Research Methods

Lecture Two: Introduction to Research Methods

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Objectives

- Define Research
- Define Research methods
- Understand the objectives of Research.
- Characteristics of good research.
- Understanding The Five ‘Ws.
- What is a graduation project?
- What are the Duties of students?
- How to Get Started on a Scientific Final Project.
- What are Searching Platforms?

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Research

You think; you reflect; you write; you revise; you communicate; you receive feedback; you think; you reflect.....

What is Research

- The word (**Research)** is composed **of two syllables**, **re and search**. re is a prefix meaning **again**, anew or over again
- Search is a verb meaning to examine closely and carefully, to test and try, or to probe.

Together they form a noun describing a careful, systematic, patient study and investigation in some field of knowledge, undertaken to establish facts or principle.

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What is Research

It is a systematic and a replicable process, which identifies and defines problems, within specified boundaries. It employs well-designed method to collect the data and analyses the results. It disseminates the findings to contribute to generalizable knowledge.

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What is Research

› A **research** can lead to new contributions to the existing knowledge. Only through research is it possible to make progress in a field. .

Research is done with the help of study, experiment, observation, analysis, comparison and reasoning. Research is in fact ubiquitous. More precisely, research seeks predictions of events and explanations, relationships and theories for them.

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What is Research Methods

Research Methods are the **Techniques** you use **to do research**. They represent the tools of the trade, and provide you with ways to collect, sort and analyze information so that you can come to some conclusions.

If you use the right sort of **Methods** for your **particular type** of research, then you should be able to convince other people that your **conclusions have some validity**, and that the **new knowledge you have created is soundly based.**

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Research Method versus Research Methodology

Research Methods	Research Methodology
1. It is understood as all those methods/techniques used for conducting research.	**1.** It is the science of studying how research is done systematically.
2. It answers: **What** did the researcher use to achieve his research? It means the procedures/steps/ algorithms/schemes used by researchers to conduct their research.	**2.** It answers: **How** did the researcher use it to achieve his research? It means how research should be conducted.
3. Numerical, experimental, theoretical, optimisation, statistical studies, etc. used in research and by a researcher during a research study.	**3.** It includes the specific procedures or techniques used to identify, select, process and analyse information about a topic.
4. A subset of research methodology.	**4.** The study of methods by which knowledge is gained. It aims to give the work plan for the research

Objectives Of Research

The prime objectives of a research project are:

1. To discover new facts.

2. To verify and test important facts.

3. To analyze an event, process or phenomenon to identify the cause-and-effect relationship.

4. To develop new scientific tools, concepts and theories to solve and understand scientific and nonscientific problems.

5. To find solutions to scientific, nonscientific and social problems.

6. To overcome or solve the problems happening in our everyday lives.

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Qualities of Good Research

Good research method should lead to

1. **Originality/ Novelty**
2. **Contribution to knowledge**
3. **Significance**
4. **Technical soundness**
5. **Critical assessment of existing work**

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Tips: Understanding The Five ‘Ws’

› When you start to think about your research project, a useful way of remembering the important questions to ask is to think of the five ‘Ws’: **What? Why? Who? Where? When?**

1. **What** is my research?
2. **Why** do I want to do the research?
3. **Who** are my research participants?
4. **Where** am I going to do the research?
5. **When** am I going to do the research

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Tips: What is Graduation project

Overview:

- A **Graduation Project** is a formal assignment chosen by a student or small group of students on a topic related to the curriculum and involves out-of-class research and development.
- It can be **theoretical, experimental or a mix of both**.
- Students are assessed based **on writing, presentation, performance and etc**.

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Tips: Duties of students

What is your duties in Semester I?

- Students' Duties
- – Submit Chapter 1, 2

What is your duties in Semester II?

- Submit Chapter 1-5 (whole BSc. thesis)
- BOTH submissions will evaluate by: Supervisor &Committee

Who will evaluate your project?

- 1. Supervisor 2. Committee

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Tips: How to start?

Start reading:

- **Where to find reliable information**?

Books, articles, reports, other sources.

- How to find information as quick as possible?

  Use searching platforms

- Understanding the project core and your attain to achieve.
- Plan with steps, accomplish the project successfully.
- Guide your progress with deadline.
- Remember: finishing graduation project is your responsibility, your supervisor is a 10% contributor and guider to accomplish your tasks.

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Tips: How to Get Started on a Scientific final Project

1. Decide On an Area of Interest.

2. Narrow Your Idea Down

3. Write a Project Outline

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Searching Platforms

- By Academic Search Engines
- Access to academic databases via Academic Search Engines.

Examples of academic Databases:

https://scholar.google.com/

http://ieeexplore.ieee.org/

http://dl.acm.org/

http://www.springer.com/

http://www.scopus.com/

http://www.elsevier.com/

http://www.springeropen.com/

https://researchgate.net

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http://dl.acm.org/

http://www.elsevier.com/

http://www.springer.com/

http://www.scopus.com/

http://www.springeropen.com/

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Assignments And Tasks

Reflection Paper : Discuss the importance of research in computer science.

References

- Dawson, C. (2007). *A practical guide to research methods*. Oxford.
- Robbins, D. (2017). *Understanding research methods: A guide for the public and nonprofit manager*. Routledge
- Walliman, N. (2021). *Research methods: The basics*. Routledge.