ON SUCCESSFUL COMPLETION OF THE COURSE, YOU SHOULD BE ABLE TO:

- Define the research
- Identify the research problem and purpose
- State importance of research
- State the type of research
- Ethical Consideration in Research
There are five main categories of knowledge sources, namely: (Ary et. al. (1985) & Van Dalen (1979)

- Experience
- Authority
- Reasoning deduction
- Reasoning Inductively
- Scientific method
EXPERIENCE

• The oldest source of experience
• Common-sense knowing
• Most of people use their own experience to solve a problem
• Experience is the most widely used knowledge to solve a problem

Knowledge tested from time to time

Weaknesses - not all men have a similar experience while facing the same problems
AUTHORITY

• The knowledge gained from a reputable person or party (authority).
Authority is a person who has experience of the problem or have expertise in the problem. Often they are considered true for the position or rank in society such as teachers, principals, directors, head of the village, the priest, shaman. May give different answers in different environment - using the ideas and feelings from the facts. Authority can make mistakes.
DEDUCTIVE REASONING

• The process of deductive reasoning is a process where a person uses a public statement to generate a specific statement.

• Syllogism is a logical series of statements used in the compilation of the facts known to the conclusion. A syllogism has:
  • Major premise (All people need a language for communication)
  • Small premises (Ali is a man)
  • Summary (Ali need language to communicate)
Deductive reasoning allows one to organize the premises in a form that can provide proof of valid conclusions;

• Can determine the relationship that exists during the examination of premises and minor premises.
• How to connect theory with observation.
• Allow researchers to make deductions from the existing theory with the observed phenomena.
• Deductions from the theory can generate hypotheses.
Weakness of deductive reasoning..

- Summary is true if the premises are true.
- Summary cannot exceed the contents of the premises.
- Not sufficient as a source of truth (due to the difficulty in obtaining permission for most of the statements).
- Scientific research can not be done only by using deductive reasoning.
INDUCTIVE REASONING

• Inductive Reasoning is when a person makes an observation of a small part of an event and then make inference about the whole incident.
• Conclusions reached by observing a few examples of behavior (sample) and to generalize to the whole population.
• Contrary to deductive reasoning.
• Must observe all of examples to obtain an induction formula (belief).
• Inductive reasoning to provide information to enable a person to make decisions.
SCIENTIFIC APPROACH

• Combined aspects of deductive and inductive reasoning.
• Scientific method is a process in which researchers make an induction from observation to hypothesis, and then make deductions from the sequence of facts that apply to prove the truth of the hypothesis.
SCIENTIFIC APPROACH TO THE CHARACTERISTICS OF THE EDUCATIONAL RESEARCH

- The process is systematic, organized, and there are steps that should be observed. Oriented problems. Empirical shape. There are procedures and methodologies that can be defended. Valid, and can be repeated truth.
SOME QUESTIONS......

How to do the research?

How to explain the results?

Report and Evaluate Research

How are research results be assessed?

How to plan and manage research?
WHAT IS RESEARCH METHODOLOGY?

• Is defined as a highly intellectual human activity used in the investigation of nature and matter and deals specifically with the manner in which data is collected, analyzed and interpreted.

• Research methodology is the system of collecting data for research projects. The data may be collected for either theoretical or applied practical research. For example management research may be strategically conceptualized along with operational planning methods and change management.
PURPOSE OF RESEARCH

• General purposes: what and how action should be taken

• Other purposes:
  • For developing scientific observation in education
    To describe the characteristics of the phenomenon (state or individual) from a different perspective, and develop general principles that can support the development of theories related to education.
  • To explain why the phenomenon occurs
  • To determine the frequency with which something occurs or is associated with something else
  • To test the hypothesis of a causal relationship between variables
IMPORTANCE OF RESEARCH

- Doing research is the best way to learn to read and think critically
- Helps to learn how to use libraries & other information resources
- Enables critical evaluation of literature
- Develops special interests & skills
- Helps to understand attitude of others
- Creates awareness of special needs of research process
- Built and establish the theories
Importance of Research

Research helps inform policy debates

- Enables people to make informed decisions regarding policy
- Allows people to weigh different perspectives on issues

Research helps improve practice

- Educators can connect with other educators
- Educators gain new insights into approaches of other educators
- Educators gain new ideas for their job

Research adds to our knowledge

- Addresses gaps in knowledge
- Expands knowledge
- Replicates knowledge
- Adds voices of individuals to knowledge
LIMITATIONS ENCOUNTERED WHEN CONDUCTING RESEARCH

- Time constrains
- Financial considerations
- Anticipating and avoiding problem
- Equipment limitation
- Human resource limitation
- “out of the box” thinking
- “In the box” thinking
I WAS JUST RUBBING STICKS TOGETHER FOR FUN
- I DIDN'T REALIZE I WAS DOING BASIC RESEARCH.
GENERAL KIND OF RESEARCH

**Basic research**
- focus on generating fundamental knowledge

**Applied research**
- focus on real world question and applications

**Evaluation research**
- focuses on determining the worth, merit, or quality of intervention programs

**Action research**
- focus on solving local problems that practitioners face

**Research & Development (R&D)**
- focuses on the development of products through research to improve practices in education
MAIN COMPONENTS OF ANY RESEARCH WORK

Preparing a research proposal

Fieldwork (i.e., data collection)

Analyzing data

Preparing a research report
THE PROCESS OF RESEARCH

1. Identify the Research Problem
2. Review the Literature
3. Specify a Research Purpose
4. Collect Data
5. Analyse and Interpret Data
6. Report and Evaluate Research
INTRODUCTION

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What is the literature review

- Main topic in research
- Theory related to the topic
- Models used to expand the research
- Previous studies
METHODOLOGY

- Research design
- Location and selection of research subjects
- Population and Sampling
- Sampling technique
- Research Instruments
- Validity and reliability of the instrument
- Pilot Study
- Data Collection and Analysis
- Summary
Type of Sampling

- Probability
  - Simple Random
  - Stratified Random
  - Cluster Random
  - Systematic Random

- Non-probability
  - Convenience
  - Quota
  - Judgement / Purposive
  - Snowball
SOURCE OF INFORMATION FOR LITERATURE REVIEW

- Books
- Journals
- Internet
- Data bases
- Archives
- Interviews
- Observation
- Reports
- Records
TYPES OF RESEARCH DESIGN

- Qualitative
- Quantitative
- Mixed (qualitative and quantitative)
- Critical and action oriented
TYPES OF QUANTITATIVE METHODOLOGY

• Surveys
• Longitudinal
• Cross-sectional, correlation
• Experimental
• Quasi-experimental
• Ex-post facto research
TYPES QUALITATIVE METHODOLOGY

- Biographical
- Phenomenological
- Ethnographical
- Case study
ETHICAL CONSIDERATION IN RESEARCH

• Plagiarism
• Respect the rights of the participants
• Honor the requests and restrictions of the research site
• Report the research fully and honestly