

# E-Content

## Research Methodology in Economics

Semester: V

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**COURSE CONTENT**

Course Code : XXXXXX

Course Name: Data structures using C

**EXPERIMENTAL RESEARCH DESIGNS**

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## What is an Experiment?

- An experiment is generally used to infer a causality. In an experiment, a researcher actively manipulates one or more causal variables and measures their effects on the dependent variable of interest.

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## Necessary Conditions for Making Causal Inferences

- Concomitant variation
- Time order of occurrence of variables
- Absence of other possible causal factors

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## Concepts Used in Experiments

- *Independent variables: Independent variables are also known as explanatory variables or treatments. The levels of these variables are manipulated (changed) by researchers to measure their effect on the dependent variable.*
- *Test units: Test units are those entities on which treatments are applied.*
- *Dependent variables: These variables measures the effect of treatments (independent variable) on the test units.*

## Concepts Used In Experiments

- *Experiment: An experiment is executed when the researcher manipulates one or more independent variables and measures their effect on the dependent variables while controlling the effect of the extraneous variables.*
- *Extraneous variables: These are the variables other than the independent variables which influence the response of test units to treatments.*

Examples: Store size, government policies, temperature, food intake, geographical location, etc.

## Validity in Experimentation

- **Internal validity:** Internal validity tries to examine whether the observed effect on a dependent variable is actually caused by the treatments (independent variables) in question.
- **External validity:** External validity refers to the generalization of the results of an experiment. The concern is whether the result of an experiment can be generalized beyond the experimental situations.

# Factors Affecting Internal Validity of the Experiment

- **History**
- **Maturation**
- **Testing**
- **Instrumentation**
- **Statistical regression**
- **Selection bias**
- **Test unit mortality**

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## Factors Affecting External Validity

- The environment at the time of test may be different from the environment of the real world where these results are to be generalized.
- Population used for experimentation of the test may not be similar to the population where the results of the experiments are to be applied.
- Results obtained in a 5–6 week test may not hold in an application of 12 months.
- Treatment at the time of the test may be different from the treatment of the real world.

## Methods to Control Extraneous Variables

- **Randomization**
- **Matching**
- **Use of experimental designs**
- **Statistical control**

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## Environments of Conducting Experiments

- **Laboratory Environment** - In a laboratory experiment, the researcher conducts the experiment in an artificial environment constructed exclusively for the experiment.
- **Field Environment** - The field experiment is conducted in actual market conditions. There is no attempt to change the real-life nature of the environment.

## REFERENCES

- Stewart, F. (1979); Reasoning and Method in Economics, McGraw-Hill Book Co., London.
- Goode, William J. And Hatt, P.K.,(2006) “*Methods in Social Research*”, McGraw Hill Publications
- Cooper, Donald R and Schindle, Pamela S (2006), “Business Research Methods”, McGraw-Hill Book Education Pvt. Ltd. New Delhi
- Kothari, C.R. and Garg, Gaurav (2015), “*Research Methodology*”, New Age Publications.
- Neuman, W. Lawrence,(2011) “Social *Research Methods*”, *Library of Congress* Cataloguing-in-Publication Data

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