

SCS301: RESEARCH METHODS IN COMPUTING

Identifying a researchable
problem

Criteria for Selecting a Problem

- ◆ Interest
 - Most important
- ◆ Significance
 - Theoretical value
 - Practical value
 - Timeliness
 - External review
- ◆ Manageability
 - Expertise, time, resources
 - Free from personal bias

Problem Distillation

- ◆ The process of refining the question or idea into a problem and making it sufficiently specific so that it is amenable to investigation
- ◆ This process should lead to the development of a “statement of the problem” that is clear, concise, and definitive

Statement of the Problem

- ◆ A very specific statement which clearly identifies the problem being studied; will usually identify the key variables as well as give some information about the scope of the study
- ◆ May be in either question or declarative form
- ◆ May include inherent sub-problems, if appropriate
- ◆ Formulation of problem statement takes place after an initial review of related literature and the distillation process

Problem Statements

- ◆ The current study investigates the relationship between . . .
- ◆ The focus of this study will be on . . .
- ◆ The main purpose of this study is . . .
- ◆ The objective of this research is to determine . . .
- ◆ The present study is designed to examine . .
- ◆ The primary goal of this study is . . .
- ◆ The primary concern of this research is . . .
- ◆ The principal objective of this study is . . .
- ◆ The purpose of this study is to address the problem of . . .
- ◆ The purpose of the present study is . . .

Problem Statements

- ◆ The purpose of this study is to advance understanding of . . .
- ◆ The purpose of this study is to determine . . .
- ◆ The purpose of this study is to develop a conceptual model . . .
- ◆ The purpose of this study is to evaluate . . .
- ◆ The purpose of this study is to explore the . . .
- ◆ The purpose of this study is to examine and better understand the effects of . . .
- ◆ The purpose of this study is to inventory . . .
- ◆ The purpose of this study is twofold. First, this study will assess the . . .
- ◆ This research concentrates on . . .

Problem Statements

- ◆ The research problem for this study is to describe the . . .
- ◆ The problem of this study was to ...
- ◆ This study was concerned with ...
- ◆ This study is designed to ...
- ◆ The purpose of this investigation is to ...

Sample Problem Statements

1. The problem of the study was to examine if digital divide exists between elementary school aged children with learning disabilities (LD) and their nondisabled peers in Kenya.
2. This study was designed to investigate hardware/software design and implementation that uses modern network processors as packet-filtering devices
3. The problem was to survey various Encryption Algorithms

Characteristics of a good statement of the problem

- (a) It should be written clearly and in such a way that the reader's interest is captured immediately.
- (b) The specific problem identified in the problem statement should be objectively researchable
- (c) The scope of the specific research problem should be indicated
- (d) The importance of the study in adding new knowledge should be stated clearly
- (e) The problem statement must give the purpose of the research.

Stating the Objectives

Research objectives are those specific issues within the scope of the stated purpose that the researcher wants to focus upon and examine in the study.

Characteristics of a good objective

- Specific:
- Measurable
- Achievable
- Reliable
- Time bound

Objectives guide the researcher in formulating testable hypotheses. In stating the objectives of the study, the researcher should choose the right words to convey the focus of the study effectively. Use of subjective or biased words or sentences should be avoided

Sample Objectives

The general objective should be aligned to the Research title

Example of a research title: BIRTH NOTIFICATION SERVICE FOR CIVIL REGISTRATION IN KENYA – SOA MODEL

Overall Objective

The overall objective of this study is to design a system that can improve the birth notification process and hence increase the birth registration in Kenya, through a suitable service oriented architecture model for vital events notification which also can integrate with other systems.

Specific objectives

1. To evaluate and investigate the existing birth notification process and registration systems.
2. To propose a system that can lead to timely notification of birth events, share data, and integrate well with other legacy systems in various agencies.
3. To design and build a prototype that can lead to acquisition of vital statistics for national planning and development in Kenya.
4. To test the prototype.

Example 2:

Title: Utilization of cloud database on criminal background check

General Objective

- ◆ The overall objective of this study is to develop a prototype that will provide solution to effective Criminal background check in the background screening industry by utilization of cloud database.

Specific Objectives

- ◆ To explore the readiness of adoption of database as a service in criminal background check
- ◆ To develop a prototype to establish the potential impact of Criminal background Check system
- ◆ To test and validate the developed prototype