Experimental Psychology

the branch of psychology concerned with the scientific investigation of basic psychological processes such as learning, memory, and cognition in humans and animals.
- in a controlled setting in order to predict, explain, or influence behavior or other psychological phenomena
- aims at establishing quantified relationships and explanatory theory through the analysis of responses under various controlled conditions

scientific Research

-a systematic and objectiveattempt to provide answers to certain questions or problems , develop and discover an organised body ofstudy.

a systematic method consisting of enunciating the problem, formulating a hypothesis, collecting facts or data, analysing the facts and reaching certain conclusions either in solution form of generalisation for some theoretical information.

Research Process

define R problem> Review of literature > formulate H > Design R > collect data > analyse the data > hypothesis testing > interpretation of data > preparing report > presenting results

Types of Research

Descriptive - survey and fact finding enquiries.Describe the current state of affairs. ex Ex-post facto R	**Analytical**-analysis of already available information to make critical evaluation	**Action or Applied** - aim is finding a solution for a problem at hand
fundamental - concerned with generalisations and formulation of a theory.	**Quantitative** - measurement of quantity or amount	**Qualitative** - aim is to discover underlying motives of human behavior.
Conceptual - related to some abstract idea or theory. used to develop new theories or reinterpret existing ones.	**Empirical** - relies on observation or experience alone. Data-based research. Alia experimental R.	**Other** - one time OR longitudinal; field setting OR laboratory R ; Exploratory R; Historical R.

Hypothesis

Hypothesis - a testable proposition; a tentative solution formed on a problem.

Types:
Null Hypothesis (Ho) - indicating no relationship or no-effect or negationbetween variables.
Alternate Hypothesis (Ha/ H1) or working hypothesis - indicating some relationship between variables.

Sources of ROL

journals, books, review articles, abstract, internet, dissertations, professors, newspapers, etc.

Sampling

Population - population or universe being considered or of interest	**Probability sampling** likelihood of inclusion of each element in the sample.	**Non Probability Sampling**- no way of assessing the likelihood of inclusion of each element in sample	**Non Probability contd.**	**mixed sampling** - involve characteristics of prob and non prob sampling

Sampling (cont)

sample - subset of population, used as representative of population.	Simple Random sampling -equal chance of being included. Ex. fishbowl method, Tippet's table of Random nos.	Purposive/ Judgemental sampling	Area Sampling - selecting a particular geographical location for sample collection
	Stratified Random sampling - Strata. Ex sex	Snowball sampling	Cluster Sampling - selecting groups rather than individuals
	Systematic sampling -Tippet's Table.	Quota Sampling - strata	Multistage sampling - + cluster sampling (large sample unit breaking into then smaller units to study)

Sampling Error

the difference between parameter (measure from populationand statistic(measure from sample)	Based on A)Variability in the population & B)Size of sample
	Higher the SE, poorer the statistical inference.

Research Design

conceptual structure within which a R is conducted, in Underbuilt for collection, measurement and analysis of data; a framework for R plan of action	characteristics of R Design - Neutral, Reliable, Valid, Generalisable	Two Approaches to R Design: Qualitative & Quantitative

Research Design (cont)

Types of R Designs	**Descriptive Research Design** - explanation of situation/case in depth explanation of situation/case in depth; theoretical basis; presentsdata in an understandable manner ; no control/change in variables ; only observational.Do customers prefer product A, B or C ?	**Experimental R Design**- manipulation of variable to observe changes in another variable; controlled and randomized. Include DV, IV, hypothesis, operational definition	**Correlational R Design** - relationships between two/more variables ; non experimental ; no manipulation of variables ; gives a + or - or 0 correlation; result presented with numerical value called correlation coefficient	**Explanatory R Design** - explores when limited information is available; helps increase understanding of a topic; answers why, how; predicts future occurrences; cause and effect model ; improved understanding of previously unresolved problem.

Research Design (cont)

Types : cross sectional- studying one particular section of society at a given point in time. ex. tracking social media use in Gen Z in Netherlands.
Longitudinal - extended period of time on a group of people. ex. cyber bullying from 2022-2024
Normative-comparison of result with an existing norm
Correlational- find out relationship between variables. Ex video games and mental health
Comparative- Comparison of two or more. Ex salary of emploees at teo different companies
Classification- arrange data into categories. Ex classifying customers based on their buying beh
Archival- search for past records and get info. Ex tracking company sales over years

Types:True experimental
pretest posttest design w/o control group
pretest posttest with control group
posttest with control group design , Quasi-experimental

Types: Natura-listic observation
Survey
Archival Research

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Research Design (cont)

Between subjects design(separate groups)-Randomised groups design:
Two randomised groups design
More than two randomized groups design

Matched group design-all subjects are tested on a matching variable sn then formed into groups
Factorial design-values of two/more IV are studies in all possible combinations to find out independent and interactive effects on DV
Within subjects design (only one group of subjects)

Variables

Attributes of objects, events, things, being, etc that can be measured. There are controlled, manipulated or observed by the experimenter.

IV-manipulated,measured and selected by experimental for purpose of observing changes in DV.

Directive & Non-directive hypothesis

DV -experimenter makes prediction about this variable

Measurement Scales

Nominal scale - use of numbers to name objects.
Ordinal scale - rank order of objects

Interval scale - includes charac of nominal & ordinal scales , numerical equals distance on a scale indicating equal distances in properties of objects measured.
Ratio scale -includes properties of all other scales & an absolute zero point.
Interval scale is most commonly used in psychology

Data Collection sources

Primary Data -observation method, interview method, Questionnaires, surveys

secondary Data -Case Study, Government Records, Newspapers, Journals, Articles, Archives, Internet , Databases