The Research Process: step-wise model

- **The eight-step model for carrying out research**
- **PHASE I: Deciding what to research,**
  - Step I: Formulating a research problem.
- **PHASE II: Planning a research study,**
  - Step II: Conceptualizing a research design.
  - Step III: Constructing an instrument for data collection.
  - Step IV: Selecting a sample.
  - Step V: Writing a research proposal.
- **PHASE III: Conducting a research study.**
  - Step VI: Collecting data.
  - Step VII: Processing and displaying data.
  - Step VIII: Writing a research report.

1. The Research Process: an eight-step model

- Expressed by Festinger and Katz, who in the foreword of their book "*Research Methods in Behavioral Sciences*" say that,

  - Although the basic logic of scientific methodology is the same in all fields, its specific techniques and approaches will vary, depending upon the subject matter.

  - Therefore, the model developed here is generic in nature.

  - can be applied to a number of disciplines in the sciences.

For Example;

- Supposed you want to go out for a drive;

  - Before you start, you must decide where you want to go and then which route to take.

  - If you know the route, you don't need to consult a street directory,

"*The research process is very similar to undertaking a journey*"

1. The Research Process: an eight-step model (Cont…)

- As with your drive, for a research journey,, there are also 2 important decisions to make.

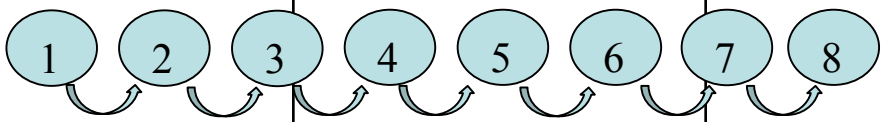
  - **First**, is to decide what you want to find out about

    => in other words, "*what research questions you want to find*".

    => having decided upon you research question or research problems, you then need to decide "*how to go finding their answers*".

  - **Second**, is your research objectives.

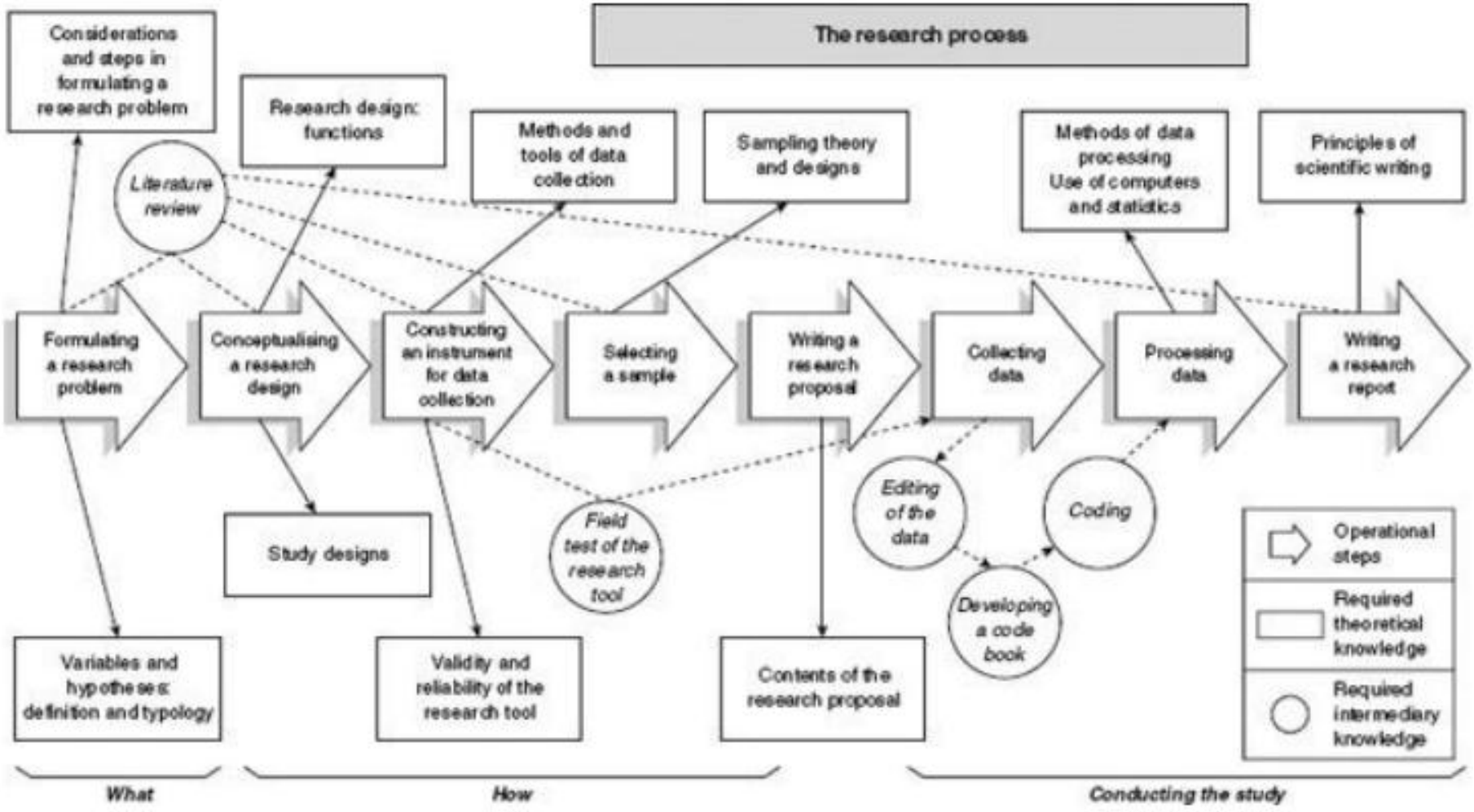
    => where your knowledge base of research methodology plays a crucial role.

THE RESEARCH PROCESS			
Phase	PHASE I	PHASE II	PHASE III
Main task	DECIDING ↓ WHAT (research questions to answers?)	PLANNING ↓ HOW (to gather evidence to answer the research questions)	UNDERTAKING ↓ COLLECING (the required information)
Operational steps/research journey			

1. The Research Process: an eight-step model (Cont…)

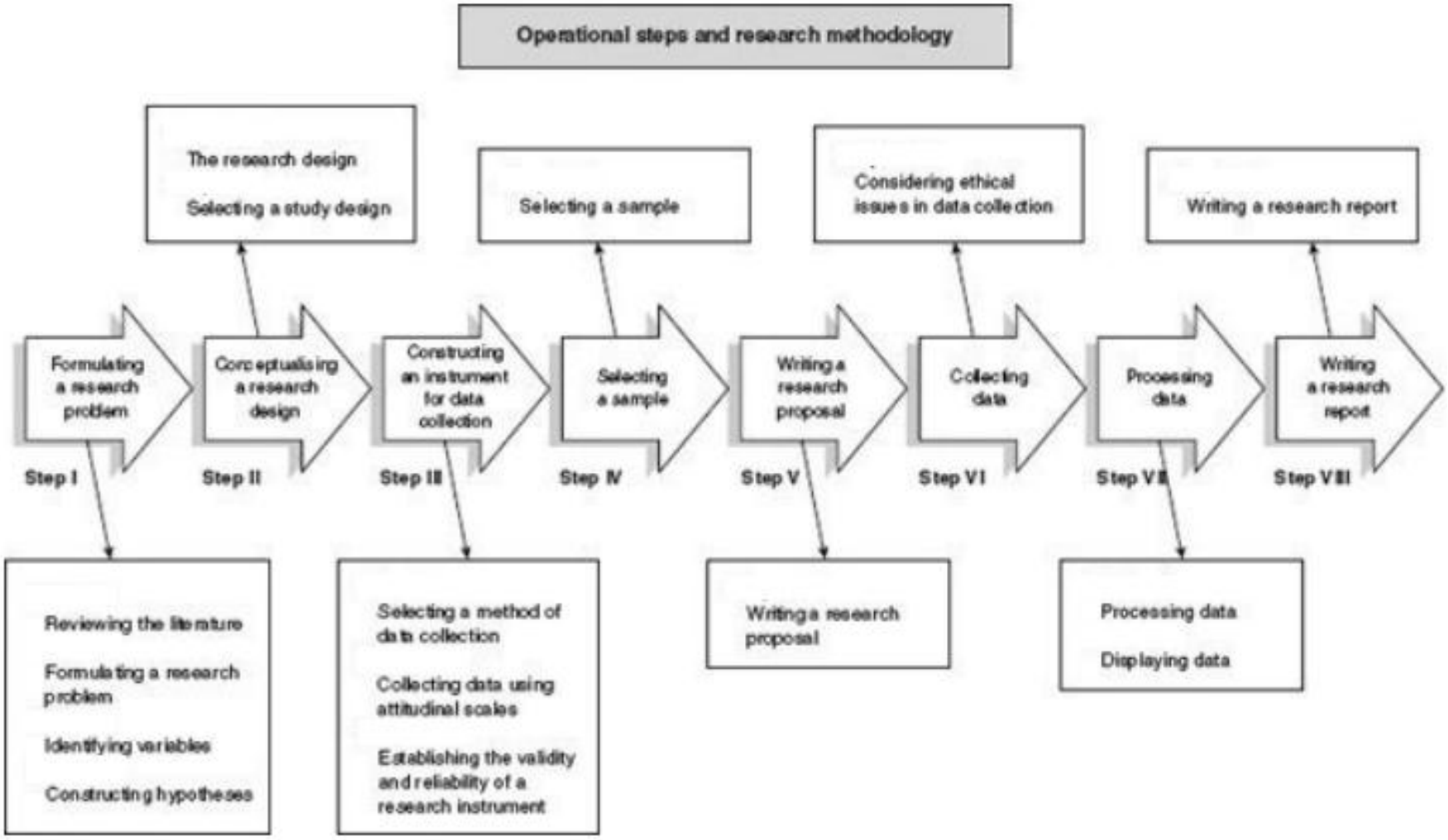
- Figure shows the proposed model.

  - arrows are the operational steps, you need to follow in order to conduct a study, quantitative or qualitative.



1. The Research Process: an eight-step model (Cont…)

- Operational steps and research methodology..



2. Phase I: deciding what to research

Step I: **Formulating a research problem**

❑Formulating a research problem is the first and most important step in the research process.

❑A research problem identifies your destination:

- it should tell you, your research supervisor what you intend to research.

❑The more specific and clearer your research process as;

- study design, measurement procedures, sampling strategy and the style of writing of your dissertation or report.

❑It is extremely important to evaluate the research problem;

- in the light of the financial resources at your disposal.
- the time available.
- and your own and your supervisor's expertise and knowledge in the field of study.

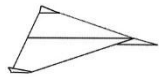
2. Phase I: deciding what to research (Cont…)

Step I: **Formulating a research problem**

❑**3** types of Research variable ;

(i)Independent Variable: is a factor or condition that is intentionally changed by an investigator in an experiment.

For Example: The mass of the plane (number of paper clips added).



(ii)Dependent Variable: is a factor or condition that might be affected as a result of that change.

For Example: The distance the paper flew.

(iii)Controlled Variable: A variable that is not changed is called a controlled variable.

For Example: The same plane was used; the same person flew the plane, the plane was flown in the same area, etc.

3. Phase II: Planning a research study

Step II: **Conceptualizing a research design**

- ❑ Research involves systematic, controlled, valid and rigorous exploration.

- ❑ It also involves identifying gaps in knowledge,
  - verification of what is already known.
  - and identification of past errors and limitations.

- ❑ For any investigation, the selection of an appropriate research design is crucial;
  - enabling you to arrive at valid findings, comparisons and conclusions.

- ❑ A faulty design results in misleading findings for;
  - wasting human and financial resources.

- ❑ When selecting a research design it is important to ensure that;
  - it is valid, workable and manageable.
  - you must be able to justify your selection;
  - and you should be aware of its strengths, weaknesses and limitations.

3. Phase II: Planning a research study (Cont…)

Step III: **Constructing an instrument for data collection**

❑ Collecting information for your study is based on;

- a 'research tool'.
- or a 'research instrument'.

For Example;

- observation forms,
- interview schedules, questionnaires,
- and interview guides.

❑ The construction of a research instrument is the first "practical step" in carrying out a study.

- construct a research instrument for data collection.

❑ Methods of data collection for;

- qualitative and quantitative studies, and
- the process of developing a research instrument.

3. Phase II: Planning a research study (Cont…)

Step IV: **Selecting a sample**

❑ The basic objective of any sampling design is to minimize, within the limitation of cost.

❑ Gap between the values obtained from your sample and those prevalent in the study population.

❑ **2 key aims** of selecting a sampling is;

①avoidance of bias in the selection of a sample;

②the attainment of maximum precision for a given outlay of resources.

❑ Sampling strategies are categories into **2 functions**;

a.the strengths and weaknesses of particular sample;

b.the situations in which they can or cannot be applied.

3. Phase II: Planning a research study (Cont…)

Step V: **Writing a research proposal**

❑Next step is to put everything together in a way that provides;

- adequate information about your research study, from your research supervisor and others.

❑A research proposal must tell you, your research supervisor and a reviewer the following information about your study:

- what you are proposing to do;
- how you plan to proceed;
- why you selected the proposed strategy.

3. Phase II: Planning a research study (Cont…)

Step V: **Writing a research proposal**

❑Therefore, it should contain the following information about your study:

- a statement of the objectives of the study;
- a list of hypotheses, if you are testing any;
- the study design you are proposing to use;
- the setting for your study;
- the research instrument(s) you are planning to use;
- information on sample size and sampling design;
- information on data processing procedures;
- an outline of the proposed chapters for the report;
- the study's problems and limitations; and
- the proposed time-frame.

4. Phase III: Conducting a research study

Step VI: **Collecting data**

"*Having formulated a research problem, developed a study design, constructed a research instrument and selected a sample*"

❑Collect the data from which you will;

- "*draw inferences*" and "*conclusions*" for your study.

For Example:

✓depending upon your plans, you might commence interviews,

✓mail out a questionnaire,

✓conduct nominal/focus group discussions or make observations,

✓Practical implementation using simulation.

4. Phase III: Conducting a research study

Step VII: **processing and displaying data**

❑Analyze the information, you collected largely depends upon **2 things**:

①Type of information (descriptive, quantitative, qualitative or attitudinal);

②Way you want to communicate your findings to your readers (i.e., newspaper, article, proceeding, lectures, seminars).

Case 1: If your study is purely descriptive,

✓You can write your dissertation/report on the basis of your field notes,

✓manually analyze the contents of your notes (content analysis),

✓use a computer program such as NUD*IST N6, NVivio or Ethnograph for this purpose.

4. Phase III: Conducting a research study (Cont…)

Step VII: **Processing and displaying data**

Case 2: If you want quantitative/qualitative analysis,

✓it is also necessary to decide upon the type of analysis required

✓such as (i.e. frequency distribution, cross-tabulations or

✓other statistical procedures, such as regression analysis, factor analysis and analysis of variance),

4. Phase III: Conducting a research study

Step VIII: **Writing a research proposal**

❑ Writing the report is the last:

- most difficult step of the research process.

❑ This report informs the world what you have done;

- what you have discovered and,
- what conclusions you have drawn from your findings.

❑ If you are clear about the whole process,

- you will also be clear about the way you want to write your report.
- Your report should be written in an academic style.
- and be divided into different chapters and/or sections based upon the main themes of your study.