

# Research Methodology

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Research?

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*Asst. Prof. Dr. Faris Ali Mustafa*

*Department of Architecture, SUE*

# RESEARCH:

*a way of examining your practice...*

- ❑ Research is undertaken within most professions.
- ❑ More than a set of skills, it is a way of thinking: examining critically the various aspects of your professional work.
- ❑ It is the habit of questioning what you are doing, and systematically investigating observed information to find answers with the goal of creating appropriate changes for a more effective professional service.

# Definition of Research

When you say that you are undertaking a research study to find answers to a question, you are meaning that the process;

1. Is being undertaken within a framework of a set of philosophies (approaches);
2. Uses procedures, methods and techniques that have been tested for their validity and reliability;
3. Is designed to be unbiased and objective.

- **Philosophies** means approaches e.g. qualitative, quantitative and the academic discipline in which you have been trained.
- **Validity** means that correct procedures have been applied to find answers to a question.
- **Reliability** refers to the quality of a measurement procedure that provides repeatability and accuracy.
- **Unbiased and objective** means that you have taken each step in an unbiased manner and drawn each conclusion to the best of your ability and without introducing your own vested interest.  
**(Bias is a deliberate attempt to either hide or highlight something).**

- Adherence to the three criteria (*Philosophies; validity and reliability; unbiased and objective*) mentioned above enables the process to be called 'Research'.
- However, the degree to which these criteria are expected to be achieved varies from discipline to discipline and so the meaning of 'Research' differs from one academic discipline to another.

□ The difference between research and non-research activity is in the way we find answers:

the process must ***meet certain requirements to be called research***. We can identify these requirements by examining some definitions of research.

□ The word research is composed of two syllables, *re and search*.

*re is a prefix meaning again, anew or again search is a verb meaning to examine directly and carefully, to test and try, or to probe / investigate.*

❑ Together (**re + search**) they form a noun describing a careful, systematic, patient study and investigation in some field of knowledge, undertaken

**to establish facts or principles**



# Research & Scientific Method

- **Research** is a *structured enquiry that utilizes accepted scientific methodology to solve problems and create new knowledge that is **generally applicable***.
- **Scientific methods** consist of systematic observation, classification and interpretation of data.
- Although we engage in such processes in our daily lives, the difference between our everyday informal generalizations and the conclusions that are usually recognized as scientific method lies in **the degree of formality, rigor, verifiability and general validity**.

# CHARACTERISTICS OF RESEARCH

- Research is a process of **collecting, analyzing** and **interpreting** information **to answer questions**.
- But to qualify as research, the process must have certain **characteristics**: it must, as far as possible, be **controlled, rigorous, systematic, valid and verifiable, empirical and critical**.

# CHARACTERISTICS OF RESEARCH

## 1. Controlled

- In real life, there are many factors that affect an outcome.
- **The concept of control implies that, in exploring causality in relation to two variables (factors), you set up your study in a way that minimizes the effects of other factors affecting the relationship.**

# CHARACTERISTICS OF RESEARCH

## 2. **Rigorous** (accurate, exact...)

you must be careful in ensuring that the procedures followed to find answers to questions are **relevant**, **appropriate** and **justified**. Again, the degree of *rigor (exactness)* varies markedly between the physical and social sciences and within the social sciences.

3. **Systematic** this means that the procedure used to undertake an investigation follows a **certain logical sequence**. The different steps cannot be taken in a random way. Some procedures must follow others.

# CHARACTERISTICS OF RESEARCH

## 4. Valid and verifiable

this concept suggests that whatever you conclude on the basis of your **findings** is **correct** and can be **verified** by you and others.

## 5. Empirical

this means that any conclusions drawn are based upon **hard evidence** gathered from information collected from **real-life experiences** or **observations**.

# CHARACTERISTICS OF RESEARCH

## 6. Critical

A critical study of the procedures used and the methods employed is essential to a research investigation.

- ❑ The process of investigation must be foolproof (guaranteed) and free from drawbacks (disadvantages). The process adopted and the procedures used must be able to withstand a critical scrutiny.

***Therefore:*** For a process to be called research, it is very important that it has the above characteristics.

# Objectives of Research

- ❑ The purpose of research is to discover answers to questions through the application of scientific procedures.**
- ❑ The main aim of research is to find out the truth which is hidden and which has not been discovered as yet.**
- ❑ Although each research study has its own specific purpose, we might think that research objectives fall into a number of the following broad groups:**

# Objectives of Research

1. To identify a phenomenon or to achieve new insights about it (studies that address this topic with this object in view are called *exploratory or formative research studies*);
2. To portray accurately the characteristics of a particular individual, situation or a group (*studies that address this topic are known as descriptive research studies*);



# Objectives of Research

- 3. To determine how frequently something happens or is related to something else (the studies that are done with this object of vision are known as diagnostic research studies);**
- 4. To test a hypothesis of a causal relationship between variables (such studies are known as *hypothesis-testing research studies*).**

# What are the Objectives of Research?

The main objectives of research are:

- (1) to discover new facts
- (2) to verify and test important facts
- (3) to analyse an event or process or phenomenon
- (4) to identify the cause and effect relationship
- (5) to develop new scientific tools, concepts and theories to solve and understand scientific and nonscientific problems
- (6) to find solutions to scientific, nonscientific and social problems
- (7) to overcome or solve the problems occurring in our everyday life.

# What Makes People do Research?

This is a fundamentally important question. No person would like to do research unless there are some motivating factors. Some of the motivations are the following:

1. To get a research degree (Master Degree, or Doctor of Philosophy (Ph.D.)) along with its benefits like better employment, promotion, increment in salary, etc.
2. To get a research degree and then to get a teaching position in a college or university or become a scientist in a research institution
3. To get a research position in countries like U.S.A., Canada, Germany, England, Japan, Australia, etc.

# What Makes People do Research?

4. To solve the unsolved and challenging problems
5. To get joy of doing some creative work
6. To acquire respectability
7. To get recognition
8. Curiosity to find out the unknown facts of an event
9. Curiosity to find new things
10. To serve the society by solving social problems.