

# The key to come with a novel research

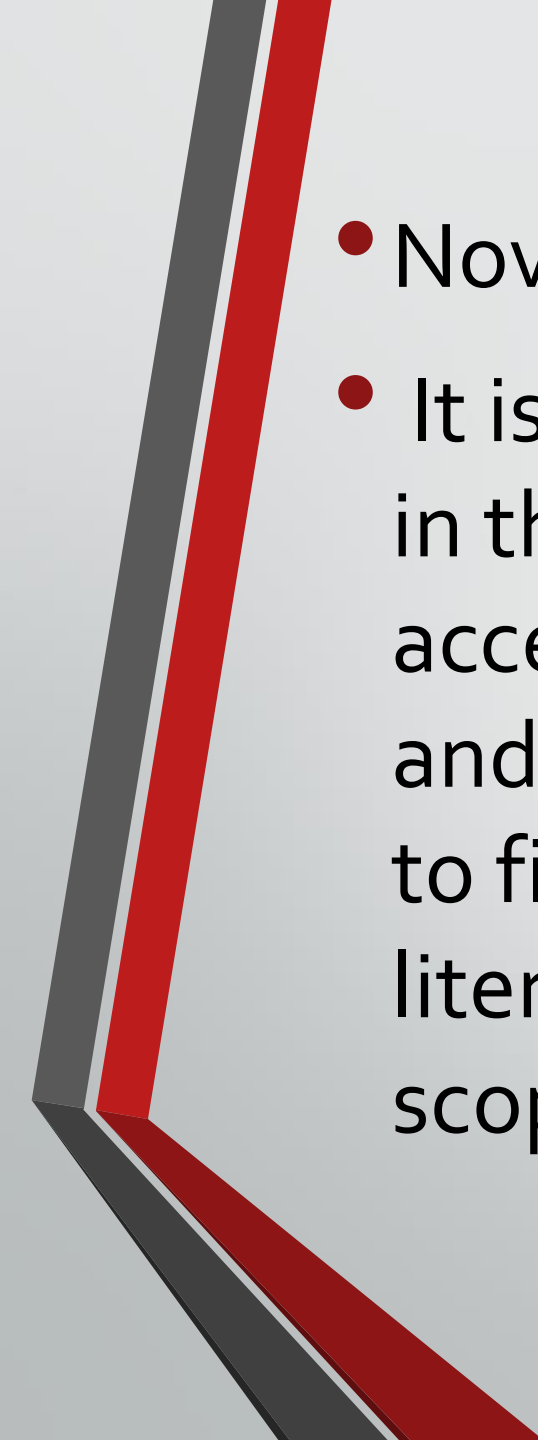
Presented by

Lecturer Ebtihal Abdul kadhim

Lecturer Zahraa Amer

# A novel research ?

- It's usually used to describe research that has identified phenomena or developed techniques/materials that haven't been previously reported in the literature.
- for example : finding new mutations , new methods for solving equations , new drug application and new dosage form .....etc

- 
- Novelty is a very important aspect of research.
  - It is true that research has progressed tremendously in the past two decades due to the advent and accessibility of new technologies that enable goods and data sharing. Consequently, it might be difficult to find a topic about which nothing is known or no literature is available. However, there is still a lot of scope for progress.

# DEFINITION OF RESEARCH

- ii. uses procedures, methods and techniques that have been tested for their Validity and Reliability;
- iii. is designed to be unbiased and objective .
- Philosophies mean 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 conceal or highlight something)

# THE PURPOSE OF RESEARCH IS TO...

- Review or synthesize existing knowledge
- Investigate existing situations or problems
- Provide solutions to problems
- Explore and analyse more general issues
- Construct or create new procedures or systems
- Explain new phenomenon
- Generate new knowledge
- ...or a combination of any of the above!
-

# 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. Though each research study has its own specific purpose, we may think of research objectives as falling into a number of following broad groupings:
  - i. To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory or **formulative** research studies);
  - ii. To portray accurately the characteristics of a particular individual, situation or a group (studies with this object in view are known as **descriptive** research studies);
  - iii. To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as **diagnostic** research studies);
  - iv. To test a hypothesis of a causal relationship between variables (such studies are known as **Hypothesis-testing** research studies).

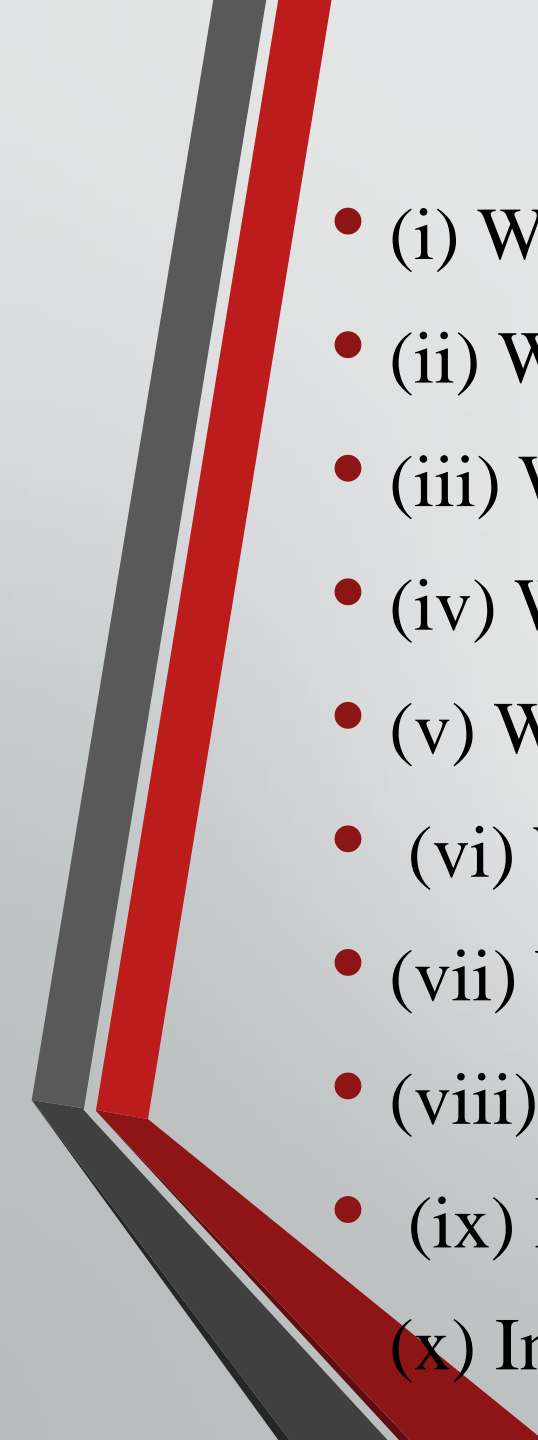
# MOTIVATION IN RESEARCH

- What makes people to undertake research? This is a question of fundamental importance. The possible motives for doing research may be either one or more of the following:
  - i. Desire to get a research degree along with its consequential benefits;
  - ii. Desire to face the challenge in solving the unsolved problems, i.e., concern over practical problems initiates research;
  - iii. Desire to get intellectual joy of doing some creative work;
  - iv. Desire to be of service to society;
  - v. Desire to get respectability.

# MEANING AND FEATURES OF RESEARCH DESIGN

- The formidable problem that follows the task of defining the research problem is the preparation of the design of the research project, popularly known as the “research design”.
- “A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.”
- More explicitly, the design decisions happen to be in respect of:

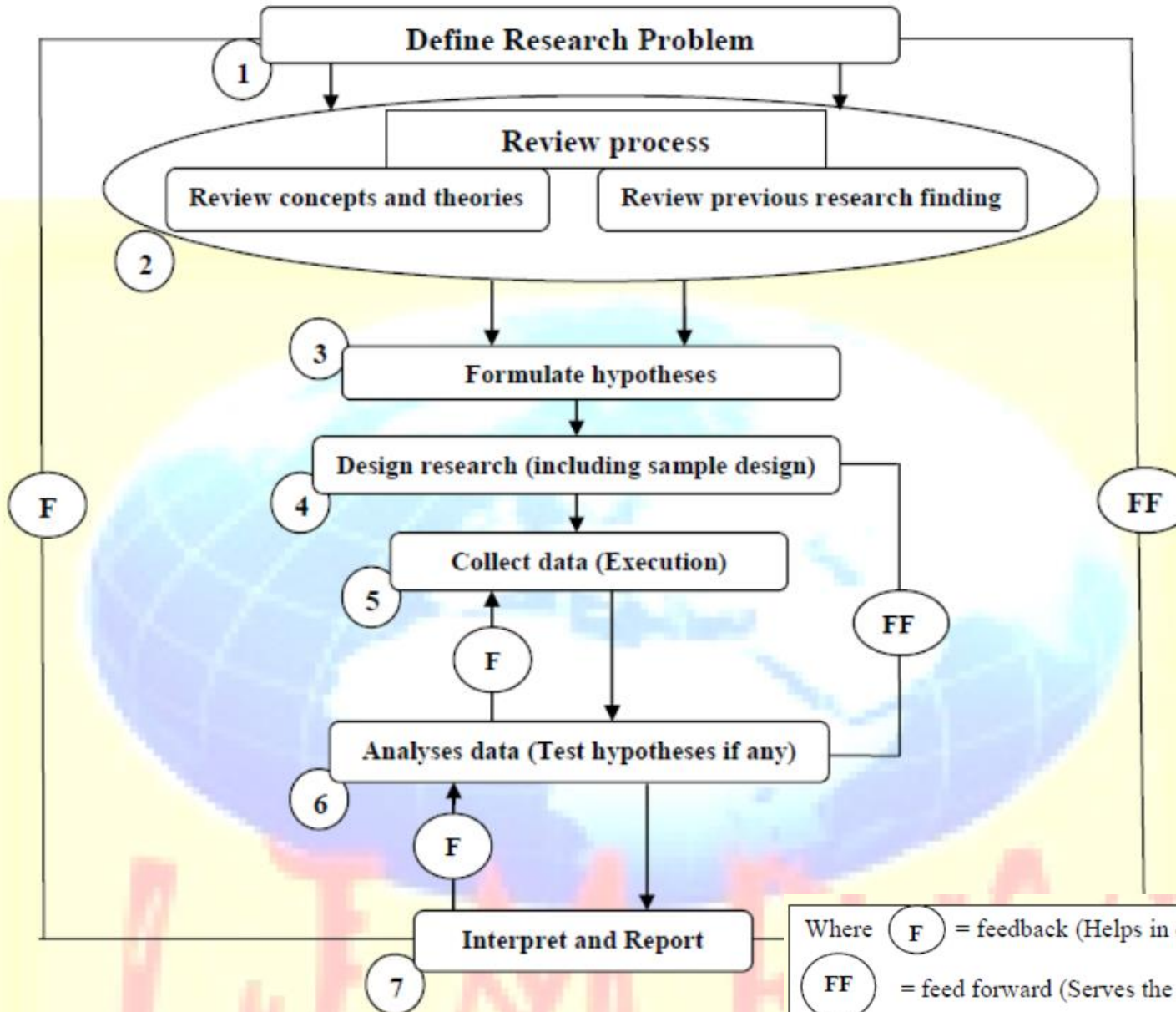


- 
- (i) What is the study about?
  - (ii) Why is the study being made?
  - (iii) Where will the study be carried out?
  - (iv) What type of data is required?
  - (v) Where can the required data be found?
  - (vi) What periods of time will the study include?
  - (vii) What will be the sample design?
  - (viii) What techniques of data collection will be used?
  - (ix) How will the data be analyzed?
  - (x) In what style will the report be prepared?

# FEATURES OF A NOVEL DESIGN

- A good design is often characterized by adjectives like flexible, appropriate, efficient, and economical and so on. Generally, the design which minimizes bias and maximizes the reliability of the data collected and analyzed is considered a good design.
- A research design appropriate for a particular research problem, usually involves the consideration of the following factors:
  - i. the means of obtaining information;
  - ii. the availability and skills of the researcher and his staff, if any;
  - iii. the objective of the problem to be studied;
  - iv. the nature of the problem to be studied; and
  - v. the availability of time and money for the research work

# RESEARCH PROCESS IN FLOW CHART



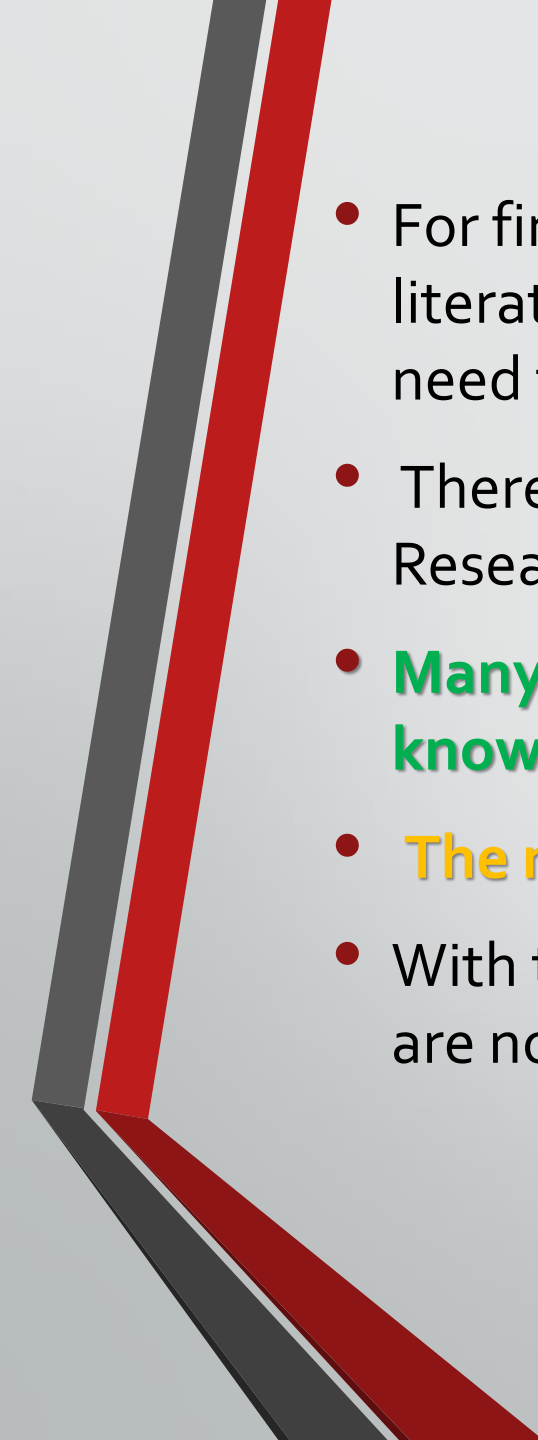
Where **F** = feedback (Helps in controlling the sub-system to which it is transmitted)  
**FF** = feed forward (Serves the vital function of providing criteria for evaluation)

# How can you verify if your research work is novel or not?

- The best way to identify the novelty of your work is to carry out an **exhaustive literature search** and identify what is already published.
- **You can review published articles in your field** to understand how novel your work is
- Example ( libraries , websites and thesis )

**Table 1: This table provides a list of free, online academic search engines for various science disciplines.**

Academic Search Engine	URL	Disciplines	Help Files
Google Scholar	<a href="http://scholar.google.com">scholar.google.com</a>	All	<a href="http://scholar.google.com/intl/en/scholar/help.html">scholar.google.com/intl/en/scholar/help.html</a>
ScienceDirect	<a href="http://www.sciencedirect.com/science/search">http://www.sciencedirect.com/science/search</a>	All	NA
Pubmed	<a href="http://www.ncbi.nlm.nih.gov/pubmed">www.ncbi.nlm.nih.gov/pubmed</a>	Life sciences	<a href="http://www.nlm.nih.gov/bsd/disted/pubmedtutorial">www.nlm.nih.gov/bsd/disted/pubmedtutorial</a>
IEEE Xplore	<a href="http://ieeexplore.ieee.org/Xplore/guesthome.jsp">ieeexplore.ieee.org/Xplore/guesthome.jsp</a>	Electronics, Electrical engineering, Computer science	NA
National Agricultural Library (AGRICOLA)	<a href="http://agricola.nal.usda.gov">agricola.nal.usda.gov</a>	Agriculture	<a href="http://agricola.nal.usda.gov/help/quicksearch.html">agricola.nal.usda.gov/help/quicksearch.html</a>
Education Resources Information Center (ERIC)	<a href="http://eric.ed.gov">eric.ed.gov</a>	Education	NA

- 
- For finding novelty in your area of research, you should do a thorough literature search to find out **what is known** and **what are the gaps** which need to be clarified.
  - There might be topics that are studied but reports are still contradictory. Researching this can lead to novel leads.
  - **Many times, a novel research might just mean disproving what is already known.**
  - **The novelty will largely depend on your in-depth knowledge of the field.**
  - With the increasing amount of research output, many high impact journals are now seeking highly novel information to publish.

# THE QUALITIES OF A NOVEL RESEARCH

- A) **Novel research is systematic:** It means that research is structured with specified steps to be taken in a specified sequence in accordance with the well defined set of rules. Systematic characteristic of the research does not rule out creative thinking but it certainly does reject the use of guessing and intuition in arriving at conclusions.
- b) **novel research is logical:** This implies that research is guided by the rules of logical reasoning and the logical process of induction and deduction are of great value in carrying out research. Induction is the process of reasoning from a part to the whole whereas deduction is the process of reasoning from some premise to a conclusion which follows from that very premises. In fact, logical reasoning makes research more meaningful in the context of decision making.
- c) **novel research is empirical:** It implies that research is related basically to one or more aspects of a real situation and deals with concrete data that provides a basis for external validity to research results.
- d) **novel research is replicable:** This characteristic allows research results to be verified by replicating the study and thereby building a sound basis for decisions



**THANK YOU**