ALMUSTAQBAL UNIVERSITY

College of Health and Medical Techniques
Medical Laboratories Techniques Department

Stage : Fourth year students
Subject : Laboratory Management - Lecture 6

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How to do a research project for an academic study

The graduation project is an effort by the student to prepare a research in a subject of the main specialties studied at the University, and utilizes the University's assets including libraries, labs and teaching staffs. The final research will be presented in a written form and then discussed by a committee formed by council of the department were the supervisor is one of its members. The students contributes a lot in determining the concept of the project, as they choose one of their essential academic branches to focus on with the help of their supervisors.

What is a thesis?

Is a lengthy research article written as a requirement to earn a bachelor's degree, or higher degree depending on the university.

Unlike a dissertation, a thesis doesn't *necessarily* involve original research or ideas .

Generally, a thesis is less about adding to a body of knowledge, and more about testing a student's skills in research, comprehension, or analysis.

A dissertation is written to earn a doctorate degree whereas a thesis is written to earn a master's or a bachelor degree.

Dissertations and thesis are both lengthy research papers written for higher education.

What is the best topic for research?

It's a good idea to choose a topic you have existing knowledge on, or one that you are interested in. This will make the research process easier; as you have an idea of where and what to look for in your sources, as well as more enjoyable as it's a topic you want to know more about.

Types of research problems

1. Theoretical research problems

2. Applied research problems

3. Practical research problems

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Research proposal writing

The research proposal

Is a document that describes the essential features of a study to be conducted in the future, as well as the strategy whereby the inquiry may be logical and accomplished. It includes the following information:

1. The format and detailed statement of intent of the researcher
2. Presents and justifies a plan of action and shows the investigation plan.

It was achieved by:

a. Summary of prior literature.

b. Identification of research topic and research questions.

c. Specification of procedure to be followed to answer research questions

Generally, a research proposal should contain all the key elements involved in the research process and include sufficient information for the readers to evaluate the proposed study.

Regardless of the research area and the methodology chosen, all research proposals must address the following questions:

- What you plan to accomplish ?
- Why you want to do it ? and
- How you are going to do it ?

Purpose of a Research Proposal.

1- It describes in detail the procedure to be followed in the research process.

2- Provision of the basis for guiding research (authorities, supervisors, or institutions).

3- Spelling out the technical materials and financial needs of the study.

4- Decisions about the study are based on the quality of the proposal

5- Acts as a means of communication of your ideas

Components of research proposal

All research studies are different, but some factors are standard to all good pieces of research.

Research problem formation

Research Problem

A research problem is a statement about an area of concern, a condition to be improved, a difficulty to be eliminated, or a troubling question that exists in theory, or in practice that points to the need for understanding and research.

Purpose of Research Problem

a. Introduce the reader to the importance of the subject being studied.

b. Places the problem into a particular context that defines the parameters of what is to be investigated.

c. Determine what is probably necessary to conduct the study and explain how the findings will present this information.

Criteria for Good Research

a. Originality

It should be sufficiently original so that it does not involve objectionable duplication.

b. Interesting

The problem should be interesting for the investigator himself. He should have the strength to face and overcome the problem.

c. Importance

It should be significant enough and involve an important principle or practice. If it is not worthwhile, it neither adds to knowledge nor leads to any improvements in current practices.

Steps in formulating the research problem

Consider the following steps when aiming to define a research problem:

1. Identify a general area of interest

2. Learn more about the problem

3. Review the context of the information

4. Determine relationships between variables

5. Select and include important variables

6. Receive feedback and revise

Sources of Research Problem

a. Personal Experience

b. Practical Experience

c. Previous research

d. Existing theories

e. feedback

f. Intuition

g. Exposure to field situations

Principles of good research work

1. Objectivity: The objective of research work needs to be clearly described.

2. Use of scientific process: The research process must be explained in detail, allowing other researchers to repeat the research systematically.

3. Planning: The design needs to be prepared scientifically, and all aspects of resources, periods, and procedural factors are considered.

4. Continuity: The study has to be conducted in a way that the principle of continuity is guaranteed.

5. Integrity: The researcher must document weaknesses in procedural design with complete frankness صراحه and assess their impact on the results.

6. Reliability: The validity and reliability of data need to be examined with care.

7. Adequacy of Data: Data analysis must be sufficient to disclose its significance, and the approaches to analysis employed must be suitable.
8. Structure: This would mean that research is organized with the particular sequence as per the well-defined set of rules. Guessing and intuition الحدسin arriving at conclusions are discarded.

9. Logic: This means that the rules of logical reasoning well guide research, and the logical process of induction and deduction is used.

10. Experimentation means that research is connected to one or more views of an actual situation and deals with concrete data, which gives a basis for the external validity of research outcomes.

11. Replicability: This principle enables research outcomes to be validated by replicating the research, thus creating a basis for the decision.

12. Economics: Research must be completed within the dedicated financial resources

13. Time frame: Frame research needs to be finished in the established time frame.