



Research Methodology

CS 5001

Instructor: Dr. Ramoza Ahsan
Lecture 2

Agenda

- **Research Introduction**
- **Components of Research paper**
- **Project Details**
- **Sample Survey papers**
- **Questions**



Contact Details

- **Contact**

- **Dr. Ramoza Ahsan,**
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- Office Hours : Monday and Wednesday 11:30-1pm (In-person)
- Tuesday and Thursday 11:30-1pm (Online)
- Friday 4-5pm.
- **Teaching Assistant: Muhammad Bilal** [<i247611@isb.nu.edu.pk>](mailto:i247611@isb.nu.edu.pk)

- **Schedule**

- 1 Class of 3 hours on Friday in C301 from 5:20pm – 8:05 pm
- Class code: **sy4xfcc**

Research Introduction

- Curiosity and inquisitiveness is a common characteristic of every human being.
- All of us are curious to know about ourselves, our organizations, our institutions, our homes and families etc.
- There are a number of questions we always ask ourselves of which some are not answered well and thus necessitates investigation, thus need for research

Meaning of Research

- Research simply means search for facts or answers to the questions we ask.
- It means seeking solutions to the problems.
- It is a purposive investigation. It is an organized inquiry.
- It seeks to find explanations to unexplained phenomenon, to clarify the doubtful facts and to correct the misconceived facts.

Background “Doing Research”

- What is research ?
 - Your Point of View !!!!
- An Informal Definition
 - Research is defined as a careful consideration of study regarding a particular concern or a problem using scientific methods.
- Organized, systematic, data-based critical inquiry or investigation into a specific problem, undertaken with the objective of finding answers or solutions to it.

What is Research?

- You already know about research because you do it every day.
- Research is simply **gathering the information you need to answer a question and thereby help you solve a problem.**

Ways of searching for Answers

1. Arbitrary, crude or rudimentary methods

involves imaginations, opinions, blind belief or impression. This method of gathering facts has significant weaknesses. It is subjective, the findings will vary from one person to another.

2. Scientific, logical, systematic methods

involves systematic rational approach to seeking facts. This method is objective, precise and conclusions are based on the basis of verifiable facts or empirical evidence.

Is it Research?

- Choosing an idea based solely on personal interest without considering its feasibility, importance, or contribution to knowledge.
- Failing to critically evaluate one's initial idea and consider alternatives that may be more suitable.
- Pursuing a trivial or unimportant topic that lacks conceptual foundation or significance.
- Attempting a project that is too large in scope given available time and resources.
- Duplicating work that has already been adequately reported in the literature.

What research is and what it isn't

- It is based on the works of others – not a copy of their works
- It can be replicated
- It is generalizable to other settings
- It is based on some logical rationale and tied to theory
- It is doable
- It generates new questions or is cyclical in nature
- It is incremental

What Research is Not

- Research is not mere information gathering.
- Research is not mere transportation of facts from one location to another.
- Research is not a catchword used to get attention.

Types of Research

1. Non-Experimental

- Descriptive: describe the characteristics of an existing phenomenon
- Historical: relate events that have occurred in the past to current events
- Correlational: examine the relationships between variables
- Example: study that examines the correlation between hours spent studying and test scores by collecting data on students' study habits and test results without manipulating any variables, essentially just observing the existing relationship between the two factors

Types of Research

2. Experimental

- Test for true cause and effect relationships
- Examples include drug trials, psychology experiments, and studies on new teaching methods.

Quasi-Experimental:

- Test for causal relationships without having full control
- is a type of nonrandomized study that's often used when it's not feasible or ethical to conduct a randomized controlled trial.

Examples of Quasi-Experimental Research

- **Educational interventions**
- Comparing student performance in schools that use a new teaching method to schools that don't
- **Public health policies**
- Comparing health outcomes in regions with and without a policy, like a smoking ban

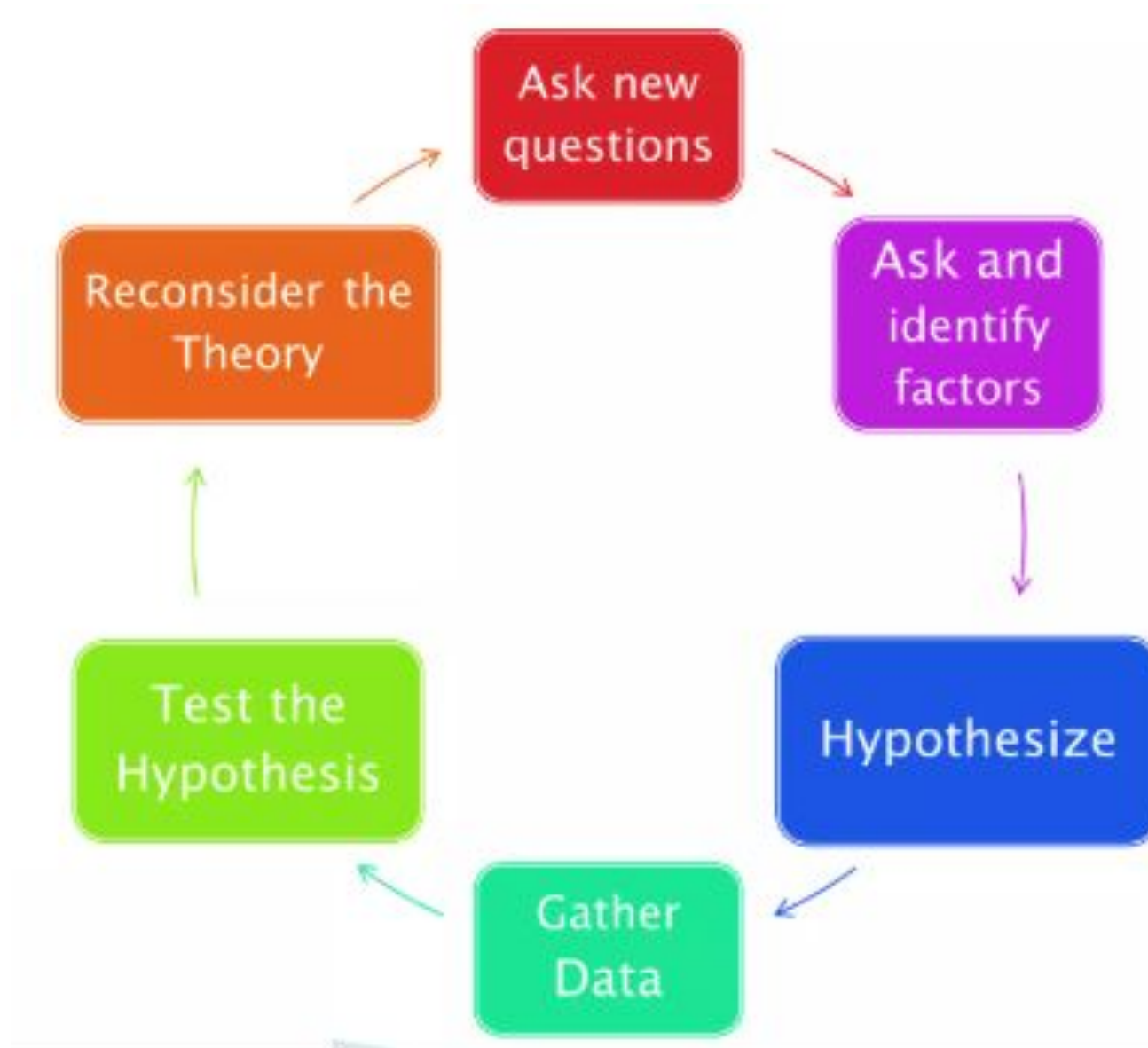
Characteristics of Research

- Research is Systematic; it starts with a question that needs an answer or a problem to be solved
- Research is Logical; it needs a plan and a specific procedure to follow.
- Research is Empirical; its findings must be based on or supported by carefully collected and analyzed data.

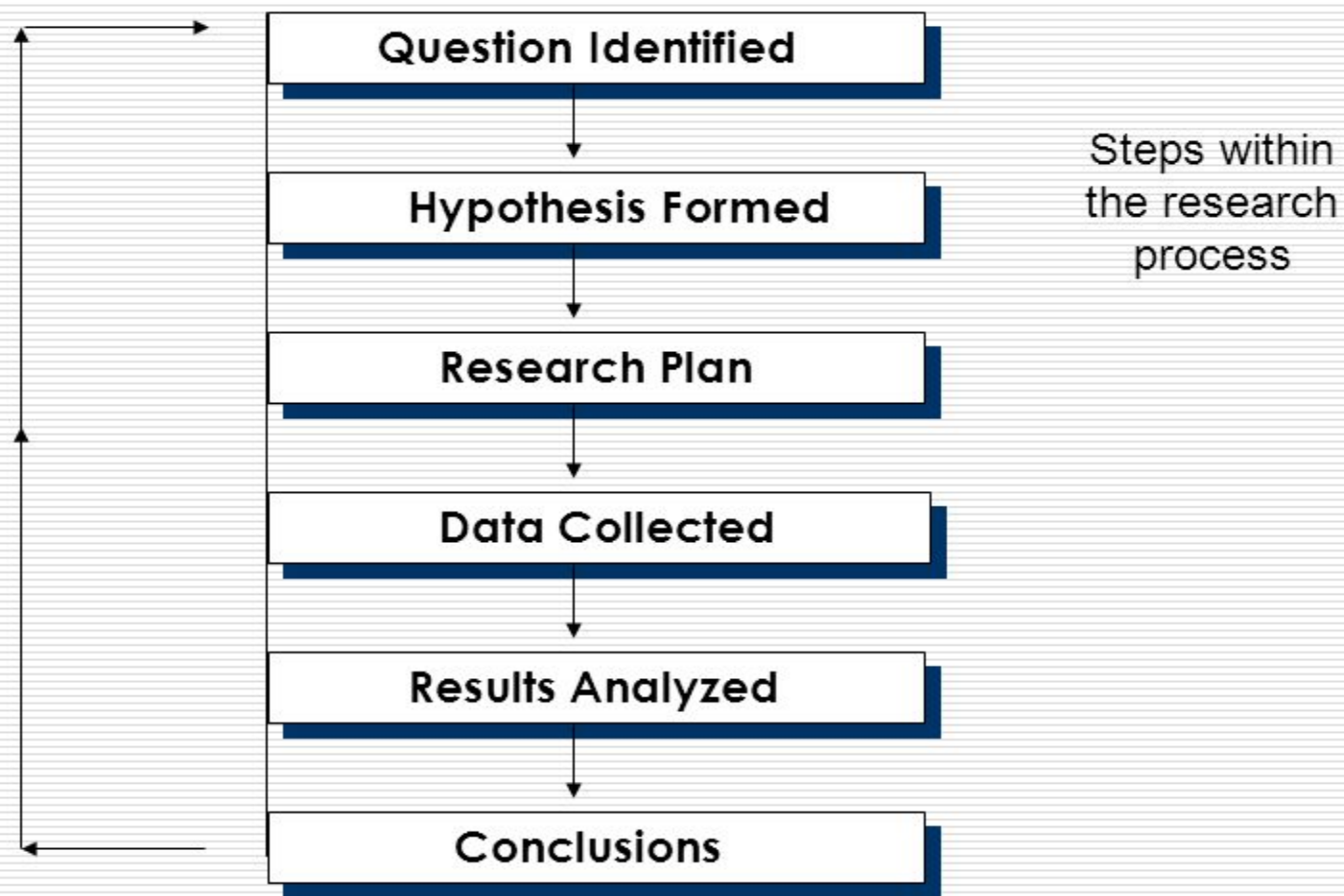
Characteristics of Research

- Research is Reproductive; i.e. main research problem is broken down into more specific and manageable sub-problems.
- Research is Replicable; it can be done again or repeated.
- Research is Transmittable; study findings can be applied in new settings.

The Scientific Method



Stages of the Scientific Method



Why to do Research ?

1. A Tool for Building and Prove Knowledge and Efficient Learning
2. Means to Understand Various Issues
3. An Aid to Business Success
4. A Way to Prove Lies and to Support Truths
5. Means to Find, Gauge, and Seize Opportunities
6. A Seed to Love Reading, Writing, Analyzing, and Sharing Valuable Information
7. Nourishment and Exercise for the Mind

How to Present Your Research

- Research Paper

- A research paper is an expanded essay that presents your own interpretation or evaluation or argument.
- When you write a research paper you build upon what you know about the subject and make a deliberate attempt to find out what experts know.

Research, researchers and readers

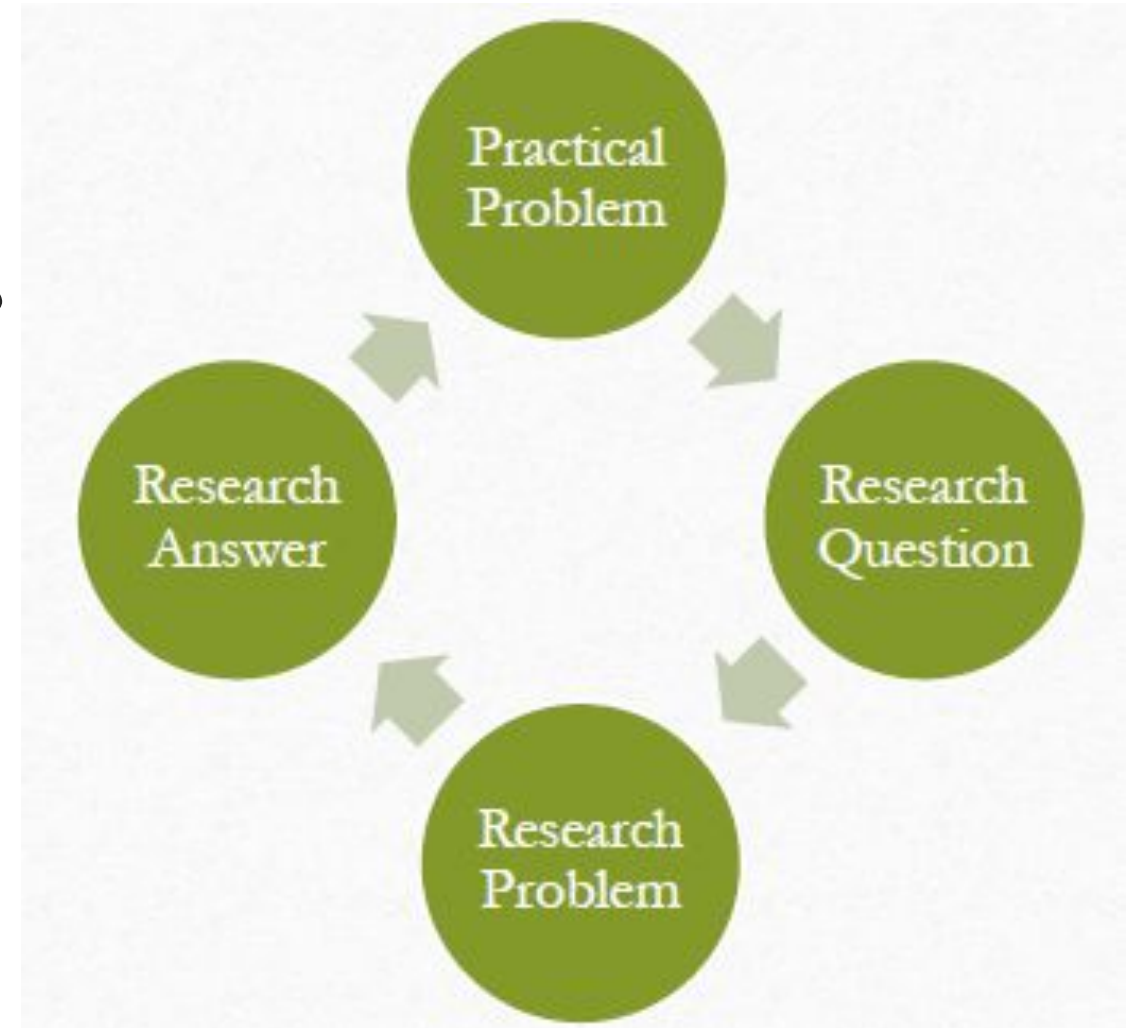
- Starting a research project
- Planning
- The use of research public and private
- Helping to evaluate what you read more thoughtfully.
Lets you experience first hand knowledge.
- Without trustworthy and tested published research, we would be locked in the opinions of the moment, will become prisoners of what we hear and experience.

Connecting with your reader

- Who will read my research?
- Professionals?
- General readers who are well informed or know little about the subject?
- Academic scholars?
- Managing the unavoidable problem of inexperience.
 - Be aware of the anxieties and uncertainties
 - Get control over your topic by writing about it along the way.
 - Break the process into steps.
 - Count on your teacher to understand your struggle
 - Set realistic goals.

Planning the project

- From topics to questions
- From questions to problems
- From problems to sources
- Using sources



Research process

1. Select your topic (identification of problem)
2. Refine your topic (review of existing literature)
3. Identify objectives
4. Choose approach (methodology)
5. Explore your topic (gather Data)
6. Perform experiments
7. Analyze the Data
8. Write the report

Research Process

THE RESEARCH PROCESS



Research Process

- The Research Problem
- Formulation of Research Objectives
- Review of Related Literature
- Delimitation of the Research Problem
- Formulation of Testable Hypothesis
- Identification of Research Variables
- Construction of Research Design
- Designing Tools for Data Collection
- Designing Plan for Data Analysis
- Collection of Data
- Data Processing
- Data Analysis and Interpretation
- Drawing Conclusions and Recommendations
- Writing of Research Report
- Reporting of Research Findings



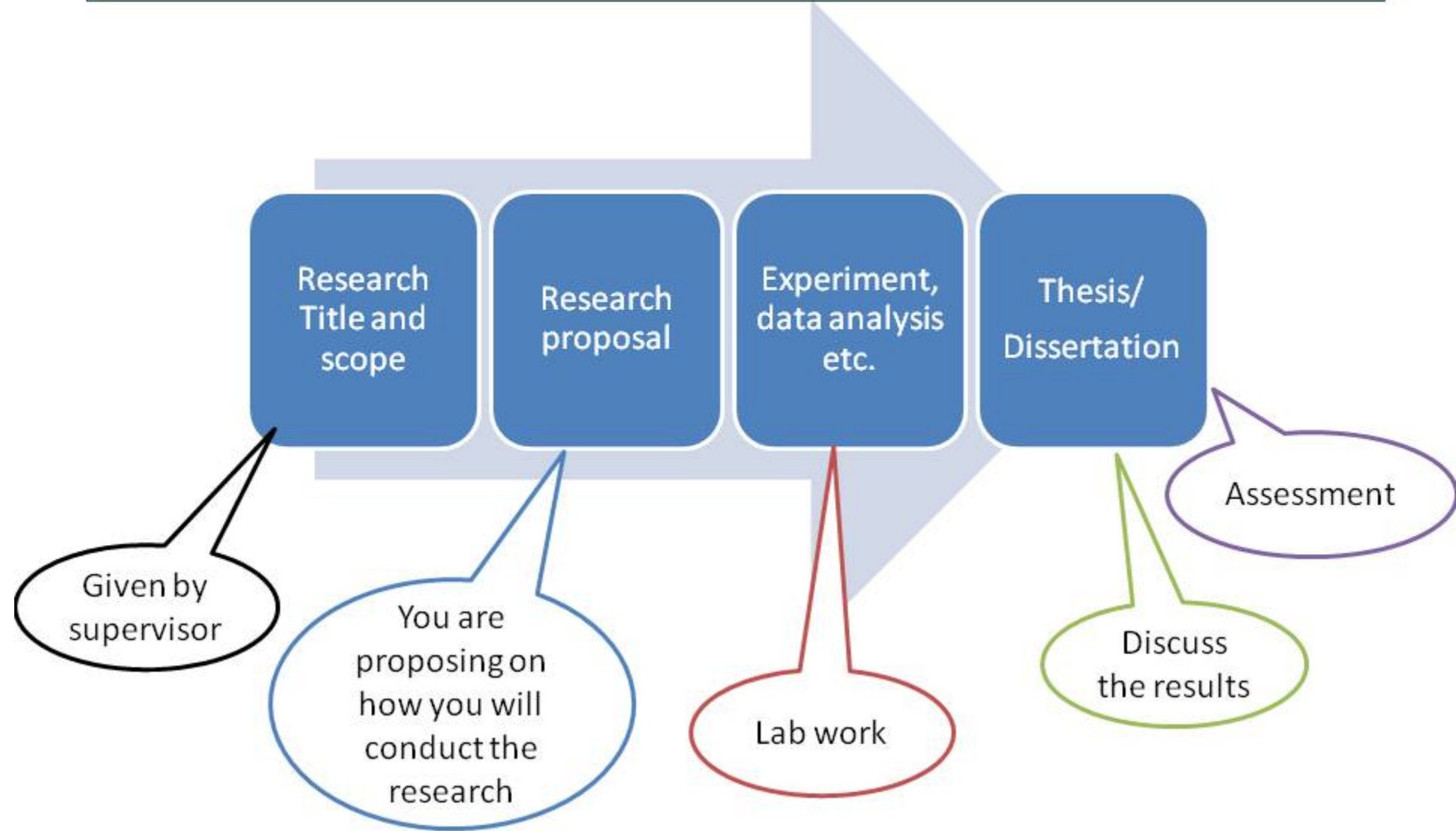
Identification of Research Area/ Topic

- Some sources of research topics include:
- From the theories
- From literature review
- From area of your interest
- Brainstorming
- Discussion with the teachers
- Discussion from friends/peers
- Consulting the professionals in the area of your interest
- Daily problems confronted
- Problems affecting organizations/communities etc.

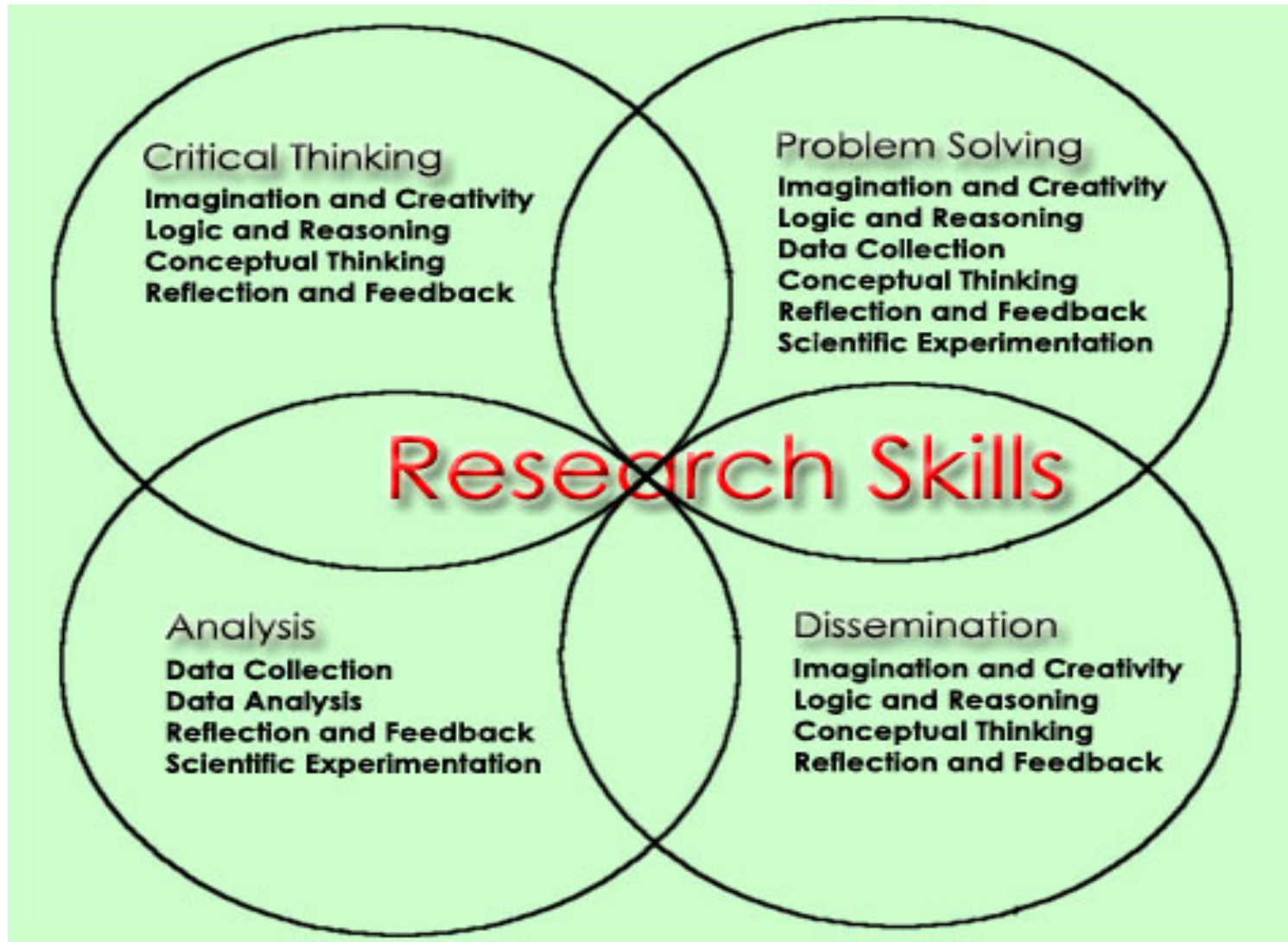
Qualities of a good topic

- It should meet the specification of the awarding institution
- It should fit within the available resources
- It should be researchable
- Should enable you access to data/information easily
- It should be in a new area that has not been researched
- It should enable you to get solutions to your research problem etc.

Typical Research Process for Students



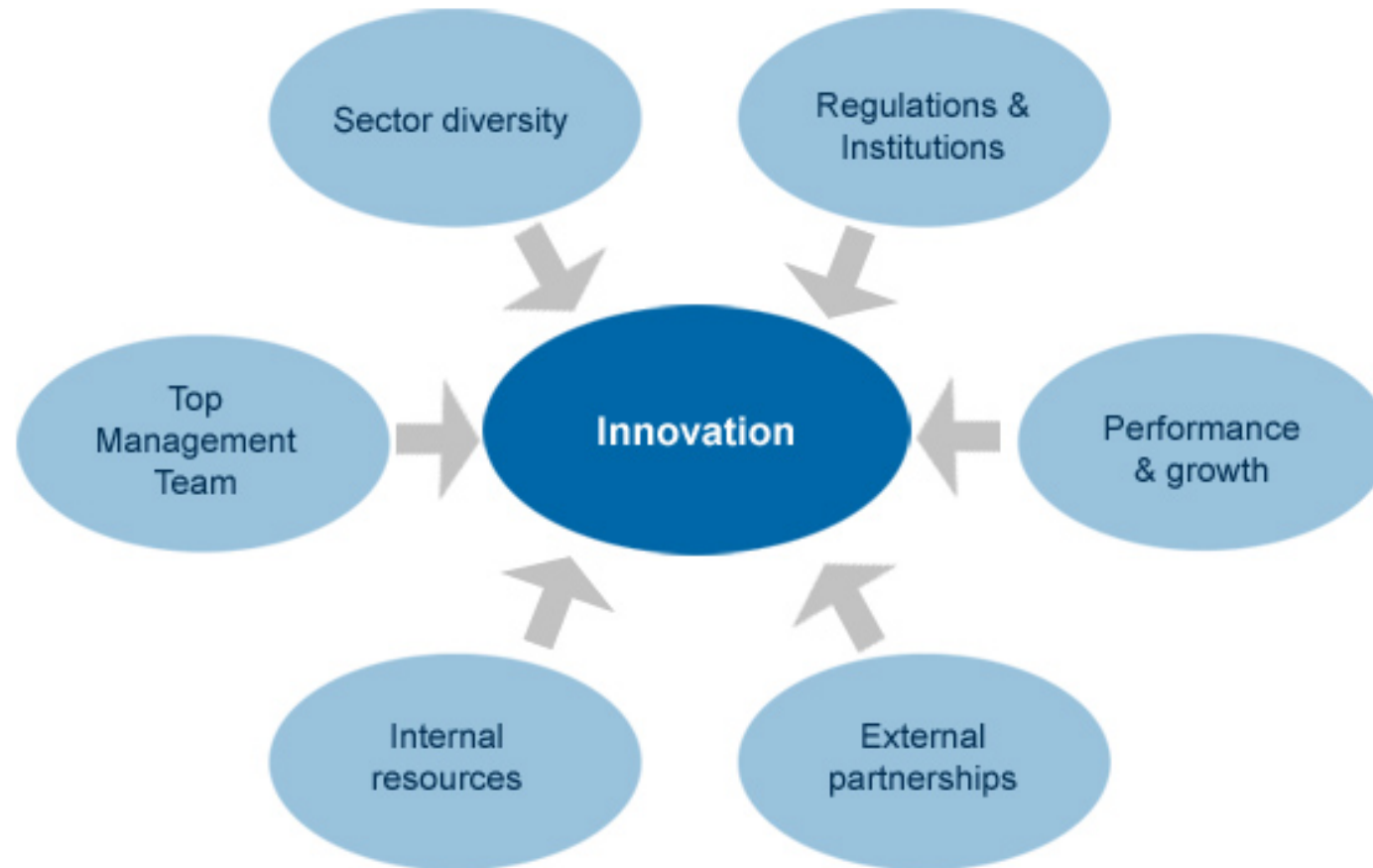
Research Skills



Role of Data in Research



Innovation



What is a Publication

- Research publication is a written document that presents the findings and results of a research study.
- Typically published in a scholarly journal or other recognized format, allowing the research community to access and evaluate the work done by researchers.
- A way to disseminate new knowledge generated through research to the wider academic field.

Key points about Research Publication

Dissemination of knowledge:

- The primary purpose of a research publication is to share research findings with others in the field, enabling further discussion and development of knowledge.

Peer review process:

- Most reputable research publications undergo a peer review process where other experts in the field evaluate the quality and validity of the research before it is published.

Key points about Research Publication

Different formats:

- Research publications can take various forms depending on the field, including journal articles, book chapters, conference papers, and sometimes even theses.

Author attribution:

- Research publications clearly identify the authors who conducted the research, allowing proper credit to be given.

Why Individuals think Research is difficult

- Individuals are ill-prepared
- Individuals have the wrong perceptions about what research is.
- Individuals have difficulty in formulating a research questions.
- Individuals do not read widely enough
- Individuals do not know how to use the Web for research
- Individuals and their supervisors do not themselves fully understand the research process and how to best explain it.

Publication Process

- Writing
 - First Draft
- Submission
- Editor Review
- Reviewer Assignment
- Review Process
- Revision
 - Major
 - Minor
 - A Paper can go into many rounds of Revision
- Decision
 - Accept
 - Reject

Publication Venues

- Workshop
 - Examples of Workshops from Internet
- Conference
 - Lets Google Now to find Top Conferences in our Field
- Journal
 - Open Access
 - Free



Thank you

Questions?