# ***Research & Research Methodology***

**Lecture (1): By Asst. Prof. Dr. Fitua Al-Saedi**

**Research** is a logical and systematic search for new and useful information on a particular topic. It is an investigation of finding solutions to scientific and social problems through objective and systematic analysis. It is a search for knowledge, that is, a discovery of hidden truths. Here knowledge means information about matters. Ideas for research problems or topics can arise from a range of sources such as personal or professional experience, a theory, the media, or other research studies. 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**.**

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.
Research is a structured enquiry that utilizes acceptable scientific methodology to solve problems and create new knowledge that is generally applicable.

The following criteria are commonly used to evaluate scientific research:
**-Reliability -** Is the research study repeatable? – that is: are the measures used reliable and consistent. If I go back and repeat the measurements in the same conditions will I get the same results?

**-Replication** - This refers to the idea that the procedures (methodology) employed in the study are reported in sufficient detail that a second researcher could repeat the study.

**-Validity** – This concerns the integrity of conclusions that are generated through a research study.

**The need to research came due to the following reason**

1. To acquire a degree
2. To get respectability
3. To face a challenge
4. To solve a problem
5. To get Intellectual Joy
6. To Serve Society by increasing Standard of living for Science and technology and by showing right path to society in case of social and behavioural Sciences.

**Qualities of Good Research**

A good research method should lead to

i Originality/ Novelty

ii Contribution to knowledge

iii Significance

iv Technical soundness

v. Critical assessment of existing work

**Research for enhancement knowledge**

There are four ways to further our knowledge through research

1. To confirm the existing knowledge
2. To refute the existing knowledge
3. To update the existing knowledge
4. To upgrade the existing knowlege

## Types of Research

There are several criteria for the classification of research types these include method of research and goal of research.

**i. Action Research**: This type of research is mostly essential in applied research where it requires implanting recommended changes to a process, bearing in mind to solve a problem and to carry out research to determine the effectiveness of identified changes. It aims at solving an identified problem based on recommendations made to a process.

**ii. Creative Research:** Creative research involves the development of new theories; new procedures and new inventions and is used to some extent in all fields, in contrast to experimental research, creative research is much less structured and cannot always be preplanned. This type of research includes both practical and theoretical research.

**iii. Descriptive Research:** This type of research is also called a "case – study research". It involves studying a specific situation to ascertain whether any general theories may arise out of it whether an existing theory are borne out by specific situations. e.g in anthropological studies etc

**iv. Experimental Research:** The cornerstone of science is experimental and creative research. Experimental research is primarily concerned with cause and effect. Here the variables of interest are identified (i.e. the dependent and independent variables) and the researcher seeks to determine the effect of changes in the independent variables on the dependent variable.

**v. Ex-post facto Research:** This is Research "from after the fact" and this type of research typically occurs using data generated from experimental research.

vi. **Expository Research:** This is research based purely on existing information and normally leads to "review –type reports". It involves reading widely on a field, comparing and contrasting, analyzing and synthesizing all points of view and developing new insights.

vii. **Historical Research**: Studies on the past to determine cause-effect patterns. This type of research is often geared towards using past events to examine current situation and to predict future situation. Data is gathered from primary sources (records made at the time of past events) and secondary sources (records made after the event).

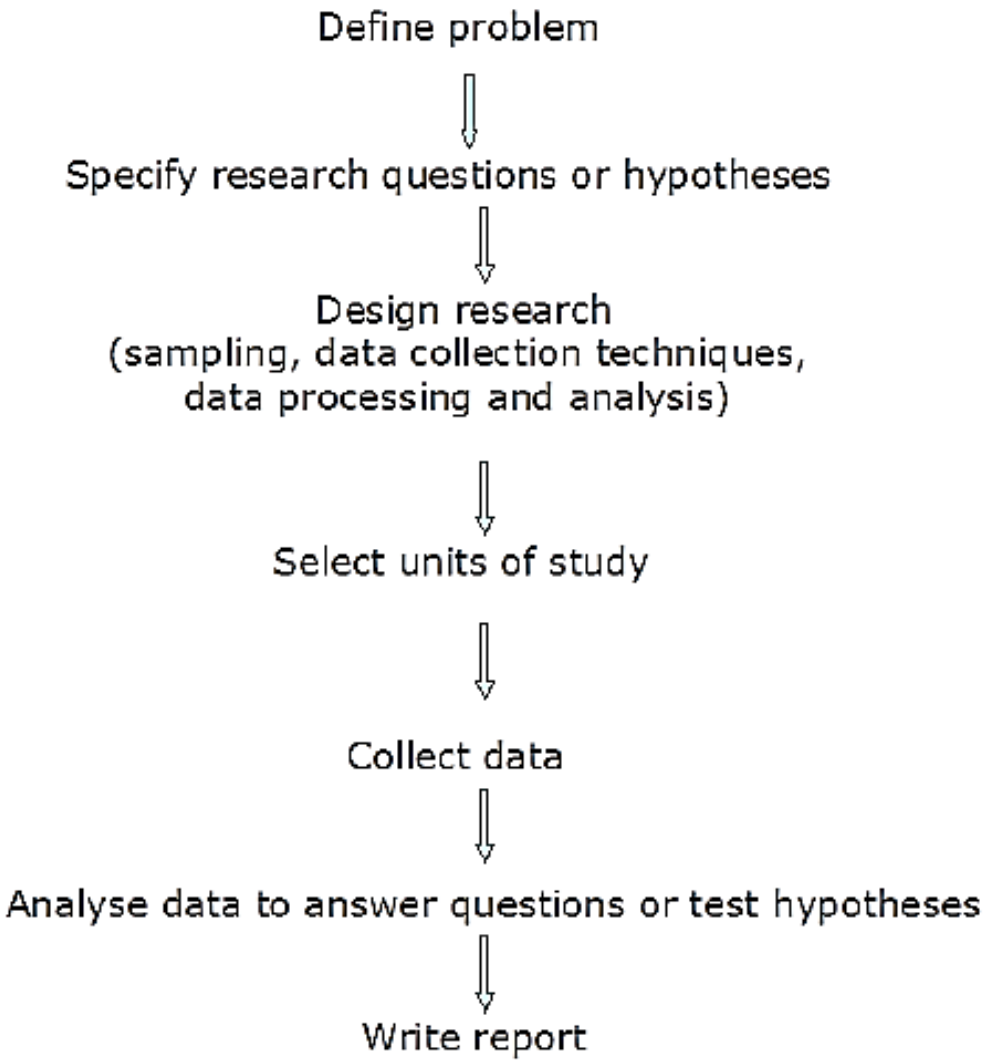
**The Purposes of Research**

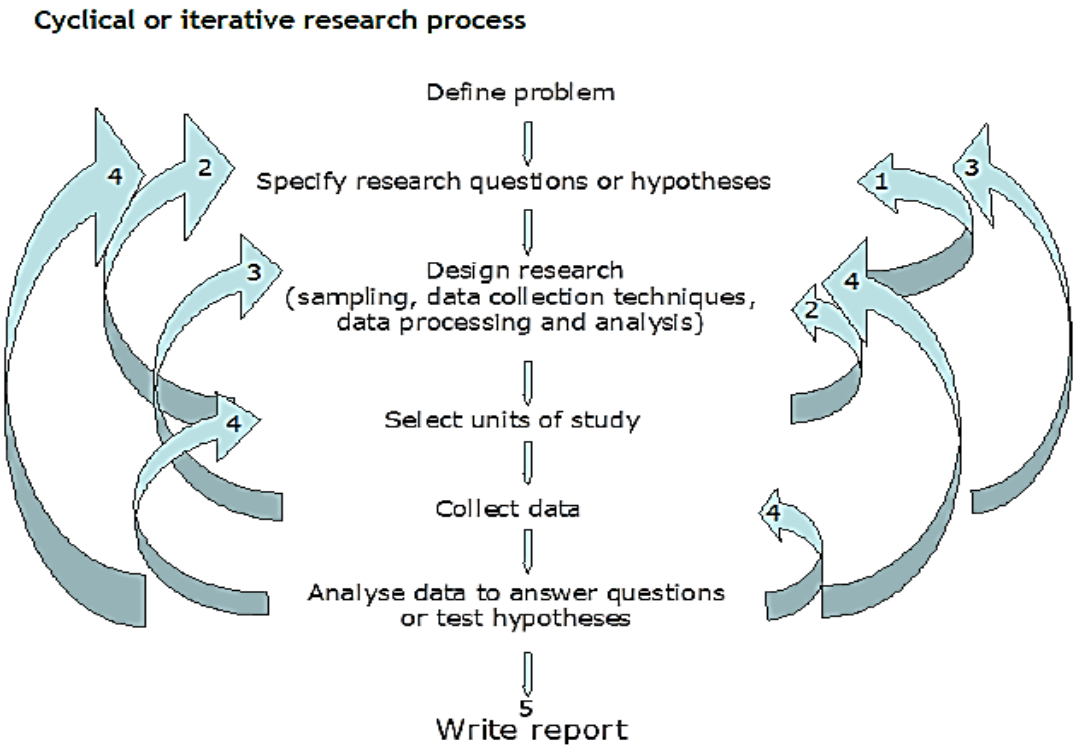
Research serves many purposes. Three of the most common and useful purposes, however, are exploration, description, and explanation. Many studies can and often do have more than one of these purposes, however each have different implications for other aspects of research design.

## Research as a process

Research can be seen as a series of linked activities moving from a beginning to an end. Research usually begins with the identification of a problem followed by formulation of research questions or objectives. Proceeding from this the researcher determines how best to answer these questions and so decides what information to collect, how it will be collected, and how it will be analysed in order to answer the research question

**Research process – linear representation**






(1) Through the process of designing your research, consideration of both practical and conceptual issues may force you to reconsider your original research question.

(2) Difficulties with access to research sites or participants may cause you to reconsider your questions or your methods.

(3) Issues arising during data collection may suggest that additional data are required or reveal problems with the original research question.

(4) Problems or new questions arising from analysis of data collected so far may result in a need to collect more data, sample elsewhere or employ a different technique.

(5) Finally you progress to the report writing stage.

## Generalised summary of the research process

Whatever approach or strategy is followed, the research process can usually be summarised as follows:

- **Identify and formulate the research topic or problem**

Select, narrow and formulate the topic or problem to be studied and conduct preliminary literature search.

- **Literature search and review**

Read around the subject to help clarify your research topic, questions, and methods. Critically review literature to compare your research with what has already been done, and to give context. This stage interacts with other stages.

- **Research objectives, questions, and hypotheses**

Define clear questions and/or hypotheses.

- **Research approach, design, and strategy**

Select a research approach and design that will make it possible to answer research questions and plan the overall research strategy.

Identify the data you want to record and from whom/where you are going to collect it (sampling).

- **Data collection**

- **Data analysis**

The data collected are prepared in such a way that they describe and highlight what was found in the research. Analytical tools are used to describe the data and measure or explore relationships between the subjects or items of interest.

-**Generalisation and write-up**

The researcher relates the evidence collected to the research question(s), draws conclusions about the question(s) or hypotheses, and acknowledges limitations of the research.

**Research Methodology and Research Method**

Research Methods and Research Methodology are two terms that are often confused as one and the same. Strictly speaking they are not so and they show differences between them. One of the primary differences between them is that research methods are the methods by which you conduct research into a subject or a topic. On the other hand research methodology explains the methods by which you may proceed with your research. Research methods involve conduct of experiments, tests, surveys and the like. On the other hand research methodology involves the learning of the various techniques that can be used in the conduct of research and in the conduct of tests, experiments, surveys and critical studies. This is the technical difference between the two terms, namely, research methods and research methodology.

**Research methodology** is a systematic way to solve a problem. It is a science of studying how research is to be carried out. Essentially, *the procedures by which researchers go about their work of describing, explaining and predicting phenomena are called research methodology.* It is also defined as the study of methods by which knowledge is gained. Its aim is to give the work plan of research.

**Research methods** are the various procedures, schemes, etc. used in research. All the methods used by a researcher during a research study are termed as *research methods*. They are essentially planned and scientific. They include methods of data collection and data analysis. Research methods help us collect samples, data and find a solution to a problem. Particularly, scientific research methods call for explanations based on collected facts, measurements and observations and not on reasoning alone. They accept only those explanations which can be verified by experiments.