

Research Design for Project Writing: Various Outlooks

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Abstract

The Research design is planned to provide a suitable structure for a study. It is an important part of any research work. As we know that research is to see what everybody has seen and is to think what nobody else has thought there are a number of pathways used in this research technique design. The aims of this endeavor are to design the methodology of the research pathway through various types of research design. The research pathway also clinches the researchers on how to come across the research outcome findings. Research design is not attached to any particular skill of data assortment or any particular kind of data. This study has sketched the Meaning of Research Design, Types of Research Design, Characteristics of Research Design, Need for Research Design, Different Research Design and Important Concepts relating to Research Design. The research design is directed for the different objectives. However, the fundamental objectives of this study are to make the investigator homely with the word research design. The endeavor will particularly make an effort to make the investigator familiar with the various feather of research design. It will also discuss various outlooks of research design and its structure.

Keywords: Research Design, Origin, Exploratory Design, Explanatory Design, Experimental Design.

1. Introduction

The word “design” has several meanings. But, in relation to the topic concern, it is a design or an outline of research developments workings. It is the declaration of important fundamentals of a study that delivers basic guidelines of leading the project. It is similar as the blue print of designer’s work. The research design is parallel to broad plan or model that situations how the total research plans would be directed. It is required that it must be in written form and must be simple and visibly stated. The real scheme is carried out as per the research project laid down in advance. The intimidating or desperate complication that observes or emulates the work of identifying the research trouble is the arrangements of a pattern of the research thesis, generally known as ‘research design’. Simultaneously, the design of a research is the preparation of circumstances for derivation of accumulation and explanation of information in a way that guesses to assemble relationship to the research objectives within financial method. Actually, the research design is the theoretical formation of construction where the research is guided; it formulates the schedule for the accumulation, calculation and exploration of information. And this type of research design involves an essence of what the researcher will create from composing the conjecture and its functional conjugations to the ending explanation of information. Moreover, the design assignments occur as regards:

- a) What is the subject matter?

- b) What for is the study being arranged?
- c) In which destination will the study be maintained?
- d) What kind of information is needed?
- e) From where can the needed information be maintained?
- f) How long will the study involve?
- g) What will be the specimen pattern?
- h) What process of data accumulation will be utilised?
- i) How will the information be explained?
- j) What type of reporting pattern will be arranged?

Having remembered the above-mentioned design judgments one can decorate the entire research design into the following parts:

- a) The specimen pattern which deals with the process of opting things to be followed for the provided thesis or study;
- b) The respectable design which concerns top the situations by which the investigations are made;
- c) The quantity of design which raises the question of how many data or elements are to be followed or observed;
- d) The functional design which serves or negotiates with the methods by which the techniques are described in the model or idea, discretional and inspectional designs can be observed.

In addition, according to the above-mentioned topic it can be defined that the vital characteristics of a research design such as follows:

- a) This type of plan particularizes the derivations and kinds of data pertinent to the research complication.
- b) This is a skill identification of what kind of approach will be utilised for accumulating and explaining the information.
- c) However, this also incorporates the time and expenditure budgets.

In short, a research design must apprehend a distinct description of the research complication, process and methods to be utilized for data collection, study of the population and the techniques to be utilized in systematizing and explaining information.

Types of Research Design: The research project is broad agenda that defines how the complete research scheme is carried out. Materially, there can be three types of investigation designs. There are as follows-

- i) Exploratory Research Design.
- ii) Descriptive Research Design.
- iii) Casual or Experimental Research Design.

Origins: Research design flourished as a familiar field of study in the 1960s, at first manifest by a meeting on design process at Imperial College, London in 1962. It led to the origin of the Design Research Society (DRS) in 1966. John Christopher Jones founded a postgraduate “Design Research Laboratory at the University Manchester Instituted of Science and Technology” and L Bruce Scher Founded the postgraduate “Department of Design Research at the Royal College of Art”, London and became the first professor of Research Design.

Exploratory Design: This design is surveyed to discover thoughts and insights to produce possible clarifications. It supports in exploring the problematic or situation. It is, mainly, highlighted to break a broad vague problem declaration into smaller pieces or sub-problem declarations that benefit starting specify suggestion. The exploratory research project is used to growth awareness of the analyst with problem under examination. This is mainly true when investigator is new in area, or when delinquent is of dissimilar type.

This project is followed to understand following purposes: -

- i) Clarifying ideas and defining problem.
- ii) Expressing problem for more precise investigation.
- iii) Growing researcher's familiarity with problem.
- iv) Developing hypotheses.
- v) Founding priorities for further investigation.

Characteristics of Exploratory Research:

- i) They are not planned studies.
- ii) It is generally low price, interactive and open ended.
- iii) To carry out exploratory investigate, usually there is no previous research done or the existing ones do not answer the problem precisely enough.
- iv) It is a time overwhelming research and its requirements endurance and has risks connected with it.
- v) The researcher will have to go through all the information accessible for the exacting study he is performance.
- vi) The research requirements to have significance or worth. If the difficulty is not significant in the industry the investigate carried out is unsuccessful.

Exploratory Research:

Steps to Conduct a Research-

- i) **Prescribe the Problem:** A researcher identifies the topic of research and the trouble is addressed by carrying out numerous methods to answer the questions.
- ii) **Create the Hypothesis:** When the researcher has established that there are no earlier studies and the trouble is not accurately resolved, the researcher will build a hypothesis based on the questions attained while identifying the trouble.
- iii) **Further Research:** Once the information has been obtained, the researcher will carry on his study through descriptive investigation. Qualitative procedures are used to advance study the subject in detail and find out if the data is true or not.

2. Literature Review

Perry and Kraemer (1975-1984) found that current public administration research has been predominately helpful, has not been increasing and has lacked enough institutional support. Recommendations are presented to build up research methodology in public administration by focusing on centre issues.

Coombes (2001) explained research is primarily a procedure for measurement or meeting information to solve certain trouble.

Kothari (2004) explained the research design is knowledgeable by the research objectives and character of the research questions.

R. Kumar (2005) described the most significant classification of the research design for research methodology. It can be categorized into three categories namely- Descriptive, Exploratory and Explanation.

Zainuddin (2010) explained under research design the descriptive investigate is emerged on an understanding of the character of the research difficulty that is related to the narrations of the population under the study.

Zikmund (2010) explained the research design is integrated a survey method for data collection and statistical measures such as PLS pathway modelling for hypotheses testing. A model survey is an established method for conducting quantitative research because it often delivers a rapid, low-cost, capable and precise means for assessing information about a target population.

Pavan and Kulkarni (2014) found that research is one of the ancient methods for discoveries and innovation has got a huge significance in the society. Research is a celestial procedure which will go on till the society exists on the Earth. The society is quickly developing with the assist of research. This paper also made an endeavour to expose the problems faced by researchers in India such as unavailability of qualified personnel, lack of scientific training, lack of funds etc. There is a big need for good research, research methods and also good researchers.

Ramírez (2014) examined that project-based learning and procedure path can raise the writing skills and self-confidence level of the students who are learning English. As per the findings, students were capable to progress the writing skills in the areas like structure, length, ideas etc. But still, they have numerous problems with accuracy, fluency and pronunciation.

Costely and Abukari (2015) analysed the work-based research projects at postgraduate level. Work based research projects at postgraduate and doctoral level can make an impact on the work background and have a developing effect on the employees who undertake research projects. The paper also finds that work-based projects are investment for the companies which yield tangible business success and also give motivation for staffs to stay in company and attain university recognition.

Terskikh (2015) viewed that the project movement is the most vital process in teaching master's degree programme students in the subject social advertising. This system assists students to prove their creativity, enables them to solve real life and hypothetical trouble and also maintains a balance between theoretical academic knowledge and practical helpful skills. The project actions also help students to know the required steps to solve real life professional problems.

3. Objectives of the Study

The research design is directed for the different objectives. However, the primary objectives of this study are to make the investigator homely with the word research design for project writing, yet the study will specifically judge the following objectives are:

- i) To make the investigator familiar with the various feather of research design work.
- ii) To discuss the various outlooks of research design and its structure.

4. Research Methodology

The present study is descriptive and explorative in character. It is chiefly based on primary and secondary data which have been collected from different books, journals and available data from connected websites. In this study, the meaning of a project work and different components of a project work is explained in detail.

5. Various Research Outlooks

Descriptive Research: It is also recognized as statistical research. Descriptive research is used to explain quality of a population or occurrence being considered. It does not answer questions about how/when/why the description occurred. Descriptive research normally precedes advisory research. However, descriptive research can't explain what caused a circumstance. Thus, descriptive research cannot be used as the foundation of an informal relationship, where one variable affects another. In other words, descriptive research can be said to have a little obligation for inside validity.

Characteristics of Descriptive Research:

- i) **Statistical Outcome:** Descriptive research response the “what questions in statistical form”. As the output is in strengthening form, it is simple for the investigator to assume results and execute them. Because of this personality of descriptive research, it is usually used in market researches.
- ii) **The Basis for Secondary Research:** The outcome obtained from descriptive investigates is in statistical form. Therefore, it can also be used as inferior data for comparable research troubles. In calculation to this, dissimilar research methods can be useful to the data for the examination of diverse factors of the research difficulty.
- iii) **Unrestrained Variable:** Random variables are used in expressive study. Therefore, it is not in the hands of investigators to manage the variables of descriptive study, the normal behaviour of participants is pragmatic to study about them.
- iv) **Natural Setting:** Descriptive researchers are frequently directed in ordinary settings. For example, you can allocate questionnaires of observation among random public, or in an observational technique, you can experimental the behaviour of populace in a particular atmosphere. For example- if you desire to study about the trade behaviour of populace then you can go to a superstore and watch people.
- v) **Cross-Sectional Study:** In descriptive research, dissimilar destiny of a single group is deliberate and compared to achieve a dissimilar approaching into the group.

Descriptive Research Methods: Descriptive research procedures are frequently distinct as a kind of quantitative research, though category of quantitative investigate can also be used for descriptive aims. The research plan should be suspiciously urbanized to make sure that the outcome is applicable and reliable. Some of the descriptive research processes are discussed below-

- i) **Surveys:** Survey’s research permits you to collect large volumes of information that can be resolved for frequencies, average and patterns. ordinary uses of surveys comprise-
 - a) Describing the demographics of a nation or region.
 - b) Gauging public view on political and communal topics.
 - c) Evaluating pleasure with a company’s goods or an organization’s services.
- ii) **Observation:** Observation permits you to gather information on behaviour and phenomenon without having to rely on the sincerity and correctness of respondents. This technique is frequently used by psychological, communal and market researchers to appreciate how populace act in real-life situations. Examination of bodily entities and phenomena is also a significant element of investigate in the normal sciences. Before you can increase testable hypothesis, models or methodically explain the topic under examination.
- iii) **Case Studies:** A case learning can be used to explain the characteristics of an exact subject (such as a person, group, event or organization). As an alternative of meeting a huge volume of information to classify patterns across time or position, case studies meet complete information to recognize the uniqueness of a barely distinct subject.

Causal or Experimental Research Design: Casual Research Design contracts with defining cause and effect relationship. It is naturally in form of experimental. Its casual investigation design, effort is made to amount impact of operation on sovereign variables (like price, products, advertising and selling efforts or marketing strategies in general) on dependent variables (like sales volume, profits, and brand image and brand loyalty). It has more real value in determining selling problems.

Types of Experimental Research Design: The classic experimental design definition is, “The methods used to gather information in experimental studies”.

Primary types of experimental design are as follows-

- i) Pre-experimental research design.
- ii) True-experimental research design.

Pre-experimental Research Design: A group, or a diversity of groups, is kept under scrutiny after implementing factors of cause and outcome. You will make this study to understand whether extra assessment is necessary for these exacting groups.

You can break down pre-experimental investigate further in three types.

- a) One-shot case study research design.
- b) One-group pretest-posttest research design.
- c) Static-group comparison.

True Experimental Research Design: True investigational examine relies on mathematical assessment to authenticate or invalidate a proposal. Making it the most accurate form of examine. Of the kinds of investigational plan, only true plan can set up a cause-effect relationship within a cluster. In a true experiment, three factors need to be pleased-

- a) There is a administer group, which won't be subject to changes and an investigational set, which will awareness the indistinct variables.
- b) A variable which can be manipulated by the researcher.
- c) Random allotment.

This experimental research technique usually happens in the physical sciences.

Types of Experimental Research:

- i) After-only Experimental Design.
- ii) Panel Study.
- iii) Before-after experimental design.
- iv) Ex-post facto design.

Quasi-Experimental Research Design: The word “Quasi” indicates connection. A quasi-experimental arrangement is similar to investigational, but it is not the same. The dissimilarity amid the two is the scheme of a manages group. In this explore, an independent variable is manipulated, but the participants of a meeting are not randomly assigned. Quasi-research is used in ground setting where random task is either unconnected or not obligatory.

Need for Research Design: A research Design is required as it incorporates the mellifluous drifting or gliding of the different research functional thereby creating research as expert as probable imparting highest data with nominal cost of endeavour, time and amount.

The need for Research design is as follows-

- i) **Reduce Mistake:** It decreases inaccuracy.
- ii) **Help:** It benefits to get maximum competence and reliability.
- iii) **Remove:** Removes bias and marginal errors.
- iv) **Reduces of Time:** Reduces wastage of time.
- v) **Presumption:** Helpful for testing of conjecture.
- vi) **Collection:** Helpful for collecting research materials.
- vii) **Idea:** Gives an idea relating the types of properties required in terms of money, manpower, time and efforts.
- viii) **Overview:** Provides an overview to other experts.
- ix) **Guidance:** Guides the research in the right direction.

Characteristics of Good Design: Commonly, a well project is defined with viable, expert, finance and so on.

A good project has a several characteristics. There are as follows –

- i) **Disruptive:** Viewing the world in another futures/new viewpoints.
- ii) **Useful:** It must help a distinct purpose.
- iii) **Dingy:** Good design makes you think and this is fundamentally messy/it needs unravelling using methods that do not simplify.
- iv) **Political:** It must simplify its stance on the world's important challenges.
- v) **Critical:** It must challenge outlooks.
- vi) **Enduring:** It should verify us with a thoughtful revolt in inspecting the world not just hot topics.
- vii) **Thoughtful:** It should talk problematic issues.
- viii) **Clear:** It must be self-explanatory.

Important Concepts Relating to Research Design: Since analysing the various research designs, it will be adequate or significant to clarify the different ideas concerning to designs so that these may be greater and indisputably appreciated.

- i) **Dependent and Independent Variables:** A magnitude that differs is identified as a variable. The idea may undertake diverse quantitative values like height, weight; income etc. qualitative variables are not computable in the severest sense of the tenure. Though, the qualitative marvels may also be enumerated in the terms of the attendance or absence of the characteristics considered. The marvels that undertake dissimilar values quantitatively even in decimal points are recognized as “continuous variables”. But all variables necessity not is continuous. Values that can be stated only in integer values are called “non-continuous variables”. In arithmetical terms, they are also known as “discrete variables”.

- ii) Extraneous Variables:** The sovereign variables which are not straight connected to the purpose of the study but touch the dependent variables, are known as unnecessary variables. For example, assume that an investigator needs to test the theory that there is a connection between children's school performance and their self-assurance, in which situation the latter is a sovereign variable and the past, a dependent variable. In this framework, aptitude may also impact the school presentation. However, since it is not straight connected to the purpose of the study commenced by the investigator, it would be known as an extraneous variable.
- iii) Control:** One of the most structures of a good research project is to diminish the outcome of inessential variables. Officially, the term "control" is used when an investigator projects the study in such a way that it reduces the properties of extraneous variables. The term "control" is used in investigational research to replicate the detain in experimental conditions.
- iv) Confounded Relationship:** The connection between the dependent and independent variables is said to be confounded by an inessential variable, when the dependent variable is not permitted from its effects.
- v) Research Hypothesis:** When a forecast or a hypothesized association is verified by approving technical methods it is known as research hypothesis. The research theory is an analytical statement which narrates to a dependent variable and an independent variable. Normally, a research theory must contain of at least one dependent variable and one independent variable. While, the connection that are presumed but not to be verified are analytical reports that are not to be accurately verified, thus are not classified as investigation hypotheses
- vi) Experimental and Non-Experimental Hypothesis Testing Research:** When the objective of a research is to assessment a research theory, it is known as hypothesis-testing research. Such research may be in the landscape of experimental project or non-experimental project. The research in which the sovereign variable is operated is known as "experimental hypothesis-testing research", while the research in which the sovereign variable is not operated is termed as "non experimental hypothesis testing research".
- vii) Treatments:** Treatments mention to the dissimilar circumstances to which the experimental and regulator groups are subject to. In the example measured, the two actions are the parents with systematic earnings and those with no regular earning's. Similarly, if an examination study effort to inspect through a research the relative result of three dissimilar types of nourishments on the yield of rice crop, then the three types of fertilizers would be preserved as the three actions.
- viii) Experiment and Control Groups:** When an assembly is exposed to normal situations in an investigational hypothesis-testing research, it is known as "control group". On the other hand, when the assembly is exposed to convinced new or special conditions, it is known as an "experimental group". A research project may be comprised only the experimental group or both the experimental and regulator groups together.

Different Research Designs

There are so many varieties of research designs, but the designs may be scheduled as follows:

- a) Research design in the area of investigative research analysis;
- b) Research design in the field of narrative and diacritic research, it must be severe and indistinct and must concentrate about visualisation on the following way:
 - Constructing the purpose of a study;
 - Designing the process of information collection;
 - Specimen identification;
 - Accumulating the information;
 - Exercising of operating and scrutinizing the information;
 - Flourishing the discoveries;
- c) Research design in the area of assumption-appraising research studies: Assumption-appraising research studies (usually known as exploratory studies) are those theses within which the researcher examines the assumption of friendly affinity to different factors.

Fundamental Ethics of Speculative Designs

According to Professor Fisher, the exploratory designs have ethics such as:

- a) The ethics of response provides that the investigation should be revolved more than one thing. In such a way, each arrangement is employed in many exploratory units.
- b) The ethic of indiscrimination contributes the preservation while one guides an investigation against the impact of irrelevant parts by indiscrimination.
- c) The ethic of local control is a vital feature of investigational design. According to it, the irrelevant part is made to differentiate intentionally over as massive range as probable and this requires to be done to such an extent that the convertibility can be estimated and hence the removed or eradicated from the investigational error.

Important Experimental Designs

Experimental design mentions to the composition of an investigation and as such there are various investigational diagrams. One may specify investigational diagrams into two different groups just as in-disciplined investigational designs and disciplined investigational designs. In-disciplined investigational designs are those designs that naturally utilize a less advanced form of experiment depended on distinctions in propagations, while in-disciplined investigational design propose comparatively more administrative and utilize appropriate statistical methods for the experiment. Both the investigational designs are presented just as follows:

- a) **Investigational Designs:**
 - Before-and-after except Administrative Design
 - After only with Administrative Design
 - Before-and-after with Administrative Design
- b) **Disciplined investigational Designs:**
 - Quietly Responsive Design

- Responsive Block Design
- Latin Specific Design
- Incidental Design

One can fleetingly or temporarily serves with each of the above mentioned in-disciplined as well as disciplined exploratory designs.

Factorial Designs: Factorial Plans are used in researches where the things of fluctuating more than one factor are to be determined. They are particularly significant in numerous financial and social phenomena where typically a large number of aspects touch a particular delinquent. Factorial projects can be of two parts-

- i) Simple factorial designs.
- ii) Complex factorial designs.

Simple Factorial Designs: In situation of Simple factorial plans, we deliberate the effects of changing two factors on the dependent variable, but when an investigational is completed with more than two issues we use compound factorial designs. Simple factorial designs are also known as “two factor-factorial design”. On the other hand, compound factorial known as “multiple factor-factorial design”.

Complex Factorial Designs: Experiments with more than two influences at a time include the usage of complex factorial designs. A plan which reflects three or more sovereign variables concurrently is called a complex factorial design. In example of three factors with one investigational variable having two action and two control variables, each one of which having two stages.

Latin Square Design: This is an experimental plan actual frequently used in farming research. The circumstances under which farming researches are carried out are dissimilar from those in other educations for landscape plays a significant role in cultivation. For instance, experimentation has to be made through which the things of five dissimilar diversities of nourishments on the harvest of a certain crop, say wheat, are to be mediated. In such a circumstance the changing fertility of the soil in dissimilar blocks in which the research has to be performed must be taken into deliberation, else the outcomes attained may not be very reliable because the production happens to be the outcome of not only fertilizers, but it may also be the result of fertility of soil.

6. Concluding Remarks

From the above discussion, it may be concluded that design means “drawing an outline”. And the research design is grounding of a strategy of conducting research these are the significant points to be measured in formulating any research. It has laid some groundwork and how research methodology is devised and constructed for researchers. After studying this endeavour, we have understood the meaning of Research Design, Types of Research Design, Needs for Research Design, Advantages of Research Design, Characteristics of Research Design, also understood the differences between Exploratory and Descriptive Research Design, we have also known the Different research Design, Fundamental Ethics of Speculative Designs, important Experimental Designs etc.

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