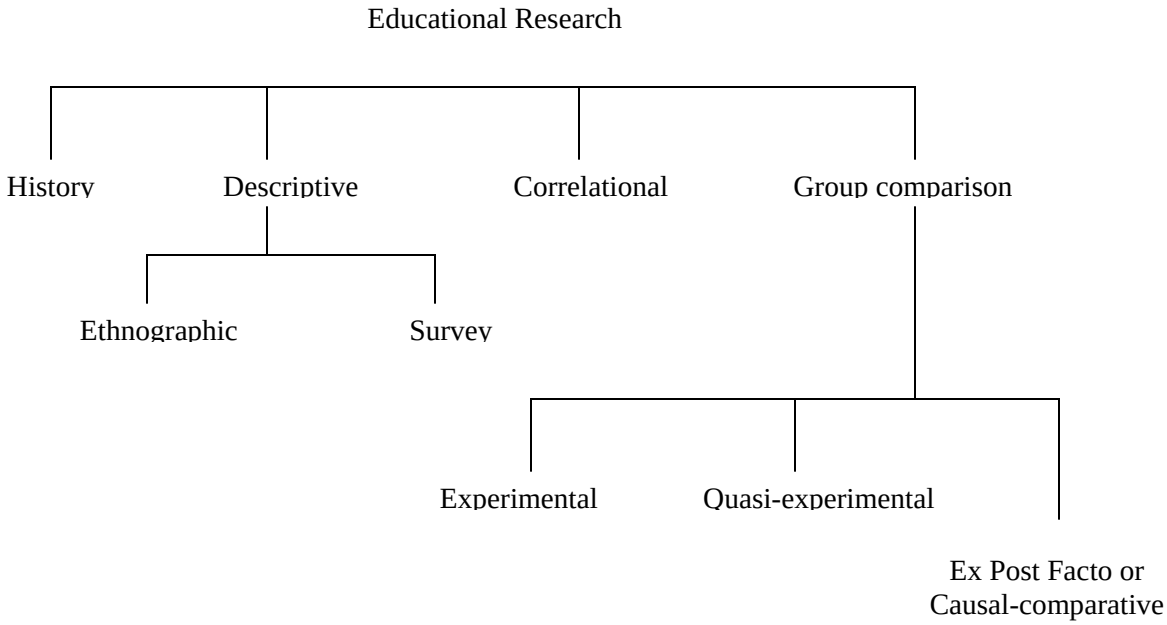
RESEARCH IN MEDICAL EDUCATION

1. Research and types of research:
   - How do we develop knowledge?
     - Intuitive knowledge (based on "I feel or I think")
     - Authoritative knowledge (based on authorized person view)
     - Logical knowledge (based on experience explanation which is reasonable and logical.)
     - Empirical knowledge (based on judgement back up by facts and usually 90% correct)
   - What is research?
     - Research is a systematized effort to gain new knowledge – (Redman & Mory)
     - Literally research means search again and again repeatedly.
     - Research is an organized and systematic way of finding answers to questions.
   - Research comprises:
     - Defining and redefining problems
     - Formulating hypothesis or suggested solutions
     - Collecting, organizing and evaluating data
     - Making deduction and reaching conclusions
     - Testing the conclusions to determine whether they fit the formulating hypothesis ***(Clifford Woody)***
   - Types of research
     - Basic research and applied research
     - Quantitative research and qualitative research
   - Qualitative research:
     - Ethnography, cognitive anthropology, etc
     - Synthetic rather than analytic
     - Generally hypothesis generating

- Investigative methods are non-intrusive
- Data are more impressionistic.
- Research in such a situation is a function of researcher's insights and impressions.



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- Descriptive research
  - Include quantitative and qualitative researches.
  - Methodologies include observations, surveys, self-report and tests.
  - May operates on the basis of hypotheses.
  - Deals with naturally occurring phenomena.
- Ethnographic research
  - Descriptive and qualitative research.
  - Report is detailed verbal description.
  - Carried out in natural setting.
  - Researcher as participant and observer.
- Survey

    - Descriptive
    - Quantitative study
- Correlational research
    - Investigate the relationship between two or more variables.
    - Searching the relationship of variables in natural setting.
- Group comparison research
    - Comparing the values of two or more groups of population.
- Experimental research
    - Random selection of the individuals forming the groups
        - Experimental group
        - Control group
- Quasi-experimental research
    - A type of group comparison research.
    - Groups are randomly selected.
- Ex Post Facto or Causal-comparative study
    - Ex Post Facto in latin is “after the fact”.
    - Values of independent variable of two groups are preset (al ready present).

2. Quantitative/Qualitative Research:

- Deductive
    - Begin with a theory and collect data to test.
- Inductive:
    - Begin with observations and attempt to explain by generalizing.
- Deductive reasoning
    - A type of logic in which one goes from a general statement to a specific instance.
- Inductive reasoning:
    - Involves going from a series of specific cases to a general statement.

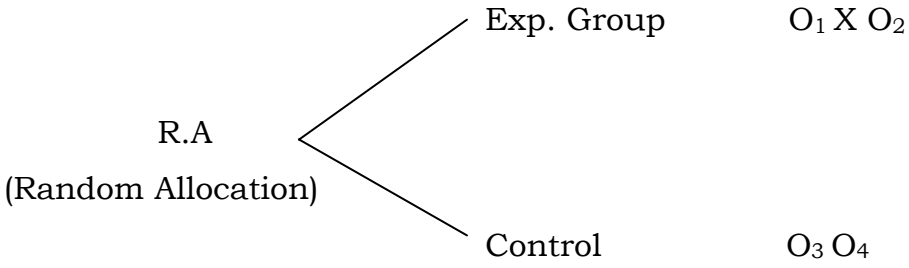
    - The conclusion in an inductive argument is never guaranteed.
- Confirmatory
    - Experimental
    - Quasi-experimental
    - Correlational (non-experimental)
- Exploratory
    - Qualitative

3. Qualitative research methods for data collection
    - Interviews
    - Focus groups
    - Survey: open ended questions
    - Observations: recorded in field notes
    - Document analysis
    - What is qualitative data?
        - Data in the form of words, rather than numbers, based on:
            - Asking open ended questions in:
                - Interviews
                - Group
                - Surveys
            - Examination of documents
                - Observation of situations and actions, recorded in fields notes
    - Uses of qualitative data
        - Some social sciences e.g
            - Anthropology
            - History
            - Psychology
            - Sociology
            - Public health

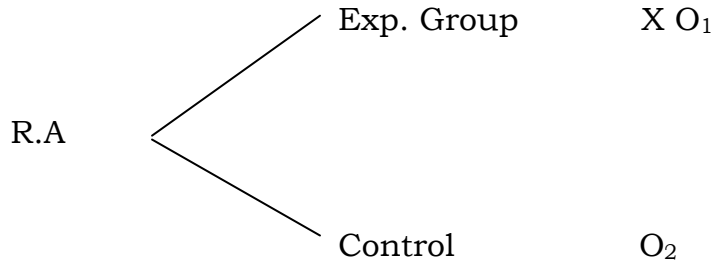
- Policy analysis
- Health care evaluation

4. Types of quantitative research design:

- The research design which are commonly used can be divided into following groups:
  - Non experimental design
    - Post-test design X O_1 no control
    - Pretest-post test design O_1 X O_2 no control
    - Static group comparison X O_1 O_2 no control
  - True experimental design
    - Pretest-post test control group design



    - Post test control group design



  - Quasi-experimental design
    - Time series O_1 X O_2 X O_3 X O_4
    - No equivalent control group
      - Exp group O_1 X O_2
      - No equivalent control group O_3 O_4
    - Separate sample pretest post test design

- R.A – Pretest group O_1 X
- R.A – Post test group X O_2

5. Purpose of Medical Education Research:
   - To improve the functioning of educational programmes by providing information for:
     - Decision making
     - Evaluating outcomes
     - Supporting advocacy for change
     - Contributing to the body of knowledge related to concepts and methods.

Research is like a plant that grows and grows and grows and grows…

When it is grown, it throws off seeds of all types (basic, applied and practical) which in turn sprout and create more research projects…

The process continues with all of the new research 'plants' throwing off seeds, creating additional, related research projects of various types…

Soon there is a body of basic, applied and practical research projects related to similar topics…
And the process goes on and on…