# Experimental Research

Sampling & Data collection
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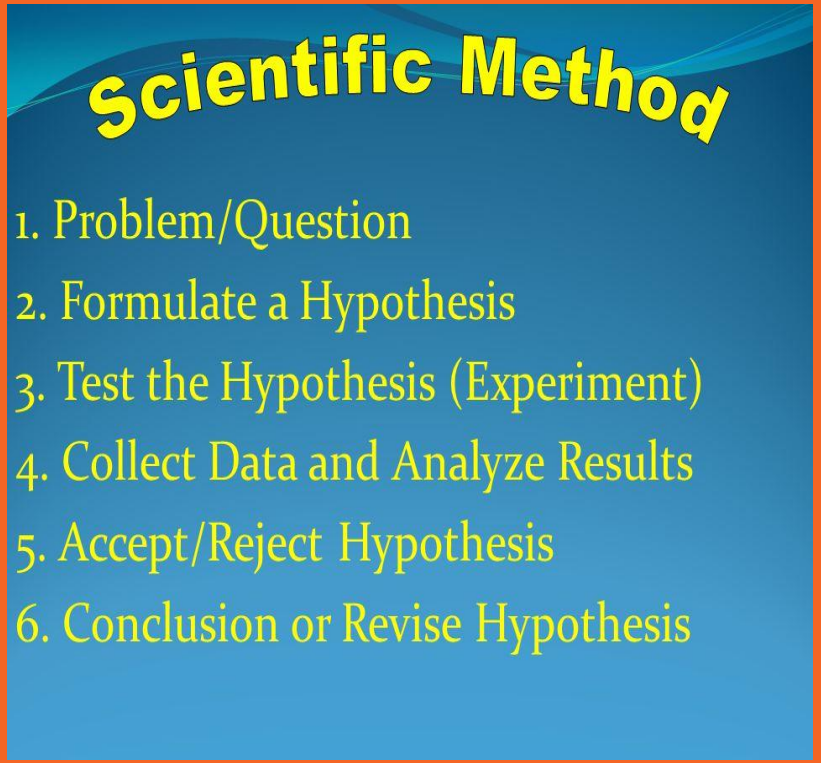

# SIMPLE RANDOM SAMPLES (CONT.)

Steps in simple random sampling

1. Identify and define the population.
2. Determine the sample size.
3. List all members of the population.
4. Assign each member of the population a consecutive number from zero to the desired sample size (i.e. 00 to 35 – each member needs to have a number with the same number of digits).
5. Select an arbitrary starting number from the random number table.
6. Look for the subject who was assigned that number. If there is a subject with that assigned number, they are in the sample.
7. Look at the next number in the random number table and repeat steps 6 and 7 until the appropriate number of participants has been selected.

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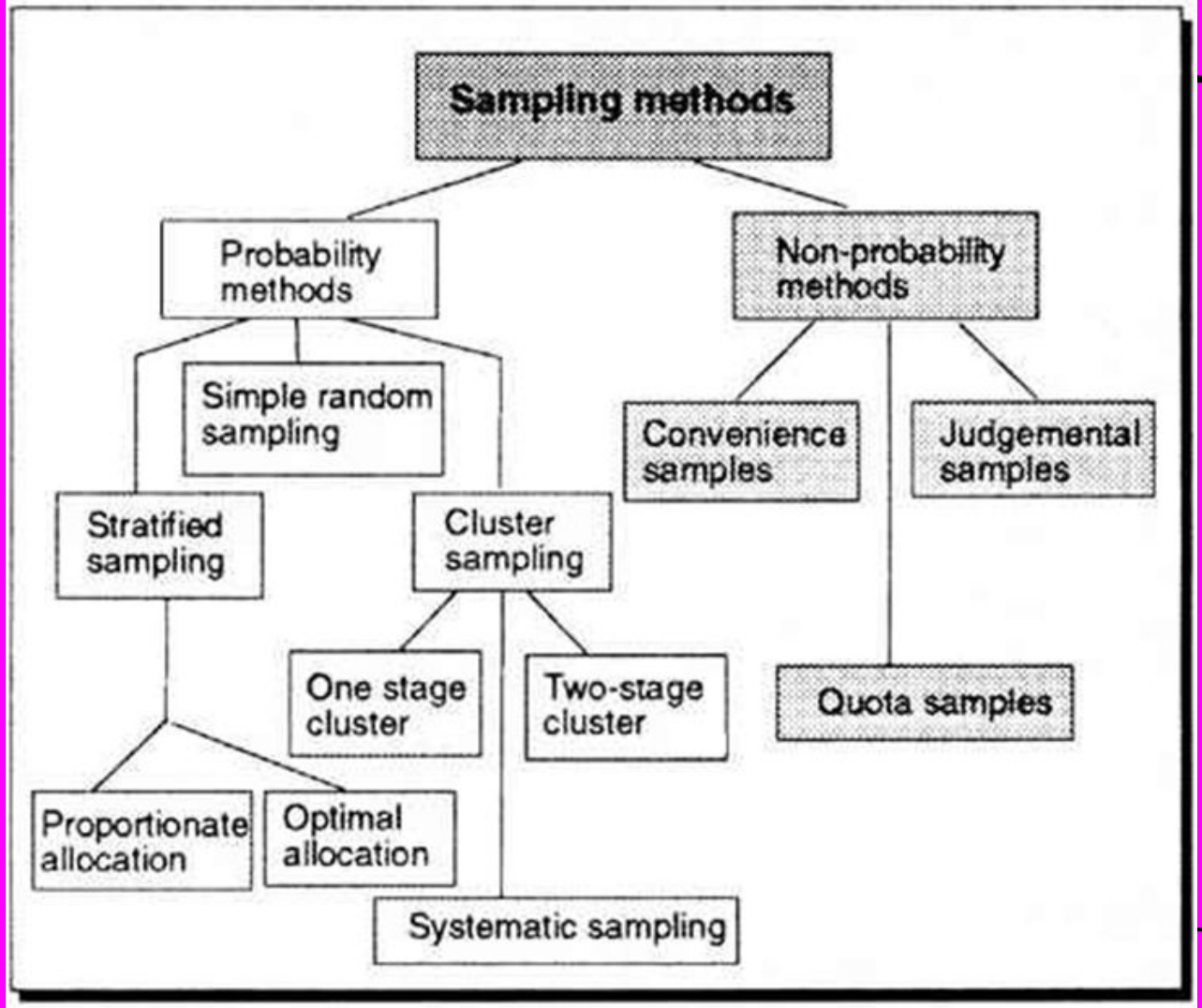
Sampling methods
Probability methods
Non-probability methods
Simple random sampling
Convenience samples
Judgemental samples
Stratified sampling
Cluster sampling
One stage cluster
Two-stage cluster
Quota samples
Proportionate allocation
Optimal allocation
Systematic sampling

# STRATIFIED SAMPLING (CONT.)

- Steps in stratified random sampling
  1. Identify and define the population.
  2. Determine the sample size.
  3. Identify variable and strata for which equal representation is desired.
  4. Classify all members of the population as a member of one strata.
  5. Choose the desired number of subjects from each strata using the simple random sampling technique.

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# CLUSTER SAMPLING

The process of randomly selecting intact groups, not individuals, within the defined population sharing similar characteristics

***Steps :-***

1. Defined population is divided into number of mutually exclusive and collectively exhaustive subgroups or clusters
2. Select an independent simple random sample of clusters.

# Cluster and Multistage Sampling

- Sometimes stratifying isn't practical and simple random sampling is difficult.
- Splitting the population into similar parts or clusters can make sampling more practical.
  - Then we could select one or a few clusters at random and perform a census within each of them.
  - This sampling design is called cluster sampling.
  - If each cluster fairly represents the full population, cluster sampling will give us an unbiased sample.

# Preparing treatment, e.g.

## Procedure

Willis (1996:56-57) recommends the following sequence of activities:

| | |
|---|---|
| Pre-task | Introduction to topic and task: Teacher explores the topic with the class, highlights useful words and phrases, helps students understand task instructions and prepare. |
| Task Cycle | Task: Students do the task, in pairs or small groups. Teacher monitors from a distance.<br>Planning: Students prepare to report to the whole class( orally or in writing) how they did the task, what they decided or discovered.<br>Report: Some groups present their reports to the class, or exchange written reports and compare results. |
| Language Focus | Analysis: Students examine and discuss specific features of the text or transcript of the recording.<br>Practice: Teacher conducts practice or new words, phrases and patterns occurring in the data, either during or after the analysis (Willis 1996: 38). |

# Techniques of data collection

- Observation
- Interview
- Test
- Others

# TECHNIQUES FOR ANALYZING QUANTITATIVE DATA

## PARAMETRIC – MAKE ASSUMPTIONS ABOUT POPULATION

- T-test for means
- Analysis of variance (ANOVA)
- Analysis of co-variance (ANCOVA)
- Multivariate analysis of variance (MANOVA) and co-variance (MANCOVA)

## NON-PARAMETRIC (MAKE LIMITED OR NO ASSUMPTIONS)

- Mann-Whitney U test
- Kruskal-Wallis one-way analysis of variance
- Sign test
- Friedman two-way analysis of variance
- Chi-square test (for categorical data)

# Further questions??