

Research Methodology S3 / Chapter 1: Introduction to Research

English Department UMKB



Meriam GHENNAI UMKB

Caption





-  Glossary entry
-  Abbreviation
-  Bibliographical reference
-  General reference

Table of contents



Objectives	4
I - Introduction to Research	5
1. Defining Research	5
1.1. <i>What is Research?</i>	5
1.2. <i>Characteristics and Requirements of Research</i>	6
1.3. <i>Exercise : Task1: Defining Research</i>	7
2. Why Doing Research?	7
2.1. <i>The Objectives of Research</i>	7
2.2. <i>Motivations Behind Research</i>	8
2.3. <i>Exercise : Task 2: Research objectives</i>	8
3. Types of Research	8
3.1. <i>Types of research according to their objectives</i>	8
3.2. <i>Types of research according to their inquiry mode</i>	9
3.3. <i>Exercise : Task 3: Research Types</i>	9
4. Research Methodology	9
4.1. <i>Defining Research Methodology</i>	10
4.2. <i>Exercise : Task4: Interests of Research Methodology</i>	10
5. Why Learning about Research and Research Methodology?	10
5.1. <i>Why Learning about Research and Research Methodology?</i>	11
5.2. <i>Exercise : Task 5: Acquired skills</i>	11
II - Test1	12
Exercises solution	14
References	18
Bibliography	19

Introduction to Research

Defining Research	5
Why Doing Research?	7
Types of Research	8
Research Methodology	9
Why Learning about Research and Research Methodology?	10

1. Defining Research

What is Research?	5
Characteristics and Requirements of Research	6
Exercise : Task1: Defining Research	7

1.1. What is Research?

Definition

- "Research as 'a systematic investigation to find answers to a problem" Burns (1997)^{p.18} ↗
- "Research is a procedure by which we attempt to find systematically, and with the support of demonstrable fact, the answer to a question or the resolution of a problem". Leedy (1989)
^{p.18} ↗
- The Oxford Encyclopedic English Dictionary ^{p.18} ↗ defines it as:
 1. the systematic investigation into the study of materials, sources etc. in order to establish facts and reach new conclusions
 2. an endeavour to discover new or collate old facts etc. by the scientific study of a subject or by a course of critical investigation.
- "The word research is composed of two syllables, re and search. The dictionary defines the former as a prefix meaning again, anew or over again and the latter as a verb meaning to examine closely and carefully, to test and try, or to probe. Together they form a noun describing a careful, systematic, patient study and investigation in some field of knowledge, undertaken to establish facts or principles." Grinnell (1993)^{p.18} ↗
- "Research is a structured inquiry that utilises acceptable scientific methodology to solve problems and creates new knowledge that is generally applicable." Grinnell (1993)^{p.18} ↗
- "Scientific methods consist of systematic observation, classification and interpretation of data.

Now, obviously, this process is one in which nearly all people engage in the course of their daily lives. The main difference between our day-to-day generalisations and the conclusions usually recognised as scientific method lies in the degree of formality, rigorousness, verifiability and general validity of the latter". Lundberg (1942)^{p.18} ↪

Note: Research is not

- a personal work based on one's feelings, opinions and ideas.
- a collection of long quotes or paragraphs copied from different sources from the Internet, books and articles.
- a mere summary of information found in different sources.

1.2. Characteristics and Requirements of Research

- *Generated by a question or a problem.*
- *Goal- oriented:* research needs to have clear statement of objectives and what is intended to be done to attain them.
- *Reiterative:* it is based on previous knowledge. This knowledge is expanded by the research work. A resolution a problem by a specific research will also give rise to new questions and problems.
- *Rigorous:* the procedures used to find answers to the research questions need to be relevant, appropriate, and justified.
- *Systematic:* research procedures need to follow logical sequence. They cannot be done haphazardly.
- *Valid and verifiable:* the findings and the conclusion of the research need to be correct and can be verified by the researcher and others in the field.
- *Empirical:* conclusions need to be based on evidence gathered from information collected from real life or from observation.
- *Critical:* doing research requires the ability to analyse, synthesise and evaluate information.

1.3. Exercice : Task1: Defining Research

[solution n°1 p.14]

1.3.1. Exercice

Research constitutes of presenting summarized information about a topic found in different resources.

- True
- False

1.3.2. Exercice

Research is based on rigorous and systematic procedures.

- True
- False

1.3.3. Exercice

The aim of research is to reach a new conclusion through the collection of evidence in order to solve a problem or answer a question.

- True
- False

1.3.4. Exercice

Research conclusion need to be based the researcher's personal opinions.

- True
- False

2. Why Doing Research?

The Objectives of Research	7
Motivations Behind Research	8
Exercice : Task 2: Research objectives	8

2.1. The Objectives of Research

- Study and describe accurately the characteristics of situations, problems, phenomena, services, groups, or individuals.
- Discover and establish the existence of relationship, association, and independence between two or more aspects of a situation or phenomenon.
- Propose and test certain hypotheses.

- Test reported findings and conclusions on new data and novel conclusions on previously reported data.
- Understand different phenomena and develop new perceptions about it.
- Explain unexplored horizons of knowledge.

2.2. Motivations Behind Research

Research is a long process, so the main driving factor is motivation. For some researchers and post-graduate students, the main objective behind the research is to earn a degree. To philosophers and thinkers, research may mean the outlet for new ideas and insights, whereas to intellectual people research may mean the development of new styles and creative work. Irrespective of the domain, research is conducted to increase understanding of professions, advance the professional knowledge and perfect its practices. What people do nowadays in their professions has been tested and developed by others over a long period.

2.3. Exercise : Task 2: Research objectives

[solution n°2 p.14]

Which of the following serve as research objective

-
- Discover and establish the existence of relationship, association, and independence between two or more aspects of a situation or phenomenon.
- Summarize and present different opinions about a topic.
- Understand different phenomena and develop new perceptions about it.
- Report the most recent research done in a specific domain.

3. Types of Research

Types of research according to their objectives	8
Types of research according to their inquiry mode	9
Exercise : Task 3: Research Types	9

3.1. Types of research according to their objectives

Type	Objective
Descriptive	To describe what is prevalent regarding a group of people, a phenomenon, a situation, a program or an outcome. Example: To describe the attitudes of students towards a specific teaching technique.
Correlational	To establish or to explore a relationship, an association or an interdependence between two or more aspects of a situation. Example: To ascertain the effectiveness of a specific teaching technique.
Explanatory	To explain why and how a relationship is formed. Example: To ascertain the effectiveness of a specific teaching technique.
Exploratory	To explore an area where little is known in order to see the feasibility of carrying out further research or to explore and test research tools. It is flexible and it can have questions and objectives of all types. Example: Would teachers be interested in applying a new specific teaching technique in classroom?

Types of research according to their objectives

Research can be classified according to its objectives into these four types. The first three ones are not exclusive.

A research can be a combination of two or the three of them.

3.2. Types of research according to their inquiry mode

Type	Mode of inquiry
Quantitative	Predetermined and structured process where Information is measured and quantified for the aim of studying the extent of a variation of a phenomenon. Example: What is the extent of the use of a specific classroom management technique for large classes among teachers of A specific school?
Qualitative	Flexible and unstructured process where information is described and narrated in order to explore the nature of a phenomenon. Example: What classroom management techniques do teachers in a specific school use in large classes?

Types of research according to their inquiry mode

The choice of a specific problem entails the choice of a specific type of inquiry. However, some researches involve both, quantitative and qualitative inquiry modes. For example, if a researcher wants to investigate the types of classroom management techniques and the extent of their use in a specific school, they cannot restrict themselves with one mode of inquiry.

3.3. Exercise : Task 3: Research Types

[solution n°3 p.15]

A research that seeks to establish a relationship between two or more aspects.

A research conducted for the aim of testing the feasibility of doing research in a certain domain or situation.

A research that is interested in the nature of a phenomenon. It uses descriptive or narrative data.

A research that is interested in the extent of variation in a phenomenon. It uses quantified data.

A research that attempts to describe a group, a phenomenon, a problem or a situation.

A research interested in answering why and how a relationship is formed.

Descriptive Research	Correlational Research	Explanatory Research	Exploratory Research	Quantitative research	Qualitative Research
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4. Research Methodology

Defining Research Methodology

10

Exercise : Task4: Interests of Research Methodology

10

4.1. Defining Research Methodology

Research methodology refers to the way a research problem is studied systematically. It may be understood as a science of studying how research is done scientifically. It is interested in the various steps that are adopted by a researcher in conducting the research along with the logic, assumptions, justification, and rationale behind these steps. It is concerned with why a research study has been undertaken, how the research problem has been defined, in what way and why the hypothesis has been formulated, what data have been collected and what particular method has been adopted, why particular technique of analysing data has been used and a host of similar other questions. Thus, it has many dimensions and research methods constitute a part of them. Research methodology explains more about the research process in general whereas *research methods* refer to the different methods used in performing research operations. All of the methods, approaches, processes and techniques used by researcher during research process can be referred to as research methods. They can be methods applied during dataset creation, data collection and data analysis. Therefore, the scope of research methodology is wider than that of research methods.

See "Ontology, Epistemology, Methodology and Methods"

4.2. Exercise : Task4: Interests of Research Methodology

[solution n°4 p.15]

Research Methodology is interested in

- Only research methods
- Research steps
- Justifications of undertaking specific steps and methods
- All of the above
- None of the above

5. Why Learning about Research and Research Methodology?

Why Learning about Research and Research Methodology?

11

Exercise : Task 5: Acquired skills

11

5.1. Why Learning about Research and Research Methodology?

- Methods of discovery
- Investigative skills
- Inquiry based techniques
- Critical thinking
- Logic
- Argumentation

5.2. Exercice : Task 5: Acquired skills

[solution n°5 p.15]

What skills can students learn from studying about research and research methodology?

Exercise : Task 3: Research Types

[solution n°7 p.16]

A research that is interested in the nature of a phenomenon. It uses descriptive or narrative data.

A research interested in answering why and how a relationship is formed.

A research that is interested in the extent of variation in a phenomenon. It uses quantified data.

A research conducted for the aim of testing the feasibility of doing research in a certain domain or situation.

A research that seeks to establish a relationship between two or more aspects.

A research that attempts to describe a group, a phenomenon, a problem or a situation.

Descriptive Research	Correlational Research	Explanatory Research	Exploratory Research	Quantitative research	Qualitative Research
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Exercises solution



> Solution n°1

Exercice p. 7

Exercice

Research constitutes of presenting summarized information about a topic found in different resources.

- True
- False

Exercice

Research is based on rigorous and systematic procedures.

- True
- False

Exercice

The aim of research is to reach a new conclusion through the collection of evidence in order to solve a problem or answer a question.

- True
- False

Exercice

Research conclusion need to be based the researcher's personal opinions.

- True
- False

> Solution n°2

Exercice p. 8

Which of the following serve as research objective



Discover and establish the existence of relationship, association, and independence between two or more aspects of a situation or phenomenon.

- Summarize and present different opinions about a topic.
- Understand different phenomena and develop new perceptions about it.
- Report the most recent research done in a specific domain.

> **Solution n°3**

Exercice p. 9

Descriptive Research	Correlational Research	Explanatory Research	Exploratory Research	Quantitative research	Qualitative Research
A research that attempts to describe a group, a phenomenon, a problem or a situation.	A research that seeks to establish a relationship between two or more aspects.	A research interested in answering why and how a relationship is formed.	A research conducted for the aim of testing the feasibility of doing research in a certain domain or situation.	A research that is interested in the extent of variation in a phenomenon. It uses quantified data.	A research that is interested in the nature of a phenomenon. It uses descriptive or narrative data.

> **Solution n°4**

Exercice p. 10

Research Methodology is interested in

- Only research methods
- Research steps
- Justifications of undertaking specific steps and methods
- All of the above
- None of the above

> **Solution n°7**

Descriptive Research	Correlational Research	Explanatory Research	Exploratory Research	Quantitative research	Qualitative Research
<p>A research that attempts to describe a group, a phenomenon, a problem or a situation.</p>	<p>A research that seeks to establish a relationship between two or more aspects.</p>	<p>A research interested in answering why and how a relationship is formed.</p>	<p>A research conducted for the aim of testing the feasibility of doing research in a certain domain or situation.</p>	<p>A research that is interested in the extent of variation in a phenomenon. It uses quantified data.</p>	<p>A research that is interested in the nature of a phenomenon. It uses descriptive or narrative data.</p>



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