# Writing a Research Proposal

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# **Components of a Research Proposal**

#### 1. Introduction

- Statement of the problem
- Review of related literature
- Statement of the hypothesis

#### 2. Method

- Subjects
- Instruments
- Research design
- Procedure(s)

# 3. Data Analysis (your plan to analyze the data)

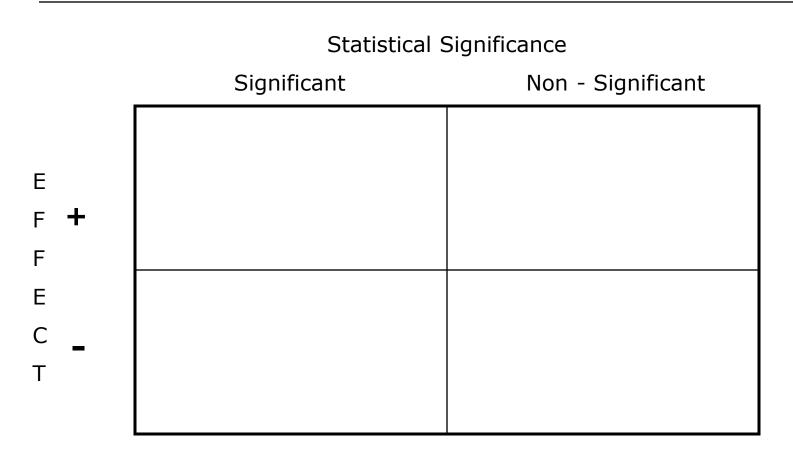
# **Statement of the Problem**

- 1. For beginning researchers most difficult
- 2. Identify a general problem area (brain storm)
- 3. Narrow general problem to specific sub problem that is:
- Of interest
- Manageable
- Information Available
- Reasonable time frame

# **Review of the Related Literature**

- 1. Typically viewed as necessary evil.
- Systematic identification, location, and analysis of documents containing related information.
- 3. What has been done provides rationale for your research.
- 4. Avoid trying to include everything. More is not better.
- 5. Synthesize findings.

# **Review of the Related Literature**



# Writing the Literature Review

- 1. Make an outline (identify topics and order)
- 2. Analyze each reference in terms of your outline.
- 3. Analyze subheading references for relationships or differences. Do not present references as a series of abstracts (i.e., so and so did this and so and so did that). Present a synthesis.
- 4. Write in such a way that references least related to problem are discussed first and those most related are discussed last.
- 5. End with summary.

# HYPOTHESIS: Definition and Purpose

- 1. Tentative explanation for certain behaviors, phenomena, or events that have occurred or will occur.
- Formulated following the review of related literature and prior execution of study.
- 3. Entire study is determined by the hypothesis.

# Characteristics of a Well Formulated Hypothesis

- 1. Consistent with previous research
- 2. Provides reasonable explanations
- 3. States clearly and concisely the expected relationship (or difference) between two variables and refines the variables in operational, measurable terms
- 4. A well stated hypothesis must be testable within some reasonable period of time

### Hypotheses can be classified in two ways:

- By how they are derived (rationale/logic)
  - + inductive (generalization based on specific observations)
  - + deductive (derived from general theory)

### Hypotheses can be classified in two ways:

- 2. How they are stated
- Declarative Hypotheses
  - + non directional
  - + directional
- Null Hypotheses

Non – Directional Declarative Hypothesis

"There is a significant difference in the achievement of 10<sup>th</sup> grade biology students who are instructed using interactive multimedia and those who receive regular instruction only."

The hypotheses states there is a significant difference, but does not suggest what the differences will be (no direction indicated).

Directional Declarative Hypothesis

"Tenth-grade biology students who are instructed using interactive multimedia achieve at a higher level then those who receive regular instruction only."

In the above hypothesis, notice the stated direction (achieve at a higher level).

Null Hypothesis

"There is no difference in the achievement level of 10<sup>th</sup> grade biology students who are instructed using interactive multimedia and those who receive regular instructions."