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**In the Name of God**

# **Research Methods in Applied Linguistics ( 1 )**

**Written by : Dr. Hossein  
Farhady**

**Power point by:  
Dr. F. Vahdany of Payame-Noor  
University; Rasht Branch**



# Research Methods in Applied Linguistics ( 1 )

**A 2-credit course in English Translation Field; to be offered in 8<sup>th</sup> semester.**



# Chapter 1 : Background

## Introduction

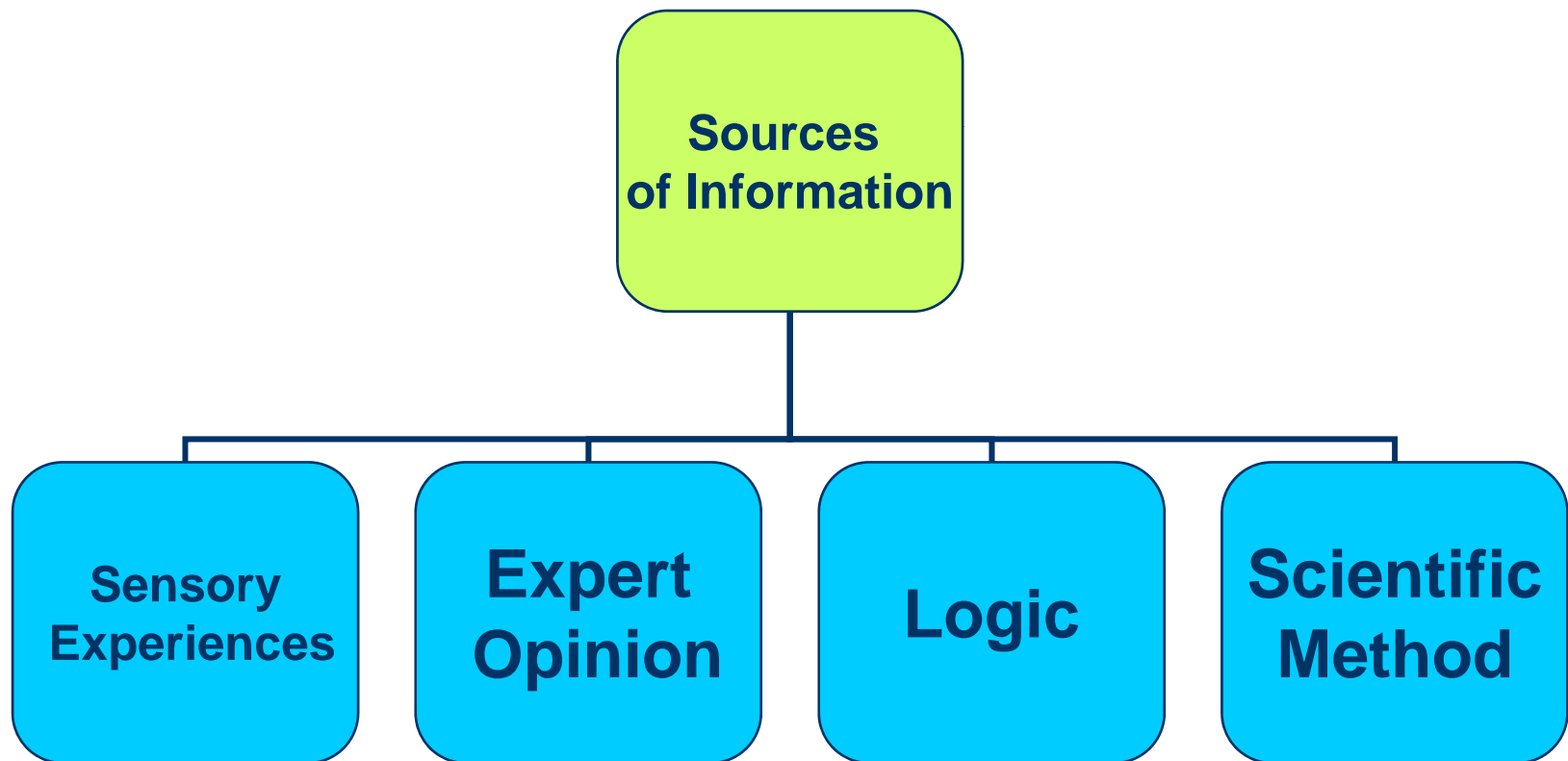
**Knowledge** : A body of facts and hypotheses that enables one to understand phenomena and to solve problems

- Why did the early man progress slowly
  - 1 – unreliable information; metaphysical explanation
  - 2 – difficulties in transferring the information from one generation to the next



# **(1-1) Sources of Information**

Chapter 1





# (1-1) Sources of Information

Chapter 1

## (1- 1-1) Sensory Experiences:

The accumulation of information through senses from one's personal experiences

- ▣ **availability:** good
- ▣ **dependability:** doubtful; needs verification
- ▣ cannot be accepted readily; multiple sensation better



## (1-1) Sources of Information

Chapter 1

**(1-1-2) Expert Opinion:** eg. An authority in a specific field; or beliefs inherited by tradition

- ▣ better, but still subjective in nature, so not to be accepted as facts and should be subjected to empirical investigations
- ▣ disagreement between authorities, eg. different language teaching methods



# (1-1) Sources of information

Chapter 1

## (1-1-3) Logic :

a) **Deduction** ( Aristotle )

**major + minor premise = conclusion**

1) All men are moral.

2 - Ali is a man.

3 – Ali is moral

b) **Induction** ( Frances Bacon )

from many different instances to a general law

▪ a compromise between the two better



## (1-1) Sources of information

Chapter 1

### (1-1- 4) Scientific Method :

based on Logical Positivism; objectivity; examining only directly observable phenomena

- ☐ both in social and natural science
- ☐ **Positivism**: not very successful in studying human behavior
- ☐ **Post (new) Positivism**: Research is a systematic approach to answering questions.

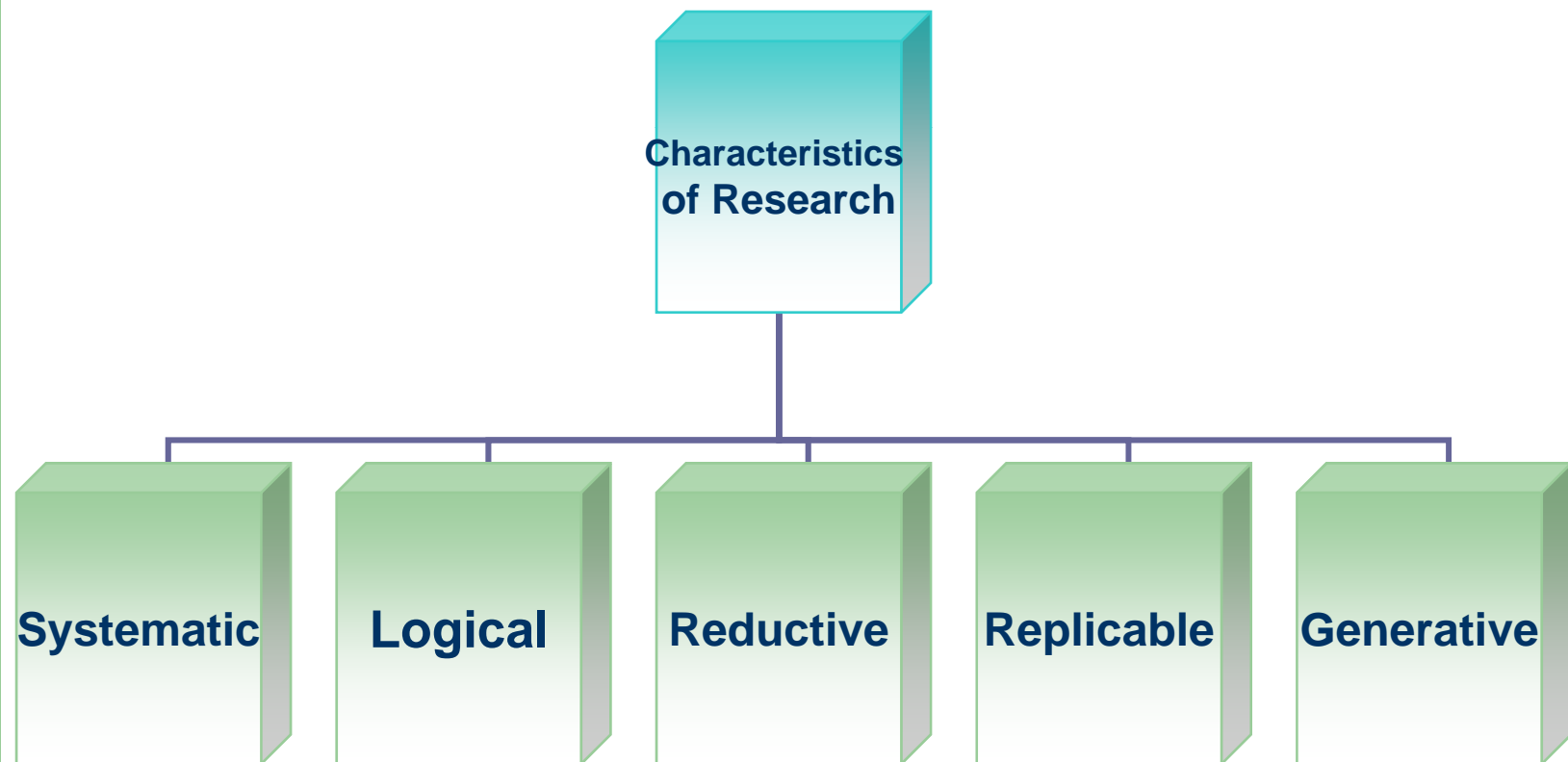


## 4 - Some differences between social and natural sciences

- 1- repeatability of the phenomena
- 2 – objectivity of the data
- ☺ Which one is more probabilistic, then?



# Chapter Two : Principles of Research





# (2-1) Characteristics of Research

## Chapter Two

- (2-1-1) systematic:** It is based on pre-established rules and regulations; following the principles of :
- a) constancy:** Some phenomena do not change their basic characteristics in a given period of time.
  - b) uniformity:** There are commonalities between the members of one class.



# Characteristics of Research Chapter Two

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## **(2-1-2 ) Research is Logical :**

Logic is employed at every step of research especially regarding the premises and the language and its interpretation and in making conclusions and generalizations.



# Characteristics of Research

## Chapter Two

### (2-1-3) Research is Reductive

- a) **Conceptual:** Making generalizations; not checking all the instances
- b) **Practical:** The findings of researchers are transferred to other researchers avoiding repetition; accumulative; additive



**(2-1-4) Replicable:** repeating the same study with another group for in a different situation further confirmation

**Possibilities :**

- a) If agreement, that's O.K
- b) If partial agreement, seek justification
- c) If contradiction ,do more and more replication



### **(2-1-5) Research is Generative:**

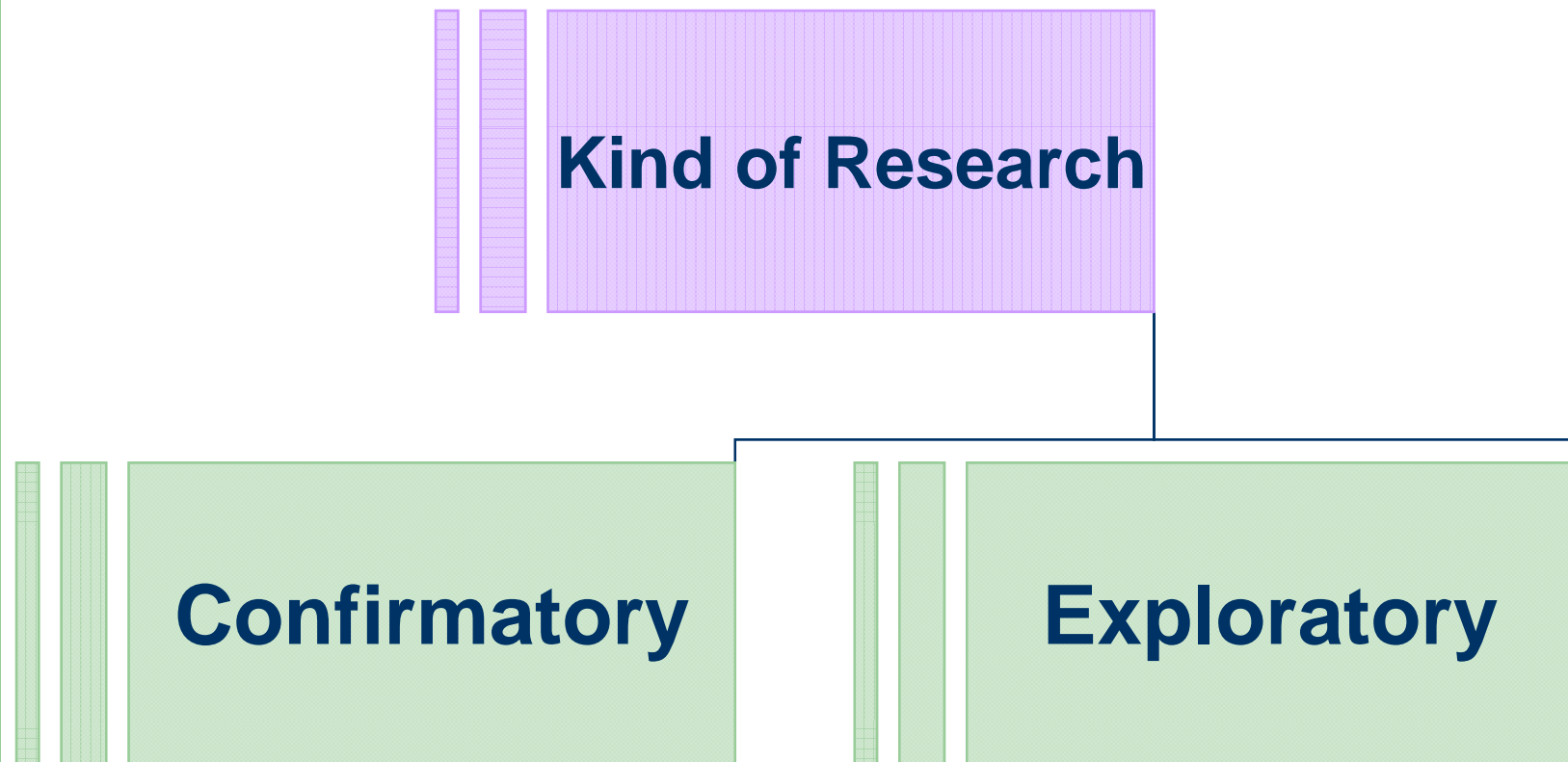
unexpected situations arise leading to new questions when answering the original one.

- ▣ A part of research report is *suggestion for further studies*.
- ▣ Generativity of research implies that there is no end to research.



## **(2-2) Kinds of Research**

### **Chapter Two**





## (2-2) Kinds of Research

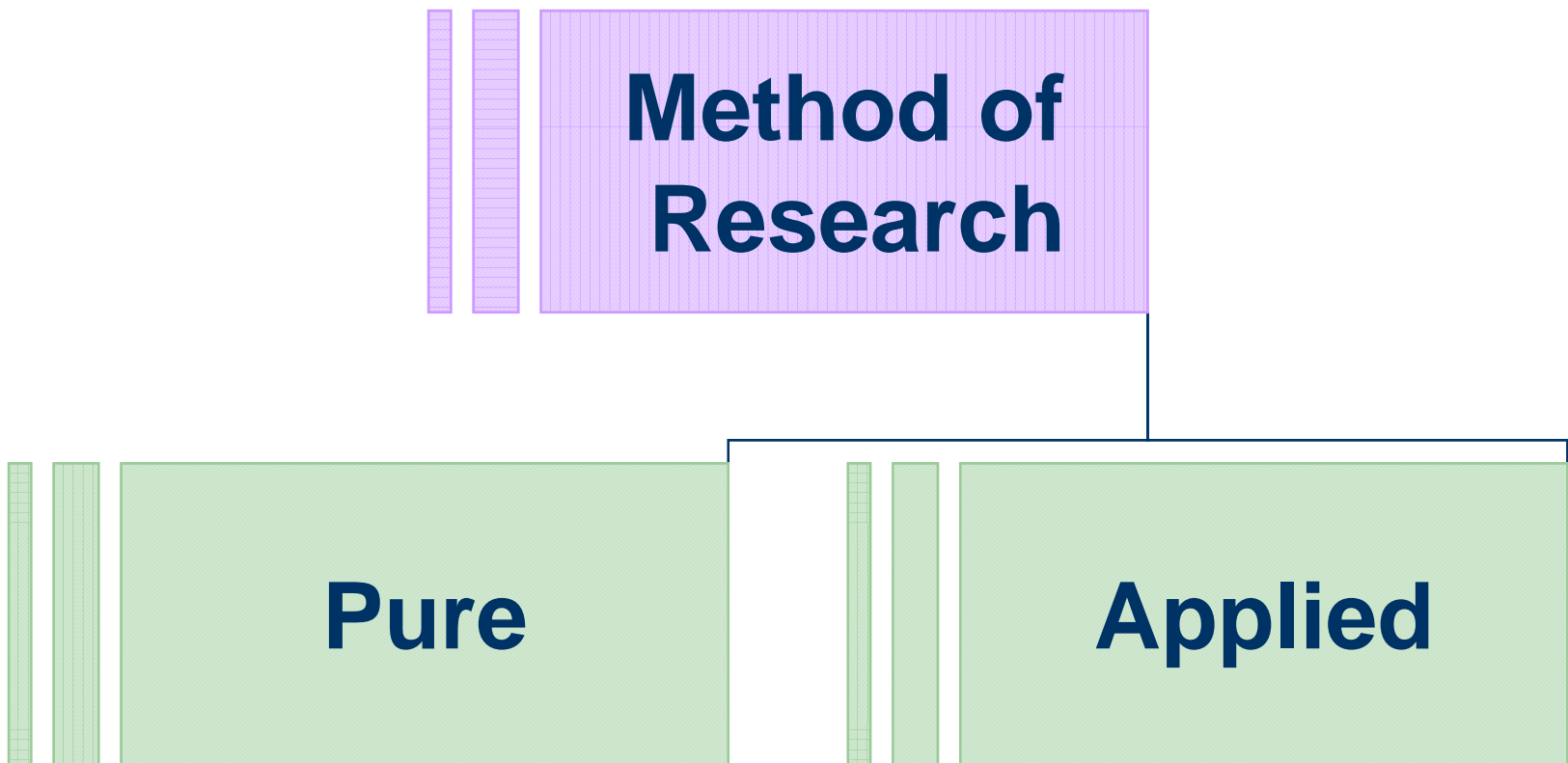
### Chapter Two

**Kind :**

- a) Confirmatory** : partial or complete replication of previous research; more common in language studies
- b) Exploratory**: for studying an unknown phenomenon; more common before, more difficult, sometimes based on trial and error



## **(2-3) Methods of Research** Chapter Two





## (2-3) – Methods of Research

Chapter Two

### Method :

**a) Pure** : research for the sake of research  
eg. nuclear power , Chomsky's studies

**b) Applied** :uses the findings of pure  
research

eg. sociolinguistics ,language teaching

▣ responsible for the good or evil of the findings



## **(2-4) Goals of Research**

Chapter Two





## (2-4) Goals of Research

### Chapter Two

**(2-4-1) Description:** eg. Language acquisition;  
functions of language

**(2-4-2) Prediction:** eg. L1 development : babbling,  
one-word, two-word , telegraphic speech

**(2-4-3) Improvement:** eg. In language instruction  
or method

**(2-4-4) Explanation:** eg. Language achievement  
or failure; making more holistic generalization



## **(2-5) Steps in conducting research**

Chapter Two

### **( 2-5-1) Forming a research question :**

Hypothesis; review of literature; refining and modifying the question + variables

### **(2-5-2) Selecting an appropriate method :**

research design, relation between variables



## **(2-5) Steps in conducting research**

Chapter Two

**(2-5-3) Hypothesis Testing:** involving  
data collection + data analysis using  
statistics + interpretation of results

**(2-5-4) Preparing the research report:**  
to share the findings with others



## Section Two : Formulating Research Question

### Three Steps

- 1 – Determine an area of research
- 2 – Formulate a research question within the area
- 3 – Identify the parameters and characteristics of the question



## **Chapter 3 : Areas of Research in Language Education**

**(3-1) Teaching**

**( 3-2) Language**

**(3-3) Linguistic environment (Sociology)**

**(3-4) Learner and Learning (psychology )**



# Areas of Research in Language Education

## Chapter 3





## (3-1) Questions in Linguistics

chapter 3

- ▣ language description based on different theories
- ▣ components of language: syntax, semantics, pragmatics, discourse, phonology, morphology
- ▣ language acquisition L1 vs. L2
- ▣ Contrastive Analysis (CA), Error Analysis (EA)



## (3-2) Questions in Teaching Methodology

chapter 3

- ▣ **Curriculum development:** time to start language teaching; length; intensity of the program
- ▣ **syllabus design and material development:** the content of courses; selection and sequencing
- ▣ **teacher training:** pre-service and in-service training
- ▣ **teaching methods**
- ▣ **evaluation and assessment system**



## **(3-3) Questions on factors influencing TEFL**

chapter 3

### **(3-3-1) Cognitive Factors:** Process, style , strategy; cognitive styles

(eg. field dependent vs.; field independent )  
transfer; interference; overgeneralization  
left- vs. right-hemisphere dominance



## 3-3 Questions on factors influencing TEFL

chapter 3

### **(3-3-2) Affective Factors :**

self-esteem, inhibition, anxiety (facilitative vs debilitative ); motivation (integrative vs instrumental ), personality types (eg. introversion vs. extroversion)



## 3-3 Questions on factors influencing TEFL

chapter 3

**(3-3-3) Social Factors:** use vs. usage;  
Schumann's Acculturation Model;  
attitude vs. motivation ( Gardner and  
Lambert 1972)



## **(3-4) Other related questions**      **chapter 3**

### **(3-4-1) Questions in Language and Literature**

readability and text simplification (word vs. structure), culture load of the texts

### **(3-4-2) Questions in language and technology**

programmed instructions (unsuccessful);  
mechanical and computerized lab.  
computerized dictionary and audio-visual aids



## **(3-4) Other related questions** chapter 3

### **(3-4-3) Questions in language and politics**

- policy making; coining new words
- deciding on first second, and foreign language ( = language planning );
- developing appropriate equivalents



## Chapter 4 : The Research Question

- 1 – **Introduction:** the problem of how to start  
The professors can give advice but should not give topics to the students because :
  - a) This stage is an important part of doing research for which the students need practice.
  - b) The professors' areas of interest may differ from the students' .



## **(4-1) Characteristics of a good research question**

Chapter 4

- (4-1-1) within the domain of the interest of the researcher
- (4-1-2) relevance of the topic to the benefits of the society and the immediate environment
- (4-1-3) manageability of the topic in terms of facilities, time, cost and social and educational limitations



## (4-2) Narrowing down a topic

Chapter 4

- Through reading and thinking about the topic to make it clear, to the point and manageable
- Avoid qualitative words such as how, effective, etc.

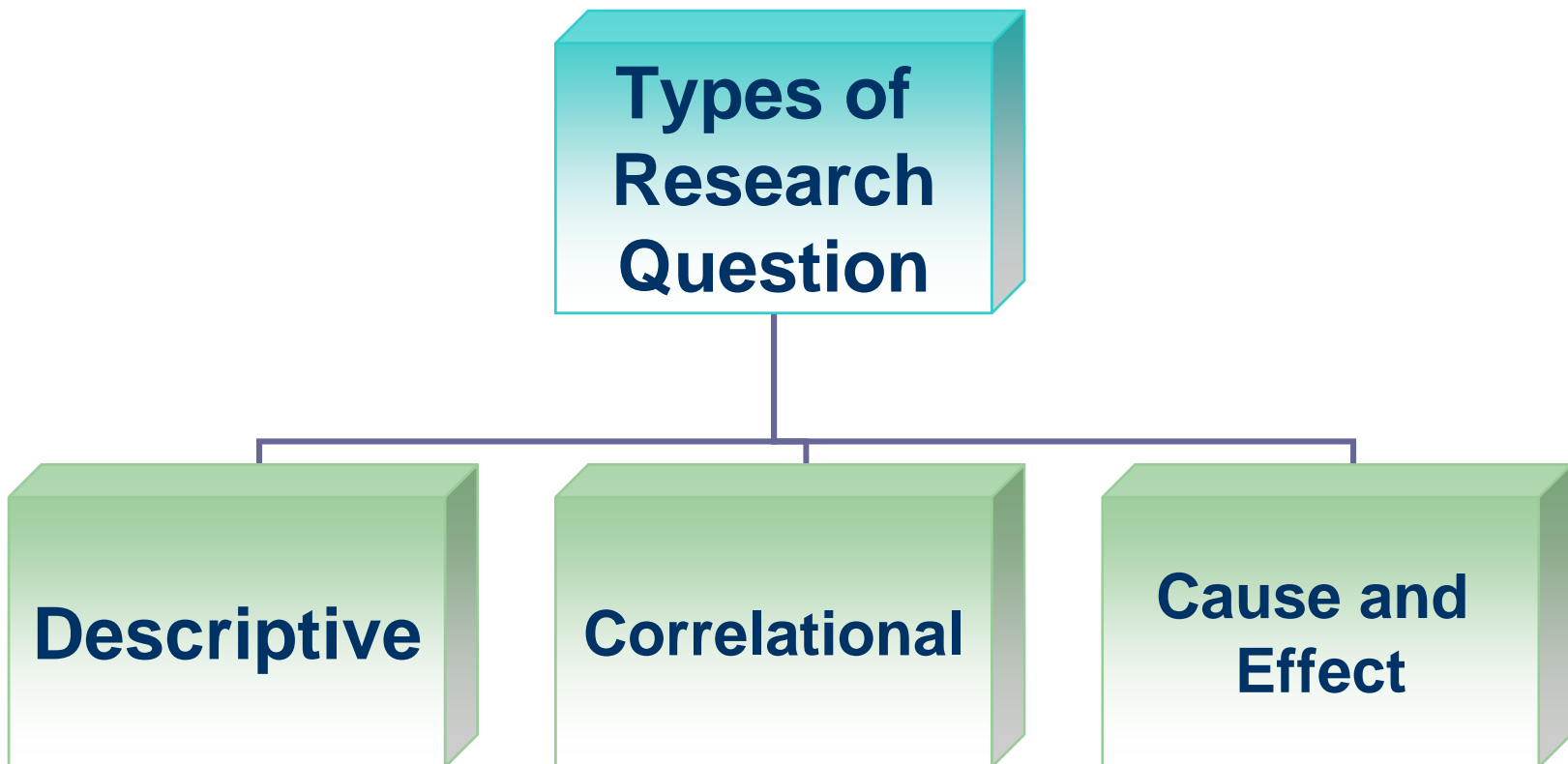
Eg. Compare:

- 1 – How do people acquire their native language?
- 2 – In what order does an Iranian child acquire speaking Farsi?



## **(4-3)Types of Research question**

chapter 4





## (4-3)Types of Research question

chapter 4

- a) **Descriptive** : eg. Frequency of errors; duration or intensity of a program; sequence of acquisition of a phenomenon
  - It is concerned with who, when, what, and where of an even or behavior



## (4-3)Types of Research question

chapter 4

- b) Correlational** : the degree of relationship between two or more factors eg. Between skills and components; between traits and achievement
- c) Cause-Effect** : causal relationship: the effect of A on B eg. A certain strategy or method on achievement



## (4-4) Forming a Hypothesis

chapter 4

**Hypothesis** :a tentative answer to a question. It is a kind of generalization about the relationship between two or more factors.

**a) null=nondirectional:** No relationship is predicted.

**b) alternative or directional :** A relationship between two factors is predicted.



## **Chapter Five : Review of the Related Literature**

### **Relevant questions**

- 1 – How comprehensive should the review be?
- 2 – How many sources are sufficient?
- 3 – What kind of materials qualify for the task?
- 4 – Where should one get relevant materials?
- 5 – How should the materials be read or covered?



## **(5-1) Goals of literature review :**

Chapter Five :

- A) to put the topic within a scientific perspective
- B) to reformulate and modify the research question
- C) to avoid mere duplication of previous research
- D) to pinpoint the pitfalls of the previous research and attempt to remedy them



## (5-2) Hints when doing literature review:

Chapter Five

- Be selective in reading; read only more relevant materials

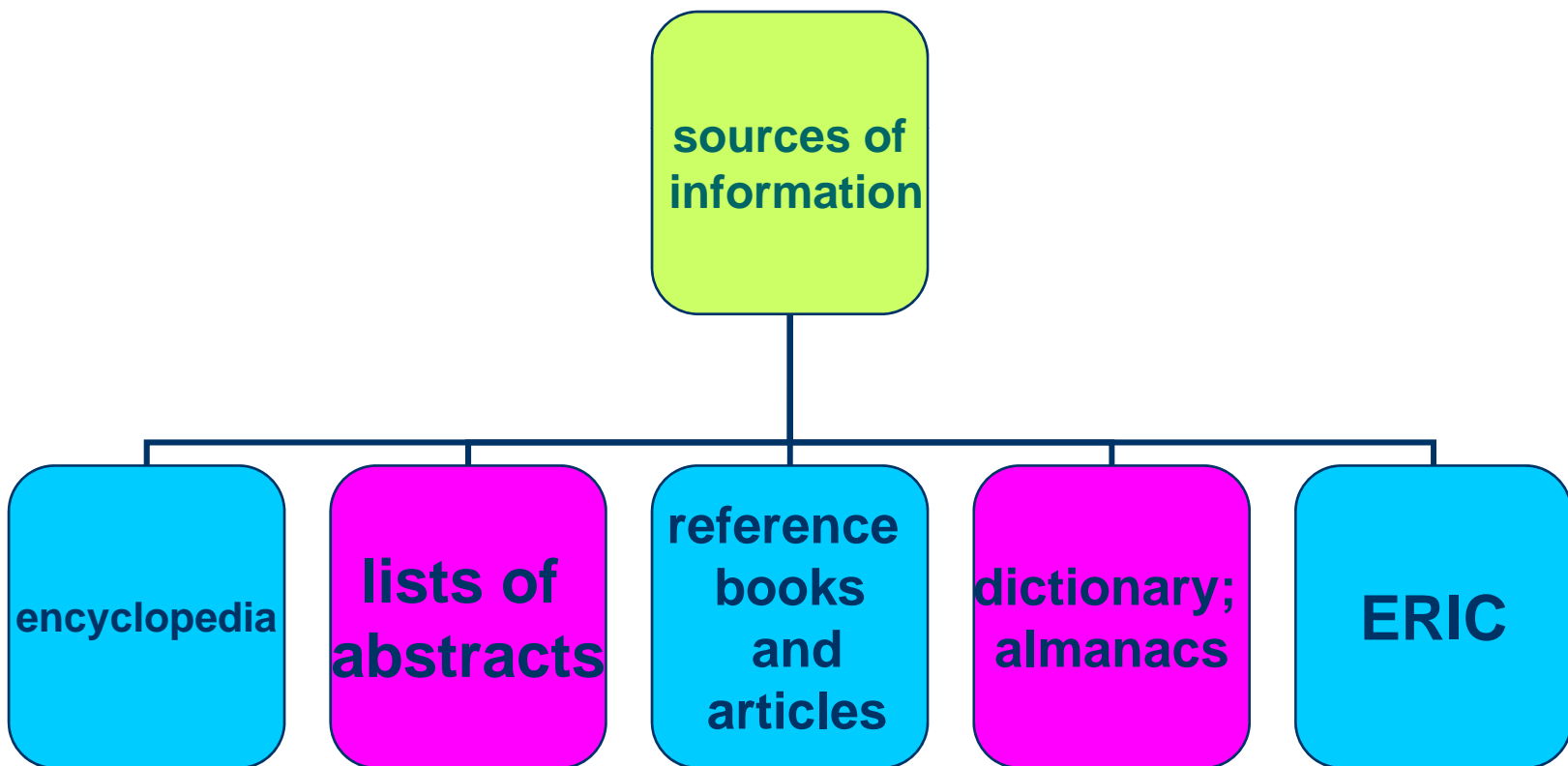
### focus on three aspects of the previous research

- 1 - theory: from which hypotheses are generated .
- 2 - method: subjects, data collection, design, procedure, statistical analyses
- 3 – data analysis



## **(5-2) Finding the sources of information**

Chapter Five





## (5-2) Finding the sources of information

Chapter Five

- A) encyclopedia:** eg. Britannica, Americana : to get general overview
- B) lists of abstracts :** MA , Ph.D. dissertations , book abstracts etc.
- C) reference books and articles :** key (=most relevant) authors, topics, and studies



## (5-3) Finding the sources of information

### Chapter Five

- D) dictionary; almanacs** ( published every year giving information on various subjects ), year books, educational handbooks , statistical information published by different organizations, book reviews and periodicals( most important and up- to- date )
- E) ERIC** : Educational Resource Information Center ( Internet )



## **(5-4) More to do in Literature Review**

### **Chapter Five**

**1 - Reading and organizing the materials**

**2 – Recording the bibliographical  
information**

- full name of the author
- full title of the document
- place, publisher, and the date of publication
- the page number from which the information is extracted



## **(5-4) More to do in Literature Review**

Chapter Five

### **3 – Taking Notes from the Material**

- A) Use direct questions rarely; make paraphrase
- B) Take note of even seemingly unimportant things
- C) keep notes in files and organized
- D) Be comprehensive, taking all sides, pros and cons into account



## **(5-5) Documenting the Source** Chapter Five

### **Two Styles**

**(5-5-1) MLA:** (Modern Language Association): the date of publication at the end; capitalizing the first letters of the title

**(5-5-2) APA :** (American Psychological Association) the date after the author's name; only the first letter of the first word in the title is capitalized



## Chapter 6 : Characteristics of a Variable

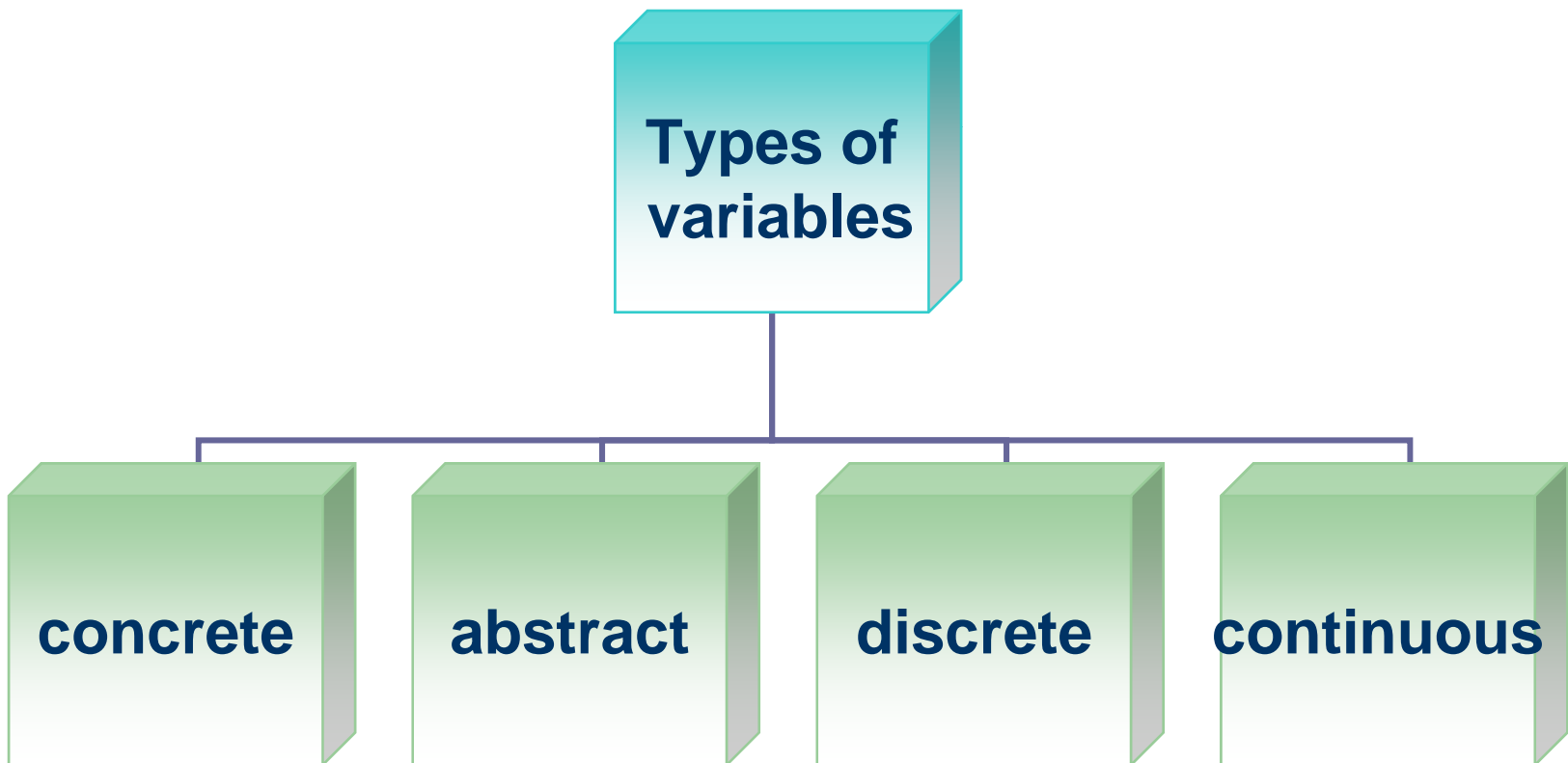
**(6-1) Definition of a variable:** an attribute changing from one setting to another

### **(6-2) Different types of variables**

- a) **concrete:** eg. height (objectively measured )
- b) **abstract:** eg. happiness ( subjectively measured )
- c) **discrete:** of all or nothing eg. left handedness, nationality
- d) **continuous:** eg. intelligence



# Different Types of Variables Chapter 6





# Characteristics of a Variable Chapter 6 :

## (6-3) definition of a variable

**a) Theoretical:** Any variable operates within some sort of theoretical framework.

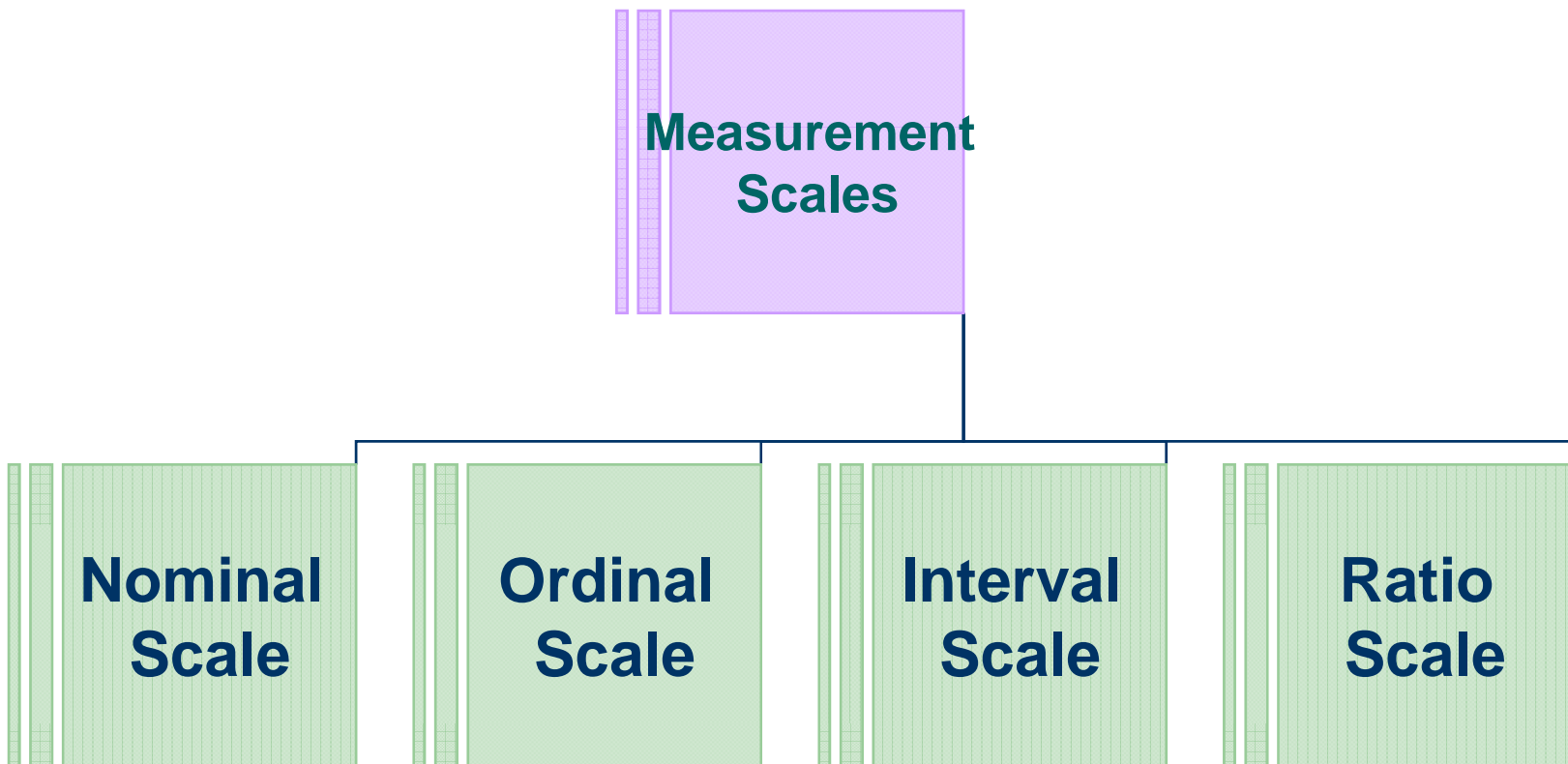
eg. communicative ability may be defined differently by different theories

**b) Operational:** in terms of its measurable characteristics eg. class participation and achievement



# **(6-4) Measurement Scales of Variables**

Chapter 6





## (6-4) Measurement Scales of Variables

Chapter 6

- (6-4-1) **Nominal Scale**: numbers lack mathematical value, just naming eg. Discrete variables like nationality, age
- (6-4-2) **Ordinal Scale**: rank ordering, with mathematical values without equal distance between the ranks eg. in football, or in Konkoor



## (6-4) Measurement Scales of Variables

Chapter 6

(6-4-3) **Interval Scale**: equal distance between the ranks which have mathematical value; eg. scores on tests in social sciences

(6-4-4) **Ratio Scale**: with true or absolute zero and negative values eg. temperature in natural science



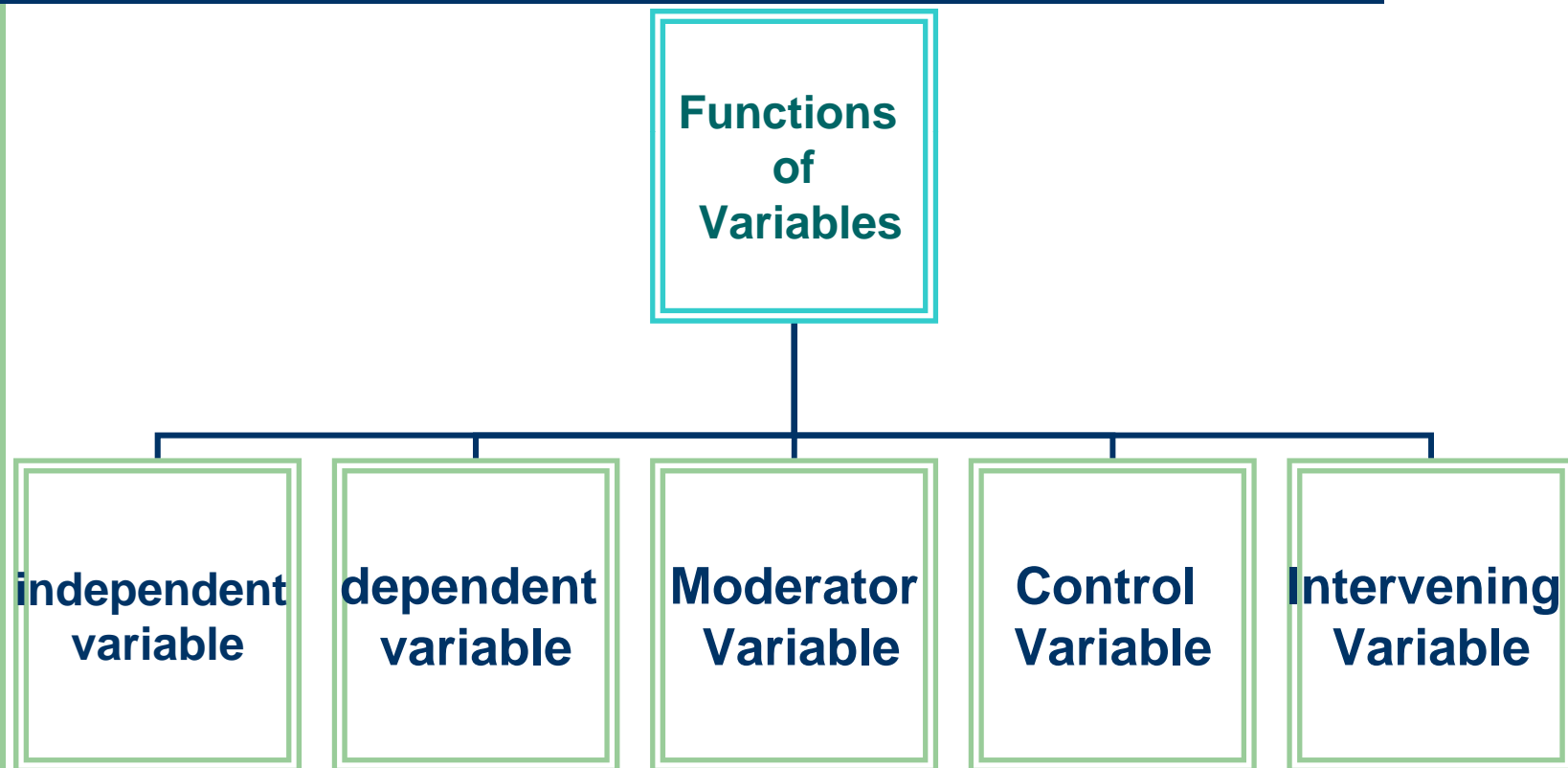
## (6-5) Convertability of Measurement Scales

Chapter 6

- ❑ from interval to ordinal or nominal  
possible not vice versa eg. rank order correlation
- ❑ the role and function of a variable are important factors in determining the desired kind of measurement scale



## **(6-6) Functions of Variables** Chapter 6





## **(6-6) Functions of Variables** Chapter 6

**(6-6-1) independent variable:** selected and manipulated by researcher eg. method of instruction

**(6-6-2) dependent variable:** measured to see the effect of independent variable eg. achievement



## (6-6) Functions of Variables Chapter 6

(6-6-3) **Moderator Variable**: is another variable which can affect the outcome of the research eg. sex, but unlike independent variable it cannot be manipulated.



## **(6-6) Functions of Variables** Chapter 6

**(6-6-4) Control Variable:** remain constant to neutralize its potential effect eg. nationality

**(6-6-5) Intervening Variable:** Not controllable, nor measurable, nor observable eg. psychological factors involved



## **(6-6) Functions of Variables** Chapter 6

- Variable functions are research dependent:  
the function of a variable can vary from one research to another  
eg. Proficiency can be dependent or independent or control or moderator in different studies.



## **Section Three:**

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# **Selecting an Appropriate Research Method**



## Chapter 7 : Historical Method of Research

■ **Why Historical research**: understanding of present state needs studying its origins, developments and modifications and the factors contributing to such processes  
eg. present teaching methods; materials; translation styles



# Historical Method of Research Chapter 7

## ▣ Historical research vs. Review of Literature:

Historical research involves testing a hypothesis while literature review is a report of what others have done to consolidate a position on an issue.



## (7-1) Historical Method of Research

Chapter 7

- ☺ Which one studies what is left from the previously living subjects; historical research or review of literature?

### ▣ a criticism against historical research:

Controlling variables is impossible so making generalizations is rather difficult.



## **(7-2) Advantages and Purposes of Historical Research**

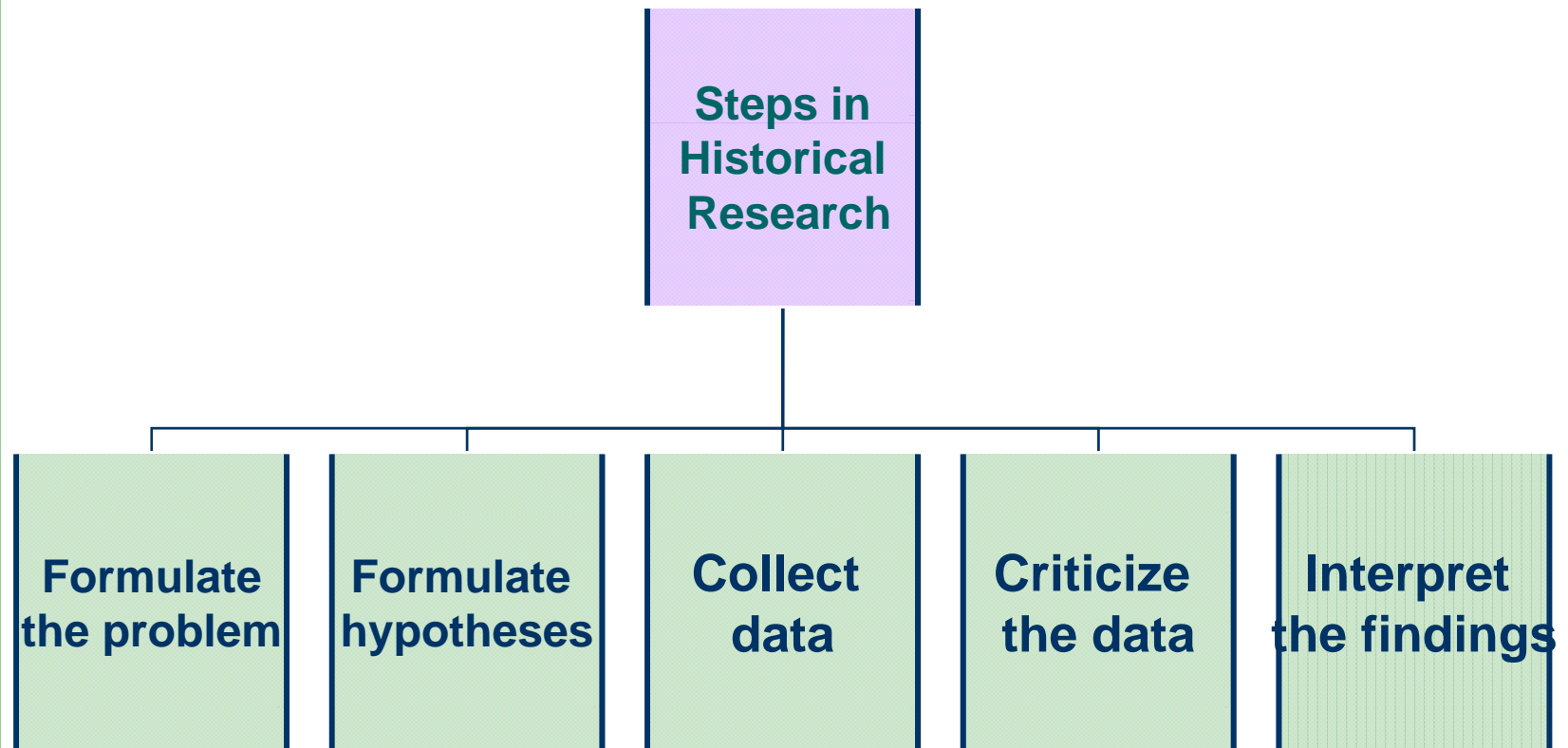
Chapter 7

- 1 – finding solutions for the present problems rooted in the past
- 2 – making suggestions for future affairs based on the findings
- 3 – cause and effect of different factors in different cultures
- 4 – reevaluating the data which are the basis for certain hypotheses, theories or generalizations



# **(7-3) Steps in conducting Historical Research**

## **Chapter 7**





## **(7-3) Steps in conducting Historical Research**

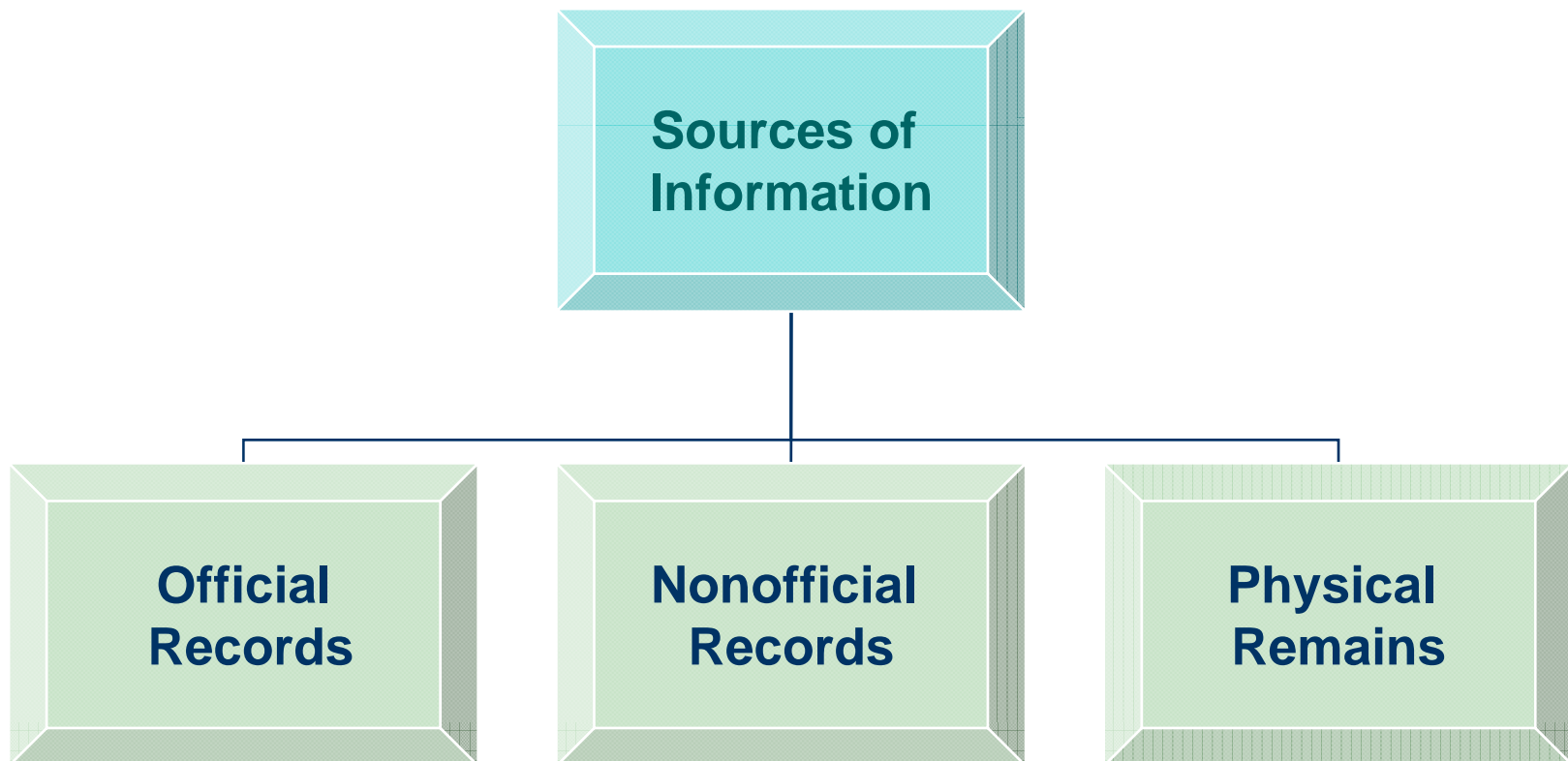
Chapter 7

- 1 – Formulate the problem.**
- 2 – Formulate hypotheses to explain the events.**
- 3 – Collect data.**
- 4 – Criticize the data.**
- 5 – Interpret the findings.**



## **(7-4) Sources of Information**

**Chapter 7**





## **(7-4) Sources of Information** Chapter 7

**(7-4-1) Official Records:** eg. laws, reports, proceedings, decrees

**(7-4-2) Nonofficial Records:** eg. diaries, personal records, oral traditions

**(7-4-3) Physical Remains:** eg. building, facilities, manuscript

- ▣ Primary (first hand) Vs. Secondary (Second hand) Source
- ▣ The eyewitness for the primary source is not necessarily alive.



## (7-5) Criticizing the Document Chapter 7

(7-5-1) External Criticism (= authenticity),  
genuineness .

- ▣ the question of “ Did something really happen?”
- ▣ tests of handwriting, scripts, type, spelling, language usage, available knowledge



## (7-5) Criticizing the Document

Chapter 7

**(7-5-2) Internal Criticism** (= truthfulness)  
evaluation of the accuracy and truthfulness  
of the content of the document.

- ▣ What is **Bias** and how can it be avoided?



## **(7-6) Some advice to check internal validity or accuracy**

Chapter 7

- (7-6-1)** obtaining information about the knowledge and competence of the author
- (7-6-2)** examining the time elapse between the event and the creation of the document
- (7-6-3)** being careful about the bias and the motive of the writer



## (7-6) Some advice to check internal validity or accuracy

Chapter 7

(7-6-4) cross-validation of the data: to check agreement between what one said and what others said

- eg. a report about education in ancient Rome  
pp:140-141

**More examples:** investigating extinct animals like dinosaurs, or geographical changes, wars and some other social events like revolutions or social reforms



## Chapter 8 : Descriptive Method of Research

very useful and versatile in educational setting

- 1 – most useful in applied Linguistics
- 2 - has variety of techniques to suit every research question

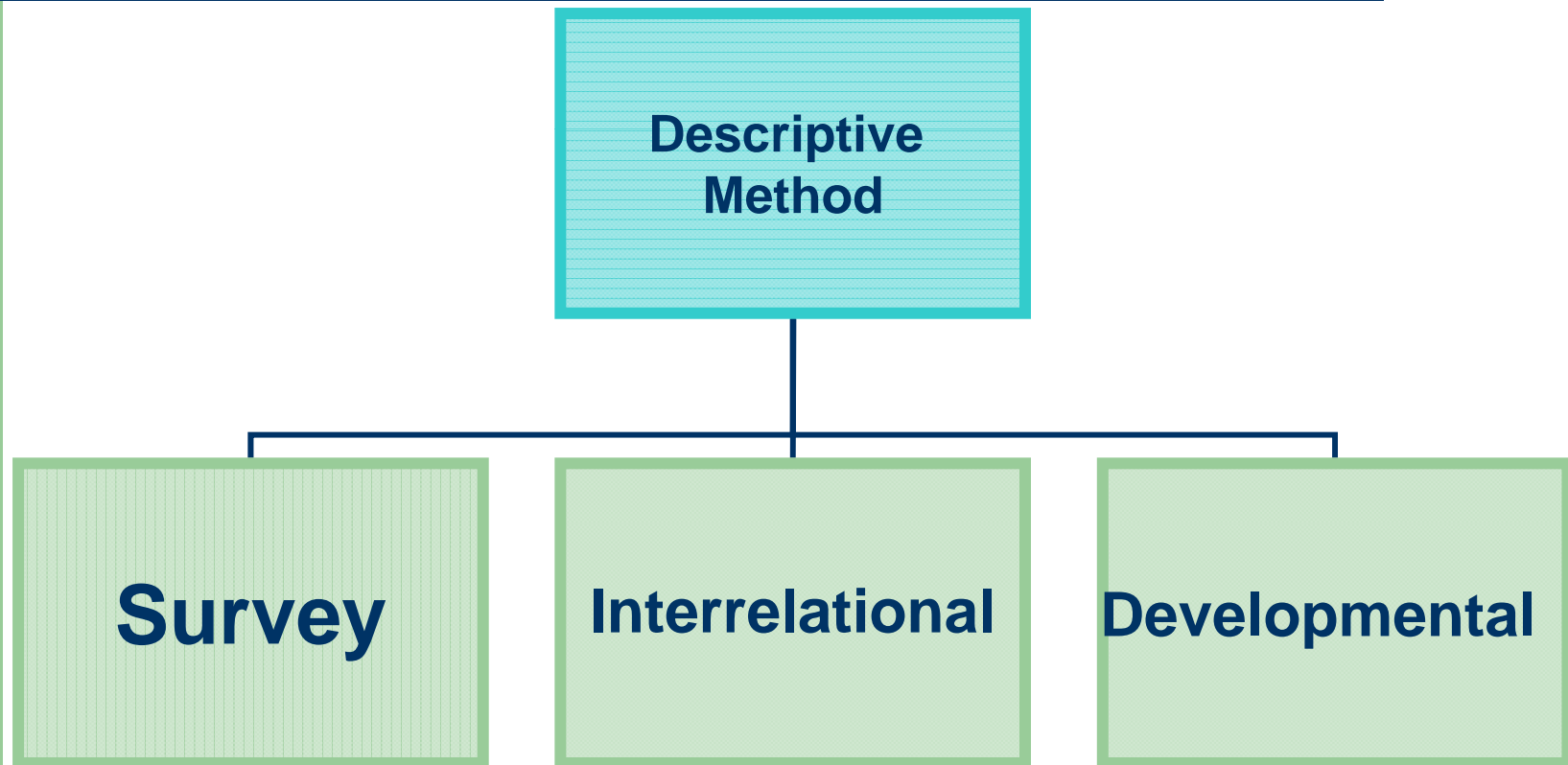
### **Three Major Groups for Descriptive Method:**

- 1 – Survey**
- 2 – Interrelational**
- 3 – Developmental**



# Descriptive Method of Research

## Chapter 8





## (8-1) Survey Methods

Chapter 8

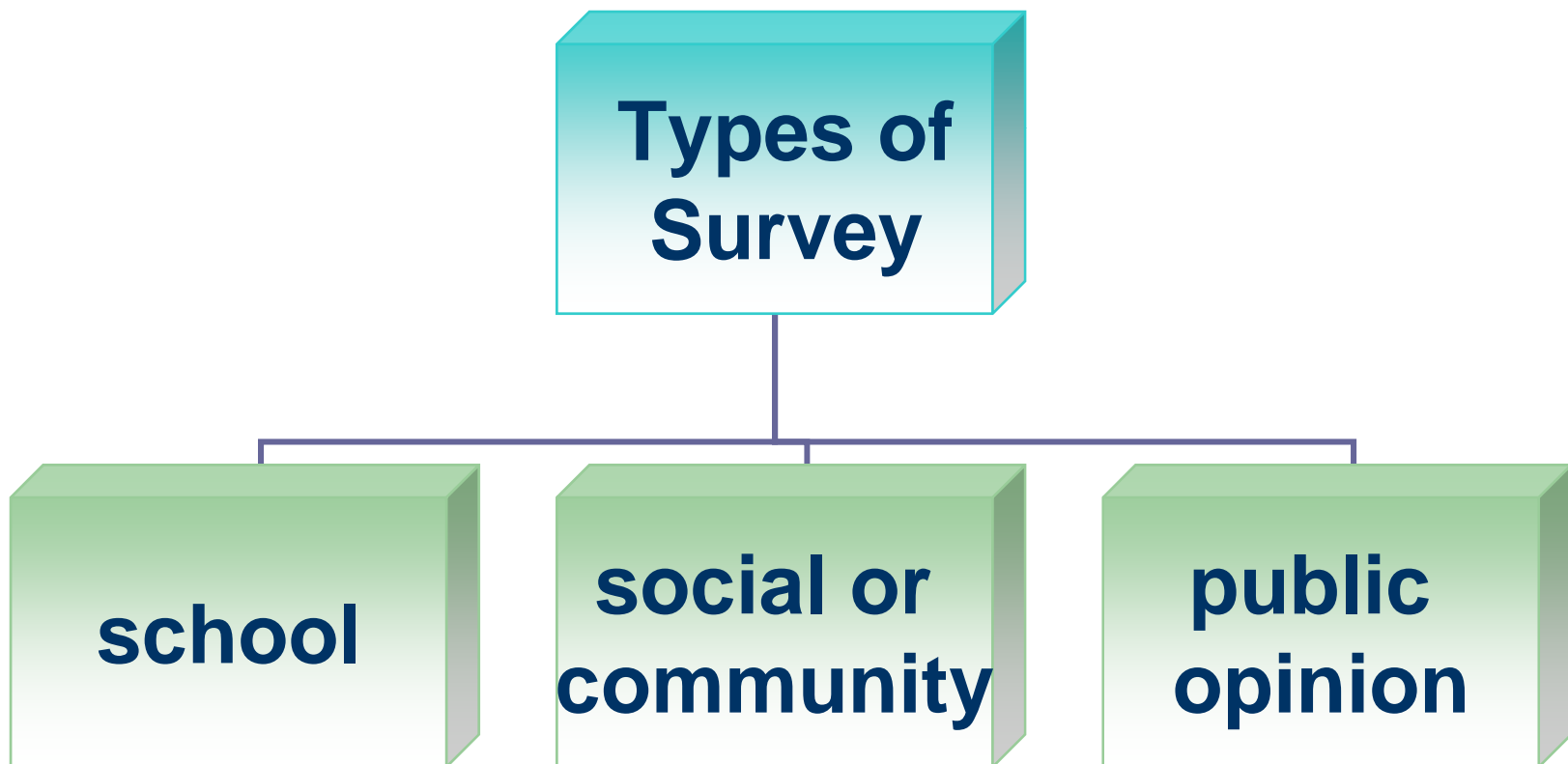
### Intentions of survey:

- A) describing the nature of existing conditions
- B) identifying standards against which  
existing conditions can be compared
- C) attempting to determine the potential  
relationship between two conditions



## **(8-1) Survey Methods**

Chapter 8





## (8-1) Survey Methods

Chapter 8

### Types of Survey:

(8-1-1) school: eg. settings of learning, characteristics of educational personnel and the system, nature of students, the learning process, teachers, motivation, teaching methods, tests etc.



## **(8-1) Survey Methods**

Chapter 8

### **(8-1-2) social or community survey:**

eg. health, employment, minority groups

**(8-1-3) public opinion:** people's preferences  
through opinion polls, interest to  
political and industrial organizations



## (8-1) Survey Methods

### Chapter 8

- Three types of information can be obtained from the respondents in a survey:
  - 1 - **Facts**: sociological or demographic information  
eg. sex , age , race , income , education –  
all are verifiable
  - 2 - **opinion** : feelings , preferences , likes , dislikes  
( unverifiable )
  - 3 - **behavior** eg. frequency of an activity ( verifiable )



## **(8-1) Survey Methods**

Chapter 8

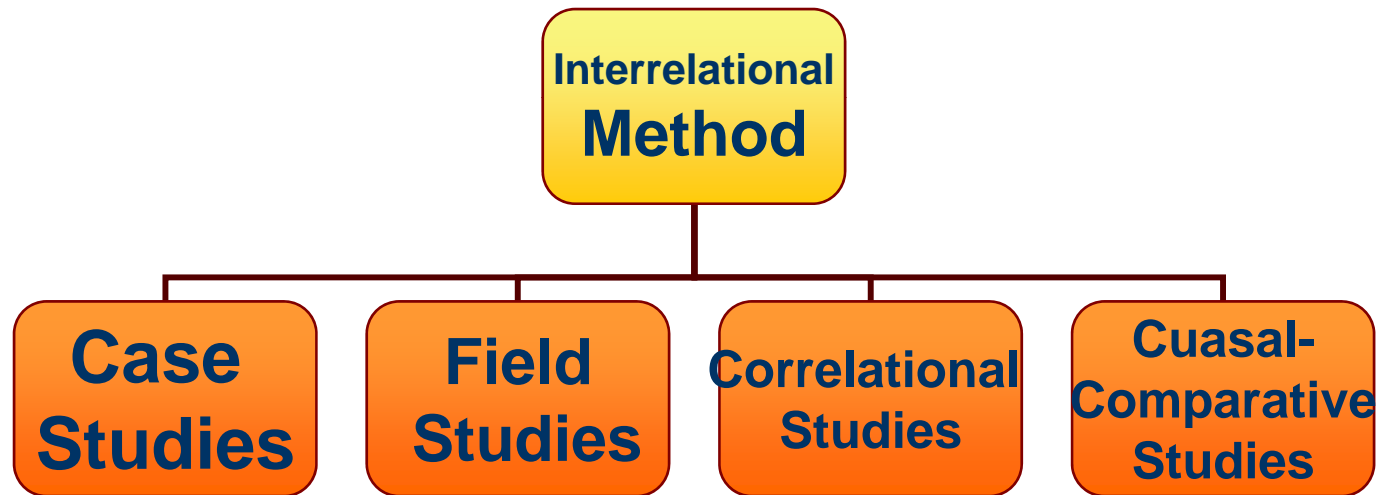
▣ **Instruments which can be used in survey for data collection:**

- 1 - Questionnaire**
- 2 - Interviews**
- 3 - observations**
- etc**



## (8-2) Interrelational

Chapter 8





## (8-2) Interrelational

Chapter 8

**(8-2-1) Case Study:** an intensive investigation of a social unit eg. speech therapy

- similar to survey but more intensive and less extensive; narrower in scope but more exhaustive and qualitative in nature
- good for making hypothesis not making generalizations about the population



## (8-2) Interrelational

Chapter 8

**(8-2-2) Field Study:** involves direct observation of **naturally occurring events**; requires direct observation

- ▣ **A Natural Event:** one that is not created, sustained, or discontinued solely for the sake of research, hence called **Naturalistic Method** too.



## (8-2) Interrelational

Chapter 8

### ▣ Sampling:

- a) **continuous time sampling** eg. Motivation to study the whole term
- b) **time point sampling** eg. motivation to study before exam



## (8-2) Interrelational

Chapter 8

**(8-2-3) Correlational Study:** togetherness of two or more variables eg. Correlation between reading and writing skill

- ▣ **possibilities:** positive, negative, neutral
- ▣ no causal relation is claimed, just a relationship which should be made meaningful by relating it to a theory



## (8-2) Interrelational

Chapter 8

**(8-2-4) Causal-Comparative:** studying cause-effect relationships by observing existing consequences and searching back through the data for plausible causal factors  
eg. Finding out if pre-school education has had any effect on the success of high-achievers at school



## (8-2) Interrelational

Chapter 8

### (8-2-4) Causal-Comparative

- similar to and different from correlational study: both are descriptive; but
- **Causal-Comparative** : two or more groups and one independent variable, involving comparisons
- **correlational**: one group + two or more variables, involving togetherness



## **(8-2) Interrelational**

Chapter 8

### **(8-2-4) Causal-Comparative**

- ▣ also similar to and different from experimental study; both involve cause-and-effect relation and comparisons
- ▣ In Experimental the cause is deliberately made and the effect is observed



## (8-2) Interrelational

Chapter 8

- In Causal-Comparative the effect is observed and the cause looked for, so the independent variable naturally occurs and is not manipulated .
- also called **Ex-post-facto**: (= after the fact ) but this term is not exclusive to causal-comparative method



## (8-2) Interrelational

Chapter 8

### ■ Some drawbacks of Interrelational

#### Method :

- 1 – no control over variables , so the effect can be the result of other factors
- 2 – not a single factor may affect the result
- 3 – connection between two variables do not mean causal relationship

- Nevertheless it's practical: less costly and quite useful



## **(8-3) Developmental**

Chapter 8

```
graph TD; A[Developmental Method] --- B[ ]; B --- C[Longitudinal]; B --- D[Cross-sectional];
```

**Developmental Method**

**Longitudinal**

**Cross-sectional**



## (8-3) Developmental

Chapter 8

- ▣ It mainly deals with the changes that happen over time

Eg. child language development; cognitive processes and interlanguage studies

**(8-3-1) Longitudinal:** exploratory; time consuming; focuses on one subject but several variables



## (8-3) Developmental

Chapter 8

**(8-3-2) Cross-sectional:** focuses on more subjects but fewer variables; confirmatory in nature, and findings of different groups are not comparable; less time consuming and more practical; but does not provide as detailed information as the other one



## Chapter 9 : Experimental Method of Research

☐ To some people Experimental Research is considered as the peak of scientific research.

### ☐ Principles of the Experimental Method

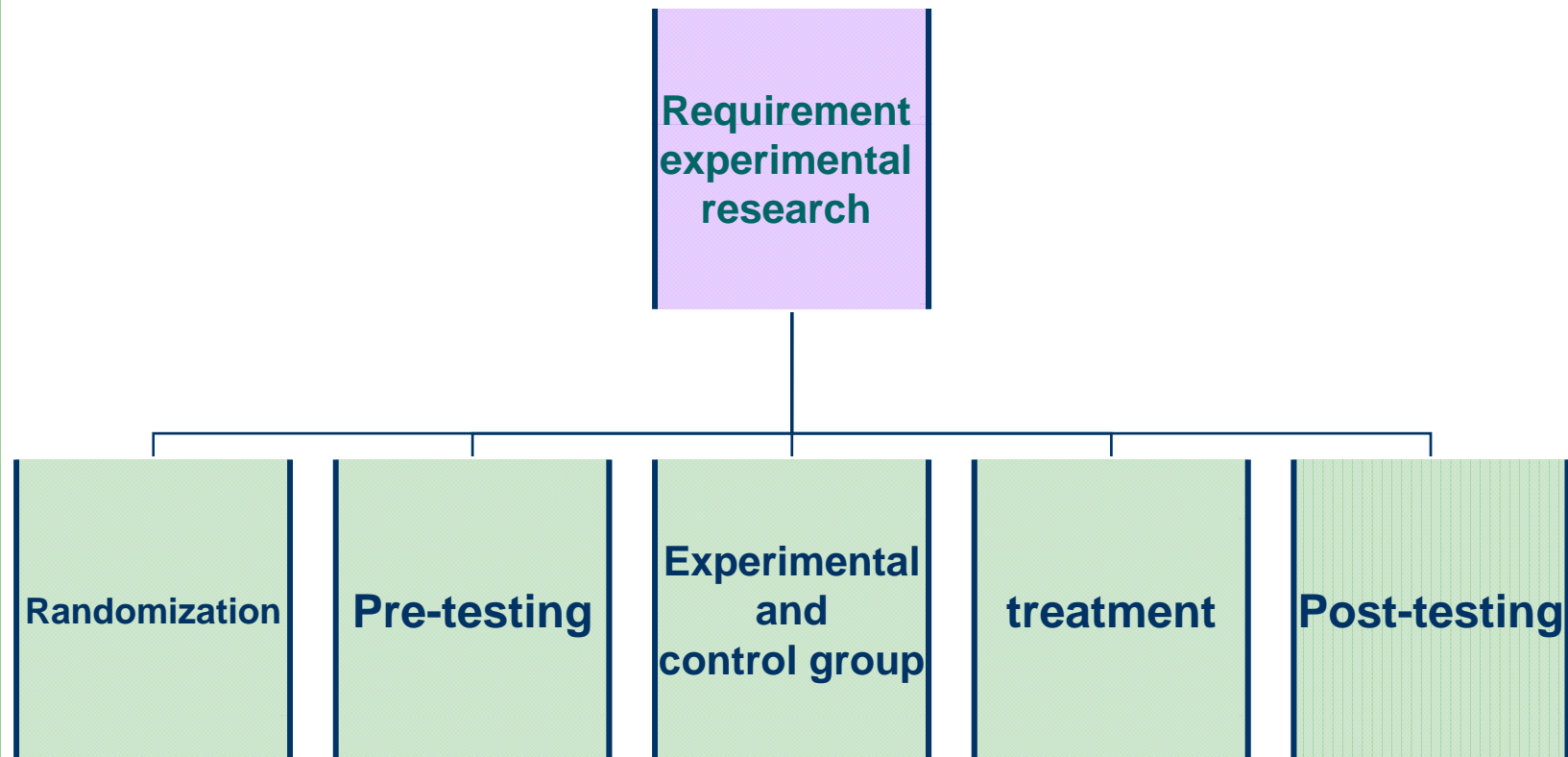
**A) Most Demanding:** It requires rigorous principles.

**B) Most Productive:** It provides conclusive answers to complex questions.



## (9-1) Requirement of a typical experimental research

Chapter 9





## **(9-1) Requirement of a typical experimental research**

Chapter 9

**(9-1-1) Randomization**

**(9-1-2) Pre-testing**

**(9-1-3) Having experimental and control group**

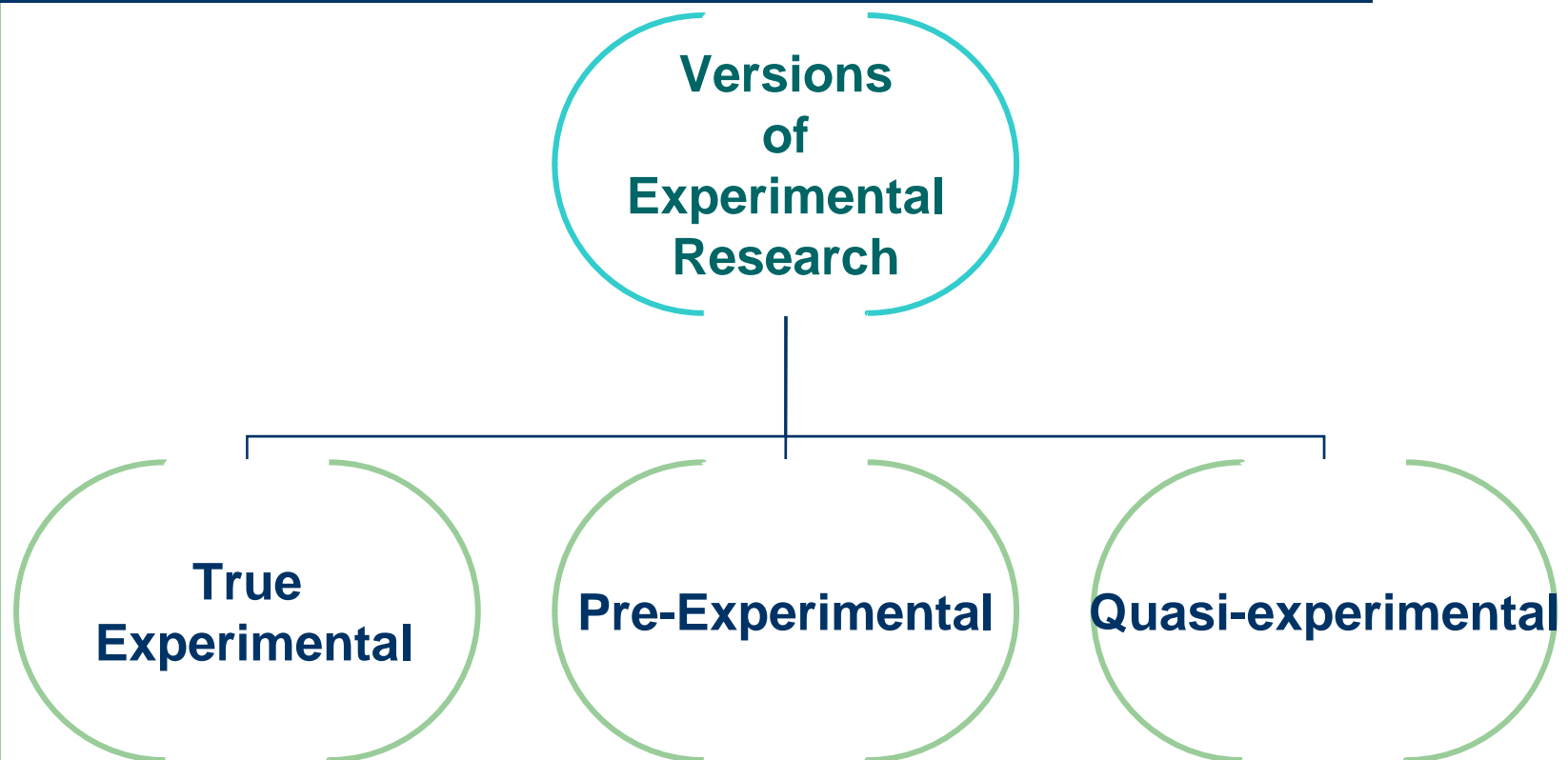
**(9-1-4) Offering a treatment to the experimental group and placebo to the control group**

**(9-1-5) post-testing**



## **(9-2) Different version of experimental studies**

Chapter 9





## (9-2) Different version of experimental studies

Chapter 9

(9-2-1) True Experimental: All the above principles are met.

(9-2-2) Pre-Experimental: One or two principles are ignored.

(9-2-3) Quasi-experimental: There is compensation for the violation of certain principles.



## **(9-3) Characteristics of true experimental Method**

Chapter 9

**(9-3-1) Randomization:** To avoid bias; every member of a given population has an equal chance of being selected. This procedure helps select a representative sample of subjects.



## **(9-3) Characteristics of true experimental Method**

Chapter 9

### **(9-3-2) Experimental and control group:**

involves two purposes:

- 1) The researcher should make sure that the relationship between the variables is not only causal but also one variable causes the other one.
- 2) He should make sure that the outcome of the study is due to the variable under study, not other variables.



## **(9-3) Characteristics of true experimental Method**

Chapter 9

**(9-3-3) Pretest:** It is used to make sure about the equality of the two groups before the experiment and to make strong statement about the cause-effect relationship between the variables after the experiment .



## **(9-3) Characteristics of true experimental Method**

Chapter 9

**(9-3-4) Treatment:** It is given to the experimental group and placebo to the control group.

■ In educational settings, the independent variable is often the introduction of a new instructional procedure or an educational factor. This variable is called a treatment in the context of experimental research.



## **(9-3) Characteristics of true experimental Method**

Chapter 9

**(9-3-5) Posttest** : It is measuring the dependent variable to see the effect of treatment as compared with the control group which received placebo or no treatment .

▣ If the difference is not significant the treatment is not effective.



## (9-4) Validity of Research

- ▣ **Verifiability** : Replications should give similar results .
- ▣ **Applicability** : The findings should be applicable in similar situations .



# Two Types of Validity

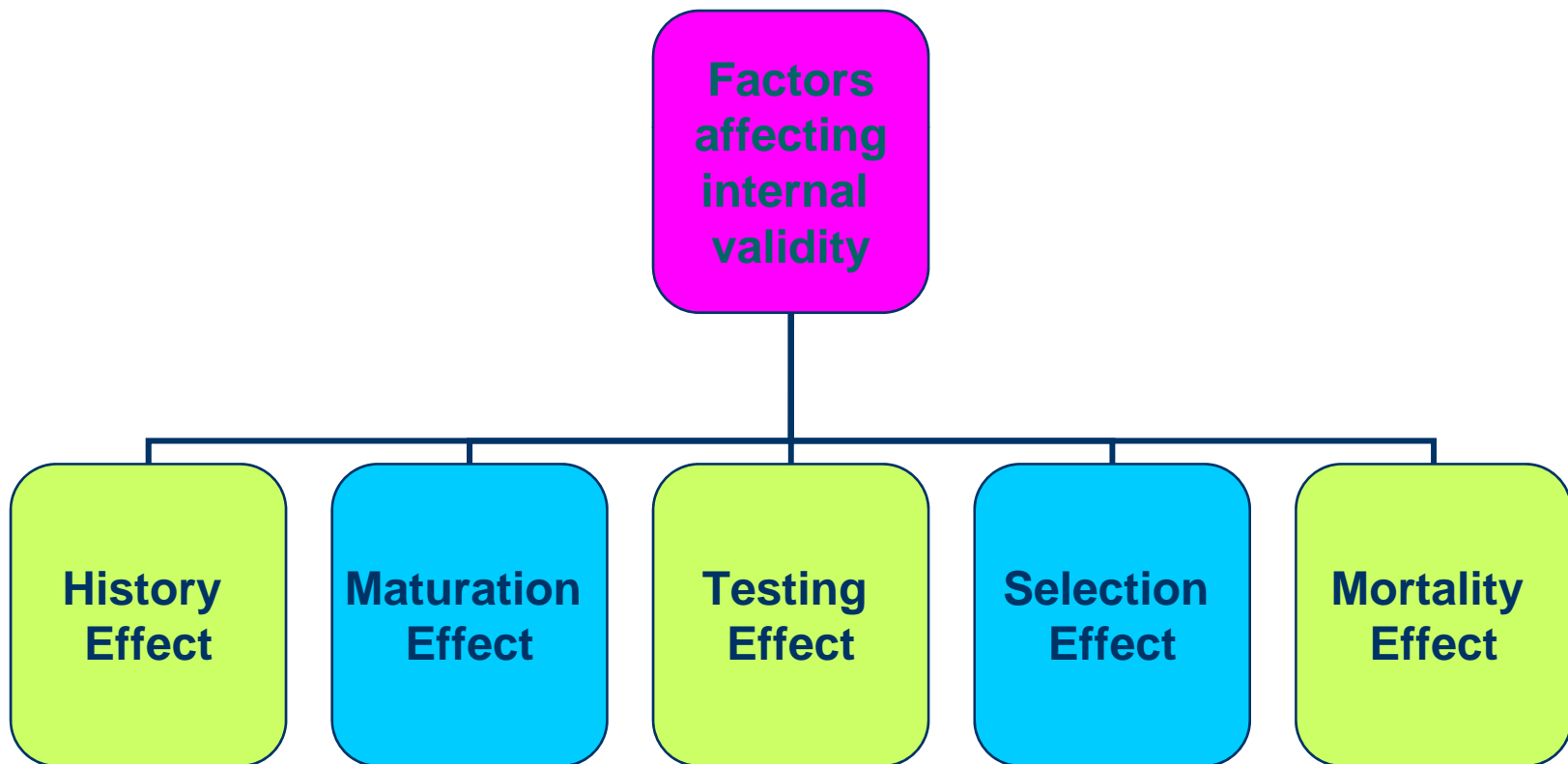
Chapter 9

**(9-5) Internal Validity:** The extent to which the outcome of the research is due to the manipulation of independent variable and not others (importance of control variable). This is unique to experimental research .



# **(9-5) Factors affecting internal validity**

Chapter 9





## (9-5) Factors affecting internal validity

Chapter 9

**(9-5-1) History Effect:** Whatever happening to the subjects outside the experimental environment; eg. receiving another type of treatment somewhere else



## **(9-5) Factors affecting internal validity**

Chapter 9

**(9-5-2) Maturation Effect:** any process that involves systematic changes over time, regardless of specific events eg. In longitudinal research eg. natural language development vs. formal instruction-based method



## (9-5) Factors affecting internal validity

Chapter 9

**(9-5-3) Testing Effect:** The pretest may give some awareness to the subjects regarding the purpose of the experiment, so in posttest they are better prepared; analogous to practice effect in testing .



## (9-5) Factors affecting internal validity

Chapter 9

**(9-5-4) Selection Effect:** If randomization is weak or impossible, we can use *matching*

eg. dividing the subjects into two groups based on their proficiency level so that both groups are equal in terms of proficiency



## (9-5) Factors affecting internal validity

Chapter 9

**(9-5-5) Mortality Effect:** loss of the subjects during the experiment especially in longitudinal study. It is also called ***Attrition*** .



## **(9-6) External Validity**

Chapter 9

Applicability of research findings in other similar settings = generalizability of findings, from sample to population.  
It is true for all methods of research.



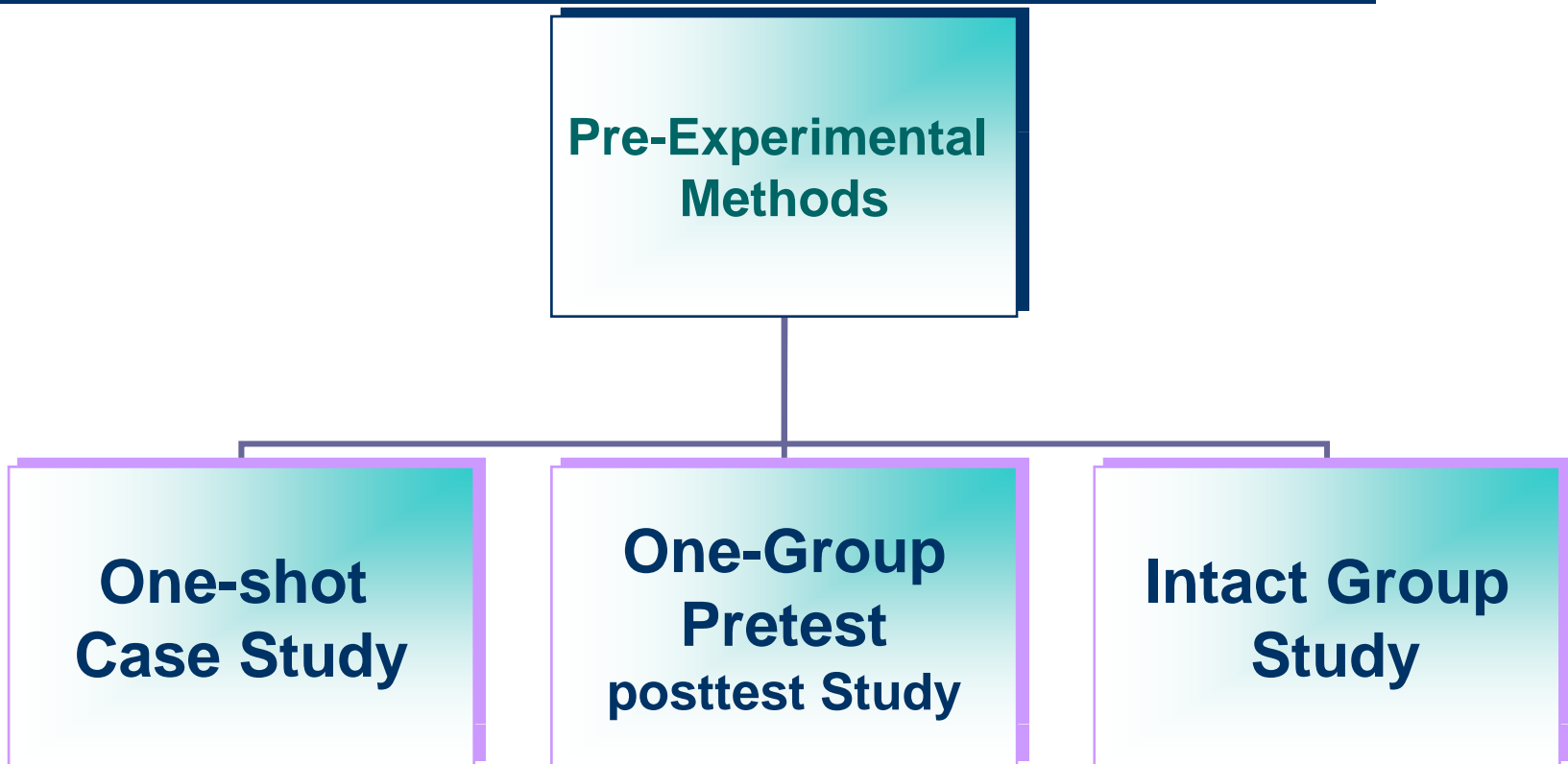
## (9-6) External Validity

Chapter 9

- ❑ Internal validity requires maximizing control.
- ❑ External validity requires more real life–like or naturalistic situation in research with less control.
- ❑ There should be a balance or trade-off to keep both.



## **(9-7) Pre-Experimental Methods Chapter 9**





## **(9-7) Pre-Experimental Methods** Chapter 9

with lower internal and external validity

### **(9-7-1) One-shot Case Study:**

no control group, with treatment and test

X T

▣ this can function as a pilot study



## **(9-7) Pre-Experimental Methods** Chapter 9

### **(9-7-2) One-Group Pretest posttest**

**Study:**

often used by teachers

**T1      X      T2**



## (9-7) Pre-Experimental Methods Chapter 9

### (9-7-3) Intact Group Study :

no randomization

<b>G1</b>	<b>X</b>	<b>T</b>
<hr/>		
<b>G2</b>	<b>O</b>	<b>T</b>

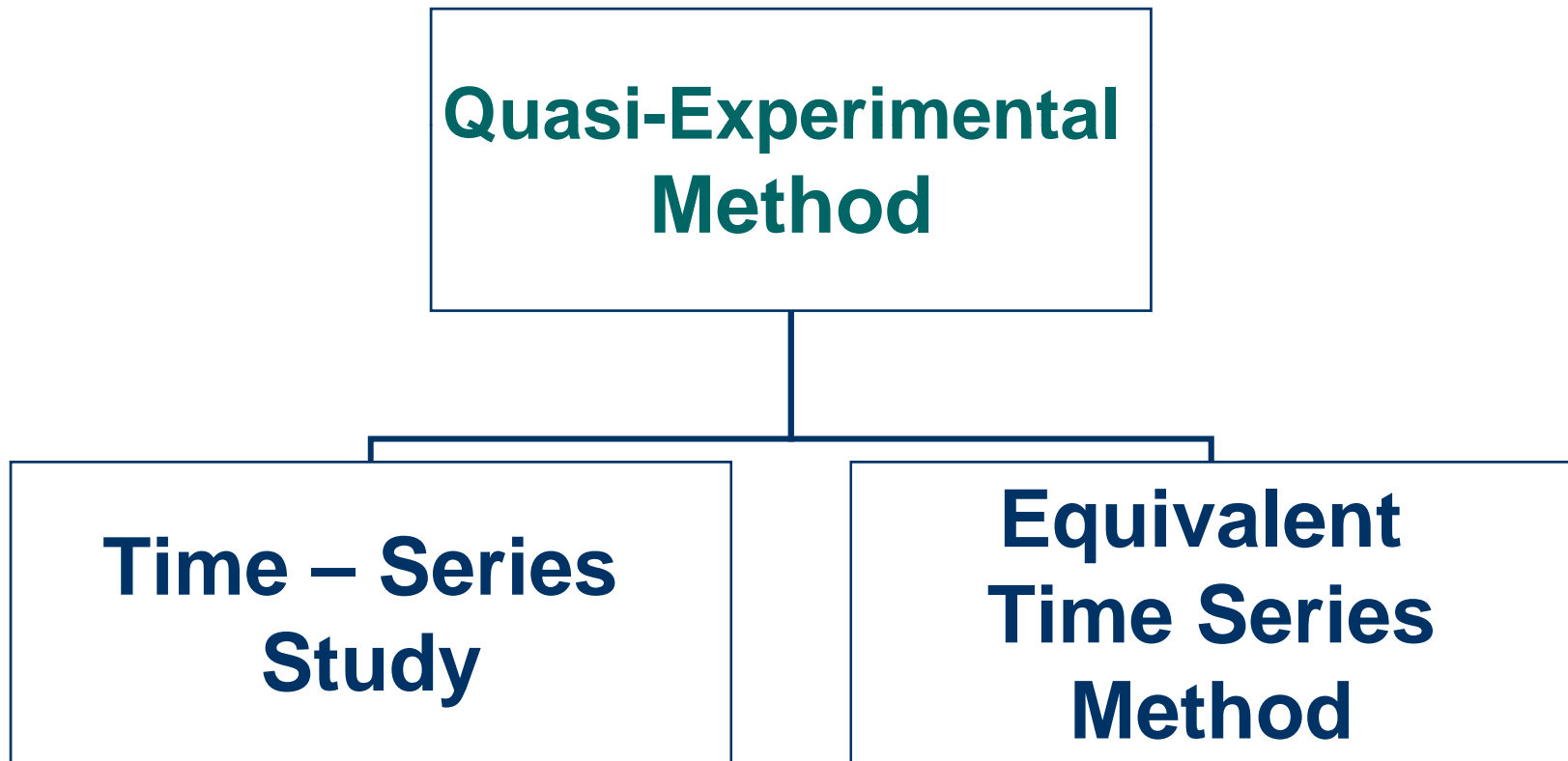
■ X= treatment

O= placebo



## **(9-8) Quasi-Experimental Method**

Chapter 9





## **(9-8) Quasi-Experimental Method** Chapter 9

It is a practical compromise between true experimentation and the nature of human language behavior to be investigated.



## (9-8) Quasi-Experimental Method Chapter 9

### (9-8-1) Time – Series Study:

is the most common type; no control group

T1 T2 T3 X T4 T5 T6

- ▣ the number of pre or post tests is not fixed, but there should be enough to show a trend (see diagrams p.190)



## **(9-8) Quasi-Experimental Method**

### **Chapter 9**

#### **(9-8-2) Equivalent Time Series**

##### **Method :**

T1 X T2 / T3 O T4 / T5 X T6 / T7 O T8 ? ...

■ This process is repeated three to five times and then the scores on Os and Xs are compared .

(See diagrams p.191)



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