

Research Foundations in Computer Science

Unit IV

Identifying a Research Problem

Dr. M.A. Snayegan

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

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Where you should be

- ✓ Identified an area of research
 - ✓ Compiled a preliminary bibliography 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
- [Started] analyzing the literature on the specific area of research

Outline for Today

Identifying a Research Problem

- 1) The need to study a problem.
- 2) What is a problem?
 - 2-1) What is a research problem?
 - 2-2) Source of research problems.
- 3) Relationship of research problem to study.
- 4) Characteristics of a research problem.
- 5) How to present a Problem Statement?

1) The Need to Study a Problem

- Research starts with a problem.
- Solution to a problem adds to knowledge (i.e. Research = New knowledge)

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2) What is a Problem?

- A state of difficulty that needs to be resolved
- A question raised for enhancing a solution
- An situation, condition, obstacle or issue which makes it difficult to achieve a desired goal, objective or purpose

2-1) What is a Research Problem?

- An issue that an investigator presents and justifies in a research study.
- A set of conditions needing discussion, a solution, and information.
- An issue that it has the possibility of empirical investigation, i.e., of data collection and analysis.

2-1) What is a Research Problem? (Cont.)

- A distinguished discrepancy between what is and what should be.
- A question why the discrepancy exist.
- At least two possible and reasonable answers to a question.

2-1) What is a Research Problem? (Cont.)

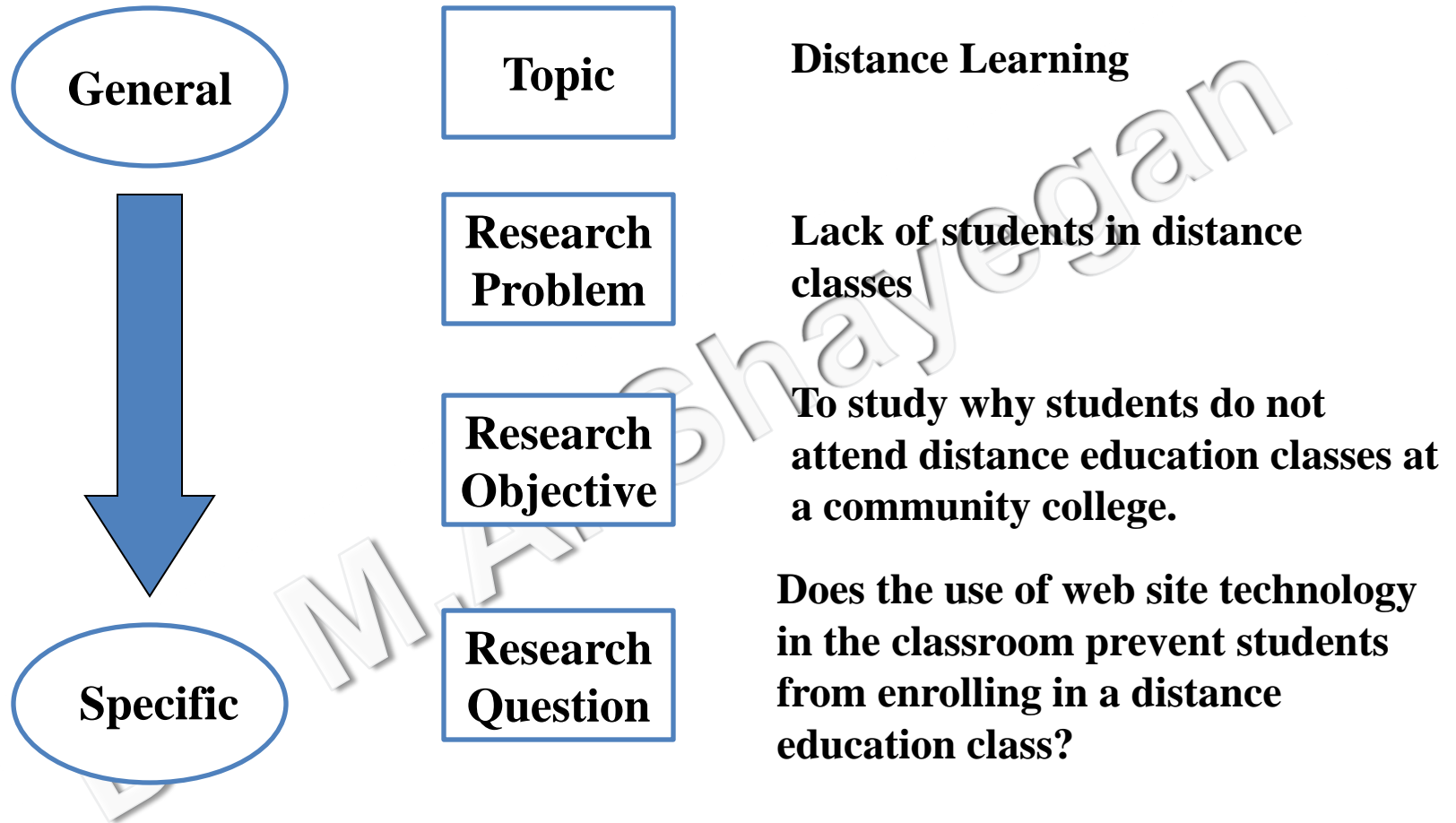
- A research problem is **not**
 - how to do something
 - an unclear or wide proposition

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2-2) Sources of Research Problems

- Problems in everyday life
- Reading research literature
 - **Unexpected and contradictory finding of previous studies.**
 - **Suggestions from other research studies for future research.**
 - **Research projects that can be replicated or applied in new situations.**
- Current research activities by others
- Advice from experienced researchers

3) Relationship of Research Problem to Study



4) Characteristics of a Research Problem

- **Can you study the problem?**
 - **Do you have access to the research requirements?**
 - **Do you have the time, resources and skills to carry out the research?**
- **Should you study the problem?**
 - **Does it advance knowledge?**
 - **Does it contribute to practice?**

5) How to present a Problem Statement

- 1) Level of occurrence
- 2) Geographic areas affected
- 3) Characteristic of the population affected
- 4) Findings of other research studies
(possible reasons for the problem)
- 5) Past experience to address the problem
(to understand possible solution)
- 6) Unanswered questions

5) How to present a Problem Statement (Cont.)

- 7) Is the problem current and existing ?
- 8) How widespread is the problem ?
- 9) Is this a problem of special group?
- 10) Is the problem relate to an on going program activities?
- 11) ...

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5) How to present a Problem Statement (Cont.)

- One paragraph for each of the key elements
 - Evidence (research, practical, literature)
 - Shortcomings of current situation
 - Audience (who will benefit)
 - How they will benefit
- Heavily reference this section to the literature
- Provide statistics to support trends

Assignment 5: Analysis of the Literature

Objective:

An analysis of the literature (identified in Assignment 4) to show the problem investigated, objectives, methodology, findings and discussion / follow up.

Approach:

1. Identify at least 5 (or more) resources from your bibliography that are relevant (and available).
2. Extract the relevant information and summarize it.
3. Compile the information into a table.

Submit the above as an e-mail attachment by to <mashaygan2005@yahoo.com>

Format for Report

Name:
Student No.:
Assignment No.: 5
Date of Submission:

Main Findings from Literature on [Area of Research]

Citation	Problem	Objectives	Methodology	Main Findings	Discussion