comparative research is by comparing it to two other kinds of research to be discussed in a future class: **Experimental and Quasi-experimental research.**

5. **Experimental (more on this later):** Research in which the independent variable is manipulated by the experimenter such as method of instruction, type of reinforcement, arrangement of learning environment, or type of learning materials. By saying that the experimenter manipulates the independent variable, we mean that she or he can, using a truly random procedure, determine ahead of time which study participants go to which group. Study participants are **randomly assigned** to the different groups to be compared, in such a way where any one person has an equal chance of participating in either group to be compared. The groups of study participants that are created should not different in any meaningful way before the experiment takes place so that differences found between the groups may be attributed only to the independent variable under study.

6. **Quasi-Experimental (more on this later):** Just as in Experimental Research, the experimenter manipulates the independent variable, chooses the different conditions for comparison ahead of time. The fundamental difference between Quasi-Experimental and Experimental Research is the fact that the groups of study participants compared in Quasi-Experimental Research do NOT get randomly assigned to groups. So, it may happen that the groups differ in other ways than what the independent variable suggests. This is a complication that makes Quasi-Experimental

Research less authoritative, more vulnerable to criticism, and weaker than Experimental Research.

Summary of Research Comparisons

	Independent Variable	Random Assignment	
Causal Comparative	Not Manipulated	NO	
Experimental	Manipulated	YES	
Quasi-Experimental	Manipulated	NO	

VI. Correlational Research Designs.

A. What is a Variable? The opposite of a variable is a Constant. Whenever we classify, rank, or measure the attributes of people, animals, minerals, events, or phenomena, we do so because what we are observing varies. We would not bother classifying, ranking or measuring things that do not vary. We don't classify people as Earthlings. We do not rank Elton John as a musician among other Elton Johns (that would be silly and pointless). In short, we do not classify, rank, or measure constants.

Whenever we are interested in the relationship between two or more variables, it is useful to distinguish between **Independent** and **Dependent variables**. **Independent variables** roughly correspond to causes; **Dependent variables** roughly correspond to effects. Independent variables are thought to influence the outcome of a dependent variable. Consider: Cigarette smoking causes Cancer. Cigarette smoking would be the independent variable; and Cancer, the dependent variable.

B. What is a Correlation?

The Correlation Coefficient: A numerical value ranging from –1.0 to 1.0 that indicates the degree of relationship between two variables. A zero correlation suggests that there is no empirical evidence of a relationship between the two variables studied. As a value approaches 1.0 or –1.0, the relationship between two variables is considered to be higher. Either a –1.0 or 1.0 correlation suggests a perfect relationship between the test scores, performance scores, etc. Negative correlations are interpreted differently than positive correlations. Positive correlations suggest that as scores increase on one test, score on the other test tend to increase also. For example, a positive correlation exists between the height and weight of a person. The taller someone is, the more that person tends to weigh. Negative correlations suggest that as score on one measure decrease in value, scores on some other measure tend to increase. For example, the slower a person drives a car, the more likely the person will not have an accident. As inflation increases, buying goes down. The less a city enforces the law, the more a city has criminal incidences.

Different types of correlation coefficient procedures have been developed so that relationship may be determined between different kinds of variables, particularly variables that are scaled in different ways. **See Table 8.1 on page 215 for the different kind s of correlations. Consider this table as a part of your notes.**

C. What is a Correlational Research? Correlational Research involves studying the degree of relationship between two or more variables. Typically, in Correlational Research, one or more variables are used to either explain or predict one or more variables. **Relationship studies** explain the relationship between variables in order to understand theoretically what's going on. **Prediction studies** aim to identify variables that are very useful in predicting the outcomes on other variables

D. Correlational Research is sometimes considered a type of Descriptive research, though it may be quickly distinguished from Descriptive research in that Descriptive research studies focus on one variable at a time. Even though surveys often have several questions, ordinarily, the frequency of the response options for each question is examined in isolation. If in Survey research, one intends to correlate the items on the survey, one is actually engaging in Correlational Research.

E. Variables correlate for one of two reasons. Either one variable affects the other variable, or both variables are affected by a third variable that was not directly measured. So, when one variable correlates with another variable, either your two variables are an independent variable and a dependent variable or two dependent variables, both influenced by some unmeasured independent variable. Here's a secret: a correlation coefficient can only tell you the direction and strength of a relationship between variables- it can never tell you whether one variables causes the other, if indeed either does so at all.

F. In all Correlational studies all people must take the same measures, or be ranked, or be classified (depending upon which kind of Correlational study is intended).

G. Correlational Procedures that involve more than two variables in one analysis (unlike those presented in Table 11.3) include:

   1. **Multiple Regression**: A procedure for examining the relationship between two or more independent variables and one dependent variable measured on an interval or ratio scale.

   2. **Logistic Regression**: A procedure for examining the relationship between two or more independent variables and one dependent variable measured on a nominal or ordinal scale. Ideally, the independent variables must measure different constructs.

3. **Discriminant Analysis:** A procedure that examines the probability of correctly classifying persons or objects into groups based on a set of independent variables. The independent variables must all measure the same construct. The way in which people are classified is the dependent variable and, as such is on a nominal or ordinal scale.

4. **Canonical Correlation:** To see if two or more of variables combined to form a Factor are related to another set of variables combined to form a Factor. Really, the factors are correlated. Each set of Factor scores is a composite created from mathematically combined scores.

5. **Path analysis**: A method for studying the relationships among several variables with some independent variables serving as dependent variable for other independent variables. Variable A may affect variable B, which may in turn affect variable C. Consider the path diagram below. Think of each box a variable, the arrows indicating the causal direction from one variable to another. Path analysis is able to evaluate relationship patterns that are more complex than Multiple Regression.

WAIS III IQ scores

College GPA

H.S. GPA

SAT scores
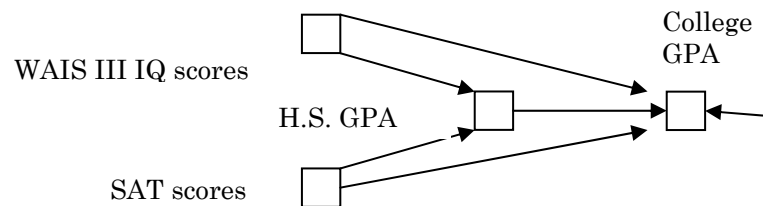
6. **Exploratory factor analysis**: An analysis of factors underlying a set of measured variables conducted without theoretical constraints imposed upon the solution. All variables are treated as dependent variables affected by unmeasured factors (which in effect serve as the independent variables.)

7. **Confirmatory factor analysis**: An analysis of factors (unobserved constructs) underlying a set of measured variables conducted with theoretical constraints imposed upon the solution. By definition, causal pathways among factors are not specified, nor are pathways among the manifest variables specified.

$\xi 1$

$\lambda 1$ $\lambda 2$ $\lambda 3$ $\lambda 4$

| x1 | x2 | x3 | x4 |

$\delta 1$ $\delta 2$ $\delta 3$ $\delta 4$
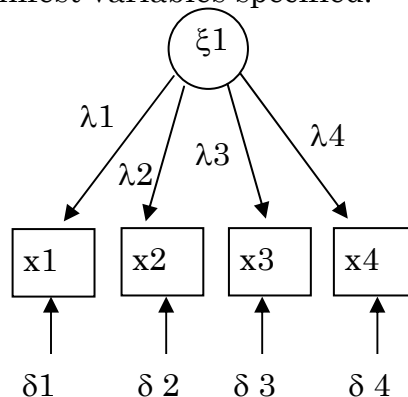
8.   **Structural equation modeling**: Like path analysis, a method for studying the direct and indirect effects of variables hypothesized as causes of variables treated as effects. Unlike path analysis, this method allows for causal pathways to be specified between factors in addition to manifest variables and it also allows for the estimation of measurement and latent errors. Structural equation modeling is thought to subsume path analysis as an analytic approach.
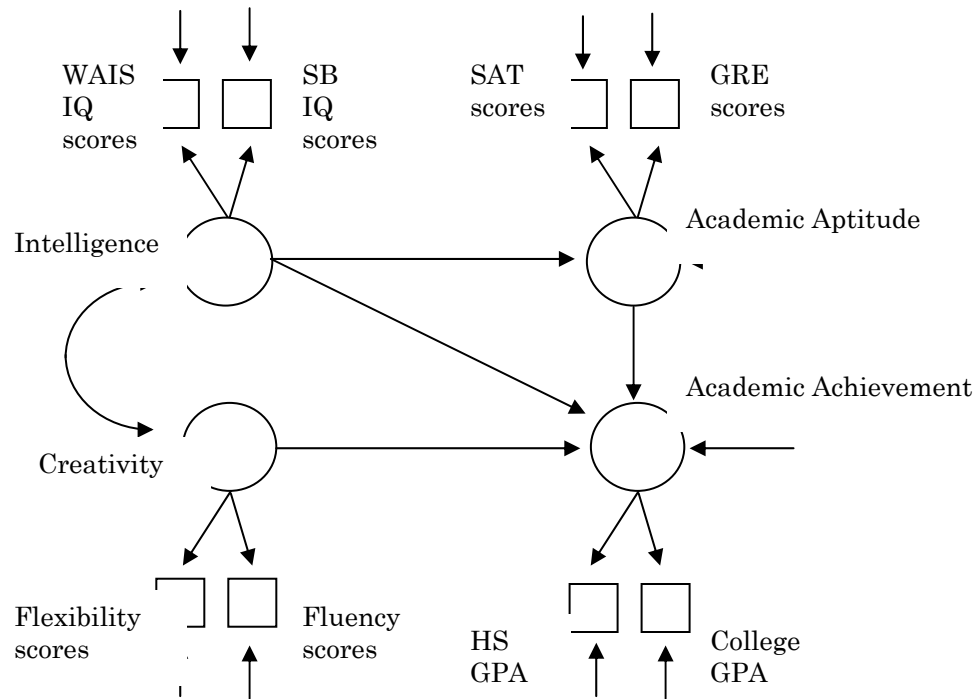
VII. Experimental and Quasi-experimental Research.

A.   **Experiments** provide the most rigorous test of causal hypotheses. Although causal-comparative and correlational designs can suggest causal hypotheses, experimentation is needed to determine whether the observed relationship is one of cause and effect.

B.   **Terms associated with experiments**

1.   **Independent variable:** this kind of variable roughly corresponds to a cause in a cause and effect relationship. Alternative names for this kind of variable in the context of experiments include experimental treatment, experimental variable, treatment variable, or intervention. Independent variables in experiments are most often characterized as being on a nominal scale or an ordinal scale. Why? Because independent variable in experiments consist of categories which are to be contrasted.

2.   **Dependent variable:** this kind of variable roughly corresponds to an effect in a cause and effect relationship. Alternative name for this kind of variable in the context of experiments includes the criterion variable, the outcome, or the posttest.

3.   **When experiments are conducted groups are compared.** Just as an independent variable in an experiment consists of categories, each group in an experimental study reflects one category of the independent variable. What distinguishes the groups of people or animals from one another is the category into which they fall. People or animals in one category are compared to people or animals in another category. In the simplest study, there are two groups, one group participate in the treatment condition, receives a treatment or intervention such as a Math workshop or a Speed Reading Course. The other group receives nothing, no intervention, no program, etc. The group of persons or animals receiving the intervention is referred to as the **experimental group**. The group receiving nothing is referred to as the **control group**. Comparing the results of these two groups will tell us how effective the treatment is.

Sometimes the two groups to be compared both receive an intervention, but the experimental group receives more of the treatment than the control group (e.g., a four-week phonics program vs. a one-week phonics program). Sometimes the experimental group receives a totally different treatment than the control group (e.g., an innovative history project vs. a traditional history lecture). In either of

these two cases, the control group is often called a **comparison group** instead, because some treatment is received by the control. Usually the treatment received by the comparison group is a status quo treatment, the run of the mill, ordinary, traditional treatment.

4. **Extraneous variables** are unwanted independent variables that influence the dependent variable. Every time an experiment is conducted there is some risk that the dependent variable will be influenced by independent variables that the researcher did not want in the study. These independent variables can effect the outcome of the study and confuse the researcher regarding the true impact of the preferred independent variable under investigation on the dependent variable. For example, a researcher may want to know how well a constructivist teaching strategy improves upon a traditional teaching strategy in teaching students concepts related to physics. Suppose that students who volunteer to receive constructivist-based instruction tend otherwise to be more confident and successful students than non-volunteering students. Any group differences found between the two methods may be more attributable to the kind of student in each group than the effectiveness of the strategy. At best the effect of a student's academic ability adds to any differences truly attributable to the type of instruction. For this reason, extraneous variables, by definition, threaten a study and must be controlled. In this example, we would want the students in both instructional groups to be comparable with respect to their academic ability, so selecting students according to who volunteers should be avoided. The goal of all experimentation is to control for extraneous variables. Indeed, experimental research is so much better than other kinds of research because it best enables a researcher to control extraneous variables. Two of the most basic ways in which experimental research controls extraneous variables is by random selection (randomization) and random assignment.

5. **Random selection:** Choosing a sample of people from a population of people with an approach that gives every member of the population an equal chance of being selected for the sample. Random selection does a good job of ensuring that a sample represents the population sufficiently well so that conclusions based upon the sample may be generalized (thought to be true for) the population as well.

6. **Random assignment:** In the case of an experimental study, once you have selected your sample from the population, you will want to break the sample up into groups, each group serving to participate one condition for your experiment, each group representing one category among all the categories of your independent variable. The best way to

decide who participates in which group is through random assignment. Random assignment is a procedure you use to randomly determine who goes to which group. Every person in your sample has an equal chance of participating in each research condition. The benefit of random assignment is that it often leads to a balanced distribution of people across groups, thus reducing the possibility that any differences found between or among the groups compared in the study are truly attributable to the treatment effect and not some other extraneous variable.

7. **Internal Validity** of a study refers to the extent to which the researcher controls for extraneous variables, so that any observed effect on the dependent variable may be confidently ascribed to only the treatment variable.

8. **External Validity** of a study refers to the extent to which the findings of an experiment may be applied to individuals (Population validity) and settings (Ecological validity) beyond those that were studied. **Population validity** is the term which refers to how well your sample represents your population (the effectiveness of random selection). **Ecological validity** concerns the extent to which the results of the experiment can be generalized to different environmental conditions beyond those of the explicit studied conducted.

C.   **<u>Study Designs</u> Common to Experimental and Quasi-Experimental Research**

a) X indicates the time of the treatment intervention.
b) O indicates the observation/ the time at which a test or measure is administered. The time at which assessment occurs.
c) R indicates that study participants were randomly assigned to treatment conditions to form groups

The first example below X O suggests that first a group of people was giving a treatment (e.g., an innovative reading program). Then, scores were collected from them (e.g., with some reading test).

1. One shot case study (a bad study design)
                    X O

2. One group pretest/post-test design (Quasi-Experimental design)
                    O X O

3. Pretest/Post-test control group design (Experimental design)
                    R O X O
                    R O   O

4. Post-test only control group design (Experimental design)
<pre>
         R   X O
         R   O
</pre>

5. Solomon 4-group design (Experimental design)
<pre>
         R O X O
         R O   O
         R   X O
         R   O
</pre>

6. Static-group comparison design (Quasi-Experimental design - No randomization)
<pre>
         __ X O __
               O
</pre>

7. Nonequivalent control group design (Quasi-Experimental design -No randomization)
<pre>
         __ O X O __
             O   O
</pre>

D.   Threats to the Internal Validity of a Experimental and Quasi-Experimental Research Study.

   Cook, T. D. & Campbell, D. T. (1979). <u>Quasi-Experimentation: Design & Analysis Issues for Field Settings.</u> Boston: Houghton Mifflin Company.

1. <u>History</u> (intervening events either positively or negatively affect study)

2. <u>Maturation</u> (The growth or change the intervention attempted to impact would have happened anyway due to mother nature).

3. <u>Testing</u> (Pretest influence, Study participants become test-wise)

4. <u>Instrumentation</u> (more favorable observer ratings on posttest as a result of observer bias and not a true intervention effect)

5. <u>Statistical Regression</u> (extremely high or low scores tend to move toward the mean upon later measurements).

6. <u>Differential selection</u> (experimental control group difference usually due to nonrandom assignment to groups.)

7. <u>Experimental Mortality</u> (study participant drop out)

8. <u>Selection maturation</u> interaction (those who elect to participate in your study might be prone to grow anyway)

9. <u>Experimental treatment diffusion</u> (The control group seeks access to the treatment condition materials and so the effect is dampened)

10. <u>Compensatory rivalry by the control group</u> (The control group says, "They think they're better? We'll do better even without the treatment!")

11. <u>Compensatory equalization of treatments</u> (Some authority figure other than the experimenter overseeing the control group feels bad that they are being left out and attempts to provide a different intervention as a compensation. For example, a schoolteacher who has a class in a control group (e.g., not receiving a special phonics program intervention) might seek out another special reading program for the students.

12. <u>Resentful demoralization of the control group</u> (The control group says, "Why try when we know we're going to fail anyway.")

E.   Threats to the Ecological Validity of a Experimental and Quasi-Experimental Research Study.

Bracht, G. H. & Glass, G. V. (1968). The external validity of experiments. American Educational Research Journal, 5, 437-474.

1. Poor description of the experimental treatment (Study cannot be replicated because there are no clear instructions)

2. Multiple treatment interference (Study participants may be involved in more than one study at once).

3. Hawthorne effect (the reactive effects of measurement; "Careful, we're being watched!" or "We like the attention!")

4. Novelty and disruption effects (what's unique is not reproducible)

5. Experimenter effect (The mere presence of the researcher during the study can influence the response patterns of the study participants. This is why it is often recommended that the experimenter hide while someone else unaware of the intent of the study administers the intervention.)

6. Pretest sensitization (The pretest becomes part of the treatment. The pretest serves to cue the study participants with regards to contents of the intervention, and this facilitates their performance.)

7. Posttest sensitization (The posttest becomes part of the treatment. The posttest may actually give the study participants an "AHA!" experience by serving as a summary of the intervention components. This may become part of the observed effect.)

8. Interaction of history and treatment effects (Timing is everything; including deceptive. Sometimes a study is welcomed or not welcomes due to the circumstances of the people who are participating.)

9. Measurement of the dependent variable (Intervention Results may vary greatly depending upon your choice of measure/ test/ instrument)

10. Interaction of time of measurement and treatment effects (Will the results hold up long after the intervention posttest?)

Sources of Invalidity

	Internal Threats to the Validity of a Design	External Threats to the Validity of a Design
Design 1)	History Maturation Selection Mortality	Interaction of selection and Treatment
Design 2)	History Maturation Testing Instrument Interaction of selection and other	Interaction of selection and Treatment Interaction of testing and Treatment
Design 3)	None	Interaction of testing and Treatment
Design 4)	Mortality	None
Design 5)	None	None
Design 6)	Mortality Selection	Interaction of selection and Treatment
Design 7)	Selection	Interaction of testing and Treatment Interaction of selection and Treatment

F.   Statistical Procedures most often used to analyze data coming from the various research study designs highlighted

1. Statistical procedures often used for Experimental, Quasi-Experimental, Evaluation and Assessment Studies

    a. <u>One shot case study</u>: Yields meaningless findings

    b. <u>One group pretest/post-test design</u>: dependent t-test, Repeated Measures ANOVA, Repeated Measures MANOVA

    c. <u>Pretest/Post-test control group design</u>: Repeated Measures Factorial ANOVA, Repeated Measures Factorial MANOVA, ANCOVA, MANCOVA

    d. <u>Post-test only control group design</u>: t-test, ANOVA, MANOVA, Discriminant Analysis, Regression, and Multiple Regression

    e. <u>Solomon 4-group design</u>:   Factorial ANOVA, Factorial MANOVA

    f. <u>Static-group comparison design</u>: : t-test, ANOVA, MANOVA, Discriminant Analysis, Regression, and Multiple Regression

    g. <u>Nonequivalent control group design</u>: Repeated Measure Factorial ANOVA, Repeated Measures Factorial MANOVA

VIII. Experimental Designs: Part 2.

A.   Review Notes from previous section

IX. Qualitative Research

A. Philosophy of Science

1. <u>Philosophy</u>: Literally means the <u>love of wisdom</u>. It is often used in reference to the historical study of human thoughts. There are a number of subcategories (branches) falling under philosophy including epistemology, metaphysics, ontology, logic, aesthetics, and ethics. When discussing research, Epistemology is particularly relevant to discuss in the context of research when describing differences between qualitative and quantitative research.

2. <u>Epistemology</u>: A branch of philosophy that studies the nature of knowledge and the process by which knowledge is acquired and validated.

3. <u>Objective reality</u>: Features of our environment exist independently of the individuals who observe or create them.

4. <u>Positivism</u>: the epistemological doctrine that physical and social reality is independent of those who observe it, and that observations of this reality, if unbiased, constitute scientific knowledge.

5. <u>Postpositivism</u> (i.e., constructivism): epistemological doctrine that social reality is constructed and that it is constructed differently by different individuals as they interact in a social environment. So there are multiple **constructed realities**. Many educational researchers who subscribe to this constructivist position believe that these realities cannot be studied by the analytic methods of positivist research.

6. <u>Positivist research</u>: grounded on the assumption that features of the social environment constitute an independent reality and are relatively constant across time and settings. But what's more positivists believe that if features of the environment exist, they can be measured or observed. The downside of this assumption is that anything that cannot be measured or observed is thought not to exist.

7. <u>Postpositivist research</u>: grounded on the assumption that features of the social environment are constructed as interpretations of individuals and that these interpretations tend to be transitory and situational. The downside of this assumption is that generalizations can therefore not be made, because truth, as traditionally defined, doesn't exist. So, claims about which methods are better in teaching students, strictly speaking, cannot be made.

8. **Quantitative research**: Many researchers believe that this is virtually synonymous with positivist research. This is how it is often used. This is an overgeneralization. Positivism was created in the early 1920s by a group of philosophers who called themselves the Vienna Circle. This group included Schlick, Carnap, Feigl, Frank, Menger, Hahn, and Godel (the well-known mathematician). Many researchers have made numerous discoveries before this time or without having to know about or buy into the tenets of positivism.

9. **Qualitative research**: Many researchers believe that this is virtually synonymous with postpositivist research. This is an overgeneralization. Most traditions fall today classified as qualitative research predate postpositivism and, often are incompatible with postpositivism. Grounded theory research, for example, as originally conceived by one of its authors was much more positivist than postpositivist. As an other example, Phenomenological research is based on a wholly different philosophy than postpositivism.

B.   **Types of Qualitative Research and the *question* each answers**

1. **Case study:** What are the characteristics of this particular entity, phenomenon, or person?

2. **Ethnography**: What are the cultural patterns and perspectives of this group in its natural setting?

3. **Ethology**: How do the origins, characteristics, and culture of different societies compare to one another?

4. **Ethnomethodology**: How do people make sense of their everyday activities in order to behave in socially acceptable ways?

5. **Critical theory**: What are the economic, ethnic, and gender structures that constrain and exploit people in a given culture?

6. **Grounded Theory**: What working theory can be constructed on the basis of information gathered from observations or interviews of a particular group of people in a particular setting?

7. **Phenomenology**: What is the experience of an activity or concept from this particular participant's perspective?

C.   **A good qualitative research proposal should answer the following questions:**

1. What are you going to study?

2. In what setting or context will you conduct the study?

3. What kinds of data do you think you will collect?

4. What methods do you plan to use?

5. Why are you doing the study?

6. What contribution might the study provide?

D.   **Characteristics of Qualitative Research according to Patten (1990)**

1. **Naturalistic inquiry**: studying real-world situations as they unfold naturally; non-manipulative, unobtrusive, and non-controlling; openness to whatever emerges.-lacks predetermined constraints of outcomes.

2. **Holistic perspective**: The whole phenomenon under study is understood as a complex system. The focus is on the complex interdependencies not reduced to discrete variables and linear, cause-effect relationships.

3. **Qualitative data**: Detailed, thick description; direct quotations capturing people's personal perspectives and experiences.

4. **Personal contact and insight**: The researcher has personal contact and gets close to the people, situation, or phenomenon under study. Even the researcher's personal experiences and insights are an important part of the inquiry and critical to understanding the phenomenon.

5. **Dynamic systems**: Attention to process; assumes change is constant whether the focus is on the person ort the culture.

6. **Unique case orientation**: Assumes that case is special and unique; the first level of inquiry is being true to, respecting, and capturing the details of the individual, cases being studied.

7. **Context sensitivity**: Places findings in a social, historical, and temporal context; dubious of the possibility or meaningfulness of generalizations of findings across time and space.

8. **Empathic neutrality:** Complete objectivity is impossible; pure subjectivity undermines credibility; the researcher's passion is understanding the world in all its complexity- not proving something, not advocating, not advancing personal agendas, but understanding. The researcher includes personal experiences and insight as a part of the relevant data, while taking a neutral nonjudgmental stance toward whatever content may emerge.

9. **Design flexibility:** Open to adapting inquiry as understanding deepens and/or situations change; avoids getting locked into rigid designs that eliminate responsiveness. Pursues new paths of discovery as they emerge. So, both the design and the hypotheses emerge as the study is underway.

E.   **Data Collection**

1. **Purposive Sampling**:

    A.   **Intensity sampling**: select participants who permit study of different levels of the research topic. (e.g., good and bad students, experienced and inexperienced teachers.)

    B.   **Homogeneous sampling**: select participants who share very similar experiences, perspectives, or outlooks

    C.   **Criterion Sampling**: selecting all cases that meet some criterion or have some characteristic (e.g., female administrators who have more than 15 years of experience)

    D.   **Snowball Sampling**: selecting a few people who can identify other people who can identify still more people

    E.   **Random Purposive Sampling**: selecting by random means participants who were purposely selected and who are too numerous to include all in the study.

2. **Observation** (Participant versus Non-participant) using Field notes. Does the researcher join the group studied as a member or does the researcher observe from a distance?

3. **Interviews** (Structured versus Unstructured) using Field notes and/or surveys. Does the researcher plan a common set of questions to ask those persons studied before interviewing them, or does the researcher approach the interview with no agenda?

4. **Journaling**: Does the researcher ask the study participants a common set of questions to answer as they journal or do the participants freely journal daily whatever they so choose or whatever occurs to them.

F.   **Data quality issues (called Trustworthiness)**

1. **Credibility**: Are the findings and interpretations produced credible (**truthful**)? Did anyone lie or stretch the truth? How credible are the findings and interpretations with the various groups or audiences from which the data are drawn? Use prolonged engagement, persistent observation, and triangulation of data sources.

2. **Transferability**: Can the findings/ results discovered in one context generalize to another context? How **applicable** are the results in this context to another context? Using thick description helps to increase the chances of successfully transferring hypotheses to other contexts or to the same context at a later time.

3. **Dependability**: To what degree can we depend on the **consistency** or accuracy of the conclusions made? Use a dependability audit.

4. **Confirmability**: To what degree can we depend on the neutrality of what was reported? How **objective** was the information gathered? How does bias affect the results? Use a confirmability audit trail.

G.   Qualitative Research: Overall rhetorical structure

1.   **Phenomenology** (emphasizes the meaning of an experience for a number of individuals – usually up to 10 people)

A Phenomenological report may begin with an autobiographical statement about the experiences of the author leading to the topic. Moustakas (1994) indicates that the analysis steps taken in phenomenology provide a clearly articulated procedure for organizing a report. A description of how you follow these steps

(1) Fully describe your own experience with the phenomenon.

(2) Review the interview transcripts, and Locate statements made by participants that describe how individuals are experiencing the topic/ phenomenon.

(3) Identify which statements from all the statements located are significant, and list them being careful **not** to have in the list conceptual overlapping (i.e., redundant) statements in the list. Using research jargon, you have just **Horizontalized** individual statements by dividing protocols into statements)

(4) Create psychological or phenomenological **"meaning units"** from the statements, (i.e., group the statements under conceptual headings).

(5) Cluster the **"meaning units"** into **themes** (yet bigger conceptual headings), advancing **textural** and **structural descriptions**

(6) The **textural descriptions** focus on *what was experienced*, what happened, including verbatim examples taken from the interview transcripts.

(7) The **structural descriptions** focus on **how the phenomenon or event was experienced, first of all, by you (recall your initial report of the experience), and then by the participants. As a part of this, identify all** the possible meanings and divergent perspectives, varying the frames of reference about the phenomenon, constructing a description of how the phenomenon was experienced.

(8) Finally, tie the themes together by presenting an integration of **textural descriptions** and **structural descriptions** into exhaustive description of the **essence** of the experience (a.k.a., the **invariance structure**).

2. **Grounded theory** (generates a theory of a phenomenon that relates to a particular situation in which people interact as they act and react to this phenomenon). In a grounded study, you follow these steps:

(1) State the major research question, report how it evolved during the course of the study, and define key terms pertinent to the phenomenon or concept under study.

(2) Write a literature review. In this literature review, you will **neither** provide key concepts nor suggest hypotheses as you would in quantitative research. Instead, the literature review should focus on gaps or biases in existing knowledge, thus providing a rationale for the grounded theory study.

(3) The findings in a grounded theory amount to a discussion of the theory itself.

a) Examine the text (transcripts, field notes, documents) for salient categories of information supported by the text.

b) Examine the text again and hunt for instances in which the text material represent thoughts/ feelings /observations that fall under each category. Be sure to **saturate** each category- make sure each category is described to the point where no further insight is possible. Do not be afraid to interview or observe yet more to collect more information to ensure that a category is fully described. Say that motherly love was a category. You would want to interview people to the point that nothing new is likely to be said about what motherly is. If people start saying nothing more than what was found in the text, the category is saturated. The categories will contain subcategories (we'll call them properties), and subcategories contain sub-subcategories (we'll call these dimensions).

Overall, this is the process of reducing of reducing a database to a small set of themes or categories that characterize the process or action being explored in the grounded theory study.

c) Start by forming initial categories of information about the phenomenon being studied by segmenting information (**open coding**).

d) Identify a single category from all the categories listed as the central phenomenon of interest

e) Interconnect the categories by using a particular coding paradigm (**axial coding**). All categories other than the category used as the central phenomenon of interest are used to shed light on the central phenomenon of interest.

1. Depict the **causal conditions** that influence the central phenomenon. Of all the categories previously identified, identify which ones pertain to what causes the phenomenon.

2. Identify **strategies** for identifying the phenomenon. Of all the categories previously identified, identify which categories address the methods used for recognizing the phenomenon.

3. Describe the **context** that shapes the strategies. Of all the categories previously identified, identify those set in the context in which these strategies or methods are used to spot the central phenomenon.

4. Describe the **intervening conditions** that shape the strategies. Of all the categories previously identified, which categories may be used to describe and understand the intervening conditions.

5. Describe the **consequences** of undertaking the strategies. Of all the categories previously identified, identify which categories address the consequences of the central phenomenon.

6. Draw a picture or flow chart that depicts a theoretical model, visually portraying the interrelationship of these axial coding categories of information. The theory is said to have been built or generated.

f) Identify a story line and write a story that integrates the categories in the axial coding model and hypotheses presented (**selective coding**).

g) Finally, portray a **conditional matrix** that elucidates the social, historical, and economic conditions influencing the central phenomenon. Put forth theoretical propositions, new conjectures, pertaining to the phenomenon.

(4) The conclusion discusses the relationship between the theory and other existing knowledge and the implications of the theory for future research and practice.

3. **Ethnography:** Characteristics that typically mark an ethnographic study, according to Creswell (2002), include
   - an exploration of cultural themes drawn from cultural anthropology
   - the examination of shared patterns of behavior, beliefs, and language.
   - a presentation of a description, themes and interpretation within the context or setting of the group.

In an Ethnographic study, you generally follow these steps:

(1) Begin with an introduction that engages the reader's attention and focuses the study, then proceed to link your interpretation to wider issues of scholarly interest in the discipline.

(2) After this, introduce the setting and the methods for learning about it, including details concerning entry into and participation in the setting as well as advantages and constraints of the ethnographer's research role. In other words, write a description of the culture under study that answers the question "What is going on here?" The tale is told in either an objective, matter of fact way (a realist tale), or in terms of the researcher's personal fieldwork experiences with somewhat less emphasis on the culture itself (a confessional tale), or in terms of a compelling and persuasive story that integrates the realist and confessional tale (an impressionistic tale).

(3) Next, identify patterns and themes resident in the information collected by interview or observation.

(4) Next, you make analytic claims, using "Excerpt commentary". Here, you present an excerpt or direct quote from the thick description and then you advance an analysis of what this excerpt means within the context of the socio-cultural theory.

(5) In conclusion, the author reflects and elaborates on the thesis advanced at the beginning.

4.   **Case Study:** In a Case Study, you follow these steps:

(1) Opens with a vignette so that the reader can experience a vicarious experience to get a feel for the time and place of the study.

(2) Next, identify the issue, the purpose, and the method of the study so that the reader learns about how the study came to be, the background of the writer and the issues surrounding the case.

(3) This is followed by an extensive description of the case and its context.

(4) Issues are presented next, a few key issues, so that the reader can understand the complexity of the case.

(5) Next, several of the issues are probed further, with both confirming and disconfirming evidence.

(6) Assertions are presented, a summary of what the writer understand about the case, and whether initial generalizations and conclusions about the case have changed or been challenged.

(7) Finally, ends with a closing vignette, an experiential note, reminding the reader that this report is one person's encounter with a complex case.

X. Qualitative Research: Part 2.

A.   **Review Notes from previous section**