Unit 1: Research Methodology
AICE Syllabus Content- Methods of Research

- Candidates should be familiar with:
  - The distinctions between primary and secondary data and between quantitative and qualitative data.
  - The different quantitative and qualitative methods and sources of data, including questionnaires, interviews, observation techniques, experiments, longitudinal studies, case studies, content analysis, semiology, documents, and official statistics.
  - The stages of research design: deciding on research strategy; formulating research problems and hypotheses; sampling and pilot studies; conducting the research; interpreting the results and reporting the findings.
Research Methods in General

- Overall, it is the approach to which investigators use to examine a particular topic

- What do we generally need to conduct a study?
  - *depends on the investigation itself*
  - For experiments: purpose, research question(s), (null)hypothesis(es), a theoretical basis, procedure, sampling technique, data collection & analysis technique, and it must be ethical
  - For non-experiments: purpose/question, data collection & analysis

- Research is accomplished primarily through quantitative data, qualitative data, or a “mixed-methods” designs incorporating both data collection methods
  - **Quantitative data** - numerical content
  - **Qualitative data** - ideas, beliefs, emotions, thoughts, etc. that are not able to be truly quantified
Experimental Research Studies

- Experimental research studies tend to have:
  - Aim/Purpose
  - Theoretical Background/Reasoning
  - Hypothesis
  - IV/DV, sample, data collection technique, etc
  - Procedure
  - Results
  - Conclusions/Discussions
Experimental Research Studies

• **IV** - independent variable - variable that is manipulated by experimenter (such as assigned seat)

• **DV** - dependent variable - the variable that is being measured (such as test score)

• **Hypothesis** - an predicted outcome about what effect the IV will have on the DV
  - “Ps who are assigned to the front of the class will score better on the test compared to Ps who are assigned to the back of the class or Ps who are in the control group”

• **Null Hypothesis** - a testable statement saying that there will be no difference or correlation b/w the IV and DV or that the difference/correlation is due to chance
  - “there will not be an influence of seating in the classroom for Ps’ test scores”

• **One-tailed (directional) hypothesis** - statement that one IV will have a greater influence on the DV
  - Such as original hypothesis above

• **Two-tailed (non-directional) hypothesis** - statement that there will be an influence of the IV on the DV, but without specific prediction
  - “There will be a difference in Ps scores of those who are assigned to a seat in class and those who are not”
Experimental Research Studies

• **A laboratory experiment**
  - A type of study where conditions are controlled and an IV is manipulated to determine cause and effect
  - probably the most common form of research in the social sciences
  - different from field in that the subjects can truly be randomly assigned to each condition
  - Sometimes found using large and expensive scientific equipment
  - Example of a lab experiment
    - Bandura (1961) study randomly assigned pre-school students to an aggressive group, a non-aggressive group, or control group. After going through the observing phases, the Ps were given toys to play with and were measured to see if their behavior was the same as the models' behavior
Experimental Research Studies

• Advantages of lab studies
  • manipulation of variables makes determining cause and effect easier
  • more control of extraneous variables
  • the use of standardized procedures and operationalized variables make replication easier

• Disadvantages of lab studies
  • too much control can create artificial conditions which in turn produce artificial results
    • Lowers ecological validity and mundane realism
  • demand characteristics are most commonly found in this type
Experimental Research Studies

• A field experiment is:
  • conducted in more everyday/natural environment
    • such as classroom, mall, street, etc.
  • an experiment where subjects may not know they are being observed
  • example- Piliavin (1969) took place in a subway where stooges were ‘drunk’ or ‘ill’ and purposely ‘fell’ to observe helping behavior from those on the subway

• Advantages of field experiments:
  • it may tell us more about real life because the behaviors are “natural”
  • it maintains many of the features of an experiment (like IV/DV)

• Disadvantages of field experiments:
  • more difficult to determine cause and effect.
  • may be difficult to replicate
Experimental Research Studies

• **Repeated Measures Design**
  - A design where each participant is exposed to *more than one level* of the IV
  - Such as sitting in the front of the class for one test and then sitting in the back for another

• **Advantages of repeated measures**
  - controls participant variables because every participant is exposed to ALL levels of the IV
  - requires less Ps because each participant serves as his/her own control group

• **Disadvantages of repeated measures**
  - some variables can not be repeated (you can’t make someone do a task as male then as a female)
  - may require replicated equipment or word lists which can lead to increased errors
Experimental Research Studies

• Independent Groups Design
  • A design where each participant is in just one group so that each P only gets one level of the IV
  • Such as the Bandura (1961) study where each child went through the process in either the aggressive, non-aggressive, or control group

• Advantages of independent groups design
  • eliminates ordering effects
  • lowers risk of demand characteristics by Ps

• Disadvantages of independent groups design
  • twice the number of Ps needed
  • doesn't control for participant variables
Experimental Research Studies

• Matched Pair design
  • A design where Es try to match as many subject variables as possible (age, IQ, race, etc.)
  • For example, in the Bandura (1961) study, Bandura had the Ps matched for levels of aggression that they showed before being in the study

• Advantages of matched pairs design
  • Participant variables are controlled because they are matched
  • Achieves this without the ordering effects of repeated measures

• Disadvantages of matched pairs design
  • difficult to truly match across all subject variables
  • can be expensive and time consuming
Research Sampling Techniques

- Sampling techniques can vary and is based upon the type of research needed
  - Simple random sampling - Ps selected based upon randomly pulling names from a sampling frame
    - sampling frame - list of those in the target population for the study
    - In this technique, everyone has an equal chance of being selected (though not truly able to accomplish)
  - Systematic sampling - Ps selected in a specified way (like every 5th name) from a sampling frame
  - Stratified random sampling - divide the sample pool into specific groups (such as age) and then randomly pulling names
  - Stratified quota sampling - similar to above, but over once the quota numbers are met
  - Opportunity sampling - using sample that is available at that moment (such as on a subway)
    - Deliberative type - using an opportunity sample that best fits the desired study group
    - Snowball type - one opportunity group leading to other opportunity groups over time
  - Self-selecting sample - comprised of volunteers from adverts or similar
Types of Data

• **Primary data** - collected personally by the researcher(s)
  • Enables certain data to be collected, increasing reliability & validity
  • May be time-consuming & expensive, can be difficult gaining Ps, & may be influenced/biased
  • Can include: Questionnaires/surveys, interviews, content analysis & semiology, experiments

• **Secondary data** - already exists in forms of records, pictures, stories, stats, other research, etc.
  • Faster & easier to collect, may be only type available, official stats help reliability & validity
  • May not always fit the need/definition of the research, interviews/stories may be unreliable
  • Can include: Official statistics, pictures, stories/folklore
Non-Experimental Research- Correlational Studies

- When manipulating an IV is not practical or ethical, researchers instead look for correlations.

- Correlation - a ‘causal’ relationship as one (or more) variable influences another variable.
  - For example, investigating if there is a correlation b/w dress code and GPA.
    - Though we could look at students' GPAs at schools who have and do not have dress codes, it would be impossible to conclude that any difference is only due to a dress code.
  - Positive correlation - a relationship in which an increase/decrease in one variable leads to a increase/decrease in the other - they both go in the SAME direction.
    - The increase in temperature has a positive correlation to an increase in ice cream sold (or a decrease in temp leads to a decrease in sales).
  - Negative correlation - relationship in which one variable increases/decreases leading to a inverse increase/decrease in the other - they go OPPOSITE directions.
    - The decrease in temperature outside leads to an increase in sales of hot cocoa.
    - The increase in gas prices leads to a decrease in driving.
Non-Experimental Research - Questionnaires

- **Self-Report Methods** have the subjects themselves report on their feelings, memories, or experiences - accomplished through surveys and/or interviews.

- **Surveys/Questionnaires** – a form of self-report whereby the Ps read the questions themselves and fill out answers (typically on paper or using a phone/computer):
  - Open-ended Questions - allow for the Ps to expand on ideas in more depth.
  - Close-ended Questions - simple yes/no, t/f, m/c or number scale questions provide more quantitative data that does not allow for Ps to explain their thoughts.
    - Close-ended questions often use a Likert scale with 1 to 7 ratings (with 1 very unlikely or completely disagree and 7 very likely or completely agree).
  - Longitudinal Surveys - take place over time (with limited contact) with goal to show change and/or influence of (multiple) variables on certain ppl/topics.
  - Cross-sectional Surveys - often seen as snap-shot of behavior at only one point in time - often only looks at one correlation (such as education & income).
Non-Experimental Research - Interviews

- **Interviews** - self-report methods where the Es ask the questions
  - **Structured** interviews use pre-prepared questions and all the Ps receive the same questions in the same order with no variation
  - **Unstructured** interviews do not use pre-prepared questions. Questions are determined by how the discussion goes
  - **Semi-structured** interviews contain some of both of the above. They often start with pre-prepared questions but then allow the Es to go where the Ps responses take them
  - **Group interviews (focus groups)** - often comprised of Ps who shared a common event/theme (such as growing up in a certain area at a time) which enables larger data collection at once and may help Ps be more open/comfortable in a group vs one-on-one situation
Non-Experimental Research - Self-Reports

- **Advantages of Self-Reports**
  - Ps may be able to express feelings and explain their behavior
  - Data can be rich
  - Closed-ended questions are easy to score

- **Disadvantages of Self-Reports**
  - Closed-ended questions limit what the Ps can say
  - Ps might give answers that are socially desirable (say what they think the Es want to hear)
  - Always possibility of Ps not telling the truth or purposely misleading the researcher(s)
  - Possibility of Ps completing it without much thought/attention
  - Interviewing techniques often take a bit of finesse in leading
Non-Experimental Research- Case Studies

• Case Studies- a detailed piece of research involving a single unit (a person or small group)
  • Usually conducted over longer periods of time
  • Typically investigate from multiple manners- records, interviews, observations, etc.

• Advantages of case studies
  • Often finds info from a small number of people (or a unique individual) that hopefully is
    generalized to a larger number of people (like Genie the Wild Child)
  • Studied over time so gets a more detailed picture

• Disadvantages of case studies
  • Rarely produce much quantitative (numerical) data
  • Relationships between Es and Ps can become very close
  • Often is not as generalizable
Non-Experimental Research - Observations

- **Observations** – data collected by watching or participating with Ps with the aim of recording and understanding behavior/interactions
  - **Non-participant Observation** - Es do not become involved in the situation
    - Yule (1986) observed how mothers treat their children in public places
  - **Participant Observation** – takes place in a natural environment of the Ps where the Es actually become part of the community
    - Rosenhan (1974) observed the treatment of patients in mental hospitals
    - Based on Weber’s (1922) idea of verstehen (to understand by experiencing)
Non-Experimental Research - Observations

- **Observations** – data collected by watching or participating with Ps with the aim of recording and understanding behavior/interactions
  - **Overt observation** – those being studied are aware of this fact as the Es (with permission) often join in the behavior or observe without interference
    - Such as journalists investigating the life of soldiers during war
    - **Hawthorne effect** – ppl may behave a certain way knowing that they are being observed
  - **Covert observation** – those being studied are unaware of this fact
    - Such as undercover police investigations in gangs
    - Aside from ethical issue of deception, may pose a threat to the well-being of the researcher entering, during, and/or after the data collection period
Non-Experimental Research- Observations

• Advantages of Observation
  • Behavior can be more natural, especially in non-participant and/or covert observations
  • The data can be rich and provide more examples and insight

• Disadvantages of observation
  • Ps may not get the chance to explain why they behaved in a certain way
  • Might be difficult to replicate, especially in participant and covert observations
  • Observers have high chances of missing the recording of data and/or may interpret it incorrectly
Non-Experimental Research- Content Analysis

**Content Analysis** - a research method that is used for the systematic analysis of media

- This may include TV shows/movies, pictures/images, online content, etc.
- Can be complex and wide-ranging (pending on source content) to accomplish
- This analysis can use both quantitative (primarily) and qualitative data

**Strengths of Content Analysis**

- These analyses can often lead to revealing underlying themes/messages and predict behavior
- Allows for concept mapping and standardization of research (that can be replicated)

**Weaknesses of Content Analysis**

- Research focus itself can be subjective (What to research? What to focus on?)
- Categorizing content can also be subjective (such as TV character’s behavior- hero or bad guy?)
- The analysis doesn’t tell us how or why the audience interprets the content- just what it is
  - Semiology (qualitative aspect) often is used in combination
Non-Experimental Research- Semiology

- **Semiology** – study of cultural meaning embedded in media, often used to explore & interpret the ‘hidden meanings’ within such content
  - Often used alongside content analysis
  - Semiology more on the qual side as content analysis more on the quan side
  - Interpretations through semiology is accomplished through 2 levels:
    - **Denotative level**- what it is or claims to be (a pic itself)
    - *Connotative level*- what something means- this varies individually, within groups, & within cultures
Non-Experimental Research - Semiology

• Strengths of Semiology
  • Often requires few resources to accomplish
  • Often a quick and ‘cheap’ method of analysis
  • Useful tool in analyzing how the media constructs & maintains social realities, identities, and goals
  • Has been used in numerous studies to show ‘hidden meanings’ in media content
  • Grounded in empirical research when combined with content analysis

• Weaknesses of Semiology
  • Researchers need a firm understanding of the subject matter & resource before analysis starts
  • Unable to definitively say that because research found one connotation that audiences would view it the same way or the purpose of the media subject was such
  • May be influence by researcher bias and/or hidden agenda