

Sample Design and Data Collection for Research Work: Various Outlooks

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Abstract

A well-designed sampling arrangement can greatly improve the information that can be formed from a survey. Once a broad sample design is recognized, precise design parameters such as sample sizes and collection probabilities need to be preferred. This is classically achieved using an optimal sample design, which minimizes the difference of key statistic or statistics, revealed as a purpose of design parameters and population characteristics, subject to a price constraint. A common approach to sample distribution allowing for indefinite design information is planned and evaluated. This endeavour has sketched about the introduction to sample design, sampling and non-sampling errors, type of sampling designs, systematic sampling, cluster sampling, stratified sampling, multi stage sampling, data collection introduction, survey, the differences between survey and experiment, collecting of primary data, collection of data through questionnaires, collection of secondary data, selecting of appropriate method for data collection, case study characteristics. However, the primary objectives of this endeavor are to make the researcher familiar with the sample design and data collection for project or research work, yet the study specifically aims as to make the researcher familiar with the sample design and data collection in research design work. It will also discuss various outlooks of sample design and data collection process.

Keywords: Sample Design, Data, Sampling Method, Research Methodology, Sampling and Non-Sampling Errors, Probability Sampling and Non-Probability Sampling.

1. Introduction

A question of all items in any area, compose the entire 'world' or 'generation'. Beside this, a quite prediction of all elements is unknown as a census observation. It is adequate that or an analysis of census survey is rather improbable. For instance, to acquire a general concept of approx. per capita monthly earning of Indian citizens, one has to predict all the income of individuals in the country which is a very hard work. But the census survey is improbable in circumstances while population is unlimited. In most of the cases whenever population is limited but the units are ravaged, census survey is irrelevant matter. Moreover, sometimes it is not feasible to analyse every item in the population and frequently it is probable to acquire adequately appropriate consequences by reading only a portion of entire population. It is obvious that a sample design is a particular stratagem or achieving a sample from a provided population. It delegates to the method which the researcher would accept in opting articles or elements or the sample. Simultaneously, the sample design may as well as forsake a lot of articles to be involved in the sample i.e., the quantity of the sample. Besides these, a sample design is ascertained before the information is accumulated. There are a number of sample designs from which a researcher may also prefer the one. Most of the designs are comparatively more accurate and inferior to appeal than others. Of course, a researcher must embellish a sample design which should be feasible and accurate for the research analysis.

The principal observations of sampling designs are as comply with:

- i) **Objective:** First of all, the primary initiative of modelling design is to identify the objectives of the review in distinct and consolidate terms. The financers or guarantors or the researchers of observation should determine that the objectives are identical with amount, people's support and time restriction obtainable or accessible or the survey.
- ii) **Population:** If one wants to achieve the objectives of the survey, how many populations will be required? This has to be defined clearly in respect of entire population or inhabitants of the country.
- iii) **Sampling Units and frame:** Since the begging of a sample selection, a resolution has to be accepted involving an ideal constituent. Sampling constituent can be presented in various ways such as village, block, district and state as a geographical constituent; home, flat and apartment as social constituent; school, college, university and club etc, or it may be a personal. Afterwards, the researcher must determine one or more of such constituents that has to be determined for the study. The schedule of sampling constituent is termed as 'structure'. Sampling structure restrains the nerves of entire sections or articles of the world. And this kind of list should be appreciative, proper, believable and clear. This is enormously or immensely essential or the derivative schedule to be as lieutenant of the inhabitants as practicable.
- iv) **Size of Sample:** It concerns to a lot of constituents to be determined from the whole world to formulate a sample. So, this is the main problem to a researcher. The volume of a sample should neither be unnecessarily ample nor too short. It should be an excellent one. An excellent sample is one which satisfies the demands of proficiency, exemplifications, credibility and pliability or elasticity. At the time of determining the volume of sample, the researcher must visualize the intended scrupulousness or meticulousness as also an adoptable trust level for the evaluation or assessment. The volume of population discrepancy requires to be accepted as in case of greater inconsistencies generally a large sample is required. The volume of population must be placed in view or it also restricts the sample volume. The level of interest in a research thesis must be placed in view whenever determining the volume of sample. Also, the consumption can instruct the volume of sample. Insofar, the economic impediments or restraints must steadily be taken into contemplation of sample volume specification is contributed in later phases.
 - **Parameters of Interest:** 'Parameters of interest' is termed as 'unchanging statistical actor of the inhabitants. If one goes through the census survey, he or she will receive the exact value of the parameters. As opposed to the sample survey, one obtains the assessments of unknown parameters of their exact values functionally. In defining the sample design, one has to accept the question of the certain inhabitant parameters which are of advantageous one. For example, one may be attracted in appraising the section of individuals with some principles inside the inhabitants or one may be attracted in knowing some approximation or the other measure retaining the inhabitants. Also, there may be some essential sub-teams on the ground inhabitants about whom one would prefer to create an assessment. All these, have a powerful effect upon the sample design.
 - **Data Collection:** Always, the impertinent data should be rejected and the pertinent data should be collected. The aims of the survey should be distinct towards the surveyor at the time of observation.
 - **Non-respondents:** The information may not be accumulated for all the sample units due to the actual obstacles. So, the researcher must observe the cause of non-response. And this type of incidents should be conducted by carefully.
 - **Selection of proper Sampling Design:** The investigator must determine the sample type which will be used by him including procedure in case of selecting sample items. Materially, this remains for the sample design. There are different sample designs from which the investigator must select any one topic or the study. Apparently, the researcher must choose that design which,

for a provided sample volume including consumption or expenditure, has a shorter sampling mistake.

- **Organizing Field Work:** The victory of survey analysis based on the credible field work which is required an expert supervisory employee or executive and well-trained personnel.
- **Pilot Survey:** Before entering into the field of research it is always cooperative to examine the research design on a very low scale. Hence, it is termed as 'pilot survey'. Perhaps, it may provide the greater concept of actual complications.
- **Budgetary Constraint:** Expenditure adaptations, according to the real point of view, have a large effect upon decisions connecting not only the volume of the sample but also to the kind of sample.

2. Literature Review

Cohran (1977) arranged tables which present the sample size in line with a definite degree of consistency and population size. Based on these tables, several researchers recommend that if parametric tests are to be employed 30-500 subjects would be the essential sample size, otherwise non-parametric examination techniques should be used.

Stuart (1984) described that probable sampling as the type of sampling in which every component in the population has a nonzero possibility to be selected. "Each individual in a sample frame drawn from the population is selected by chance and without aims".

Poham (1993) described that laminated random sampling is seen as an additional superior process of sampling over simple random sampling.

Cohen (et. al. 2000) stated that research design is an additional factor that impact sample size. Some suggested numerical information for sample size exists in line with the research design.

Coombes (2001) analysed that research is basically a procedure for evaluation or meeting information to solve certain difficulty.

Fowler (2002) defined if the sampling procedure is not probabilistic, the connection between the sample and those sampled is difficult. One can quarrel for the reliability of a sample on grounds other than sampling method.

Mujis (2004) analysed with the points of chariness in sampling; such as- i) An impartial selection of the sample is significant in quantitative research which has a anxiety, for simplification. ii) Unbiased sampling method are the once which are random. iii) Sample procedures, apart from simple random sampling, cannot be measured totally unbiased even if they are random.

Kothari (2004) explained that research design mention to the blueprint that is aimed at enabling the path of a broad range of operations in research and therefore simplify research in being well prepared as probable so as to make the supreme level of information.

Kumar (2005) described the most important categorization of the research design for research methodology can be categorized into three categorize namely- Descriptive, Exploratory and Explanation.

Frankel and Wallen (2006) described the entire target population is sometimes difficult to sample so a more narrowly defined population, or the accessible population, is considered. a more narrowly defined population will often save on time, effort and even money.

Zainuddin (2010) explained under research design the descriptive investigate is based on an understanding of the character of the research complexity that is associated to the descriptions of the population under the study.

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

Pavan and Kulkarni (2014) concluded that research is one of the ancient methods for discoveries and innovation has got a huge importance in the society. Research is an immortal process which will continue till the society exists on the Earth. The society is rapidly developing with the help of research. This paper also made an endeavour to reveal 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 process approach can increase the writing skills and confidence level of the students who are learning English. As per the findings, students were able to improve the writing skills in the areas like structure, length, ideas etc. But still, they have frequent problems with accuracy, fluency and pronunciation.

Costely and Abukari (2015) analysed that the work-based research projects at postgraduate level. Work based research projects at postgraduate and doctoral level can make an impact on the work context 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 provide motivation for staffs to stay in company and achieve university recognition.

Terskikh (2015) viewed that the project activity is the most important method in teaching master's degree programme students in the subject social advertising. This method helps students to show their creativity, enables them to solve real life and hypothetical problems and also maintains a balance between theoretical academic knowledge and practical useful skills.

Roy (2016) explained that research is to see what everybody has seen and is to think what nobody else has thought. In the endeavor he tried to evaluate various spikes of research design and discussed various outlooks of research design and its structure.

Roy and Roy (2016) evaluated various issues of research methodology which outlined the research process and the research methodology as how the research work should be approached so the researchers get well acquainted with the research methodology and its various outlooks.

3. Objectives of the Study

The sample design and data collection are directed for the different objectives. However, the primary objectives of this study are to make the researcher familiar with the sample design and data collection for project or research work, yet the study will specifically evaluate the following objectives are-

- i) To make the researcher familiar with the sample design and data collection in research design work.
- ii) To discuss the various outlooks of sample design and data collection.

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 Sample Design and Data Collection for Research Work is explained in detail.

5. Sample Design and Data Collection Process

- (i) **Sampling and Non- Sampling Errors:** The errors involved in the collection of data are classified into sampling and non-sampling errors.
- **Sampling Errors:** The sampling mistake comes from the incident that only a section of the inhabitant has been utilised to appraise population parameters and to illustrate the assumptions or speculations about the inhabitants. Sampling mistakes are inattentive in census survey. But the sampling mistakes may be calculated for a provided sample design and volume. The calculation of sampling mistake is generally termed as the ‘corrections of the sampling plan’. In short, whenever defining a sampling technique, a researcher must confirm that the technique results a comparatively short sampling mistake and assists to administrate the systematic aptitude in a greater way.
 - **Non-Sampling Errors:** Non-Sampling mistake comes to the point of accumulation and arrangements of information and in such a way are explained in both the sample survey as well as the census survey. In this manner, the information received in census survey is clear from sampling mistakes, although treated with non-sampling mistakes. Non-sampling mistakes can be decreased or diminished by identifying the sampling units, structures and the inhabitants appropriately and by applying expert people in the inspections.

(ii) **Sample Survey vs. Census Survey**

In case of a sample survey analysis, one should read only a sub-portion of the entire inhabitants incorporating the requirement of a small time and small amount. However, in many cases the non-sampling mistakes are so enormous that the consequences of sample survey analysis are much more appropriate than the census survey. Non-sampling mistakes use to come from a lot of incidents such as unskilled field employees. These mistakes are relatively increasing while the quantity of unit’s investigation increases. However, if the aim of a research analysis is very conscious in nature and the data is needed for sampling unit, there will be no way for census survey. Also, if amount and time are not essential matters or if inhabitants are not so large, a census survey may contribute greater influences from any type sample survey and contributed proficient and an expert employee is charged.

(iii) **Types of Sampling Designs**

The procedure of classifying a sample has a basic status and built upon the principle of data and examination. The measures of classifying a sample are considered as – ‘non probability sampling’ and ‘probability sampling’.

- **Non-Probability Sampling:** The non-probability sampling is that generous of sampling system which cannot provide any ground for evaluating the possibility that each article in the populations has of being combined in the sample. Additionally, it is also recognised by various names such as intentional sampling, impartial sampling and perception sampling.
- **Probability Sampling:** The probability sampling may be usually called as ‘arbitrary sampling’ or ‘advantageous sampling’. Rendering to this sampling design, each item of the world has the same chance of participation in the sample. Concurrently, the random sampling guarantees the rules of Statistical Regularity which declares that whether on an approx. the sample preferred is an arbitrary one, the sample will have the preparation and structures as the cosmos. Hence, the subjective sampling

is recognized as the greatest method of classifying a representative sample. Some of its important portions have been deliberated as follows:

- ✓ **Simple Random Sampling:** Simple random sampling from a positive occupant suggests to that procedure of sample assortment which delivers each credible sample incorporation an equal opportunity of being together and each item in the whole occupant to have the same chance of being complicated in the sample.
- ✓ **Complex Random Sampling Design:** Some complex random sampling projects, which are joint with probability and non-probability sample methods, are as below:
 - ✓ Systematic Sampling.
 - ✓ Stratified Sampling.
 - ✓ Cluster Sampling.
 - ✓ Multi-Stage Sampling.
 - ✓ Sampling with Probability proportional to Size.
- ✓ **Systematic Sampling:** Systematic sampling is an arithmetical technique that investigators use to zero down on the anticipated population they need to research. Researchers compute the sampling intermission by separating the complete populace size by the anticipated sample size. Methodical sampling is a lengthy application of possibility samplings in which each member of the group is nominated a regular period to form a sample.
- ✓ **Stratified Sampling:** Stratified sampling is a type of sampling technique in which the entire populace is separated into smaller collections or strata to complete the sampling procedure. The divisions are designed based on some mutual features in the populace data. After separating the population into divisions, the investigator randomly selects the sample proportionately.
- ✓ **Cluster Sampling:** Cluster sampling is a possibility sampling system where investigators split the population into several assemblies for research. Investigators then choice random assemblies with a simple arbitrary or methodical random sampling system for data assembly and data scrutiny.
- ✓ **Multi-Stage Sampling:** Multi-stage sampling is distinct as a sampling technique that splits the population into assemblies for directing research. It is a composite form of collection sampling. Sometimes, also identified as multistage cluster sampling. During this sampling technique, important cluster of the nominated people are split into sub-groups at several stages to make it modest for primary data assembly.

(iv) Data Collection

The job of information or data accumulation, began after a research complication, has been identified and research schedule marked. Whenever defining about the technique of information accumulation to be utilized or the study, the researcher must remember the two kinds of data or information viz., initial and peripheral. The initial information or data are those which are accumulated or the first time and in such a way occur to be fundamental to be in character. Alternately, the peripheral information or data are those which have already been accumulated by anyone else and which have already been passed by the mathematical procedures. Also, the researcher must determine one or more than one method of information accumulation. The techniques of accumulating initial and peripheral information vary since initial information is to be fundamentally accumulated, whenever in terms of peripheral information, the type of information accumulating work is absolutely that of composition. The different procedures of information accumulation have been represented with before and after of each technique.

(v) Survey

Survey mentions to the way of meeting data concerning a variable beneath study from all or a quantified number of defendants of the universe. Surveys are approved out by upholding a planned form of data gathering, through interview, survey, caste study etc. in surveys ready questions are asked set and the

organized formal questionnaire set and the output is composed in the same form. For example- Survey between the students about the new teaching policy of India.

(vi) Experiment

Experiments mentions to the way of investigating something virtually with the support of technical particularly with the help of scientific process/approach and the result is pragmatic. Experiments are carried out by performance the researches by following logical procedure or scientific approach. In experiments the investigator/inspector completes tests or experiments built on several aspects and detect the result of the experiment.

(vii) Collection of Primary Data

There are so many techniques of accumulating initial data, especially in inspection and narrative research analysis. Most of the essential techniques are presented as follows:

- **Observation Method:** Generally, the observation technique is the most commonly utilised process particularly in studies concerning to behavioural sciences. In which way one uses to identify things within the human being but this kind of identification is not scientific inspection or observation. Because the observation becomes a scientific instrument and the process of information accumulation for the researcher, whenever provides a constructed research objective, is methodically designed and enlisted and is treated to inspections and rules on accuracy and credibility. According to the observation method, the data is found by the way of inspector's own straight forward observation instead of enquiry from the respondent.
- **Interview Method:** The interview method of accumulating information concerns the observation of oral-verbal inspiration and response in terms of oral-verbal interactions. This technique may be utilised by personal interview and telephone interviews.
 - (a) **Personal Interviews:** The personal interview process is needed to a person because the interviewers are enquiring questions usually in face-to-face communication with another person. In spite of, huge diversifications in interview procedures, the main opportunities and weakness of personal interviews may be measured in a simple way. The principal characteristics of the interview process are presented as follows:
 - ✓ It must be more informative with strong depth.
 - ✓ The interviewer should be an expert to conquer any obstacles.
 - ✓ In case of unstructured interviews, the elasticity or probability should be provided.
 - ✓ Observation technique should be utilised throughout recording system.
 - ✓ Personal information may be gathered by this process.
 - ✓ Samples may be administrated successfully without any problem.
 - ✓ The interviewer may generally maintain the respondent by this method.
 - ✓ The interviewer may easily collect the information throughout this process.
 - ✓ The interview language may be accepted according to the educational qualification of the person or candidate.
 - ✓ The interviewer may also accumulate complementary data by this technique.

Besides these, there are also some inabilities of the interview method. The following weakness may be mentioned as-

- ✓ This is very costly process or method.
- ✓ The interviewer will have the responsibility of inspection.
- ✓ The high-profile earning members may not be accessible.
- ✓ This process is comparatively more time-expending.
- ✓ The appearance of the interviewer may overexcite the respondent.

- ✓ The institution is needed for identifying, training and inspecting the field employee.
 - ✓ The methodical mistake may be introduced during the interview.
 - ✓ Effective interview assumes appropriate connection or intercourse with respondents
- (b) Telephonic Interviews:** The technique of accumulating data comprises of concerning respondents over telephone. But this is not broadly utilised technique, but acts as an essential portion in industrial inspection, especially in improved territories. The principal characteristics of such a method are:
- ✓ This is easier than mailing process.
 - ✓ It is quicker to collect information than other process.
 - ✓ This is inexpensive than personal interviewing process.
 - ✓ Call backs are very simple here.
 - ✓ Response level is also very high.
 - ✓ Answers of the respondents can be recorded easily.
 - ✓ Entrance to the respondent is very easy here.
 - ✓ The needs of the respondents can be easily understood.
 - ✓ The field employee is not needed.
 - ✓ The lieutenant and broadly expression of sample is probable.

But this technique of accumulating data is not deprived from demerits. Most of the essential parts are exaggerated as:

- ✓ Sometime should be provided to the respondent to accept responses.
- ✓ Inspections are limited to respondents in case of telephonic interviews
- ✓ Passionate inspections are not possible to receive apprehensive answers.
- ✓ Probability of partiality of the interviewer is comparatively more.
- ✓ All the questions must be small and to the point due to overcome difficulties.

The interviewing technique or system is an art by which one comes to know it through the acquaintance. Notwithstanding, the subsequent points may be placed in view through an interviewer for revealing the intended data:

- ✓ The interviewer should be acquainted with the problem and make an earlier plan.
- ✓ The accessibility of the interviewer should be amiable and unambiguous.
- ✓ All probable endeavours should be created to set up a good relation with the interviewee.
- ✓ The interviewer should be wise, self-disciplined and self-controlled.
- ✓ The interviewer should create a free-flowing interview environment.
- ✓ The job of accumulating data is to be executed by different interviewers.

(viii) Collection of Data through Questionnaires

The process of information accumulation is absolutely popular, especially in case of broad enquiries. And this is being admitted by the employees of private and public work departments or institutions and research workers. The technique of accumulating information by mainly the question sheets to the defendants is most widely charged in different financial and trade inspection. The merits deserved on behalf of this technique are discussed as:

- ✓ There are very low expenses.
- ✓ The interviewer should be free from the leanings or partialities.
- ✓ The respondents will have enough time to provide good answers.
- ✓ The respondents, who are not comfortable, may also be attained suitably.
- ✓ Big samples may be created use of and in such a way the consequences may be created more trustable and credible.

The major demerits of this method can also be enlisted such as-

- ✓ Low cost.
- ✓ Free from leaning or partiality.
- ✓ Enough for providing good answers.
- ✓ Convenience to appear or approach.
- ✓ Dependability and credibility.
- ✓ Very low chances of return.
- ✓ It may be used only for educated and co-ordinating respondents.
- ✓ Administration over question sheets.
- ✓ Inner conflicts or complications.
- ✓ Judgement of elimination is difficult.
- ✓ Difficult for justifying the intended respondents who are quietly representatives.
- ✓ This is the slowest technique among all the techniques.

(ix) Collection of Data through Schedules

This process of data accumulation is very much preferable for the data collection throughout a question sheet having a few variances which lies in the incident that lists are being attributed by the representatives or lieutenants who are particularly appointed for the object just as-

Difference between Questionnaire and Schedule: Both the question sheet and schedule are utilised to accumulate the information in research inspection. There is a lot of resemblance in case of these two techniques. But according to the technical viewpoint there is huge variation between the two factors. Some essential points of difference are discussed as under:

- ✓ Question sheet is dispatched through mail.
- ✓ Data accumulation through question sheet.
- ✓ High amount of non-response through sheet.
- ✓ Feedback complication from the respondents.
- ✓ Slow questionnaire technique.
- ✓ Contact with respondents through mail or postal service.
- ✓ Question sheet technique may be applied only to the educated and cooperative respondents.
- ✓ Allocation of sample is probable throughout this questionnaire technique.
- ✓ Heavy risk to accumulate wrong data.
- ✓ Qualitative questionnaire is more successive.
- ✓ Physical approach of questionnaire may be entirely conspicuous.
- ✓ Observation is needed to collect data from questionnaire.

(x) Guidelines or Constructing Questionnaires

The researcher should pay heed to the subsequent points in formulating proper and effective question sheet or schedule-

- ✓ Beginning point for improving questionnaire.
- ✓ Questions should be made in proper way.
- ✓ One rough schedule should be prepared.
- ✓ Research should retest the technical faults.
- ✓ In case of pre-examine the pilot training with study should be granted.
- ✓ The question sheet should remain as easy directions.

(xi) Some Other Methods of Data Collection

Now-a-days one must accept some different techniques of data accumulation, especially utilised by trade houses as the following-

- ✓ Guarantee cards.
- ✓ Allotment Observation
- ✓ Client Dashboard.
- ✓ Utility of Technical Instruments.
- ✓ **Projective Techniques:** It may be shortly treated with the vital projective techniques such as:
 - Vocabulary Arrangement Tests.
 - Sentence Construction.
 - Story Writing Tests.
 - Written Projection Tests.
 - Graphic Methods.
 - Metallic Comprehension Tests.
 - Hypothetical Tests.

(xii) Collection of Secondary Data

Secondary data refers the information which is available in the market and already have been accumulated and observed by anyone else. Carefully, the researcher, for utilizing it, should go through the subsequent characteristics-

- ✓ Credibility of Information.
- ✓ Susceptibility of Information.
- ✓ Sufficiency of Information.

Credibility: The dependability can be verified by finding out such things about the said information: a) who collected the data? b) What were the bases of information? c) Were they composed by using appropriate methods? d) At what time were they composed? e) Was there any bias of the compiler? f) What level of accurateness was wanted? g) What is attained?

Susceptibility of Information: The data that are appropriate for one query may not essentially be originated appropriate in additional investigation. Hence, if the obtainable information is found to be inappropriate, they should not be used by the several terms and units of gathering used at the time of assembling the data from the chief basis originally. Likewise, the object possibility and nature of the original query must also be deliberate. If the investigator finds alterations in these, the data will continue inappropriate for the present investigation and should not be used.

Adequacy of Data: If the level of accurateness attained in data is originated insufficient for the persistence of the present enquiry, they will be measured an insufficient and should not be used by the investigator. The information will also be considered insufficient, if they are connected to an area which may be either thinner or wider than the area of the current enquiry.

(xiii) Selection of Appropriate Method for Data Collection

In such a way, there are different techniques of data accumulation. In this case, the researcher must envisage the techniques of the study emphasizing the following incidents:

- **Nature, Object and Scope:** The optimal of selecting a technique of data collection is affected by the nature, object and scope of that review.
The technique of data collection should be such that outfits the kind of query that is being showed by the investigator. This influence also assistances the investigator to resolve whether the subordinate data to be used or the main data are to be composed for the enquiry.
- **Availability of Funds:** The process of data collection to be used is also pretentious by the obtain ability of funds, at the discarding of the researcher. If the investigator has incomplete funds, he will have to choose a moderately inexpensive method. Thus, economics is a big limitation in practice and the investigator has to act consequently.
- **Time Element:** Time element plays an identical significant role in determining a specific way of data collection. Some approaches are comparatively more time overwhelming, whereas with others data can be composed in a very short period. The investigator has to choose the technique of data collection possession in mind the time at his removal.
- **Accuracy Essential:** The assortment of a suitable technique of data gathering is also affect by the accuracy obligatory in an examination by the investigator.

(xiv) Case Study

The case study method is very much social rather than standardize hypothesis and concerns a cautious and quite justifications of a social units like a school, college, friend, teacher, institution, group or even the whole community. The purpose of the case study method is placed by the incidents such as follows:

- Features.
- Augmentation or chance.
- Suppositions.
- Opportunities.
- Restrictions.

Characteristics of Case Study

- i) The case study attempts towards a complete thoughtful of social systems of action. Cultural schemes of action mention to sets of inter-related events involved in by the actors in a social condition.
- ii) The case studies must constantly have limitations.
- iii) Case studies tend to be selective, concentrating on one or two matters that are important to understanding the arrangement being inspected.
- iv) Case study investigation is not sampling research. However, choosing cases must be completed so as to exploit what can be cultured, in the period of time accessible for the study.

There are some advantages of Case Study as follows:

- i) **Intensive Study:** Case study technique is accountable for rigorous study of a unit. It is the examination and investigation of an event carefully and deeply.
- ii) **No Sampling:** Its educations a social unit in its whole perspective. Its resources there is no sampling in case study process.
- iii) **Continuous Analysis:** It is valued in analysing continuously the life of a communal unit to dig out the truths.
- iv) **Hypothesis Formulation:** This method is valuable for preparation of suggestion for further study.
- v) **Comparisons:** It associates dissimilar type of facts about the education of a unity.

- vi) Increase in Knowledge:** It gives the reasonable power of an individual to growth knowledge about a communal phenomenon.
- vii) Comprehensive:** It is an inclusive technique of data assortment in communal research.
- viii) Farming Questionnaire or Schedule:** Through case study technique we can express and grow a survey and schedule.

There are some limitations of Case Study as follows:

- i) Limited Representatives:** Due to as narrow attentions a case study has incomplete legislatures and simplification is impossible.
- ii) No Classification:** Any arrangement is not possible due to learning a small unit.
- iii) Possibility of Errors:** Case study technique may have the mistakes of memory and decision.
- iv) Subjective Method:** It is an individual method rather than objective.
- v) No Easy and Simple:** This technique is very problematic and no layman can conduct this technique.
- vi) Bias Can Occur:** Due to narrow study the judgement and bias can happens in the examination of a social unit.

6. Concluding Remarks

From the above discussion it may be concluded that in research activity sample design and data collection are the important activities what a researcher has to experience during his research. As know that research is to see what everybody has seen and has to think what nobody else has thought it has a continuity. For sample design, it can be said that using a sample in research saves mainly on money and time. If an appropriate sampling plan is used, suitable sample size selected and essential precautions taken to decrease on sampling and number of errors, then a sample should yield applicable and consistent data. Sample size in qualitative research has been the topic of continuing consultation. While the quantitative research area has recognized comparatively straightforward statistics-based system to set sample sizes accurately, the details of qualitative sample size resolve and evaluation arise from the methodological, academic and ideological pluralism that characterises qualitative investigation. So, the endeavour made us familiar sampling and non-sampling errors, data collection, survey, survey and experiment and we have also understood how to collect the primary data, secondary data, case study and its characteristics for the research work.

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