Lecture 1 - Theory Construction and Hypothesis Testing

A. Max Weber's methodological theory

  1. Sociology

    Sociology ... is a science concerning itself with the interpretive understanding of social action and thereby with a causal explanation of its course and consequences.   We shall speak of "action" insofar as the acting individual attaches a subjective meaning to his behavior - be it overt or covert, omission or acquiescence.   Action is "social" insofar as its subjective meaning takes account of the behavior of others and is thereby oriented in its course.   (p. 4)

    a. A science referring to social action (intentional; meaningful)

      1) NB not every action is social, only that oriented to others

    b. Interpretive understanding

      1) Entails attribution of motive

        a) (chopping wood)

        b) "adequate grounds" for action

      2) Entails need to understand historical context

      3) Comparative sociology needed since experimental generally impossible

    c. Causal explanation "A correct causal interpretation...is arrived at when the overt action and the motives have both been correctly apprehended and at the same time their relation has become meaningfully comprehensible."

  2. Ideal Types

    a. Method for reconciling causal and interpretive knowledge
    b. Analytical construct, a "utopia"
    c. Accentuates certain features
    d. Guides imputations of significance
    e. Guides hypotheses of laws
    f. Developmental sequences can also be ideal types

        1) This creates danger of mixing theory with reality

    g. Ideal types permit successive approximation: growth of knowledge "Its result is the perpetual reconstruction of those concepts through which we seek to comprehend reality."

    h. Refer mainly to rational action, or what would have been rational

        1) This gives it causal significance
        2) Does not entail belief in universal human rationality

    i. Sociological "laws"

        1) "typical probabilities confirmed by observation"

        2) Sociology tries to formulate type concepts

            a) abstracts from reality & helps us understand it

        3) History oriented to causal analysis & explanation

  3. Types of Social Action

    a. Instrumental Rational (Zweckrational): means/ends
    b. Value Rational (Wertrational)
    c. Affectual (emotional)
    d. Traditional

        1) A residual type: depends on history

    e. Non-rational types on the border of the meaningful

  4. The issue of a "value-free" or "value-neutral" social science

    a. Means that research is not biased or partisan
    b. But all research is value-oriented inasmuch as we choose research topics according to our values

  5. Discussion of diagram; successive approximation

B. Durkheim's methodological theory

  1. Investigate social phenomenon by looking at its individual manifestations

    2. Compare cases and reduce to groups with essential similarities
    3. Thereby create typologies and establish underlying social forces

    4. Methodology

       a. Must raise sights above individual cases

       b. Whether rate should be considered normal/abnormal

          1) NB functionalist argument: existent serves a purpose
          2) Excesses in some direction have their uses
          3) Currents useful as long as they are not excessive

       c. Example of suicide: High rates often caused by too-rapid social change [Pathologies]

          1) What integrates people today in light of rapid development

             a) Not State: too remote
             b) Not religion: too great sacrifices to intellect
             c) Not family: too decayed
             d) Occupational groups or corporation

          2) State, almost alone, survived changes

             a) Need for decentralization, maybe through occupational group

C. Schutt (from textbook)

    1. Science, society & social research

       a. Reasoning about the social world & errors in reasoning

          1) Over-generalization
          2) Selective or inaccurate observation
          3) Illogical reasoning
          4) Resistance to change

       b. Social research in practice

          1) Descriptive
          2) Exploratory
          3) Explanatory
          4) Evaluation

    c. Validity

        1) Measurement validity
        2) Generalizability
        3) Causal validity

2. The process & problems of social research

    a. Research strategies

        1) Research circle
            a) deductive
            b) inductive
            c) descriptive

    b. Ethical guidelines for social researchers

        1) honesty & openness
        2) uses of science
        3) research on people (cf. ASA code of ethics)

            a) cause no harm
            b) participation voluntary; informed consent
            c) researchers disclose own identity
            d) anonymity or confidentiality for participants
            e) benefits should outweigh risks

<u>Lecture 2 - Conceptualization and measurement</u>

A. Concepts

   1. Conceptualization in Practice
      a. Examples: Substance Abuse, Alienation, Poverty

   2. Operationalization
      a. Concepts
         1) e.g., Income
      b. Variables
         1) e.g., Annual earnings
      c. Indicators
         1) question on questionnaire

B. Measurement Operations

   1. Using Available Data
      a. e.g., Census, ILO, OECD
   2. Constructing Questions
      a. Single Questions vs. multiple indicators
         1) Open-ended vs. closed-ended questions
      b. Scales and Indexes
         1) reliability (alpha)
         2) dimensionality & clustering
         3) weighting dimensions
   3. Observed vs. Indirect Measures
      a. Unobtrusive measures
      b. Content analysis

C. Evaluation of Measures

   1. Measurement Validity

      a. Face Validity - plausibility

      b. Content Validity - covers appropriate range of the concept

      c. Criterion Validity - the measure can be verified by some external measurement (criterion)

      d. Construct validity

           1) especially needed when there is no external criterion: cf. EFA & CFA
           2) also discriminant validity: separate measures of the same concept

  2. Reliability

    a. Test-Retest Reliability
    b. Inter-item Reliability (Internal Consistency)
    c. Alternate-forms Reliability & split-ballots
    d. Inter-observer Reliability

D. Levels of Measurement

  1. Nominal
  2. Ordinal
  3. Interval
  4. Ratio - includes a zero-point
  5. The Case of Dichotomies
  6. Comparison of Levels of Measurement

Lecture 3 - Causation and research design

A. Meanings of Causation

　　1. Nomothetic Causes: based on variables and average tendencies

　　　　a. Counterfactuals: the outcome in the absence of the causal variable
　　　　b. Ceteris paribus: all other things being equal; the residual effect of the causal variable after other factors are taken into account

　　2. Idiographic Causes: individualist, historicist, case-based explanation. Entails a narrative story; emphasizes *Verstehen* (understanding).

　　3. Synthetic Causal Explanations. Cf. Weber's *Erklären* and *Verstehen* (explanation and understanding): ideal typical accounts.

B. Criteria for Causal Explanation (in rough additive order)

　　1. Association. Necessary, but not sufficient; causation not necessarily present.

　　2. Time Order. Not sufficient, but strong evidence of causality.

　　3. Non-spuriousness. Must rule out the presence of an extraneous variable that causes both correlated variables. Some social scientists who favor nomothetic causal explanations believe that the first three elements are sufficient for explaining causality.

　　4. Mechanism. Giving an account or a story about what happens. This adds elements of the idiographic.

　　5. Context. Adds additional possible variables; the causal relationship may hold true in one context but not another.

　　　　a. In principle, this is a limitless process.
　　　　b. This is a fundamental approach of comparative-historical research.
　　　　c. This is Weber's basic approach in building ideal-typical accounts.

C. Research Designs to Determine Causality

　　1. Nomothetic Research Designs

　　　　a. Experimental Research

1) Experimental group receives the "treatment"
2) Comparison or control group does not
3) All other factors are held constant
4) Thus, variance is introduced on the independent (causal) variable
5) Randomization: research subjects are randomly assigned to the two groups in order to reduce the effects of third variables.

b. Non-experimental Research

1) Examines   naturally-occurring events, not experimental ones.
2) May be cross-sectional (one point in time) or longitudinal (measurements over multiple points in   time).
3) Statistical controls are introduced to rule out the effects of third variables.

a) Spurious effects: a third variable causes both the independent and dependent variables.
b) Intervening effects: the independent variable works through the third variable in affecting the dependent variable.   These identify causal mechanisms.   (Example from book, p. 165: juvenile delinquency leads to unstable jobs, etc., which leads to adult criminality.)

c. Comparison of Experimental and Non-experimental Designs

2. Idiographic Research Designs

a. Explanation in Field Research: narrative stories establish plausibility, but have trouble proving causation.

b. Event-Structure Analysis: examines the different turning points in the narrative, applying counterfactual reasoning to each, in an attempt to see which one(s) is/are critical.

3. Combined Research Designs.   Most research contains elements of both.

D. Research Designs to Determine Time Order

1. Cross-Sectional Designs

a. Establishing time-order mainly depends on knowing what value some variables had at a prior point in time.

1) Some demographic variables are established at birth (sex, race, birth year)
2) We may trust respondents to accurately report previous events (e.g., earlier

vote, occupation)
3) The context may have been invariant (e.g., the regime, the party system)

b. Establishing time-order in cross-sectional research can be extremely difficult. Examples:

1) In poverty research: Unemployment and work attitudes
2) In democracy research: Democratic institutions and democratic values.

2. Longitudinal Designs

a. Repeated Cross-Sectional Designs: Trend studies.

1) Samples are drawn at different points in time in the <u>same</u> population but with <u>different</u> respondents.

a) Note that the population may differ in various ways at the various time points:

(1) Generational replacement
(2) In- and out-migration
(3) Social structural change

b) If these are the independent variables of interest, then the research design is sound because we are investigating the effects of variation in the independent variables on the dependent variables.

c) If these are not the independent variables of interest, then they may introduce noise or distortion into the research design.

b. Panel (Fixed-Sample) Designs

1) Samples are drawn at different points in time in the <u>same</u> population with the <u>same</u> respondents.

2) This is a nice ideal, but there are often severe practical problems in conducting such a study, especially over substantial periods of time.

a) Expense and attrition
b) Respondent fatigue

c. Cohort Studies (Event-Based Designs)

1) Population sub-groups are tracked over time, even though the individual

respondents are different at different time points.

  a) Birth cohorts
  b) Institutional cohorts (same year entering a place of work or school)
  c) Social classes, racial, ethnic, religious groups, genders, etc.
  d) Regions

2) Potential problem: age-period-cohort effects

3) Examples

  a) Party realignment in America
  b) The "Nazi generation" in post-1945 Germany

E. Units of Analysis and Errors in Causal Reasoning

  1. Individual and Group Units of Analysis

    a. Examples from my research on democratic values and bigotry: individual
        attributes; regime attributes

  2. Confusing levels of analysis

    a. Ecological Fallacy: drawing unwarranted inferences about individuals from
        group data.

      1) Example: concluding that Catholics have a weaker work ethic because
          Catholic countries are poorer than Protestant countries.   (Weber's
          "Protestant Ethic" thesis)

    b. Reductionism: drawing unwarranted inferences about groups from
        individual-level data.

      1) Example: concluding from higher rates of crime among blacks [based on
          observations of individuals] that blacks are inherently prone to violence
          [conclusion about groups].   Bill Wilson argues that poverty and social
          disintegration lead to violence among all racial groups.   The fact that more
          blacks live in these conditions produces higher crime rates.

<u>Lecture 4 - Sampling</u>

A. Sample Planning

1. Define Sample Components and the Population

a. Sample components are elements: e.g., people, firms
b. Population is the universe.   It can be difficult to know enough about the whole universe unless a census exists that determines its characteristics. Otherwise, sampling determines its characteristics, but this involves circular logic.

2. Evaluate Generalizability.   Whether the sample characteristics can be generalized back to the whole population.

a. Sampling error: differences between the sample and the target population.

1) Might be biased or random.   More on this later

3. Assess the Diversity of the Population.

a. The more uniform the population, the easier it is to sample.
b. The more diverse, the more careful you have to be that your sample is representative of the diversity.

4. Consider a Census

B. Sampling Methods

1. Probability Sampling Methods: "Random" samples

a. The following factors give us confidence in the representativeness of the sample:

1) A larger sample; but more than ca. the high 100s yields a diminishing return of confidence
2) The population is homogeneous
3) The fraction of the population sampled does <u>not</u> affect our confidence unless the fraction is very large

a) Example: Literary Digest vs. the Gallup Poll of 1936.   LD had a high N, but was not representative.   Bias came because it was based on

telephone & car ownership.

b) Also note example of 1948 election, which predicted Dewey victory over Truman.   Polling stopped too soon.

b. Simple Random Sampling (SRS).   Based on random numbers.

1) RDD is an example, but this must depend on population having phones. Examples: 1936 election; "Bottoms" study.

2) Even with SRS, interviewers must make a strong effort to contact each randomly-selected respondent.   Refusals or non-contacts may be systematic.   Examples -

a) Higher or lower status people may refuse more often.
b) Employed people are less likely to be home in the afternoons.   If men are more often employed, this will also introduce a gender bias.
c) Young people and students are home less and harder to reach.
d) In all these cases, a sufficient number of attempts/call-backs is very important.

c. Systematic Random Sampling.   Depends on sampling interval: every nth unit. Bias can be introduced if the sampling interval coincides with substantive intervals in the population.   E.g., every 10th house corresponds to a corner house, and corner houses are more valuable, giving the sample a higher-income bias.

d. Stratified Random Sampling.   Since some population segments are small (e.g., minorities), researchers may attempt to assure that each identifiable segment is represented according to its population size, and respondents randomly within each segment.   Also, note oversampling: taking a disproportionately larger sample of some minorities, to increase your ability to analyze the resulting sample (higher N).

e. Cluster Sampling.   A full probability sample may be expensive, so "clusters" may be used.   E.g., a random sample of locations is selected, then a random sample of respondents within the locations.   Clustering reduces the randomness of the sample and, thus, the statistical efficiency.

2. Non-probability Sampling Methods

a. Availability Sampling.   E.g., reporters simply looking for good quotes.   Very great risk of bias.

b. Quota Sampling.   This may create problems in non-quota'ed population segments.

   1) Note that if the quota'ed segments are control variables, data analysis can proceed fairly efficiently.

   2) Quota samples are cheaper to conduct; and they are widely used in Europe.

   3) Some have argued that a good quota sample predicts outcomes better than a probability sample with other problems (e.g., inability to sample close enough to an election).

c. Purposive Sampling.   Each sampling element is selected for a purpose, to represent different population elements, but otherwise, the sample may not be representative.

d. Snowball Sampling.   In very hard-to-find populations (e.g., people with rare diseases), some respondents are used in finding further respondents.   In principle, this can introduce bias because respondents who know each other may have the same characteristics, which may differ from the true population.

C. Sampling Distributions

   1. Estimating Sampling Error.   I won't talk much about statistical theory.

   a. A systematic sampling error occurs when there is bias, as described earlier.

   b. Random sampling error occurs by chance.   This may be a problem simply when the sample is too small.

   c. A random sample of a normally-distributed population characteristic will also have a normal distribution ("bell-shaped curve").

   d. Confidence intervals/limits: most of the population/sample will be concentrated toward the center, according to certain formal properties.

   2. Determining Sample Size.

   a. Different sample sizes yield different "margins of error."   These are widely reported in media polls.

   b. But as we've seen, this is only one source of potential error.

D. Example of on-line polls.   I'll post some materials on my website, and we can discuss this later.

Lectures 5 & 6 - Survey Research

A. Survey Research in the Social Sciences

   1. Attractive Features of Survey Research

      a. Versatility
      b. Efficiency
      c. Generalizability - representativeness

   2. The Omnibus Survey & "piggy-backing"

      a. Also: split ballots increases the number of questions that can be asked.   Note problem that split ballots create in analysis: cannot correlate all questions.

   3. A Cautionary Note - NB Kohut's (1988) sources of error in election prediction

      a. Question variation: non-replication
      b. Question order
      c. Call-back procedures
      d. Methods for allocating "leaners" - and predicting who will vote
      e. Crystalization of opinion: do respondents know candidates and issues yet
      f. Event "spikes" - temporary effect of events like party conventions, or even short wars (e.g., George Bush & the Gulf War)
      g. Random error, including sampling error

B. Questionnaire Development and Assessment

   1. Build on Existing Instruments - Replication vs. Innovation

   2. Write Clear and Meaningful Questions

      a.   Avoid Confusing Phrasing

         1) Double-negatives: example of AJC poll on Holocaust & Tom Smith's clarification: "Does it seem possible or does it seem impossible to you that the Nazi extermination of the Jews never happened?"

         2) Double-barreled questions: e.g., "Do you think President Nixon should be impeached and compelled to leave the presidency, or not?"   Subsequent polls on Clinton showed that this includes two separate issues.

3) NB filter questions, skip patterns, contingent questions

b. Minimize the Risk of bias

1) Hot-button words.   Cf. sending U.S. troops "if a situation like Vietnam were to develop in another part of the world" vs. to "stop a communist takeover." A skillful/unscrupulous researcher may be able to push responses up or down by 20 percentage points or more by using hot-button .

c. Avoid Making Disagreement Disagreeable

1) E.g., required to join a union vs. free to join a union

d. Minimize Fence-Sitting and Floating: the issue of "don't knows."

1) On one hand, be careful not to force people without opinions to choose a substantive opinion.

2) On the other hand, it's helpful to prevent people with opinions from hiding behind "don't knows" by not offering DK as an answer option.   This is an especially important consideration in election surveys when trying to classify voters, leaners, and non-voters.

3. Refine and Test Questions.

a. Pre-tests

b. Focus groups

c. Cognitive interviews: probing with follow-up questions to see how questions are being understood

4. Add Interpretive Questions

a. Knowledge questions
b. Relevant background experience
c. Attitude constraint or consistency
d. Consistency of actions with opinions
e. Strength of attitudes

5. Organize the Questionnaire Logically

6. Write a Persuasive Introduction or Cover Letter

      a. Credibility: especially the sponsor or affiliation of surveyor
      b. Personalized cover letter
      c. Interesting
      d. Responsible

C. Survey Designs

   1. Mailed, Self-Administered Surveys

      a. Response rate is a problem [NB: rates in book may differ from what you'll encounter in practice]

      b. Follow-up reminders are crucial

   2. Group-Administered Surveys

      a. Often a captive audience, but these are often unrepresentative of a larger universe for that reason.

   3. Surveys by Telephone

      a. Reaching Sample Units

         1) RDD
         2) Note issue of "cleaning" phone lists of businesses, faxes, modems, etc.
         3) Also note issue of multiple lines per household
         4) Problem of increasing refusal rates due to telemarketing

      b. Maximizing Response to Phone Surveys

         1) Multiple call-backs
         2) Time of day for calls
         3) CATI (computer-assisted telephone interviewing) labs

   4. In-Person Interviews.   Highest response rates, though they can be much more expensive.

      a. Balancing Rapport and Control.

         1) Very personal question may be difficult to ask in person.   Asking respondents to fill out a ballot & return it in a sealed envelope can be used.

         2) Interviewer effects may play a role: cross-gender, cross-race, cross-age,

      etc.

    b. Maximizing Response to Interviews.   An advanced letter can help.

  5. A Comparison of Survey Designs.   See table on p. 267.

D. Ethical Issues in Survey Research

  1. Confidentiality is important.   True anonymity is very difficult to assure.

  2. Disclosure.   Researcher should disclose the purpose of the study.

Lectures 7 & 8 - Comparative and historical research

A. Overview of Historical and Comparative Methods

	Cross-Sectional	**Historical**
Single Case	Historical Events Research	Historical Process Research
Multiple Cases	Cross-Sectional Comparative Research	Comparative/Historical Research

B. Historical Social Science Methods

1. Historical Events Research

    a. A Quantitative Case Study: Citizenship and Public Schools
    b. A Qualitative Case Study: Petitions in the English Revolution
    c. Methodological issues: Historical Events Research

        1) Meaning of words can change over time
        2) Accuracy of sources may be questionable
        3) Missing data
        4) Data may only be available in certain cases/settings

2. Historical Process Research.

    a. Issues include

        1) Duration
        2) Pace
        3) Trajectory
        4) Cyclical

    b. A Quantitative Case Study: Explaining Variation in Race Riots
    c. A Qualitative Case Study: Breakdown of Chilean Democracy
    d. Methodological Issues: Historical Process Research

        1) Might focus on idiosyncratic decisions of actors
        2) Case selection

3) Operationalization of variables may change over time
4) Time series data may be uneven
5) Narrative explanations may be ad hoc.   Counterfactuals can help here.

C. Comparative Social Science Methods

1. Cross-Sectional Comparative Research

a. A Quantitative Case Study: Voter Turnout
b. A Qualitative Case Study: Mass Conscription in Modern Democracies
c. Methodological Issues: Cross-Sectional Comparative Research

1) Lack of longitudinal data
2) Missing data in some cases/settings
3) May be difficult to operationalize variable in multiple settings

2. Comparative Historical Research

a. A Quantitative Case Study: Democratization and Modernization
b. Two Qualitative Case Studies: Democracy and Development

1) Methods of Agreement and Difference (J.S. Mill) (see p. 343)

c. Methodological Issues: Comparative Historical Research

1) Requires detailed knowledge of multiple cases
2) Selection of cases can affect conclusions
3) Tendency to deterministic rather than probabilistic logic in explaining causation - often due to the small number of cases
4) Coding of variables can be overly simplistic (often dichotomized)
5) Often more variables than cases
6) Assumption of independence of cases often violated

d. Some examples from my own research

1) Opposition Structure, Performance, and Democracy (ASR 89)
2) Correlational vs. Conjunctural logic (RDS 94)
3) Diffusion, Nostalgia, and Performance

D. Data Sources

1. U.S. Bureau of the Census
2. Bureau of Labor Statistics (BLS)
3. Other U.S. Government Sources

4. International Data Sources
5. Survey Datasets

   a. ICPSR
   b. Data archives
   c. Survey organizations

6. Methodological Issues: Secondary Data Sources

E. Special Techniques

1. Demographic Analysis
2. Content Analysis
3. Oral History

Lecture 9 - Participant observation

A. Fundamentals of Qualitative Methods - differences from quantitative research

   1. Qualitative rather than quantitative

   2. Exploratory; inductive reasoning, not deductive

   3. Focus on previously unstudied processes & unanticipated phenomena

   4. Focus on social context

   5. Focus on subjectivity & meaning/significance

   6. Ideographic, not nomothetic causal explanation

   7. Reflexive research design

   8. Sensitivity to the subjective role of the researcher

B. Participant Observation [Fieldwork]

   1. Choosing a Role

      a. Complete Observation - rather difficult to simply be a fly on the wall: you always have some effect

      b. Participation and Observation - most common form

      c. Covert Participation - often raises ethical questions of deception

   2. Entering the Field

   3. Developing and Maintaining Relationships

      a. Sensitivity to your role: you are not a true part of the scene

      b. Acknowledge social differences

      c. Don't push too far beyond trusting relationships, & don't ask compromising questions

      d. Payment for information raises ethical questions & changes your relationship to informants

      e. Try not to take sides in conflicts

   4. Sampling People and Events

   5. Taking Notes

   6. Managing the Personal Dimensions

C. Intensive Interviewing

   1. Establishing and Maintaining a Partnership

   2. Asking Questions and Recording Answers

   3. Combining Participant Observation and Intensive Interviewing

D. Focus Groups

E. Analysis of Qualitative Data

   1. The Phases of Analysis

      a. Elements of inductive & deductive reasoning

      b. Hypothesis generation

   2. Use of Computers

   3. Evaluation of Conclusions

      a. Credibility of informants

      b. Were statements elicited or spontaneous?

      c. How did presence of researcher affect situation?

F. Ethical Issues in Qualitative Research

   1. Voluntary participation

   2. Subject's well-being

3. Disclosure of identity and confidentiality

    a. Note: in some cases, subjects may want <u>publicity</u>, not anonymity (e.g., Regis's study of second-line marching associations in New Orleans)

Lecture 10 - Experimental research

A. True Experiments

1. Experiments involve:

    a. Two comparison groups: experimental and comparison

    b. Variation in the independent variable before assessment of change in the dependent variable

    c. Random assignment of test subjects to the two or more groups

2. Experimental and Comparison Groups

    a. Experimental (or Treatment) group receives the treatment or experimental manipulation

    b. Comparison (or Contrast) group receives different treatment

    c. Control group receives no treatment (left random)

3. Pretest and Post-test Measures - before and after treatment, to test for the effect

4. Randomization

    a. This attempts to assure that no other variables have an influence on the outcome

    b. Sometimes, Matching is substituted for randomization, but it is less trustworthy. (Matching means comparing subjects who are the same on various attributes besides the independent and dependent variables of interest.)

5. Identification of the Causal Mechanism

6. Control over Conditions: It can be very difficult to control all other factors (besides the independent and dependent variables of interest), and for this reason, some people are skeptical of experimental research in fields like sociology.

7. Summary: Causality in True Experiments

    a. Association between independent and dependent variables can be well

established

b. Time order of effects can also be fairly well established

c. Non-spuriousness.   Experimental research, especially if it utilizes random assignment to groups, is quite strong in establishing non-spuriousness - if it can be convincingly argued that no other factors are playing a role.

d. Mechanisms of causality can be somewhat difficult to establish.

e. Context of the experiment can be especially difficult to control, especially in field experiments, and is a great source of problems for internal validity.

B. Quasi-Experiments.   The main difference with genuinely experimental research is that subjects cannot be randomly assigned to groups.   In fact, this form comes close to ordinary, non-experimental research design, in which controls are statistical, not experimentally determined.   Paradoxically, they can be seen as more, rather than less, valid as a result.

1. Nonequivalent Control Croup Designs.   Can be implemented by individual and/or aggregate (group) matching.   This is rather similar to statistical control, not experimental control.

2. Before-and-After Designs.   These are very similar to panel and time-series designs

3. Ex Post Facto Control Group Designs

C. Evaluation Research: experimental and quasi-experimental research that seeks to assess the impact of social policies or programs.

D. Validity in Experiments

1. Causal (Internal) Validity

a. Selection Bias.   This is especially a problem in field experiments, where all conditions cannot be fully controlled.

1) Differential attrition may be caused by some of the factors of interest

b. Endogenous Change: the terms of the experiment itself may induce change that is not included in the study design.   Examples:

1) Learning from repeated testing

2) Maturation of the subjects

3) Regression toward the mean on future tests, especially if extreme cases at first test were randomly distributed.

c. External Events or History Effects.   Human subjects are not laboratory rats!

d. Contamination.   Subjects of each group may learn about the treatment of the other group, and this may affect their performance.

e. Treatment Misidentification.   Sources:

1) Expectations of experimental staff.   Good experimental design may require a double-blind design.

2) Placebo effects.

3) Hawthorne effect: simply knowing that they are being scrutinized (paid attention to) can make subjects happier, but the effect wears off after a time. Thus, any treatment appears to lead to an improvement.

2. Generalizability.   This is the greatest weakness of experimental research.

a. Sample Generalizability.   Can be very difficult and/or expensive to draw a representative sample of the population you want to generalize about.

b. External Validity.   Note that cross-cultural generalizability can be difficult to establish.

3. Interaction of Testing and Treatment

E. Ethical Issues in Experimental Research

1. Deception.   Double-blind conditions are a priori a form of deception, so informed consent can be very difficult to establish.

a. This deception can cause harm to subjects

b. Debriefing can be used to mitigate this tendency, but one may be skeptical that it is adequate

2. Selective Distribution of Benefits can raise ethical questions.