IV. STEP BY STEP OF RESEARCH

4.7 Identification of Variables and Data Research

General:

- Certain information whose value is not fixed
- Example: GPA, Weight Gain, Speed Data Access, etc. Body Condition

Data :

- Particular value of a variable
- Example: GPA = 3:24, Weight = 76 kg, Data Access Speed = 56 bps = Healthy Body Condition etc.

Research Variable:

- Everything becomes an object of research and specific
- Factor-2 plays a role in the events / symptoms to be studied

IV. STEP BY STEP OF RESEARCH

Usefulness of Research Variables :

- To prepare the tools and methods of data collection
- To prepare the analysis methods / data processing
- To test the hypothesis

Good Research Variables :

- Relevant to the purpose of research
- Observable and measurable

In one study, variebel need to be identified, classified and operationally defined clearly and unambiguously so as not to cause errors in data collection and processing as well as in testing the hypothesis

IV. STEP BY STEP OF RESEARCH

Identification of Research Variables :

- To assess the variables that exist in the research
- To define the main variables that will be discussed

Example :

An investigation to study the factors that influence consumers to buy Motorcycles "Honda" Variables that affect defined, for example :

- Consumer tastes
- Consumer Income Level
- Quality Motorcycle Honda
- Purchase Price and Selling Price

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IV. STEP BY STEP OF RESEARCH

Classification of Research Variables :

- To determine the type of a variable
- To determine the tools and methods of data collection

Classification Type of Variables and Data Research :

1. According to Measurement Scale

	Variable	Data	information
• Nominal:	Gender Male,	Female	There is no level / degree
• Ordinal:	Champion	I, II, III	There are tiers / levels
• Interval:	5 ° C-10 ° C	room temperature	not know the absolute value
• Ratio:	76 kg	Weight	Knowing the absolute value

IV. STEP BY STEP OF RESEARCH

2. According to the Physical Properties

	Variabel	Data	Keterangan
• Kualitative :	Taste	Like, Dislike	not Number
• Kuantitative :	Price	Rp. 1.750.000,-	Number

3. According to the Measurement Method

• Discrit :	Total of Kids	3 orang	of enumeration
• Continue :	Space	102,34 m^2	of measurement

4. According Collection Method

- Primary : The number of defective computers in the Lab. Direct (data from computer lab)
- Secondary : The population of Semarang in 1990 indirect (documentation from data in BPS office)

IV. STEP BY STEP OF RESEARCH

5. According to the Data Source

	Variable	Data	Information
• Internal	: Student	record number of students	In the active institutions in the campus
• External	: Student	collect data on the number of documents in the BPS population	From outside agencies

definition of Research Variables Operational :

- To define a clear and unequivocal meaning of the variables
- To provide a common perception that there are no ambiguous meaning

Example :

- **Employee income** is the income received by the employee from a fixed salary component plus other wage prevailing in the Company
- **Student Academic Achievement** is a measure of student success is expressed with a grade point (IP) Students

IV. STEP BY STEP OF RESEARCH

4.8 Selection of Data Collection Tools

In one study, data collection tools (research instrument) greatly determines the quality of data that can be collected at once will determine the quality of the research itself

Criteria for good data collection tool:

1. Reliability or Countability
2. Validity or validity

What do you think about the gauge below?

- Farmer attitudes toward community service program is measured through interviews with the village headman and
- The level of patience is just measured by filling the questionnaire
- Weight was measured with scales letters rice

IV. STEP BY STEP OF RESEARCH

Reliability tools collection (measurement) data showed constancy measurement results (consistency) when used for measurements at different times and not depending on who is using it

Reliability can be seen from the standard deviation of the results of repeated measurements or of the magnitude of the error rate (errors) measurement

The validity of the tool collection (measurement) data indicate the suitability or compatibility between the measuring instrument with what is measured

Example :

Thermometer to measure / observe the temperature

Exam written to measure the achievement of students

IQ test to measure the level of intelligence / aptitude someone

Electronic scales to measure the weight of an item / object

IV. STEP BY STEP OF RESEARCH

Measurement Selection Considerations:

- Compliance with the variable to be observed
- Quality tools in terms of reliability and validity
- Procurement Costs and Usage
- user Tool
- The level of difficulty of use
- Measuring instrument does not have to be a physical apparatus that has a fixed measurement scale (eg scale, stopwatch, thermometer, ruler, etc.) but it can be a particular equipment that is non-physical by a particular measurement scale that can be defined or developed specifically (eg test, exams, interviews, questionnaires, etc.). The concept of measuring instrument refers to how data can be extracted from the measurement tools used

IV. STEP BY STEP OF RESEARCH

4.9 Design of Data Processing

Before the data collection is done, needs to be prepared beforehand how to design for processing / data analysis.

Objective Design Data Processing :

•To avoid biased observations of the variables studied

•In order to facilitate the selection of tools and methods of analysis

•To maintain consistency between the data to be collected with a tool or a method of analysis that will be usedFaktor Pemilihan Rancangan **Pengolahan Data :**

• The purpose and types of research

• Model / type of data

• Level / degree of inference

ASSIGNMENT

1. What is meant by the concepts, constructs and variables?
2. Explain the differences in quantitative variables with quantitative variables!
3. What is the measurement, dimensions, indicators and operationalization of the variables?
4. What is a reversible proposition?
5. What is a irrreversible proposition?
6. What is a coextensive proposition?
7. What is a sequential proposition?
8. What is a deterministic proposition?
9. What is a stochastic proposition?
10. What is a contingency proposition?
11. What is a sufficient proposition?
12. What is a proposition Necessary?
13. What is a suitable proposition?
14. What factors should be considered in the measurement variable?
15. How many types of variables and explain each sense?
16. What is a paradigm of the relationship between variables?
17. Identify and explain the relationship between variables scheme!
18. What are the three models of the relationship between variables?