TISHK International University

FASE | IRD Department

Academic Research & Writing

Chapter 2:

The Research Process & its Steps

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Dr. Basiru Musa

basiru.musa@tiu.edu.iq

Research

- What is a research?

➢ Research ordinarily means to search again or study, investigate, or inquire into something for the purpose of better understanding. However, scientific research is defined as the process of understanding reality and or arriving at solutions to problems through a planned and systematic collection, analysis and interpretation of data, whether primary or secondary data or both. For this reason, research is conducted mainly to obtain knowledge or solve problems.

Reasons for Research/Importance of Research

- Establish or confirm pre-existing facts,
- Reaffirm the results of previous work,
- Solve new or existing problems,
- Enhances people's understanding of reality
- Satisfies human natural curiosity to what is happening, how it is happening and why it is happening
- Support theorems, or develop new theories,
- Expand the past work in the field
- Test the validity of instruments, procedures, or experiments,
- Replicate elements of prior projects, or the project as a whole.

Characteristics of Research

- It is non-normative and objective
- It is systematic and explanatory
- It is general
- It is transmissible
- It is provisional

Steps for Conducting Research

1. Formulation of a Research Problem
2. Literature Review
3. Theory Development
4. Generation of Hypotheses
5. Definition/Operationalization of Concepts
6. Data Collection
7. Data Analysis
8. Reporting of Research Findings and Formulation of a new Research Problem

The 8 steps of the Research Process

Types/Typology of Research

- Based on Goal of Research
  - Basic Research
  - Applied Research
  - Evaluation Research

- Based on Methodological Approaches or Research Strategy:
  - Experimental Research
  - Survey Research
  - Field Research
  - Available Data Research

- Based on Purpose of Study:
  - Exploratory
  - Descriptive
  - Explanatory

Cont.

- Based on Reasoning:
    - Deductive
    - Inductive
- Based on Use of Techniques
    - Quantitative
    - Qualitative

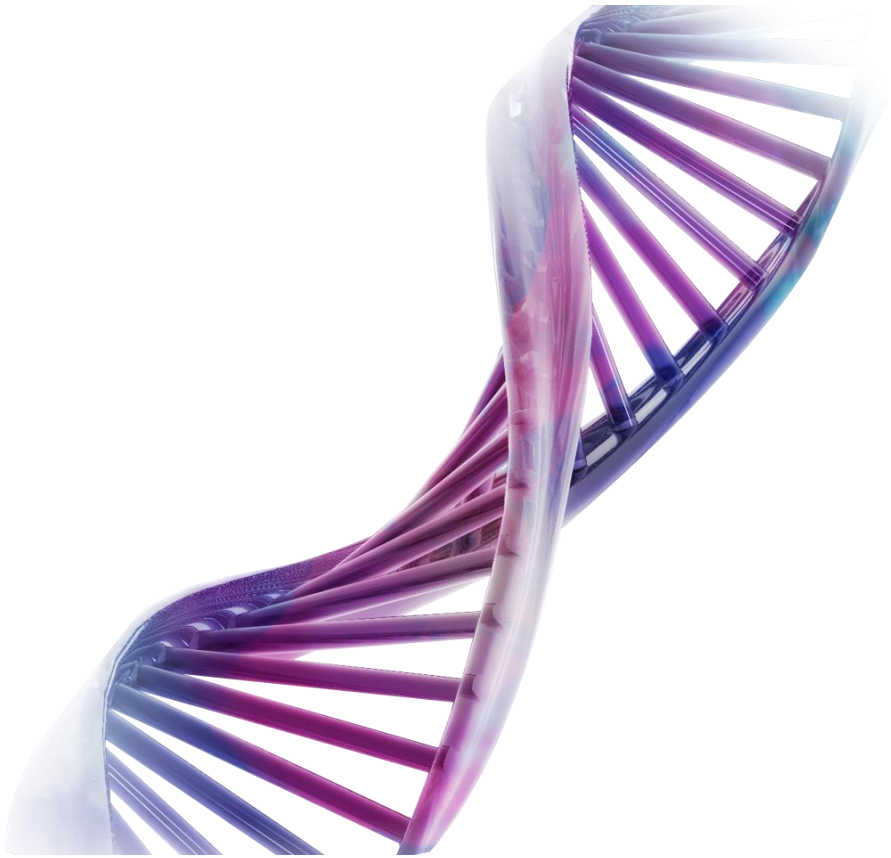
Basic Research

- Basic Research or Fundamental or Pure Research
  - Driven by a scientist's curiosity or interest
  - Motivational push - to expand the knowledge
  - Needed for progress to take place
  - Lays down foundation for applied research
  - Not directly linked to commercial application
  - 'If we only did applied research, we would still be making better spears' – Dr. George Smoot

    (Shared 2006 Nobel prize in physics with John C. Mather for their discovery of the blackbody form and anisotropy of the cosmic microwave background radiation)

Basic Research

- Examples of Basic Research:
  - DNA – “Ladder of Life”
    - Studies of Gregor Mendel (1860s), T.H. Morgan (1915), James Watson and Francis Crick (1953) Double-helix structure of DNA for genetics and heredity
  - Michael Faraday (1831) – Principle of electromagnetic induction and its use in generators and alternators
  - Similarly, scientists tried to learn basic nature of the phenomena
  - Today we see the vast implications.



Applied Research

- Applied Research:
  - Designed to solve practical problem,
  - Not to acquire knowledge for knowledge's sake,
  - To improve conditions,
  - Necessities – complexities of social and natural constraints and problems,
  - Creating and providing solution,
  - Applications derived long before basic understanding.

Applied Research

- Examples of Applied Research:
  - Transistor - Invented by AT&T scientists in 1948 and invention of integrated circuit for microprocessors
  - Vaccination – Developed by Edward Jenner (1790s) and then to oral form of vaccine for polio by Albert Sanin (1961)
  - The R&D laboratories
  - Evaluation research
  - Monitoring and follow-up research

Characteristics of Basic and Applied Research

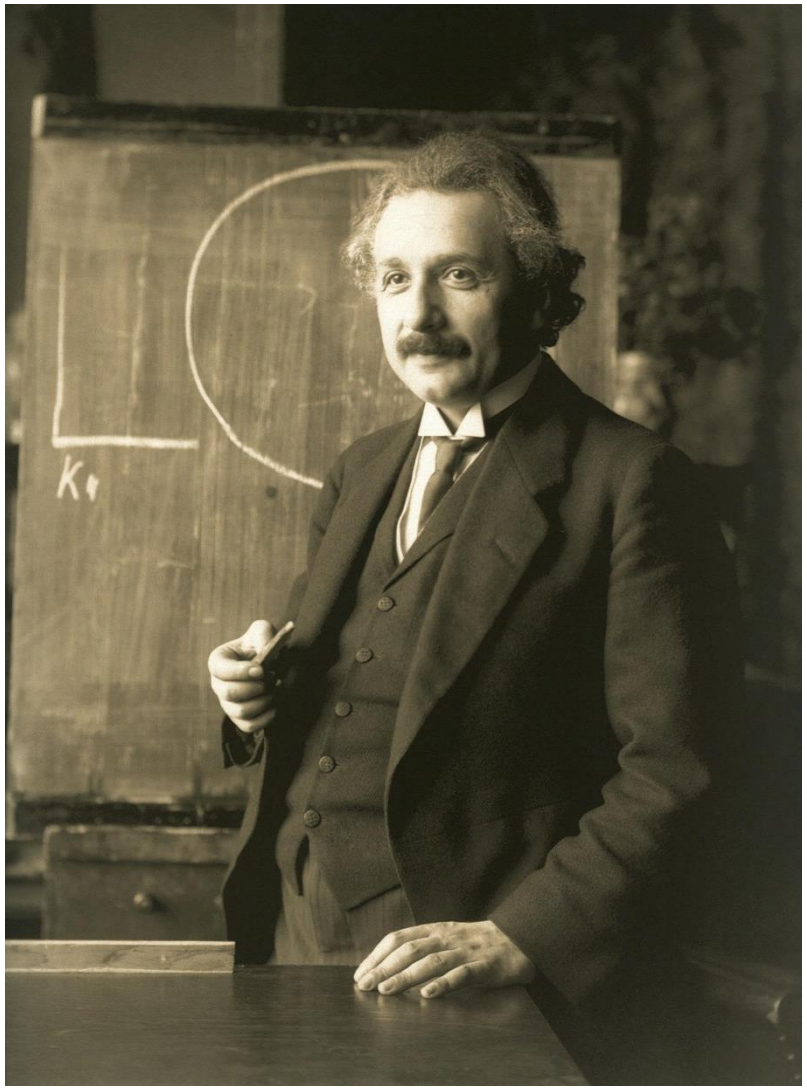
Defining Characteristics	Basic Research	Applied Research
The nature of the problem	Seeks new knowledge about social phenomena, hoping to **establish general principles and theories** with which to explain them	Seeks to understand **how basic research can help** alleviate a demanding social problem and provides policymakers with well grounded guides to remedial action
The goal of the research	**To produce new knowledge**, including the discovery of the nature of the relationships between variables	**To explore the value of basic knowledge** in an applied setting that can be useful to policymaker who seeks to eliminate or alleviate a social problem
The underlying theory	Selection of a theory **to guide hypothesis testing**	Selection of a theory, guidelines, or intuitive hunches **to explore the dynamics of a social system**
The appropriate techniques	Theory formulation, hypothesis testing using the experimental and quasi-experimental methods, sampling, data collection techniques, statistical treatment of data, and validation or rejection of hypothesis	Very similar to basic research, only in a setting where the implications of the research are immediately obvious

Characteristics of Applied and Basic Research

Characteristic	Basic Research	Applied Research
Problem selection determined by:	Individual researcher	Employer or sponsor
Researcher intrinsically motivated by:	Intellectual curiosity and satisfaction in advancing knowledge	Commitment to promote the public welfare
The goal is:	Generalized theoretical understanding	Cost-effective reduction of social problems
Rigor of methods based on:	Disciplinary norms of scholarship	Uses to which results may be put
Preoccupied with:	Internal validity	External validity
Research arena tends to be:	Laboratory	Real-world setting
Dissemination of knowledge by:	Publication in learned technical journals	Communication with lay decision-makers

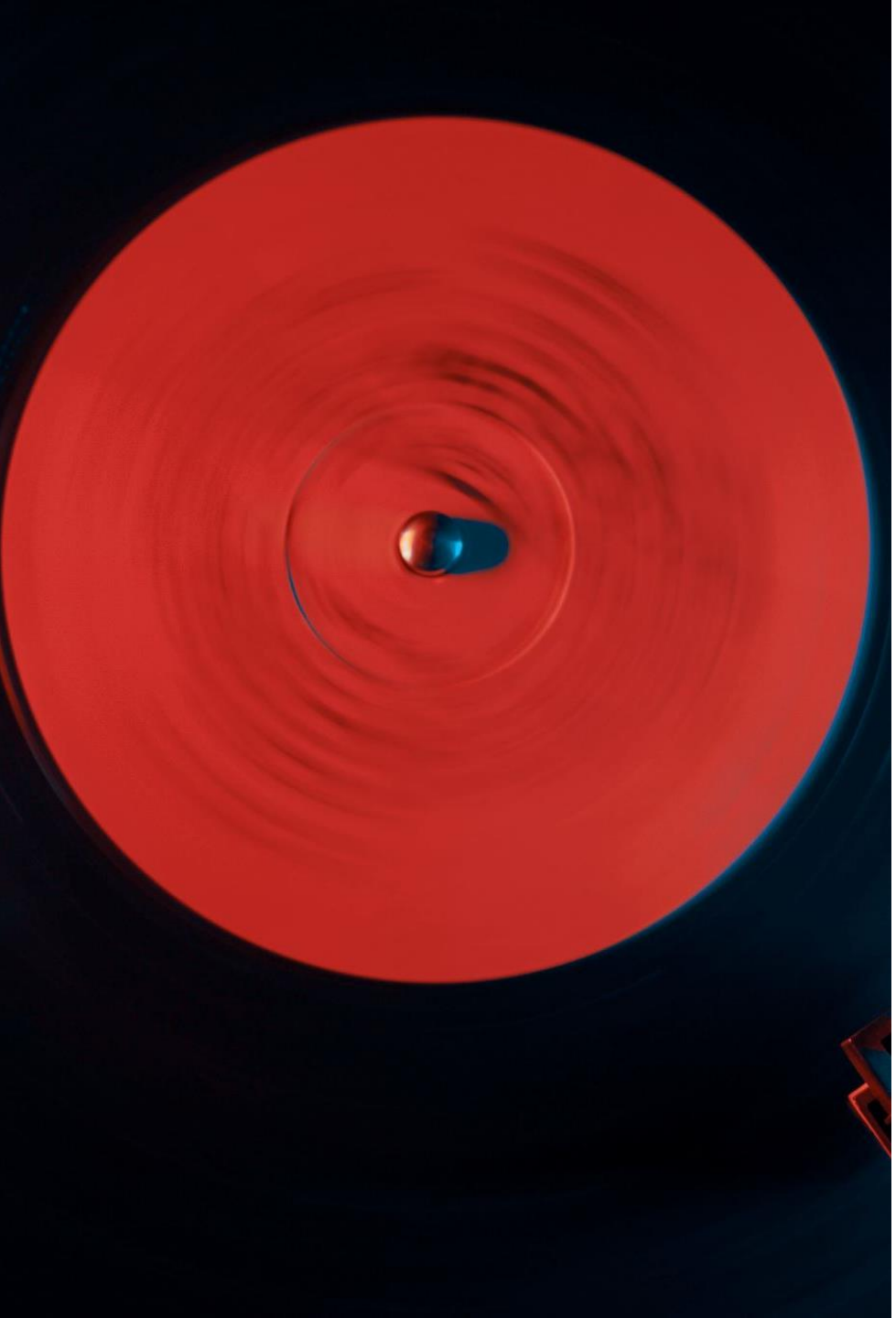
Research Problem

- The formulation of a problem is often more essential than its solution, which may be merely a matter of mathematical or experimental skill.
- Albert Einstein



1. Identifying the Research Problem

- The first and foremost task in the entire process of scientific research is to identify a research problem.
- A **research problem** is of primary concern to a researcher.
- **A research problem is a perceived difficulty, a feeling of discomfort, or a discrepancy between a common belief and reality.**
- A well-identified problem will lead the researcher to accomplish all-important phases of the research process, from setting objectives to selecting the research methodology.



A problem will qualify as a potential research problem when the following three conditions exist:

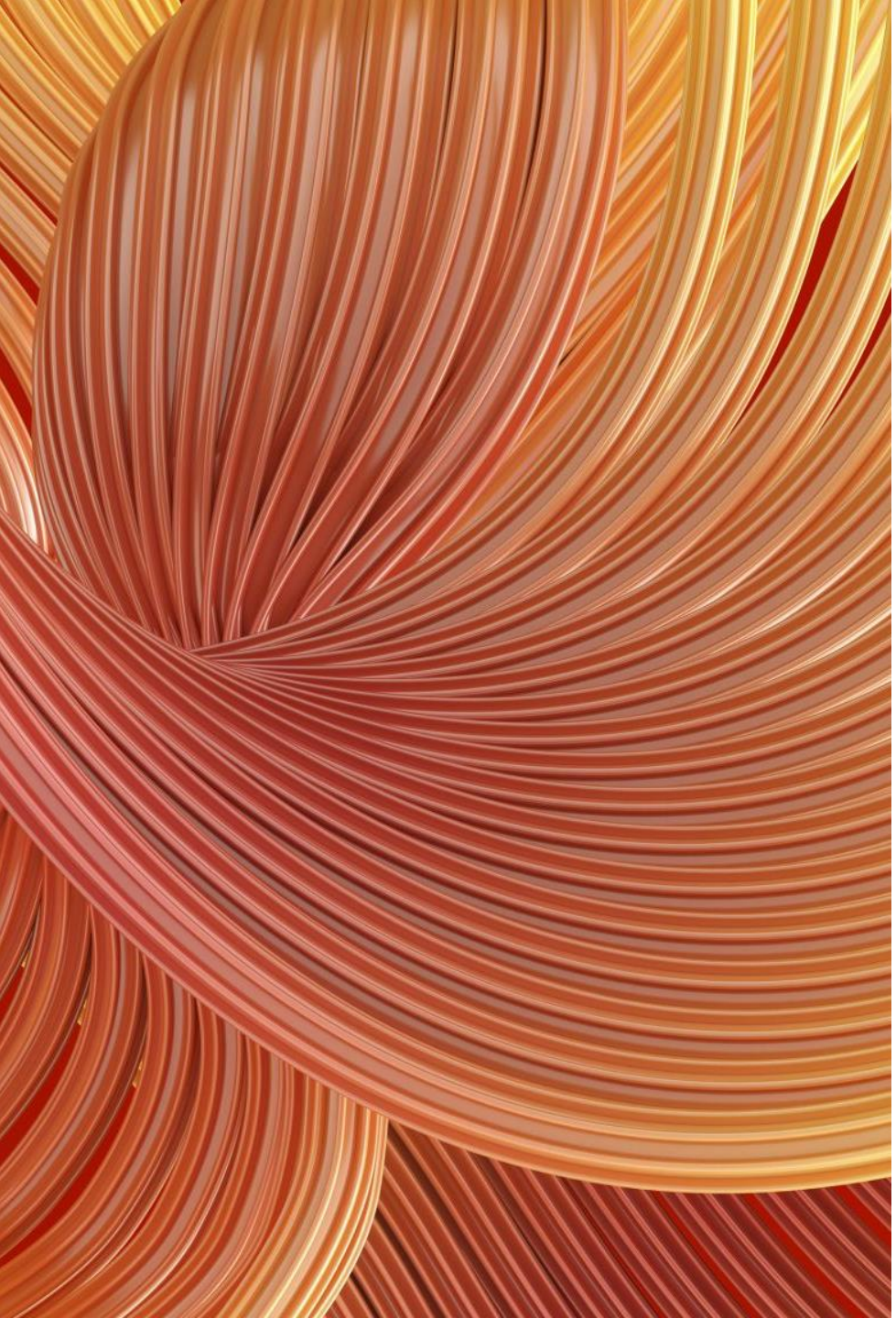
1. There should be a perceived discrepancy between “what it is” and “what it should have been.” This implies that there should be a difference between “what exists” and the “ideal or planned situation.”
2. A question about “why” the discrepancy exists. This implies that the reason(s) for this discrepancy is unclear to the researcher (so that it makes sense to develop a research question).
3. There should be at least two possible answers or solutions to the questions or problems.

Research Problem Examples

- While visiting a rural area, the UNICEF team observed that some villages have female school attendance rates as high as 75%, while some have as low as 10%, although all villages should have a nearly equal attendance rate. What factors are associated with this discrepancy?
- We may enumerate several reasons for this:

1. Villages differ in their socio-economic background.
2. In some villages, the religion and traditions affect a large proportion of the total population. Religion might play a vital role.
3. Schools are far away from some villages. The distance thus may make this difference.

- Because there is more than one answer to the problem, it is considered a research problem, and a study can be undertaken to find a solution.



Statement of the Problem

- A clear and well-defined problem statement is considered the foundation for developing the research proposal.
- It enables the researcher to systematically point out why the proposed research on the problem should be undertaken and what he hopes to achieve with the study's findings.
- A well-defined statement of the problem will lead the researcher to formulate the research objectives, understand the background of the study, and choose a proper research methodology.

Justifying the Problem

- Once the problem situation has been identified and clearly stated, it is important to justify the importance of the problem.
- In justifying the problem, we ask such questions as why the problem of the study is important.
- How large and widespread the problem is, and whether others can be made convinced of the importance of the problem and the like.

3. Research Aim

- The research aim(s) is a statement that reflects the **broad overarching goal**(s) of the research project. Research aims are fairly high-level (low resolution) as they outline the **general direction** of the research and what it's **trying to achieve**.
- research aims usually start with the wording "this research aims to…", "this research seeks to…", and so on.
- For example:
- *"This research aims to explore employee experiences of digital transformation in retail HR.*
- *"This study sets out to assess the interaction between student support and self-care on well-being in Business graduate students"*
- these research aims provide a **high-level description** of what the study is about and what it seeks to achieve. They're not hyper-specific or action-oriented, but they're clear about **what the study's focus is** and what is being investigated.

3. Research Objectives

- Research objectives: describe what your research project intends to accomplish. The research objectives need to be far more specific (higher resolution) and actionable than the research aims. In fact, it's always a good idea to craft your research objectives using the "SMART" criteria.
- **Why are research objectives important?**
- Establish the scope and depth of your project: This helps you avoid unnecessary research. It also means that your research methods and conclusions can easily be evaluated.
- Contribute to your research design: When you know what your objectives are, you have a clearer idea of what methods are most appropriate for your research.
- Indicate how your project will contribute to extant research: They allow you to display your knowledge of up-to-date research, employ or build on current research methods, and attempt to contribute to recent debates.

How to write research aims and objectives?

- Once you've established a research problem you want to address, you need to decide **how** you will address it. This is where your research aim and objectives come in.
- **Step 1: Decide on a general aim**
- Your research aim should reflect your research problem and should be relatively broad.
- **Step 2: Decide on specific objectives**
- Break down your aim into a limited number of steps that will help you resolve your research problem. What specific aspects of the problem do you want to examine or understand?
- **Step 3: Formulate your aims and objectives**
- Once you've established your research aim and objectives, you need to explain them clearly and concisely to the reader.
- You'll lay out your aims and objectives at the end of your problem statement, which appears in your introduction. Frame them as clear declarative statements, and use appropriate verbs to accurately characterize the work that you will carry out.

Example

- **Research Question**

1. How do employees perceive digital transformation in retail HR?
2. What are the barriers and facilitators of digital transformation in retail HR?

- **Research Aim**
- “This research aims to explore employee experiences of digital transformation in retail HR.

- **Research Objective**

1. To observe the retail HR employees throughout the digital transformation.
2. To assess employee perceptions of digital transformation in retail HR.
3. To identify the barriers and facilitators of digital transformation in retail HR.

Thank You!