

**PAPER NO. CT 63
SECTION 6**

**CERTIFIED
INFORMATION COMMUNICATION
TECHNOLOGISTS
(CICT)**

RESEARCH METHODS

STUDY TEXT



KASNEB SYLLABUS

RESEARCH METHODS

GENERAL OBJECTIVE

This paper is intended to equip the candidate with the knowledge, skills and attitude that will enable him/her to design and carry out research on information systems

LEARNING OUTCOMES

A candidate who passes this paper should be able to:

- Identify and analyse problems for which research is required
- Identify the major types of research designs
- Formulate clearly defined research objectives and research questions
- Analyse key issues and themes from existing literature
- Conduct research
- Present research findings
- Apply ethics in research

CONTENT

1. Introduction to research

- Meaning of research
- Types of research
- Significance of research
- The research process
- Challenges in carrying out research
- Types of research designs
- Format of research project
- Research methodology

2. The research problem

- Problem identification
 - Salient features of a good problem statement
 - Background and context of the problem
 - Problem statement
 - Research objectives: General and specific objectives
 - Research questions
 - Research hypothesis/formulation of hypothesis
 - Development of theoretical/conceptual framework
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3. Literature review

- Meaning and importance of literature review
- Theoretical review and Empirical review
- Critical review of major issues
- Theoretical and conceptual framework

4. Research methodology

- Target population
- Sampling techniques and sample size
- Data collection
- Data collection method
- Reliability and validity of data

5. Analysis and presentation of findings

- Analysis of findings
- Presentation of findings
- Testing of hypothesis
- Summary, conclusions and recommendations

6. Format of research project

- Preliminaries
- Content chapters
- Referencing - APA format
- Appendices

7. Issues in research

- Ethical considerations in research
- Implementation of research recommendations

8. Emerging issues and trends



Course Outline

Topic One : View of Research Methods

1.1: Concepts of research 1.2: The purpose of research 1.3: Objectives of research
1.4 Criteria of Good Research 1.5: Steps in conducting research

Topic Two: Types of Research

2.1: Applied research
2.2: Basic Research
2.3: Quantitative research
2.3: Qualitative

Topic Three: Selecting and defining a research problem

3.1: Problem formulation – What is a research Problem /why the need for this? 3.2: What are the criteria for selecting a problem?
3.3: Identifying Keywords 3.4: Define the topic
3.5: Formulate the topic
3.6: Qualities of an effective Research Topic 3.4: Evaluating problems

Topic Four: Information Resources

4.1: Printed sources
4.2: Electronic Resources (e-resources Literature Review

Topic Five: Literature review

- 5.1: What is literature review?
- 5.2: Why the need for literature review?
- 5.3: How to carry out a literature review?

Topic Six: Research Design

- 6.1: Case Study Design
- 6.2: Experimental Design
- 6.3: Descriptive Design
- 6.5: Correlational design
- 6.6: Cross Cultural design
- 6.7: Qualities of effective Research Design
- 6.8: Guidelines in Selecting a research Design

Topic Seven: Sampling

- 7.1: Population
- 7.2: Guidelines in Population
- 7.3: Sampling Techniques
- 7.4: Sampling Design

Topic Eight: Data Collection Instruments

- 8.1: Questionnaires
- 8.2: Interview

Topic Nine: Data Presentation, analysis and Interpretation

Topic Ten: Summary of Findings, Conclusions and Recommendations

Topic Eleven: References

TOPIC ONE: Introduction, Definition of Terms and Concepts

Lecture Objectives-

At the end of this topic the student should be able to:

1. Understand the concept and meaning of research from different scholars;
2. Give an explanation of the purpose of research;
3. Understand the objectives of research.
4. Understand the steps in conducting research

Topic One: The concept of Research

Introduction

A human being can/tries to understand the world through everyday occurrences and generalizations.

- Trial and error;
- Logical reasoning;
- Planned, structured, systematic, methodological investigation is what we call research.

A more efficient and effective approach to expand knowledge however is the conduct of special, planned, structured, systematic investigation **a process known as research.**

Definition of research

- a) Research is an activity undertaken by people in order to **find things out** in a systematic way thereby increasing their knowledge.

- b) Research is the process of finding solutions to a problem after a thorough study and analysis of the situational factors.
- c) Research is an exhaustive study, investigation or experimentation that follows some logical sequence.

Research can be defined as a set of systematic investigative activities designed to survey, observe and clearly portray the status quo of education and other social settings as well as the need and way of working towards continuous improvement of the educational or social process (UNESCO, 1993).

In other words research is best conceived as the process of arriving at dependable solutions to problems through the planned and systematic collection, analysis and interpretation of data.

It is a most important tool for advancing knowledge promoting progress and enabling human beings to relate more effectively to their environment accomplish their purposes and resolve their conflicts. There are a number of specific forms that research can take depending on the unique characteristics of the subject or topic under investigations. However in a general sense, all research is oriented towards one or both ends i.e. The extension of knowledge and/or the solution of a problem.

The term research means to look for, examine, investigate or explore. Orodho and Kombo (2000) define research as the process of arriving at dependable solutions to problems through the planned systematic collection, analysis and interpretation of data.

Many writers describe research as a systematic process of investigating a problem.

Tuchman (1978) describes research as a systematic attempt to provide answers to questions.

Keywords in these definitions include: process, systematic, collection, analysis and interpretation. Research can therefore be defined as a systematic process of collecting, examining and interpreting data.

Characteristics of research

- a) The data is collected systematically.
- b) Data is analyzed systematically
- c) There is a clear stated purpose to find things out.

Purpose of research

The purpose of research is to discover answers to the questions through the application of scientific procedures. These procedures have been developed in order to increase likelihood that the information gathered will be relevant to questions asked and will be reliable and unbiased. There are four reasons for conducting research:

- 1. to explore and in the process describe and /or resolve some problems;**
- 2. to review the existing theory and factual knowledge in a particular field.**
This call for thorough content review e.g. an atom is the smallest particle of an element. As people continued to do research, they came up with other results. For example an atom can be split yet previously it was said it was not possible.
3. Theory and idea changes time by time;
- 4. to construct something that is useful.** For example, to create a focused information system/ to come up with an information system that can empower

people or to conduct a project of automation of library operations and information services using open source software;

- 5. to explain or clarify complex phenomenon** For example, what is justice? Information seeking behaviour of information science student, lawyers, doctors? There are some terms/ concepts that are very difficult to explain.

Objectives of Research

1. To gain familiarity with a phenomenon or to achieve new insights into it. For example, become familiar with basic facts of an event or occurrence;
2. To portray accurately the characteristics of a particular individual, situation or a group. For example, it involves providing detailed accurate picture with new data that contradicts past data, create a set of categories or classification types or clarify a sequence of steps or document a process;
3. To determine the frequency with which something occurs or with which it is associated with something else;
4. To test a hypothesis of a causal relationship between variables. For example testing a theory, extending theory to new topics, supporting or reputing existing theory or hypothesis. Linking certain issues/ topics with general principle.

Criteria of Good Research

1. The purpose of the research should be clearly defined and common concepts be used;