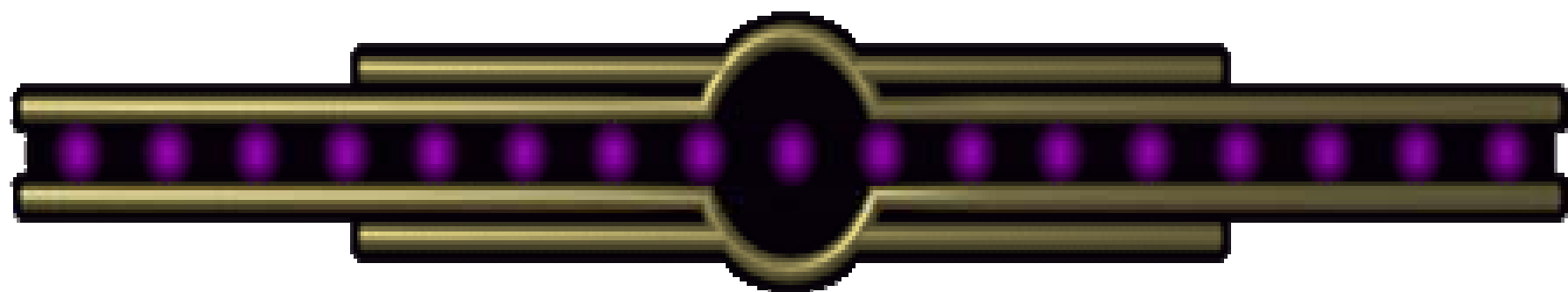
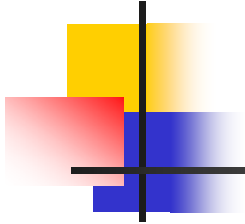


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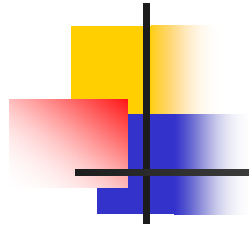




# Research Methods

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

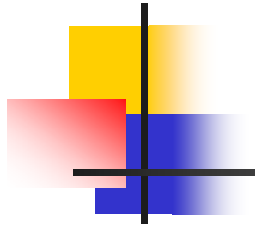
**email: [walidfathy72@yahoo.com](mailto:walidfathy72@yahoo.com)**  
**[walid72@mailcity.com](mailto:walid72@mailcity.com)**



# Chapter one

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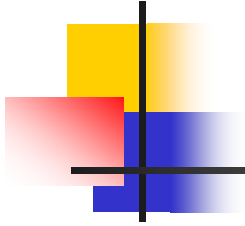
# SCIENTIFIC RESEARCH



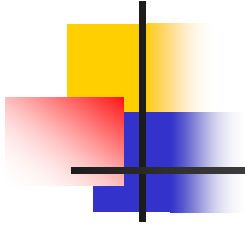
# Objectives

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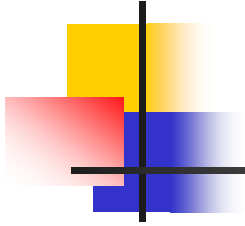
- **Characteristics of the scientific research**
- **Research procedures**
- **Sectors of research**



# **CHARACTERISTICS OF THE SCIENTIFIC METHOD**

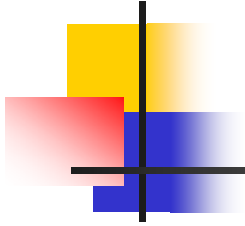


# **1. *Scientific research is public***



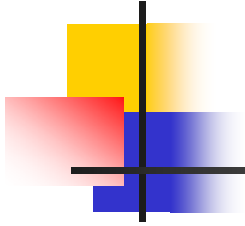
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**2. *Science is objective***  
**(Deals with facts)**



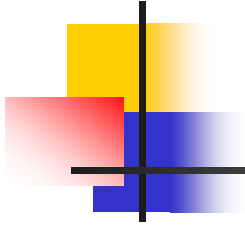
### **3. *Science is empirical***





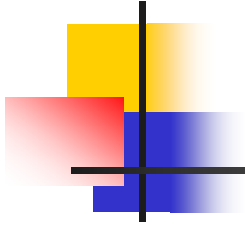
## **4. Science is systematic and cumulative**

**(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)**



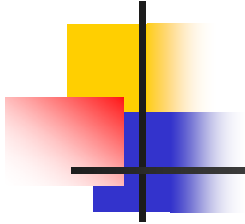
# **RESEARCH PROCEDURES**



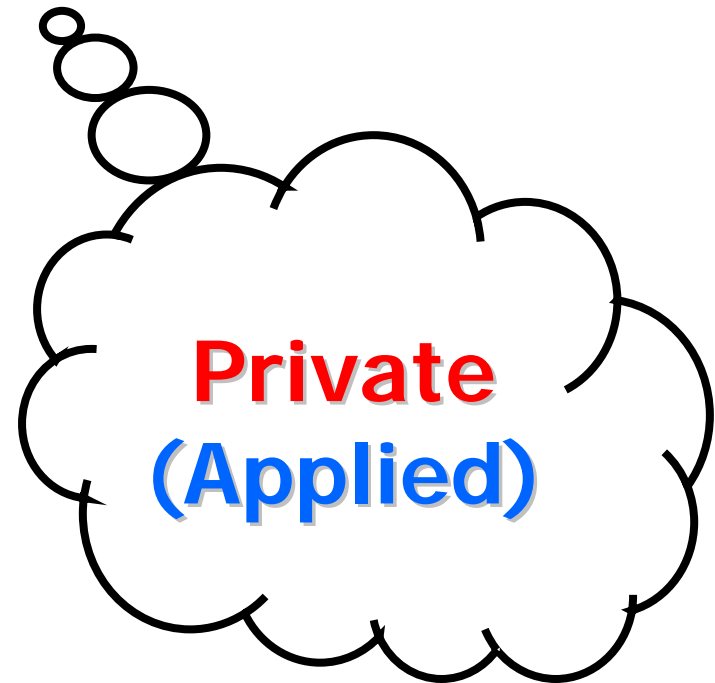
## **The typical eight-step research process**

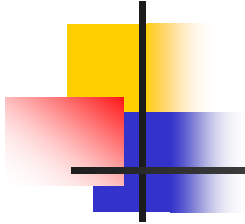
---

- 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)**

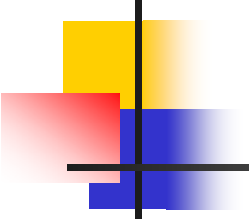


# SECTORS OF RESEARCH



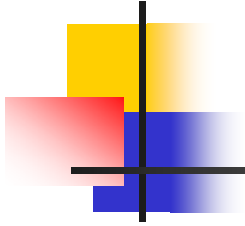


**Academic sector research is conducted by scholars from colleges and universities. It also generally means that the research has a theoretical or scholarly approach.**



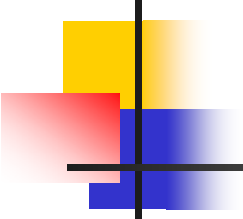
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**Private sector research is conducted by non-governmental businesses and industries or their research consultants. It is generally applied research; that is, the results are intended to be used in decision-making situations.**



# **Differences between academic and private sector research**





1

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- \* **Academic research is public.**
- \* **Private research generates proprietary data.**
- \* **Some data are released soon and some are released after several years.**



## 2

---

- \* Academic researchers generally do not have specific deadlines for their research projects.**
- \* Private sector researchers, nearly always operate under some type of deadline.**



3

---

- \* Private sector researchers rarely have an opportunity to pursue research questions in a casual manner.**



4

---

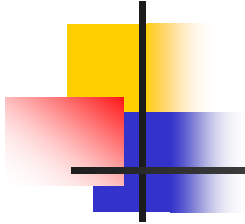
\* Academic research is generally less expensive to conduct than research in the private sector.



5

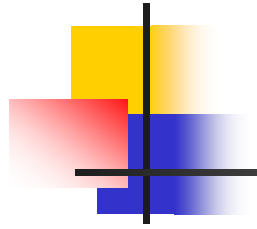
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**\* Large media companies and groups prefer to use academic researchers to reduce costs.**



**The link between the two areas is important**





## Chapter two

---

# RESEARCH PROCEDURES





## **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)**



# **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.**



# DETERMINING TOPIC RELEVANCE

---

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?***



# DETERMINING TOPIC RELEVANCE

---

**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?***





## **2. REVIEWING THE LITERATURE**

---

**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.**



## 4. APPROPRIATE METHODOLOGY

---

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

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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.**



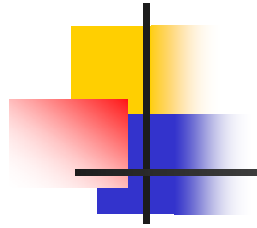
## 8. REPLICATION

---

**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



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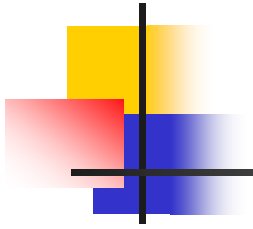
# TYPES OF SAMPLES



**Probability  
samples**



**Non-  
Probability  
samples**

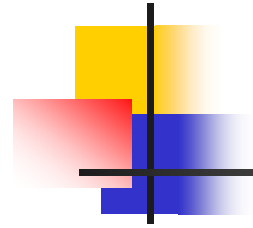


**A probability sample is selected according to mathematical guidelines where the chance for selection of each unit is known.**

**✓ Sample error**

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

**✗ 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**



# **SAMPLE SIZE**

---

**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)**



# SAMPLE SIZE

---

**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**



# **SAMPLE SIZE**

---

- 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.**

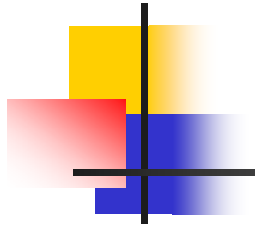


# SAMPLE WEIGHTING

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





# Chapter four

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# **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

---

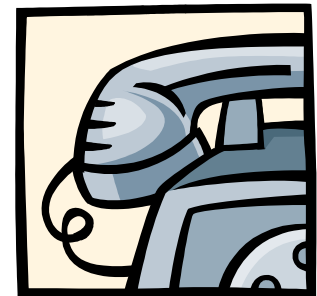
- **Large amounts of data can be collected with relative ease from a variety of people.**
- **Data of survey research is already exist.**  
**Data archives, government documents, census materials, radio and television, rating books ..etc.**



# 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 GUIDLINES

---

- 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.**



# **CONSTRUCTING QUESTIONS**

---

**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**

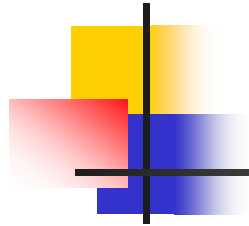
**3- Personal Interview**

**4- Mall Interview**

**5- Disk-By-Mail Survey**

**6- Group Administration**



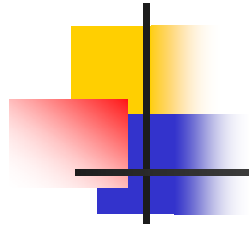


# PROBLEMS OF SURVEY RESEARCH

**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.**

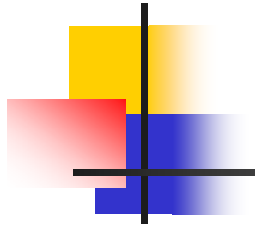


# PROBLEMS OF SURVEY RESEARCH

**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

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## **QUALITATIVE RESEARCH METHODS**



# Objectives:

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**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**

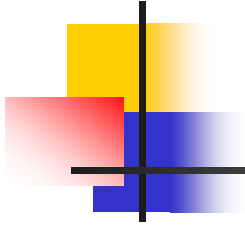




## **4- CASE STUDIES**

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**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.



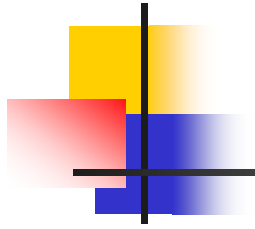
# REPORT WRITING

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• **Traditional technique**

• **Non-traditional technique**



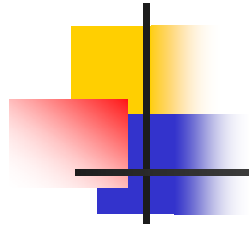


# Chapter six

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## **WRITING RESEARCH PROPOSALS**



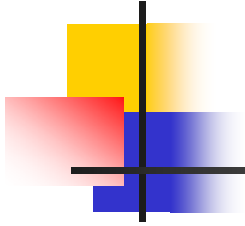


# Chapter seven

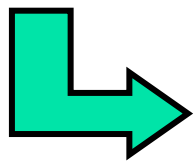
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## **WRITING RESEARCH REPORTS**

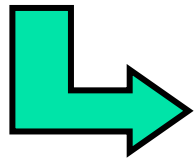




# Types of research reports

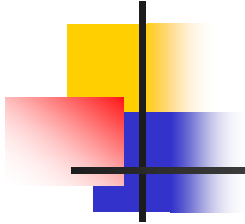


**aimed at colleagues**



**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