The Problem: The Heart of the Research Process

Finding Research Projects

- “The heart of every research project is the problem. It is paramount to the success of the research effort. To see the problem with unwavering clarity and to state it in precise and unmistakable terms is the first requirement in the research process.”
- The research problem should address an important question, such that the answer can actually “make a difference” in some way.
- And second, it should advance the frontiers of knowledge, perhaps by leading to new ways of thinking, suggesting possible applications, or paving the way for further research in the field.
- Research involves the collection of data and the interpretation of data.

Avoid the following:

- Research projects should not be a ruse for achieving self-enlightenment.
- A problem should not have the sole purpose of comparing two sets of data.
- Calculating a coefficient of correlation between two sets of data to show a relationship between them is not acceptable as a problem for research.
- Problems that result in a ‘yes’ or ‘no’ answer are not suitable problems for research.

Guidelines for Finding a Legitimate Problem

- Find topics/projects that might make important contributions to the field.
- Look around you.
- Read the literature.
- Attend professional conferences.
- Seek the advice of experts.
- Choose a topic that intrigues and motivates you.
- Choose a topic that others will find interesting and worthy of attention.

Stating the Research Problem

- After identifying a research problem, you must articulate it in such a way that it is carefully phrased and represents the single goal of the total research effort.
- **State the problem clearly and completely.** Your problem should be so clearly stated that anyone can read and understand it. State the problem completely. See also examples of how to correctly state the research problem.
- **Think through the feasibility of the project that the problem implies.**
- **Say precisely what you mean.** The basic rule is that “absolute honesty and integrity are assumed in every statement a scholar makes.”
- **Edit your work.** Editing is sharpening a thought to a gemlike point and eliminating useless verbiage. Choose words precisely. Doing so will clarify your writing and improve your thinking and prose.
- Review your statement of the research problem.
- Is the problem stated in a complete, grammatical sentence?
- Is it clear how the area of study will be limited or focused?
- On the basis of your answers to questions above, edit and revise your written statement.
- Review again your edited/revised statement.
- Does the answer to this problem have the potential for providing important and useful answers and information?
- Will the result be more than a simple exercise in gathering information, answering a yes/no question, or making a simple comparison?
- Is the problem focused enough to be accomplished with a reasonable expenditure of time, money, and effort?
- Is the problem worth investigating?

**Adding Sub problems: 4 Key Characteristics**

- Each sub problem should be a completely researchable unit. Should be stated in the form of a question.
- Each sub problem must be clearly tied to the interpretation of the data.
- The sub problems must add up to the totality of the problem.
- Sub problems should be small in number (2 to 6). Ask further questions such as whether they are necessary, can be combined, etc.
- To derive at sub problems you can write potential sub problems or use brainstorming.

**Stating the Hypotheses and/or Research Questions**

- Hypotheses are tentative propositions set forth to assist in guiding the investigation of a problem or to provide possible explanations for the observations made.
- Data from research may or may not support the hypothesis.
- Hypotheses have nothing to do with proof. Rather, their acceptance or rejection is dependent on what the data – and the data alone - reveal. If you discover that your data do not support your research hypothesis, it means that your educated guess about the outcome of the investigation was incorrect.

**Null Hypothesis vs. Research Hypothesis**

- The **scientific or research hypothesis** represents the predicted relationship among the variables being investigated.
- The **null hypothesis** represents a statement of no relationships among the variables being investigated.
Delimitations in Research & Defining Terms

- What the researcher is not going to do is stated in the delimitations. The limits of the problem should be as carefully bounded for a research effort as a parcel of land is for a real estate transfer.
- Each term must be defined operationally; that is, the definition must interpret the term as it is used in relation to the researcher’s project.
- A formal definition contains three parts: (a) the term to be defined; (b) the genera, or the general class to which the concept being defined belongs; and (c) the differentia, the specific characteristics or traits that distinguish the concept being defined from all other members of the general classification.

Stating Assumptions

- In research, all assumptions that have a material bearing on the problem should be openly and unreservedly set forth.
- To discover your own assumptions, ask yourself, what am I taking for granted with respect to the problem?

Checklist for Evaluating Your Proposed Research Project

- Have you read enough literature relevant to your topic to know it is worthwhile?
- Will the project advance the frontiers of knowledge in an important way?
- Have you asked a research expert in your field to advise you on the value of your research effort?
- Have you looked at your research problem from all sides to minimize unwanted surprises? Explore questions such as: What is good about your potential project? What are the potential pitfalls of attempting this research effort?
- What research procedure will you follow? Explore questions such as: Do you have a plan to review the literature? Do you have a plan for data collection? Do you have a plan for data analysis? Do you have a plan to interpret the data you collect?
- What research tools are available for you to use? Make a list and check their availability. Determine how you will use them.
- Subject your proposed project to peer review.
- See final guidelines on “Fine-Tuning Your Research Problem (p.47).

Statement about Importance of Study

- Of what use is the study? What practical value does the study have?