**Larbi Ben M’hidi University**

**English Department**

**TTU/2nd Year**

**S.AROUF**

**Scientific Research**

**I What is Scientific Research?**

Scientific research is the process of finding facts or solutions to problems systematically, experimentally, and logically. Its process always remains purposive and comprehensive.

Generally, scientific research is conducted to solve problems. It analyzes all the dimensions of the problem systematically and finds out the natural causes of the problem, collects, and interprets the data, and finds out the solutions to the problems.

It is not undertaken based on someone’s intuition, experience, and estimation, instead, it is always comprehensive and objective in nature.

**II Objectives of scientific research**

The objectives of scientific research vary according to its type and the nature of the result it will reach. The most important objectives of scientific research are:

**1- Access to new facts**

Using systematic thinking, analyzing phenomena and problems and seeking solutions to them, based on reliable facts, allows us to draw new facts and recommendations.

**2- Scientific Description**

The analysis of a phenomenon and trace its basis and refute its causes and analyze its symptoms to reach the exact scientific description of it, by completing the parts of scientific research and analysis of the problem or hypothesis and its components and their apparent and hidden implications and to reach an objective description, including guidance for optimal solutions.

**3- Forecasting the future**

It is a prediction based on scientific evidence, documented methodology and consecutive logical steps, all of which will ensure access to future knowledge as close to the truth with the right scientific research.

**4- Provide logical solutions to problems**

The subject of scientific research revolves around an intractable problem, the researcher resorted to refute it and solve it through scientific research and put forward hypotheses, observation, measurement, and others, but it is finally able to put forward a number of solutions supported by scientific evidence, and field experiments confirmed their feasibility and validity.

5- **Innovation and Renewal**

If you look at inventions and high-quality products, you will find that they are designed according to ideal standards resulting from a huge number of research and experiments, based on research on new facts, information and experiences will allow the researcher to reach new and innovative results based on the latest facts and research.

**III Charactcteristics of Scientific Research**

Scientific research is systematic and empirical research that is conducted based on evidence and logic. These are its main features.

***Rigorous***

Rigorous research is defined as using a strong theoretical foundation and methodological framework. It refers to the carefulness and degree of exactness in research investigation.

***Purposive***

With a clear goal in mind, research should begin. Research is meaningless if it is undertaken without any goals. The process of choosing a sample, gathering data, and interpreting that data are all governed by the goal of the research.

***Replicability***

Others should be able to independently replicate or repeat a scientific study and obtain similar, if not identical, results.

Our conclusions or findings are deemed untrustworthy if observations cannot be replicated. The study should be repeatable as a result.

***Objective***

It should make it possible for us to impartially and accurately categorize facts. The conclusions drawn from our data should not be based on our subjective or emotional values but rather on the facts established by actual data.

Non-data-based decisions lead the organization astray and encourage performance decline.

***Testability/*** ***Falsifiability:***

Researchers develop hypotheses logically in scientific research. A hypothesis is an estimation of the relationship between variables. Such a relationship is established logically.

Interestingly, a hypothesis must be stated in a way that it can be disproven. A theory that is specified in imprecise terms or whose concepts are not accurately measurable cannot be tested, and is therefore not scientific.

Relationships are tested using various statistical and mathematical tools. Thus, testability is one of the important qualities of scientific research.

***Precision***

Theoretical concepts, which are often hard to measure, must be defined with such precision that others can use those definitions to measure those concepts and test that theory.

Importantly, precision reflects the degree of exactness of the results. The conclusion drawn from the research must be nearer to the actual result as it is based on evidence and objectivity.

***Operational Definitions***

The variables should be defined in such a way that they can be measured. This eliminates confusion in meaning and communication.

***Generalizability***

It speaks to the extent to which the research’s conclusions can be applied to other organizations as well. The greater the scope of applicability of the research’s answers, the more beneficial the research is to users.

**Parsimony:** When there are multiple explanations of a phenomenon, scientists must always accept the simplest or logically most economical explanation. This concept is called parsimony. It prevents scientists from pursuing overly complex theories with endless number of concepts and relationships that may explain a little bit of everything but nothing in particular.