

# Research Foundations in Computer Science

Unit V

## Developing Research Objectives

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# Review of Previous Weeks

- The concept of research
- Importance of research
- Sources of documented research
- Finding previous [documented] research
- Finding current research
- Importance of reading previous research → review of literature
- Finding research problem(s)

# Where you should be

- ✓ Identified an area of research
- ✓ Prepared a preliminary directory of resources related to your research area
- ✓ Identified people, laboratories and/or departments involved with research in your area
- ✓ Narrowed down to a specific area of research
- ✓ Analyzed the literature on the specific area of research
- ? Uncertainly identified a research problem to be addressed

# Outline for Today

## Developing research objectives

1 ) What are objectives?

2 ) Why objectives?

3 ) Writing objectives

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# 1 ) What are Objectives?

- **Research objectives are statements of what a study is expected to achieve at the end.**

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# 1 ) What are Objectives? (Cont.)

## Difference between Aims and Objectives

- **General Objective (Aims)**

- General objectives describe what is expected to be achieved by the study in general terms .

- ✓ Example: To improve the system speed of Farsi OCR (FOCR) systems.

- **Specific Objectives (Objectives)**

- General objective usually divided into smaller, logically connected parts - the specific objectives.

- ✓ Example: To propose a new technique for dataset size reduction, in a FOCR system, to speed up system training and testing.

- ✓ Example: To propose a new technique for dimensionality reduction, in a FOCR system, to speed up system training and testing.

## 2 ) Why Objectives?

- **Focus** the study (narrowing it down to essentials)
- **Avoid** doing work not necessary for understanding and solving the problem identified
- **Organize** the study in clearly defined parts or phases
- When the study is evaluated, the results will be compared to the objectives. Hence, if the objectives have not been spelled out clearly, the research project cannot be evaluated.

# 3 ) Writing Research Objectives

Objectives of study should:

- Cover the different aspects of the problem in a logical sequence.
- Clearly phrased in operational terms, i.e. specifying exactly what you are going to do, where, and for what purposes.
- Use action verbs that are specific enough to be evaluated
  - e.g. to determine, to compare, to verify, to calculate, to describe, to establish, ...
- Avoid the use of unclear non-action verbs
  - e.g. to investigate, to understand, to study, ...



# **Assignment 5:**

## **Review of Literature in your Research Area**

### **Objective:**

To write a brief (approx. 4-5 pages) review of literature on the topic identified earlier

### **Approach:**

- 1. Use the resources identified earlier (in Assignment 4), add new resources if necessary**
- 2. Synthesize the information into a brief essay, containing**
  - Introduction**
  - Body (arranged by themes, present evidence but use quotes sparingly)**
  - Conclusion / Summary (what is known about that area? what are the gaps, inconsistencies, suggestions, etc. in that area?)**

**Submit this assignment as a printed hard copy to me, till on next two sessions (next two weeks).**

# Assignment 6 :

## Statement of Problem for Proposed Research

### Objective:

To write a brief (maximum 1 page) Statement of Problems on the proposed topic of research

### Approach:

1. Use the Review of Literature (in Assignment 5) to identify a gap, difference, etc., between current status and ideal status.

2. Describe this problem in 1 - 2 paragraphs

- Provide evidence – research, practical, literature
- Present shortcomings of current situation
- Describe audience – who will benefit, how they will benefit

3. Justify the problem with to literature

Submit this assignment along as assignment 5 as a printed hard copy to me, till on next two sessions (next two weeks).