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RESEARCH DES

Module -2

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Course objective

- To study the various research designs
- To apply to carry out the real life situational
- To understand the various methods of data of and analyse



Meaning

- A research design is a "Blue Print" for collect analysis of data.
- It outlines how the research will be carried or sticks together the entire process of research
- It provides answers to various questions like
 - What techniques will be used to gather data.
 - What kind of sampling will be used? How time a with? Etc.



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Categories of Research Design

- Exploratory Design
- Conclusive Research Design
 - Descriptive
 - Causal
- Experimental Design

The choice of the most appropriate design depend of the research and how much is known about objectives.

The overall research design for a project may inc three designs as part



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Basic Research Objectives and Research Design

Research Objective

To gain background information, to define terms, to cla problems and develop hypotheses, to establish research priorities, to develop questions to be answered

To describe and measure phenomena at a point In time

To determine causality, test hypotheses, to make "if-the Statements, to answer questions



Exploratory Research

- Exploratory research is most commonly u research that is undertaken to gain backgr the general nature of the research problem
- Exploratory research is usually conducted w not know much about the problem information or desires new or more recent



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Exploratory Research

- Exploratory research helps diagnose the dir so that successive research will be on target
- It helps to set priorities for research. Explor a number of situations:
- Eg :

Evaluation of quality of service of bank/



Exploratory Research

- Exploratory research is used in a number of
- 1. Identify the problems or opportunities
- 2. Defining the problem more precisely
- 3. Establishing priorities regarding the potent problems or opportunities
- 4. To identify course of action i e most likely a



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Exploratory Research

A variety of methods are available to conduct exploratory

- Secondary Data Analysis —
- Experience Surveys
- Case Analysis
- Focus Groups
- Projective Techniques

Trade journals,

Eg: growth of in sales?



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Exploratory Research

A variety of methods are available to conduct exploratory

- Secondary Data Analysis
- Experience Surveys
- Case Analysis
- Focus Groups
- Projective Techniques



In experience su persons who are investigated. Eg: a group of ho for their choie for



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Exploratory Research

A variety of methods are available to conduct exploratory

- Secondary Data Analysis
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- Projective Techniques

Obtains information f that are similar to the



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Exploratory Research

A variety of methods are available to conduct exploratory

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- Experience Surveys
- Case Analysis
- Focus Groups
- Projective Techniques

Small numbers of together to discuss or



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Exploratory Research

A variety of methods are available to conduct exploratory

- Secondary Data Analysis
- Experience Surveys
- Case Analysis
- Focus Groups
- Projective Techniques





Conclusive research design

- It is more formal and structured
- Based on large representatives of samples ar
- It is designed to assist the decision maker in and selecting the best course of action
- Classified as
 - Descriptive research
 - Causal research



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Descriptive Research

 It will suitable when the researcher desire the characteristics of certain groups such age, sex, occupation, income or educ

Answers

who, What when where and how



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Descriptive Research

when to use?

- 1. To determine the characteristics of market such
 - **1. Size of the market**
 - **2.** Buying power of the consumer
 - 3. Product usage pattern
 - 4. To find out the market share
- 2. To determine the association of the two varial Sales
- 3. To make prediction
- 4. To estimate the proportion of people in a spectrum of the propulation in a particular geograp (what % of population in a particular shop?



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Descriptive Research

Two basic classification

- Cross-sectional studies
- Longitudinal studies



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Descriptive Research

- Cross-sectional studies
- Longitudinal studies

Two basic classification

Cross-sectional stud of the population at time.

Can be done in two Field study : field survey:



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Descriptive Research

Two basic classification

- Cross-sectional studies
- Longitudinal studies

These are the studie occurrence is measur period of time.

• One method is to d same sampling frame.

• A second method is same people are asked



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Descriptive Research

Two basic classification

- Cross-sectional studies
- Longitudinal studies

Ture panel : each mem different time to arrive It involves repeat meas

Omnibus Panel: An c quantitative marketing variety of subjects is co

Also called piggyback a multiple clients share the second second



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Difference between

Exploratory research

- Concerned with why ?
- Does not required large sample
- Sample need not represent population.
- Imprecise: difficult in data collection
- No need of questionnaire

Des

- What
- Large
- Sample
 popula
- Stater
- Need



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Difference Between





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Causal Research Design

- Causality may be thought of as understar terms of conditional statements of the form
- Establishes cause and effect relationship bet



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Causal Research

 To establish the relationship between two v to carry an experiment.



What is Experimentation?

- It is a process where one or other values
 which demonstrates the cause and effect
 - Independent variables: that over variables that o
 - Dependent variables: that over which or no direct control, but has a strong int profit, market share.
 - Extraneous variables: those that r variable but are not independent variable



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What is Experimentation?

It is a process where one or other varia which demonstrates the cause and effect r

Test units: - are individuals, organizate whose response to the independent variabe



Experimental Design

- It is a set of procedures specifying
 - The test units and how these units are to be subsamples,
 - What independent variables are to be manipula
 - What dependent variables are to be measured
 - How the extraneous variables are to be control



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Experimental Design

- An experiment is a study in which the researc of some independent variable and then measure
- Experiments are powerful techniques for evaluation ships.
- Many researchers consider experiments the which all other research designs should be jud
- Experiments are conducted both in the lal situations.



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Validity in Experimental

- Researcher has two goals toward expension
- 1 Draw valid conclusions about the e variables on the study group.

Make valid generalizations to a linterest.

Exte



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Validity in Experimental

Internal validity

A measure of accuracy of an experiment. manipulation of the independent(Ad) variable caused the effects on the dependent(sales) variable External validity

A determination of whether the cause and effe experiment can be generalized.



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Types of Experimental designs

- Formal
- Informal



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Types of Experimental designs

- Formal
- 1.Completely Randomized
- 2.Randomized block design
- 3.Latin square design
- 4.Factorial design
- Informal

Before –and – without control de
 After-only with control design
 Before and after with control design



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Types of Experimental designs

• Formal 1. Completely Randomized

Subjects are randomly assigned to experi

Eg : if we have 8 patients and we wish to four, on the basis of treatment A and treatment B the Randomization pro possible opportunity that the group of selected from a set of eight and being tr A and B.



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Types of Experimental designs

• Formal 2. Randomized block design

With a randomized block design, the example the subjects into subgroups called **block** variability within blocks is less than the blocks.

Then, subjects within each block are ra treatment conditions.



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Types of Experimental designs

• Formal 2. Randomized block design

Subjects are assigned to blocks, based on Then, within each block, subjects are ra treatments (either a placebo or a cold va

For this design, 250 men get the placeb vaccine, 250 women get the placebo, a the vaccine.



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Types of Experimental designs

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Types of Experimental designs

• Formal 2. Randomized block design

It is known that men and women are physicand react differently to medication. This design ensures that each treatmer equal proportion of men and women.

As a result, differences between treatmer be attributed to gender.

This randomized block design removes gestion source of variability and as a potential co

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Types of Experimental designs

Informal

3.Latine square design

It allows the researcher to statistically connon-interacting external variables as we the independent variables.



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Types of Experimental designs

• Formal 4.Factorial design

A Factorial Design is an experimental se multiple factors and their separate and on the subject of interest in the experim independent variable in the experimen subdivision of a factor.



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Types of Experimental designs

Informal

1. Before-and –without control design

A set of single test group is selected ar dependent variable is measured prior a specific treatment.

Subsequently treatment is introduced variable os again measured.

Eg : observe the level of bacteria in a p pool, prior and after the chlorination t



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Types of Experimental designs

• Informal 2. After-only with control design

Two areas i e Test area and & control areas are selec Treatment is applied to test areas. The dependent variable is measured in

Eg : two adjacent fields of former is tal In that one area is taken as test area a And another area is not fertilized.

After three months variation is measu Extraneous variables water, soil, sunlight AKASH S MITE MOODBIDRI



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Types of Experimental designs

• Informal 3.Before-and-after with control design

Two areas are selected and dependent in both for common time period prior

Then, the treatment is applied only in dependent variable is measured again control areas for an identical tim introduction of treatment.



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Classification of Experime

Experimental Design

Pre experimental

One – Shot Case Study One –Group Pretest- Posttest Static Group

True Experimental

Pretest- Posttest control Group Pretest-only control Group

Solomon Four- Group



Tin

Μι



Definition of Symbols

- **X** = the exposure of the group to an independent treatment, or event, the effects of whi
- **O** = the process of observation or measuren variable on the test units or group of un
- R = the random assignment of test units or treatments



Pre-experimental design

- Pre-experiments are the simplest form of resonance of the second s
- In other words, a single group is often stud between an equivalent non-treatment group
- These designs do not control for extraneous



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Pre-experimental design

One-shot case study design

Also known as the after-only design

	Treatment	Post-te
	X	0
A single a then a si <i>O</i> 1	group of test units ngle measurement	is exposed to on the depe
(At TV p	rogramme commei	rcial AD=X,

R



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One-shot case study design

If lecturer wants to see if appraisal of students performer become more confident. He tests it with 10 semester & appraise them. He finds that students are

Group	Treatment	Post
Experiment group	Х	
Students	Appraisal	conf



Pre-experimental design

One-Group Pretest-Posttest Design

*0*1 X *0*2

The group of test units is measured twi First pre-treatment measure is taken Then the group is exposed to the treatm finally a posttreatment measure is taken The treatment effect is calculated as 02-01



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One-Group Pretest-Posttest Design

A sales manager may wish to conduct a training knowledge of sales team members. The sales manager r team members as 'O1'. As the training programme is may again measure the knowledge level of team member

Group	Pre test	Treatment
Experiment group	01	Х
Sales team	Selling Skills	Training programme



Pre-experimental design

Static- Group Design

EG: X 01 CG: 02

It is a two group experimental design *Experimental group (EG) Control group (CG) Measurements on both groups are made only and test units are not assigned at rando*



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Static- Group Design

A researcher may wish to compare the effective it to a patient, and comparing his condition patient without the medicine

Group	Treatment
Experimental group	X
Patient	Medicine
Control group	
Patient	
The treatment effect will be m	easured as 01-02

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True-experimental design

- In this design, the researcher randomly experimental groups and treatments to experimental
- They employ both a control group and a change that occurs in both groups.
- In this sense, we attempt to control for all of at least consider their impact, while attempt treatment is what truly caused the change.
- The true experiment is often thought of as t that can adequately measure the cause and



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True-experimental design

1. Pretest-Posttest Control Group design

Test units are randomly assigned to either the control group and a pre-treatment measure is

EG:	R	01	Х	02
CG :	R	03	Х	04

The treatment of effect is measured = (02-01)



1. Pretest-Posttest Control Group design

How to measure the effectiveness of the advertisem

For this, two groups will be randomly selected, nam groups respectively. A questionnaire will be given to towards product. After that the members of the shown advertisement. After showing advertisemer taken from the both the groups to see the changes is product.

Randomization	Group	Pre test	Tre
R	Experimental Group	01	X
	A group of people	Response to Questionnaire	Pro adv
R	Control Group	03	
	A group of people	Response to Questionnaire	
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True-experimental design

2. Post test-only Control Group design

It will not involve any premeasurement.

EG :	R	Х	01
CG:	R		02

The treatment of effect is measured = O1 - O



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2. Post test-only Control Group c

Same example of previous can be tested. the researchers would not test the perspective c showing the advertisement related to them.

The perspective of the people would be mea the advertisement.

Randomization	Group	Treatment
R	Experimental Group	X
	A group of people	Product adve
R	Control Group	
	A group of people	



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True-experimental design

3.Solomon Four Group Design

	$a1 \times 02$	THIS DESIGN INT
EGI. K	$01 \land 02$	GROUPS.
$CG1 \cdot R$		IT ALSO ALLOWS
	03 / 04	TO PRETEST ON T
EG 2 : R	X 05	
$CG 2 \cdot R$	X 06	



3.Solomon Four Group Design

RANDOMI SATION	GROUP	PRE TEST	TREATMENT	POST TEST
R	EG 1	01	Х	02
	25 TEACHERS	MORAL QUESTIONNAIRE	SENSITIVITY TRAINING	MORAL QUESTIONNAI
R	CG1	03		04
	25 TEACHERS	MORAL QUESTIONNAIRE		MORAL QUESTIONNAI
R	EG2		Х	05
	25 TEACHERS		SENSITIVITY TRAINING	MORAL QUESTIONNAI
R	CG2			06
	25 TEACHERS			MORAL QUESTIONNAI



Quasi Experimental design

- it results under followings
 - The researcher can control when measurements are taken
 - The researcher lacks control over the scheduling unable to expose test units to the treatment ran



Quasi Experimental design

• Time series design

- This involves a series of periodic measurements for a group of test units.
- The treatment is then administered by the resea
- After the treatment, periodic measurements are treatment effect.
- 01 02 03 04 05 X 06 0



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Time series design

GROUP	PRETEST			TREATMENT
EXPERIMEN TAL GROUP	01	02	03	X
A GROUP OF PEOPLE SUFFERING FROM AIDS	DEATH RATE (BEFORE 3 YEARS)	DEATH RATE (BEFORE 2 YEARS)	DEATH RATE (BEFORE 1 YEARS)	MEDICATION



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Quasi Experimental design

• Multiple Time series design

EG : 01	02	03	04	05	Х	0
EG : 01	02	03	04	05		0



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Statistical Experimental design

- These consists of a series of basic experiment statistical control and analysis of external va
 - Randomized block design
 - The Latin square design and
 - The factorial design



Statistical Experimental design

Randomized block design

It is useful when there is only one major as sales, store, size or income of the responde the dependent variable.



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Statistical Experimental design

• Latin Square design

it allows the researcher to statistically c interacting external variables as well as to man variables.



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Statistical Experimental design

• Factorial design

it is used to measure the effect of two c variables at various levels.

Like coffee Like cold temperature But like hot coffee



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Assignment 2

Define research design and Explain it examples.



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Observation Research- meani

L/O: to be able to describe observation method and the associated key te

The Observational Method

- Involves systematically watching recording what people say and c
- Naturally occurring behaviours a = no attempt to manipulate vari



We can get natural behaviou unchanged by researcher pre research environment.

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Types of observation research

Type 1# Participant Observation:

The participant observation means wate situation or activities from inside by taking par observed.

Goode and Hatt define participant obse used when the investigator can go disguise hir a member of the group". So in this kind of obs to stay as a member in the group he wants to



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Types of observation research

Type 1# Participant Observation: Advantages

(a) Observation of natural behaviour:

The natural behaviour of the resp participant observation.(not knowing to group

(b) Closeness with the group:

In participant observation, the ob rapport with the respondents. He has a very c with the group members.



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Types of observation research

Type 1# Participant Observation: Advantages

(c) Studying the real character:

Through participant observation to intensive and inclusive study of the group and character of such group.



Types of observation research

Type 2# Non-Participant Observation:

When the observer observes the group without participating in the group activities, it participant observation.

Here he does not try to influence them or take activities.


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Conducting an observation stu

- Planning for observation
- Execution and recording of observation
- Interpretation of observed results /findings



Step 1 Planning for observation

- Specify specific unites of behaviours to be objuint
- Appropriate groups of subject
- Individual / group
- Length of observation period, time
- Decide instrument of recording videos, aud
- Special conditions



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Step 2 Execution and recordin

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Step 3 findings



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Evaluation of observed resear

- Capability of the observer
- Reliability
- Validity
- Description
- Statistical techniques



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https://www.youtube.com/watch?v=e9peo0