



IQRA National University
Department of Electrical Engineering
Subject: Research Methodologies

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Assignment

Student ID: **15317**

Question No: 1

- a) Differentiate between Search and Research. (05)
- b) Why it is necessary to know about different methods in Research Methodology? (05)

Question No: 2

- a) Explain the following: (05)
 - i) Epistemology
 - ii) Methodology
- b) Differentiate between Qualitative and Quantitative Methods of research. (05)

Question No: 3

Assume that you are the Mayor of Greenwood, a small town in Illinois, and you've got to make decision based on the information collected from the following research study.

The chief of police wants to experiment with increasing the number of patrol officers (X) to reduce the crime rate (Y). The chief invites all twelve area captains to participate in the experiment; only the 103rd volunteers participated. In October, patrol officers in the 103rd are increased by 15%. Reported crime drops 5% between September and December. The chief now wants to implement the program citywide.

Test your research survey with the following case. (10)

Q.01 Difference between Search and research

(a)

Search

⇒ Search is about looking for answers in questions, that you know there are answers

⇒ It is just to find something

⇒ It is of short time

⇒ It has no layout

⇒ Not monitored or regulated

Research

⇒ Research is the effort you put to develop something new, and may involve some search, and after that to establish facts and get the required conclusions.

⇒ Its goal is to uncover new information, add knowledge, and identify facts.

⇒ It is of long duration

⇒ Its process has steps and stages.

⇒ Monitored and regulated.

(2)

(b) To know about different methods in research methodology.

If you are going to understand an area of study, it is necessary that you have to become familiar with the research methods it uses. Because different research design can be used.

Different research methods have different purposes and different levels of validity. This is one measure that helps determine how accurate the results of a research method are.

As for different level of peoples, ~~the~~ How necessary to know about different methods.

⇒ As a graduate students.

To be able to read and understand the empirical literature in his fields to become a critical consumer of information.

To learn for a stronger foundation for

their future.

As a graduate student preparing for a thesis or dissertation.

To be able to both design and implement your thesis or dissertation as well as future studies that interest you.

As A future practitioner.

To be able to intelligently participate in research projects, evaluations, and studies, undertaken by your institution. As future practitioners have to deal with different types of cases which may not be straight forward enough.

Consultants holding teaching posts have to guide their students for conducting their thesis

As An educated citizen.

To understand the difference between

(4)

Scientifically acquired knowledge and other kind of information.

For example All those who hold administrative posts have to take decisions for their organizations and the research outcomes help them to a large extent in this regard.

Q2

(a)

1) Epistemology:

Epistemology is the study of the nature and scope of knowledge and justified belief. It analyzes the nature of knowledge and how it relates to similar notions such as truth, belief and justification. It also deals with the means of production of knowledge, as well as ~~some~~ skepticism about different knowledge claims.

There are three main examples or conditions of ~~an~~ epistemology.

- truth
- belief
- justification.

ii) Methodology:

Methodology is the specific procedure or techniques used to identify, select, process and analyze information about a topic.

A research methodology involves specific techniques that are adopted in research process to collect, assemble and evaluate data. It defines those tools that are used to gather relevant information in a specific research study.

In a research paper the methodology section allows the reader to critically evaluate a study's overall validity and reliability.

2 (b) Difference between Qualitative and Quantitative methods of research.

Qualitative

⇒ It is method of inquiry that develops understanding on human & social science to find the way, people think and feel.

⇒ It is a research method or type that is exploratory.

⇒ In qualitative type research data is verbal.

⇒ In this type of research, elements of analysis are in words, pictures and object form.

Quantitative

⇒ Quantitative research is a research ~~the~~ method that is used to generate numerical data and hard facts, by employing statistical, logical and mathematical techniques.

⇒ It is a research method or type that is conclusive.

⇒ In Quantitative type research data is measurable.

⇒ In this type of research, elements of analysis are in numerical form.

Qualitative

⇒ It is non structured technique like, In-depth interviews, group discussion, etc.

⇒ Its results, Develops initial understanding

⇒ Example is, marketing type research

⇒ It is less best

Quantitative

⇒ It is structured techniques such as Surveys, questionnaires and observations.

⇒ Its results, recommends final course of conclusion

⇒ Example, research carry out to know the sales of various toothpaste in a quarter by different companies.

⇒ It is more best.

(9)

Qualitative

⇒ Its objective is to develop & discover ideas used in ongoing process

⇒ In this method Hypothesis is generated.

⇒ Seen as more subjective less rigorous

Quantitative

⇒ Its object is to examine causes and effect relationship between variables.

⇒ In this method Hypothesis is tested.

⇒ Seen as rigorous, more objective.

Q-03

My Research Survey with the following cases.

As the patrol officers in the 103rd ave increased by 15%, and the crim rate drops 5% between september and December?

⇒ Could severe weather in november and december have caused the crim rate to decline?

⇒ Is crim seasonal, peaking in the summer and declining in the winter?

(11)

⇒ Since the captain of the 103rd volunteered for the program, could he have already implemented other programs that account for the decline in crime?

⇒ Since the officers in the 103rd knew they were involved in a priority program, is it possible that they recorded reported crime differently?

⇒ Will the crime reduction impact last very long?

⇒ Could random error in the measurement of the crime rate account for the difference?

(12)

- ⇒ May be Due to increase of 15% patrol officer, the criminals ~~goes~~ goes way to other areas.?
- ⇒ May be the criminals hide away for a few months.?
- ⇒ May be old Security officers involved in crimes.?
- ⇒ Was the crim rate in the entire city going down any way.?