Research Methods

Dr. Walid Fathy
Lecturer of Animal Ecology,
Faculty of Education,
Ain Shams University

email: walidfathy72@yahoo.com
walid72@mailcity.com
Chapter one

SCIENTIFIC RESEARCH
Objectives

- Characteristics of the scientific research
- Research procedures
- Sectors of research
CHARACTERISTICS OF
THE SCIENTIFIC METHOD
1. Scientific research is public
2. Science is objective
(Deals with facts)
3. Science is empirical
4. **Science is systematic and cumulative**

(No single research study stands alone, nor does it rise or fall by itself)
5. Science is predictive
(Has the ability to predict the events)
RESEARCH PROCEDURES
The typical eight-step research process

1. Selection a problem
2. Reviewing the existing literature
3. Developing hypotheses (questions)
4. Determination the appropriate methodology
5. Collecting data
6. Analyzing and interpretation the results
7. Presenting results in an appropriate form
8. Replication the study (when necessary)
SECTORS OF RESEARCH

- **Academic (Basic)**
- **Private (Applied)**
Academic sector research is conducted by scholars from colleges and universities. It also generally means that the research has a theoretical or scholarly approach.
Private sector research is conducted by non-governmental businesses and industries or their research consultants. It is generally applied research; that is, the results are intended to be used in decision-making situations.
Differences between academic and private sector research
* Academic research is public.

* **Private research generates proprietary data.**

* Some data are released soon and some are released after several years.
* Academic researchers generally do not have specific deadlines for their research projects.

* Private sector researchers, nearly always operate under some type of deadline.
Private sector researchers rarely have an opportunity to pursue research questions in a casual manner.
* Academic research is generally less expensive to conduct than research in the private sector.
Large media companies and groups prefer to use academic researchers to reduce costs.
The link between the two areas is important
Chapter two

RESEARCH PROCEDURES
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1. SELECTING A RESEARCH TOPIC

* Private sector researchers generally do not have the flexibility of selecting topics or questions to investigate.

* However, selecting a topic is a concern for many beginning researchers, especially those writing papers and theses.
Sources of Topics for Research

- # Magazines and Periodicals
- # Research Summaries
- # Everyday Situations
- # Archive Data
- # Secondary Analysis
Secondary Analysis

It is the reuse of social science data after they have been put aside by the researcher who gathered them.
ADVANTAGES OF SECONDARY ANALYSIS

* Alternative way that solves some problems related to costs and methodology.

* Data allow researchers more time to further understand what has been collected.
DISADVANTAGES OF SECONDARY ANALYSIS

- Researchers who use secondary analysis are limited to the types of hypotheses or research questions that can be investigated.
- Data may be poorly collected or inaccurate.
- Many studies do not include information about the research design, sampling procedures or other peculiarities.
- Perhaps it is suspected that some of the data were fabricated.
You must be able to answer eight basic questions to be sure that this idea is merit

1. Is The Topic Too Broad?
2. Can The Problem Really Be Investigated?
3. Are The Data Susceptible To Analysis?
4. Is The Problem Significant?
5. Can The Results Of The Study Be Generalized?

6. What Costs And Time Are Involved In The Analysis?

7. Is The Planned Approach Appropriate To The Project?

8. Is There Any Potential Harm To The Subjects?
Before any project is attempted, researchers must ask themselves the following questions:

1. What type of research has been done in this area?
2. What has been found in the previous studies?
3. What suggestions do other researchers make for further study?
4. What has not been investigated?
5. How can the proposed study add to our knowledge about this area?
6. What research methods were used?
3. STATING HYPOTHESES

- A hypothesis is a formal statement regarding the relationship between variables, and it is tested directly.

- The predicted relationship between the variables is either true or false.
Some researchers prefer to use research design to describe non-laboratory projects, and experimental design only for projects conducted in a laboratory setting.
Characteristics of Research Design

Four characteristics of research design make it reliable and valid

1. Naturalistic settings
2. Clear and effect relationships
3. Unobtrusive and valid measurements
4. Realism
5. COLLECTING DATA

It is also called research suppliers and field services
6. DATA ANALYSIS

✓ The time and effort required for data analysis and interpretation depends on the study's purpose and the methodology used.

✓ Analysis and interpretation may take several days to several months.

✓ Researchers must determine through analysis whether their work is valid internally and externally.
7. PRESENTING RESULTS

Presenting results depends on the purpose of the study.

All presentations of results need to be written in a clear and concise manner appropriate to both the research question and the individuals who will read the report.
To be relatively certain of the results of any study, the research must be replicated.
Chapter three

SAMPLING
Objectives

This chapter aims to train the trainees on how to use sampling and select the right type of sample for their research.

- Population and sample
- Probability and non-probability samples
- Sample size
- Sampling errors
- Sample weighting
POPULATION AND SAMPLE

- One goal of scientific research is to describe the nature of the population, that is, a **group** or **class of subjects, variables, concepts** or **phenomena**.

- The sample must be **representative**. A sample that is not representative of the population, regardless of its size, is inadequate for testing purposes and the results cannot be generalized.

Examining every member of a population is called a **census**.
TYPES OF SAMPLES

- Probability samples
- Non-Probability samples
A probability sample is selected according to mathematical guidelines where the chance for selection of each unit is known.

A non-probability sample does not follow the guidelines of mathematical probability.

✓ Sample error

✗ Sample error
A probability or a non-probability sample?

1. **Purpose of the study** (Non)
2. **Cost versus value** (Non)
3. **Time constraints** (Non)
4. **Amount of error allowed** (Non)
Types of Non-Probability Samples

(1) Available Sample
(2) Volunteer Sample
(3) Purposive Sample
(4) Quota Sample
(5) Haphazard Sample
Types of Probability Samples

(1) Simple Random Sample
(2) Systematic Sample
(3) Stratified Sample
(4) Multi-Stage (Cluster) Sample
A few general principles guide researchers in determining an acceptable sample size:

1. The research method used
   - (6-12) people in focus group
   - (25-50) people are commonly used

2. A sample of 100 subjects per demographic group
   - (such as adults 18-24 years old)
3. Sample size is controlled by cost and time

4. Multivariate studies always require larger samples than univariate studies

- 50 sample = Very poor
- 100 sample = Poor
- 200 sample = Fair
- 300 sample = Good
- 500 sample = Very good
- 1,000 sample = Excellent
5. Researchers should select a larger sample than is actually required for a study.

6. Information about sample size is available in published research.

7. Generally, the larger samples used, the better results you get.
SAMPLING ERROR

- Occurs when measurements taken from a sample do not reflect what exists in the population.
- Uncontrollable.
SAMPLE WEIGHTING

When the sample is rare we use, the statistical way of weighting (multiply in a factor).
Chapter four

SURVEY RESEARCH
ADVANTAGES

- It can be used to investigate problems in realistic settings.
- The cost of surveys is reasonable considering the amount of information gathered.
- Researchers can control expenses by selecting from four major types of surveys:
  - Mail
  - Telephone
  - Personal interview
  - Group administration
ADVANTAGES

- Large amounts of data can be collected with relative ease from a variety of people.

- Data of survey research is already exist. Data archives, government documents, census materials, radio and television, rating books ..etc.
DISADVANTAGES

- Independent variables cannot be manipulated as in laboratory experiments.
- Inappropriate wording and placement of questions within a questionnaire can bias results.
- Talking to the wrong people.
- Some survey research is becoming more and more difficult to conduct.
PARTS OF QUESTIONNAIRE

1- Introduction
2- Instructions
3- Questions
GENERAL GUIDELINES

1. Make questions clear.
2. Keep questions short.
3. Remember the purposes of the research.
4. Do not ask double-barreled questions.
5. Avoid biased words or terms.
6. Avoid leading questions.
7. Do not use questions that ask for highly detailed information.
TYPES OF QUESTIONS

(1) Open-ended questions
Give examples.

(2) Closed-ended questions
Give examples.
Two basic considerations for good survey questions:

1. The questions must be clear and unambiguous to the desired information from the respondent.

2. The questions should be worded to allow accurate answers from the respondent.
GATHERING SURVEY DATA

1- Mail
2- Telephone
3- Personal Interview
4- Mall Interview
5- Disk-By-Mail Survey
6- Group Administration
1. Respondents are often unable to recall information about themselves or their activities.

2. Prestigious answers of respondents.

3. Cheating of respondents by giving incorrect answers to questions.
4. Respondents often give elaborate answers to simple questions because they try to "figure out" the purpose of a study, and what the researcher is doing.

5. Inability of respondents to explain their true feelings and beliefs.
Chapter five

QUALITATIVE RESEARCH METHODS
Objectives:

1- Field Observations
2- Focus Groups
3- Intensive Interviews
4- Case Studies
1- FIELD OBSERVATIONS

Involve the study of a phenomenon in natural settings
2- FOCUS GROUPS

Used to gather preliminary information for the research study
3- INTENSIVE INTERVIEWS

Used to gather extremely detailed information from a small sample of respondents
4- CASE STUDIES

Use multiple sources of evidence to investigate the phenomenon
Differences between qualitative and quantitative studies:

- Different philosophy and reality.
- Different views of the individual.
- Quantitative researchers aim to make general laws of behaviour.
PILOT STUDY

- It is used to refine both the research design and the field procedures.
- It allows the researches to try different data-gathering approaches and to observe different activities.
REPORT WRITING

- Traditional technique
- Non-traditional technique
Chapter six

WRITING RESEARCH PROPOSALS
Types of research reports

aimed at colleagues

aimed at decision makers
Guidelines for writing scholarly journals

- Avoid using first person pronouns.
- Place each table, graph, chart and figure on a separate page.
- Read the authors’ guidelines.
- Make a style for tables, charts, …etc.
- Label all displays with titles.
- Keep language and descriptions as simple as possible.
Guidelines for writing scholarly journals

- Avoid using passive voice.
- Read the manuscript and refine it carefully.
- Check all data for accuracy.
- Use acceptable grammar.
- Make footnotes.
GENERAL ETHICAL PRINCIPLES

• Do not involve people in research without their knowledge.
• Do not lie on the participate about the research.
• Do not expose participant to mental stresses.
• Do not invade the privacy of the participant.
• Do not lead the participant to restrict his/her self-respect.
شكراً لحسن استماعكم.