TYPES OF RESEARCH

The different characteristics of research:

Research May be Applied or Basic

The purpose of applied research is to solve an immediate, practical problem.

Basic Research (Pure) adds to the existing body of knowledge; doesn't necessarily provide results of immediate, practical use.

Research May be Obtrusive or Non-Obtrusive

Obtrusive research - where the researcher introduces conditions that influence participants. Where the researcher manipulates the environment.

Non-obtrusive research - where researcher avoids influencing subjects in any way and tries to be as inconspicuous as possible.
Four Main Types of Research

Historical research - describes what was - mostly non-obtrusive

Descriptive research - describes what is - mostly non-obtrusive

Correlation research - makes comparisons, looking for trends or tendencies

Experimental research - describes what will be - mostly obtrusive
Historical Research

A systematic process of searching for information and fact to describe, analyze, or interpret the past

Value - can provide prospective for decision making about current problems
- Issues are often better understood if we understand the historical perspective

Sources - must have good backed sources to protect from criticism
- Most common sources are past records

Descriptive Research

Describes, interprets, and clarifies what in the present
- Often done with surveys
- May be done by observation or an observational instrument

Developmental Research is one common type of descriptive research which involves the study of changes in behavior over a period of time
Correlation Research
The purpose is to find relationships between two or more variable so to:
- Better understand the conditions and events that we encounter (what goes with what)
- To predict future conditions and events.
- Correlations do not show cause and effect

Coefficients of Correlation
- range from –1 to 1
- the farther the number is away from 0 the higher the correlation
- a negative correlation suggest an inverse effect
- a 1 or -1 shows a perfect correlation
- a correlation of 0 indicates no relationship

Experimental Research
An experiment is a research situation where at least one independent variable, called the experimental variable, is deliberately manipulated or varied by the researcher.

Variable – element or characteristic being studied

Parameter - element that remains unchanged (age, number of subjects)
Evaluation of Sources

**Primary sources** - original or first hand account of event or experience, persons involved, documents, records or relics

**Secondary sources** - an account that is at least once removed
- persons not involved directly with an event but has close knowledge (parents, relatives)
- newspaper

**External Criticism** - evaluates the validity of the document
- who, when, where it was produced
- is the document genuine, authentic
- status of author (primary or secondary?)

**Internal Criticism** - evaluates the meaning, accuracy and trustworthiness of the content (comes after external criticism)

- Both external and internal criticism are important to establish validity.
**Sampling Terms and Procedures**

**Population** - Inclusive group defined by researcher

**Sample** - Representative subset of population
- Should contain essential elements of population

**Random Sampling** - Process of sampling which assures that any subject in the population has an equal probability of being in the sample

**Systematic counting** - Uses list to choose every \( n^{th} \) person from the population

**Stratified Random** - Used when researcher believes the population has distinct subgroups
Ex: Population has 45% men, then we make sure sample is 45% men
**Variables and Limitations**

**Independent Variable** - experimental or treatment variable (it is the cause)
- what we are studying
- it is what we are manipulating in our study

**Dependent Variable** - is what is measured to assess the effects of the independent variable
- it is thought to be dependant on the independent variable

**Delimitations** - choices the experimenter makes to affect a workable research problem
Ex: You delimit the number of subjects or the time frame

**Limitations** - the conditions or influences that either cannot be controlled or are the results of the delimitations imposed
- limitations are beyond the control of the researcher and may place restrictions on the study
Experimental Research Designs

Pretest-Posttest Design
Pretest $\rightarrow$ treatment $\rightarrow$ posttest

Posttest Only Control Group Design - weak due to lack of control sampling through a pretest
(1) Treatment $\rightarrow$ posttest
(2) $\rightarrow$ posttest (control group)

Pretest-Posttest-Control Group Design
(1) Pretest $\rightarrow$ treatment $\rightarrow$ posttest
(2) Pretest $\rightarrow$ $\rightarrow$ posttest (control group)

Quasi-Experimental Design
(1) Pretest $\rightarrow$ group $\rightarrow$ treatment $\rightarrow$ posttest
(2) Pretest $\rightarrow$ group $\rightarrow$ $\rightarrow$ posttest (control group)
*Grouping is performed based on pretest*

Solomon 4-Group Design - used to check effects of posttest
(1) Pretest $\rightarrow$ treatment $\rightarrow$ posttest
(2) Pretest $\rightarrow$ $\rightarrow$ posttest (control group)
(3) treatment $\rightarrow$ posttest
(4) $\rightarrow$ posttest (control group)
**Validity**
- Does it measure what it is suppose to measure
- Wasted time if not valid
- Involves:
  1. The extent to which the results can be accurately interpreted
  2. The extent to which the results can be generalized to population

**Internal Validity**
- basic minimum control, measurement, analysis, and procedures necessary to make the results interpretable
- is the study itself setup and run correctly

**External Validity** - extent to which the study relates to the population
- concerned with comparability and translatability
Seven Threats to Validity

1. **History** - events that take place between the pretest and post test that may be a partial or total explanation for the differences-control group will help

2. **Maturation** - refers to physiological and biological development that takes place over time.

3. **Regression** - occurs due to the imperfect relationship between the pretest and the posttest scores. Ex: lack of sleep, illness

4. **Instrumentation** - changes occurring in the instruments and observation procedures

5. **Pre-testing** - effect pretest has on subsequent tests-may serve as learning instrument

6. **Mortality** - loss of subjects during an experiment

7. **Selection** - the procedure used to choose subject who participate
Subjects and Subjects Rights

- Right to privacy or non-participation
- Do not ask unnecessary information
- Should get adults consent or parents of minors consent
- Right to remain anonymous-researchers should explain study focus on group data
- Right to expect experimental responsibility
  - Researcher will be ethical and sensitive to dignity
  - Subjects must be notified of research or debriefed immediately after
- Informed consent-a fair explanation of procedures to follow