

## Chapter 9

# Experimental Method

Experimental method is a scientific method. It is oriented to the future in the sense that the researcher is seeking to evaluate something new. It is a process of contribution to the already acquired fund of knowledge. Thus, the experimenter operates under the basic assumption that the research situation he wishes to evaluate has never existed and does not now exist. Situation here means in the sense of a programme, curriculum or method for organizing class, as well as a 'situation' created to test.

### **According to Jahoda: It is a Method of Testing Hypothesis**

The purpose of experimentation is to derive verified functional relationships among phenomena under controlled conditions or more simply, to identify the conditions underlying the occurrence of a given phenomenon. From an operational point of view, it is a matter of varying the independent variable in order to study the effect of such variation on the dependent variable. For example, the investigator might vary the size of the print and appraise the effect of such manipulation on reading speed. Actually, what we know about our environment comes from observation, and all research is concerned with the observation of phenomena and the generalization of these observations into certain functional relationships whose internal validity can be tested. Experimentation simply enables us to improve the conditions under which we observe and, thus, to arrive at more precise results. This is the essence of the scientific method.

### **MEANING AND DEFINITION OF EXPERIMENT**

There are many views about the experiment, given by different researchers. They are as follows:

“An experiment usually consists in making an event occur under known conditions whereas many extraneous influences as far as possible are eliminated and close observation is possible so that relationship between phenomena can be revealed.”

– *William I.B. Beveridge*

“An experiment is an observation under controlled conditions.”

– *F.S. Chapin*

### **W.S. Monro and M.D. Engelhart define term 'experiment' in their words**

“Experimentation is the name given to the type of educational research in which the investigator controls the educative factors to which a child or group of children is subjected during the period of inquiry and observes the resulting achievement”

### **John W. Best has defined experiment that**

“Experimental research is the description and analysis of what will be or what will occur, under carefully controlled condition.”

“An experiment is a question framed on the basis of what is known and addressed to nature to elicit further knowledge. It, thus transcends mere observations or collection of materials; it is consciously directed, purposeful observation.”

– E.B. Wilson

**According to Johada and others: “It is a method of testing hypothesis”**

“Experiment is the proof of a hypothesis which seeks to make up two factors into a casual relationship through the study of contrasting situations which have been controlled on all factors the one of interest, the latter being either the hypothetical cause or the hypothetical effect.”

– Ernest, Greenwood

“The essence of an experiment may be described as observing the effect on a dependent variable of the manipulation of an independent variable.”

– Festinger

**According to W.S. Monore**

“Experimentation is the name given to the type of educational research in which the investigator controls the educative factors to which a child of group of children is subjected during the period of inquiry and observes the resulting achievement.

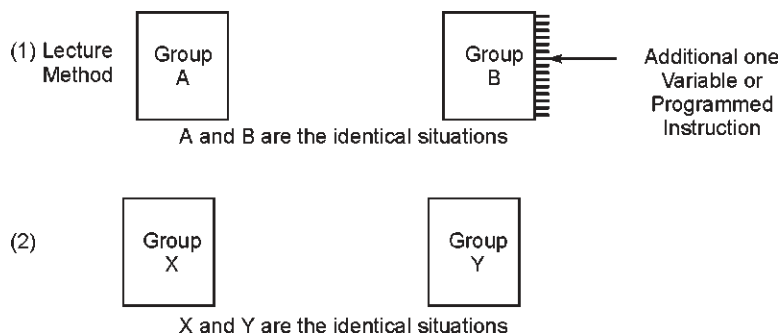
**THE BASIC ASSUMPTIONS BEHIND THE EXPERIMENT**

*(Law of Simple Variable)*

Experimental research in the original form is based on the assumption of the established Law of Single Variable by J.S. Mill: If two situations are similar in every respect, and one element is added or subtracted from one but not the other, any difference that develops is the result of the operation of that element added or subtracted.

It means if two situations are identical in all respects the addition or subtraction of one variable contributes the differences or change or effect in two situations than the difference or effect is said to be the cause of the single additional or the single variable.

For example:



If the additional or subtracted variables causes the difference between the two identical situations then it may be attributable to the variable.

## CONCEPT OF CAUSE AND EFFECT

The main focus and scientific study is to analyse the functional relationship of the variables. The functional relationship refers to the cause and effect relation between the variables.

The cause and effect relationship can be studied by applying the 'Law of Single Variable'. A researcher wants to study the effectiveness of new teaching strategy, i.e., programmed instruction. For this purpose two equivalent groups are selected, one group will be taught through new strategy or programmed instruction and another group with lecture method. Same content will be taught and same criterion test or achievement test will be administered on both groups. The performance of programmed instruction group is significantly higher than that of lecture method group. It may be concluded that programmed instruction strategy is effective than the lecture method, because the performance of experimental group is caused by the new strategy of teaching or programmed instruction treatment.

## MEANING AND DEFINITION OF VARIABLE

On the experimental study the main functioning proceeds around the variables. To see the cause and effect is the main focus of this study and the further question "Of what" gives the word 'Variable'. To see the effect of these variables is the purpose of experimental study.

*Kerlinger says:* "Variable is a property that take on different value." A variable is any feature or aspect of an event function or process that, by its presence and nature, affects some other event or process, Which is being studied.

## TYPES OF VARIABLES

The variables can be classified in various ways but four types of variables are employed in conducting an experiment in education:

1. Experimental Variable or Independent Variable.
2. Controlled Variable.
3. Criterion Variable or Dependent Variable.

### 1. Experimental Variable

An experiment is conducted to examine the effect of a variable or treatment which is known as experimental variable. The main attention is given in the experiment to observe its effect. The programmed instruction strategy may be an experimental variable.

### 2. Controlled Variable

The effectiveness is the relative term, therefore the effectiveness of an experimental variable is examined by comparing with other variable which is known as controlled variable. The effectiveness of programmed instruction strategy is studied by comparing with the lecture or traditional method of teaching. The lecture method is the controlled variable. The control group subjects should not get the exposure of the experimental variable.

### 3. Criterion Variable or Dependent Variable

The basis on which the effectiveness of the experimental variable is established or studied is known as the criterion variable. The achievement may be the criterion or dependent variable. The learning outcomes

or achievement or change of behaviour are usually the criterion variable in education or psychology. If we want to study the effectiveness of schedules of reinforcement, it will be examined in terms of student achievement through different schedules of reinforcement. The student achievement is the criterion variable.

#### **4. Intervening Variable**

There are a number of abstract variables in educational experiment which intervene the effect of experimental variable on criterion variable. The learners attitudes, motivation and learning process are the intervening variables. A researcher should be careful about intervening variables in conducting an experiment to obtain the true effect of the treatment.

**Experimental Group:** An experiment is conducted on sample or group of subjects. The group which is assigned to the experimental variable or treatment is known as experimental group.

**Controlled Group:** The effectiveness of experimental variable is examined by comparing with controlled variable. The group which is allotted to controlled variable is termed as controlled group.

### **EXPERIMENTAL CONTROL**

The main important problem of an experiment is the experimental control. For an accurate conclusion it is essential that all variables except experimental variable, should be controlled. It should only be in a functional situation.

According to McGuigan: The word 'Control' implies that the experimenter has a certain power over the conditions of this experiment. He is able to manipulate variables in effort to arrive at a sound conclusion.

### **NEEDS OF CONTROL**

1. For the internal validity of result.
2. To know the effect on situations by changing them.
3. To make scientific observation.
4. To make prediction.

The control means to hold over the situations in this way that a change at any time can be brought about and could control the effect.

### **CONTROL OF WHAT AND HOW**

Researcher needs to study the effect of the independent variable. For this he has to control all the other relevant variables which effect the activation of experimental variable.

Researcher has to design and conduct the experiment in such a way that the experimental group should not be exposed other than experimental variable or the treatment.

### **CHARACTERISTICS OF AN EXPERIMENT**

The purpose of experimentation is to identify functional relationships, among phenomena through staging the occurrence of certain outcomes under controlled conditions designed to prevent the confusing

effects of the operation of extraneous factors. Experimentation can be considered a technique of deliberately staging a situation designed to force nature to provide a “yes” or “no” answer to a specific hypothesis concerning the phenomena under discussion.

Experimentation is to provide a meaningful solution to a problem, it is essential that the experiment contains, within itself, the means for answering its own questions—that is, the experiment must be self contained. This, in turn, calls for the satisfaction of three basic and inter-related conditions—control, randomization and replication. Unless these conditions are, fulfilled, the experiment cannot be interpreted, for it cannot eliminate the possibility that the results obtained were caused by factors other than that under investigation. More specifically the experiment must provide the basis for calculating the probability that the phenomena which did occur was the result of the experimental factor rather than of the operation of extraneous factors.

The experimental method in educational research is the application and adaptation of the classical method of the science laboratory. It is the most exacting and difficult of all methods and also the most important from the strictly scientific point of view. The main features of experimental method are:

1. Its basic assumption rests on J.S. Mill’s Law of Single Variable which states that if two situations are similar in every respect, and one element is added to or subtracted from one but not the other, and difference that develops is the result of the operation of that element added or subtracted. Experimentation, therefore, involves an attempt to control all essential factors save a single variable which is manipulated with a view to determining and measuring the effect of its operation. This procedure is distinctly different from the historical and the normative survey methods.
2. Now a frequently used procedure in educational research it has been applied with considerable success in the classroom where within certain limits, significant factors or conditions can be controlled.
3. Since in the field of education complex human beings are the subjects and since it is unlikely that all variables can be successfully controlled, experimentation is not a perfectly precise method. The experimental findings in education are somewhat exact because some variables (like teacher’s enthusiasm for or competence in using a particular method or material, regularity of attendance, mental or emotional state of the child determined by a number of factors) are extremely difficult or even impossible to control. The basic condition of other things being equal it is difficult of fulfillment in educational research.
4. Most classroom experiments have attempted to eliminate one or more of the variables: age, achievement, intelligence, or reading ability, social status and race, etc. Experiments often have to be conducted using intact, existing groups, trusting that the variables not controlled are irrelevant or insignificant for the purpose of study. The control group and the experimental group are never as identical as they ought to be for an exact experiment.
5. The concepts of educational experimentation has developed since the beginning of the last decade of the 19th century and interest in the experimental method of research in education has made rapid progress in the last fifty years or so.
6. Experimentation in education has been put to various uses, main among which are:
  - (i) to determine and evaluate the adequacy and effectiveness of educational aims and objectives through the measurement of outcomes;
  - (ii) to serve as basis for the formulation, execution and modification of educational policies and programme; and

- (iii) to ascertain the effect of any change in the normal educational programme or practices.
7. Experimental studies in education never strictly empirical, can yet approximate strictly empirical research in many areas. For example, the teaching of spelling through different methods, difference between the effect of the authoritarian and democratic set up in education, and the possibility and extent of one subject improving achievement in another, are problems which have been handled in a scientific way through the experimental approach. But there are areas where a strictly empirical approach is impossible. For example, in finding out whether centralization of educational administration produces better results than local freedom, in deciding if co-education is preferable to separate schools for boys and girls, and in establishing whether certain achievements of education stay when formal schooling stops, nothing more. In such areas and for solving such problems where we cannot experiment we look out for cases where education goes on under different conditions. We let the reality experiment for us and just watch and study the results objectively.
  8. All experiments in education are ultimately experiments with children, i.e., human beings, who for ethical reasons must not be subjected to conditions that may harm them. The popular slogan “No experimenting with children” may not be wholly justified, but there certainly are boundaries of a moral character for experimentation which must not be infringed.
  9. Another difficulty, in principle at least, arises from the fact that educational experiments are carried through with human beings and affect mental processes and attitudes. Gestalt psychology are related research have shown that the introduction of any specific influence, however well and exactly defined, intended to change one specific type of mental process or attitude-well change the ‘whole field’ of mentality, often in aspects and ways that especially he control of the experimenter.

## THE STEPS OF THE EXPERIMENTAL METHOD

The steps of the experimental method are essentially those of the scientific method. For the sake of clarification, they may be listed as follows:

1. *Selecting and delimiting the problem:* The problems amenable to experimentation generally can, and should, be converted into a hypothesis that can be verified or refuted by the experimental data. The variables to be investigated should be defined in operational terms for example, the scores on a test of acceptable validity.
2. *Reviewing the literature.*
3. *Preparing the experimental design:* While it should also include a clarification of such basic aspects of the design as the place and the duration of the experiment, this section should place primary emphasis on the questions of control, randomization, and replication. Because of the complexity of an experiment, it is generally advisable to conduct a pilot study in order to ensure the adequacy of the design.
4. *Defining the population:* It is necessary to define the population precisely so that there can be no question about the population to which the conclusions are to apply.
5. *Carrying out the experiment:* It is necessary here to insist on close adherence to plans, especially as they relate to the factors of control, randomization and replication. The duration of the experiment should be such that the variable under investigation is given sufficient time to promote changes that can be measured and to nullify the influence of such extraneous factors as novelty.

6. *Measuring the outcomes*: Careful consideration must be given to the selection of the criterion on the basis of which the results are to be measured, for the fate of the experiment depends in no small measure on the fairness of the criterion used.
7. *Analyzing and interpreting the outcomes*: The investigator is concerned with the operation of the factor under study. He must be especially sensitive to the possibility that the results of his study arose through the operation of uncontrolled extraneous factors. He must further exclude, at a given probability level, the possibility that his experimental findings are simply the results of chance. In no other area of educational research is the need for competence in statistical procedures so clearly indicated as in the analysis of experimental data as the basis of their valid interpretation. Of course, statistics cannot correct fulfill in the design or overcome inadequacies in the basic data. The investigator must recognize that statistical tools do not relieve the scientist of his responsibility for planning the study for controlling extraneous factors and for obtaining valid and precise measurements. It can also be argued that there is limited justification for high-powered statistical refinement in the early exploration of a problem area or in instances where the data involved are essentially crude and imprecise.
8. *Drawing up the conclusions*: The conclusions of the study must be restricted to the population actually investigated and care must be taken not to over generalize the results. The results also pertain only to the conditions under which they were derived and since control may have distorted the natural situation care must be taken to restrict the conclusions to the conditions actually present in the experiment. The investigator must not forget that his conclusions are based on the concept of probability but especially he must not fail to recognize the limitations underlying his conclusions and/or the special conditions that restrict their applicability.
9. *Reporting the result*: The study must be reported in sufficient detail so that the reader can make a judgement as to its adequacy.

## CLASSIFICATION OF EXPERIMENTS OR EXPERIMENTAL PROCEDURES

Experimental studies can be variously classified on different bases. The usual bases observed for classification of experiments are:

1. *Type of control*: Scientific or practical, formal or informal, actual or inferred.
2. *Means of approach*: Analytical, comparative, quantitative or qualitative.
3. *Place where conducted*: Laboratory, field or classroom.
4. *Grouping of subjects*: In groups or individually.
5. *Treatment of subjects*: In groups or individually.
6. *Function or purpose*: To study direct effects indirect effects or causes.
7. *Time involved*: Long or short duration.
8. *Sponsorship or investigation agency*: Independently or cooperatively but an individual or an institution.

Among the several bases of classification listed above the most significant, perhaps is the one which takes into account the grouping of subjects because the design of an experiment is largely determined by this factor.

Experimental designs vary in complexity and adequacy, depending on such factors as the nature of the problem under investigation, the nature of the data, the facilities for carrying out the study, and

especially, the research sophistication and competence of the investigator. Although there are a number of combinations of the various experimental procedures.

There are three basic procedures in the experimental method :

1. Single individual or single group experimentation.
2. Parallel or equated groups experimentation, and there are four ways for equating the groups.
  - (a) Randomization for equating groups.
  - (b) By comparing mean scores of the two groups.
  - (c) Matched pairs method for parallel groups.
  - (d) Co-twins method for equating groups.
3. Rotational procedure. It is of two types:
  - (a) Single group rotation, and
  - (b) Parallel or equated group rotation.

There are three basic types of errors which influence in an experiment in field of education. These are sampling error or S-error, Replication error or R-error and General error other than S and R or G error. The above procedures of experiment have the focus to control the sampling error only. E.F. Lindquist developed Basic Experimental Designs for eliminating these three basic types of errors which are as follows:

1. Simple Random Design.
2. Levels x Treatments Design,
3. Subjects x Treatments Design,
4. Random Replication Design,
5. Group Within Treatment Design, and
6. Factorial Design.

These designs have been discussed in the following chapter in detail and procedures of experimental have been described in the following paras:

These procedures differ in the particular manner in which they attack the problem, in the degree of accuracy with which they meet the criteria of control, randomization and replication, and, of course, in the adequacy of the answers which they are capable of providing.

### **1. The Single Individual or One-Group Procedure**

The single individual or one-group experiment is the most elementary and least rigorous design. It consists of comparing the growth of a single group under two different sets of conditions-that is, of subjecting the group successively to an experimental and to a control factor for equivalent periods of time and then comparing the outcomes. The procedure might be listed as follow:

1. Test the group; introduce method A; test the group again; and note the gains.
2. Allow for a period of transition.
3. Test the group again; introduce Method B; test the group once more; note the gain.
4. Compare the gains in 1 and 3.

This experimental design has a number of limitations that need to be clearly recognized. On the favourable side, it permits an experiment to be conducted by a teacher in his own classroom without assistance, and, on the surface, since the same group and the same teacher are involved, it seems to



make a fair attempt at equating the factors of the ability and background of the subjects and the general characteristics of the experimental situation.

**The steps of this procedure are:**

1. One group is measured under the referred factor variable (V).
2. Except independent variable (Ex. V) all other variables are kept as they are.
3. Exp. V. is used for a particular time.
4. Group is measured for study the effect or changes in Depe. V. by Exp.V.
5. One by one other variables are included for deterring the effect.

**Advantage:** The following are the main advantages of this procedure:

1. This simple experimental design is more useful than others.
2. The planning and activation of this is easy and simple.
3. Equalization of group or changing is not needed.
4. It is applicable in classroom.
5. It works as a stimulus for better teaching.

**Limitations:** The following are the limitations of this procedure:

1. Influence of growth and maturity.
2. Influence of transfer or training.
3. Influence of experiment and knowledge.
4. Influence of skill factor and practice.
5. Influence of attitude or method in between two experimental situation.
6. Difference in the speed of learning.

The parallel or equated group procedure is an improvement over the single individual and single group procedure.

## 2. The Parallel or Equivalent Group Procedure

A more adequate experimental design is the parallel or equivalent group technique in which the relative effects of two treatments are compared on the basis of two or more groups, which are equated in all relevant aspects. This is essentially the implementation of Mill's common of difference. In an educational experiment, the groups being compared generally are equated on chronological age, 10, motivation, sex, general scholarship, general background, and any other factor considered relevant to the problem under investigation. The basic design of parallel group experimentation might be represented as follows:

<i>Experimental group</i>	<i>Control group</i>
1. Pre-test	Pre-test
2. Experimental factor	Control factor
3. Final test	Final Test
4. Comparison of gains difference	

Thus, the main steps in the parallel group method are as follows:

1. Securing equivalent groups,
2. Applying the experimental factor,

3. Comparing the results, and
4. Interpreting and reporting the results.

The initial step of securing equivalent groups is a crucial one due to the varying degrees of inherited and acquired characteristics in the members of any group. The control factors usually considered are:

1. Chronological age,
2. Sex,
3. Race,
4. Physical condition,
5. Intelligence,
6. Previous achievement,
7. Study habits, and
8. Personality trait.

The last two, obviously, do not lend themselves to objective measurement and so are less reliable factors than the earlier ones, although no less important.

Among the many methods of equating groups for experimental purposes, the following devices are frequently employed:

- (a) Chance or random selection.
- (b) Equating on the basis of mean scores and standard deviation.
- (c) Equating by matched pairs.
- (d) Equating by co-twin methods.

**Advantages:** It has the following main advantages:

1. The main advantage of this type of experimental design is that it is free from the weaknesses of the one-group method.
2. Both the control and the experimental factor or factors are applied simultaneously on different groups so that the difficulties due to maturation and practice effect, etc., do not arise.

**Limitations:** The equated groups procedure has the following limitations:

1. This method suffers from the difficulty of equating groups and controlling significant variables.
2. These are several administrative problems for selecting subjects from schools.
3. The sampling error can not be minimized by this procedure.

### 3. Rotational Groups Procedure of Experiment

Rotational experiment is designed with a single group or with equated two group's procedure. The experimental and controlled groups are rotated in different cycles to different treatments. The procedure of rotation eliminates the sampling error because the same subjects are kept in controlled and experimental variables. Therefore, this technique is an improvement over the earlier two procedures.

(a) **Single Group Rotation:** In this procedure same group is kept in controlled and experimental situations successively in the first cycle. In the second cycle the same group is assigned in experimental and controlled situations

<i>Cycle</i>	<i>Experimental situation</i>	<i>Controlled situation</i>
I Cycle	Group All	Group A12
II Cycle	Group A22	Group A21
Mean Scores	Me	Mc

The significance of mean scores is tested and conclusions are drawn about the effectiveness.

**(b) Parallel or Equated Two Groups Rotation:** Under this procedure two groups are equated on some criterion. There are two groups A and B. Group A is kept in experimental factor and Group B in controlled factor in cycle. In the cycle Group B is kept in experimental factor and Group A in controlled factor.

<i>Cycle</i>	<i>Experimental</i>	<i>Factor</i>
I Cycle	Group A	Group B
II Cycle	Group B	Group A
Mean Scores	Me	Mc

The significance of mean scores is tested and conclusions are drawn for the effectiveness of experimental factor.

If more than two factors have to be made the subject of study, more than two groups will have to be employed, and number of cycles, at least equal to the number of groups employed, have to be observed.

Thus, the rotational method involves the rotation of instructional factors of the experimental and control groups at equal intervals. The measurement of influences is done factors-wise by adding up the results after the introduction of individual factors. More than two groups, more than two factors and more than two cycles will be handled in the same way.

The rotation group method is used to secure control of pupil factors when groups cannot be thoroughly equated. It also neutralizes the teacher-variable. In general, it overcomes the chief weaknesses of both the one group and the equivalent group methods. Since in the rotation group design each variable is applied to each group, it is not necessary that the groups be exactly equated. Of the three designs of educational experimentation, this is the most valid but the most complicated too.

## CHARACTERISTICS OF A GOOD EXPERIMENTAL METHOD

These characteristics are classified into two categories:

A. General Characteristics and B. Specific Characteristics.

### A. General Characteristics of an experimental method

The following are the general characteristics.

- A<sub>1</sub> Bias free estimation of true effect,
- A<sub>2</sub> Precision of the estimates with a quantitative index,
- A<sub>3</sub> The testing of clear specific hypothesis of different intention etc., and
- A<sub>4</sub> Efficiency in the sense of securing maximum results at minimum.

## **B. Specific Characteristics of an experimental Method**

The following are the specific characteristics:

- B<sub>1</sub> It emphasizes objectively and accuracy in the collection of the data and treatment part of it.
- B<sub>2</sub> It emphasizes control of conditions and the experimentation of certain variables in controlled conditions.
- B<sub>3</sub> It sets out the relationship between the phenomenon and this relationship is more or less of the casual type.
- B<sub>4</sub> It uses standardized tool for experimentation and makes the evidences very much objective.
- B<sub>5</sub> The sample is selected with great precaution and every care is taken to safeguard extraneous factors.
- B<sub>6</sub> It leads to the testing of a specific hypothesis and experimental evidences so called as to reject or retain the hypothesis.
- B<sub>7</sub> The laws, postulate and theories of education are developed mostly through experimental methods. It allows for precision and definiteness (exactness) in the findings and their analysis and treatment through measurement. The hypothesis is rejected or retained, measurement through standardized test and tools of research.

## **THE APPLICATION OF EXPERIMENTAL METHOD IN THE FIELD OF EDUCATION**

Area of experimental method is in the teaching methods and in instructional material etc.

1. To find out the efficiency of different methods teaching in one subject in class-room.
2. To test the effectiveness of different type of instructional material used in class-room situation.
3. School plant experiment, i.e. to improve the school plant to improve the tone of the school.
4. The curricular, different type content can be tried out on the student, Text books can be written with the help of experimental method that will be effective and useful. What type of content should be included in the text-books etc.
5. Administrative problem, this will be included in discipline problem of human relation. A student can be discriminative in school of star of the school. The traits of the students can be measured.

## **PRECAUTIONS TO BE TAKEN IN EXPERIMENTATION**

The following precautions are to be observed in experimentation:

1. Purpose of experiment should be defined clearly in advance.
2. Experiment control and criterion variables should also be defined clearly.
3. Great precautions be taken for the effect of intervening variables.
4. Sample should be selected carefully and appropriate sampling techniques should be used.
5. Pre and post test should be given in the experimental situation.
6. Same criterion test should be used as pre and post test.
7. In designing and experiment the following things should be kept in view:
  1. Plan (Layout).
  2. Procedure.
  3. Time.
  4. Cost.

**EXERCISES**

1. Define the term 'Experiment'. Enumerate the basic assumption of an experiment and explain the 'Law of Single Variable'.
2. Explain and illustrate the following types of variables: (a) Experimental variable (b) Controlled variable (c) Intervening variable (d) Moderator variable.
3. Enumerate the characteristics and uses of an experiment in educational research.
4. Indicate the steps of the Experimental Method.
5. What are basic procedures employed in the experimental method? Describe the rotational procedures and mention situations in which this can be used effectively.

## Chapter 10

# Case Study Method

Case study is both method and tool for research. Case study leads to very novel idea and no longer limited to the particular individual. In case study investigator tries to collect the bits in support of proposition. One case study if we take specific than prediction value is less while if the case is the representative sample then it has high prediction value. Case study methodological is not longitudinal study but it depends on the methods of information about the individual as far as possible.

Therefore, case study is conducted only for specific case. It requires personal observation, by or objective method. Actually case study means a study in depth. Here depth means to explore all peculiarities of case. Case study is the intensive study of a phenomenon, but it gives subjective information rather than objective. It gives a detailed knowledge about the phenomena and not able to generalize beyond the knowledge. In physical science every unit is the true representative of the population, but in education and the units may not be true representative of the population. There are individual differences as well as intra- individual differences. Therefore, prediction can not be made on the basis of knowledge. No statistical inferences can be drawn from the exploration of a phenomenon.

Here case does not necessarily mean an individual. Case means an unit, it may be an institution or a nation, or religion or may be an individual or a concept.

Thus, case study refers to

- **Close study of an unit,**
- **Deep study,**
- **Cumulative study, and**
- **Clinical study.**

The case study is mostly done in police inquiry to investigate the case. The purpose is to find out the facts about the case so that true culprit would be punished. In research case study has entirely different purpose. The main purpose of case study is the development of case on the basis diagnosis which is done on the post records of the case. It establishes the cause and effect of relationship.

### DEFINITION OF CASE STUDY

The case study or case history method is not a newer thing, but it is 'a liner descendent of very ancient methods of sociological description and generalization namely, the 'parable', the 'allegory', the 'story' and the 'novel'.

Case study is based on intensive study of the comparatively fewer persons, sometimes confined to a very small number of cases only. P.V. Young writes :

“A fairly exhaustive study of a person or group is called a life of case history.”

Thus, the case study is more intensive in nature, the field of study is comparatively limited but has more of depth in it. And here the unit of study is also unlimited. P.V. Young again writes:

“Case study is a method of exploring and analyzing the life of a social unit - be that unit a person, a family, institution, culture group, or even an entire community.”

Good and Scates have defined comparatively ‘case study’ as follows:

“The essential procedure of the case-study method is to take account of all pertinent aspects of one thing or situation, employing as the unit for study an individual, an institution, a community or any group considered as an unit. The case consists of the data relating to some phase of the life history of the unit or relating to the entire life process, whether the unit is an individual, a family, a social group, an institution, or a community. The complex situation and combination of factors involved in the given behaviour are examined to determine the existing status and to identify the casual factors operating.”

The foregoing definitions of case study may be rendered concrete by citing the titles of selected works that illustrate the application of this investigational procedure to individuals, social institutions or agencies and communities or culture groups.

Some writers have made a distinction between the terms case. study, case work and case method. As defined above case-study means intensive investigation of the particular unit represented. Case work refers especially to the developmental adjustment, remedial or corrective procedures that appropriately follow diagnosis of the causes of maladjustment or of favourable development.

## CONTRIBUTIONS OF CASE STUDY

The unique contribution of case study to general knowledge has been outlined by Olson under the following six headings:

1. Tabulation of case under significant categories as a means of communication to professional workers, the nature of the problems involved, for example, classification of the cases referred to a bureau of juvenile research in items of source of reference, age, sex, race, problem, intelligence, school grade, economic status, and interrelations between certain factors.
2. Evaluation of programme by studying the subsequent history of the person affected; for example, to follow up habit-clinic children who manifested delinquency problems before the age of ten years, through securing judgements on improvement from parents, teacher, hospital and agency.
3. Study of social and institutional group patterns existing in families, classes, schools and communities.
4. Provision of case materials for institutional purposes in professional courses.
5. Illustration and validation of statistical result, as in supplementing statistical findings on twin resembles by detail case histories.
6. Formulation of generalizations on the basis of the body of knowledge that results through accumulation of published reports of cases of particular types, as in medicine and in certain social, psychological, and educational areas.

## OBJECTIVES OF CASE STUDY

The case study has the following four main objectives:

1. Clinical purpose, (dealing with a patient).
2. Diagnostic purpose, (educational situation to provide the remedial instruction to poor students).
3. Fact-findings about psychological or educational problems.
4. Supplementing other information. It may be a follow up work. Phases of Case Study.

### **A Case Study is Conducted into Three Phases**

1. Retrospective phase refers to the past records of the case completely which is used in diagnosing the case.
2. Prospective phase refers to the present status of the case, which is helpful in understanding the case. The suggestions and remediation can be offered to the case.
3. Conspective phase refers to the future development and improvement of the case which is also employed to examine the effects of the remediation given to the case.

### **TYPES OF CASE STUDY**

Six types of case studies are conducted which are as follows:

1. A group or a community case study,
2. Casual comparative studies,
3. Activity analysis.
4. Content or document analysis,
5. A follow-up study, and
6. Trend studies.

#### **1. Community Studies**

The community study is a careful description and analysis of a group of people living together in a particular geographic location in a corporative way. The community study deals with such elements of the community as location, appearance, prevailing economic activity, climate and natural sources, historical development, how the people live, the social structure, goals and life values, an evaluation of the social institutions within the community that meet the human needs etc. Such studies are case studies, with the community serving as the case under investigation.

The community studies made by Robert and Helen Lynel and their associates at Muncie, Indiana, are well known. The first reported in the volume 'Middletown' in 1929 and the second, 'Middletown in Transition' in 1937.

#### **2. Casual Comparative Studies**

Another type of study seeks to find the answers to the problems through the analysis of casual relationship. What factors seem to be associated with certain occurrences, conditions or types of behaviour? By the methodology of descriptive research, the relative importance of these factors may be investigated.

For example, studies of juvenile delinquency may compare the social educational background of delinquents and non-delinquents. What factors were common to the delinquent group? What factors were common to the non-delinquent group? Any factor common to one group, but not to the other, might serve as a possible explanation of the underlying causes of delinquency.

#### **3. Activity Analysis**

The analysis of the activities or processes that an individual is called upon to perform is important, both in industry and in various types of social agencies. This process of analysis is appropriate in any field of work and at all levels of responsibility. In social system the roles of superintendent, the principal, the



teacher and the custodian have been carefully analyzed to discover what these individuals do and need to be able to do. 'The Common Wealth Teacher Training Study' (W.W. Charters and Waples, Chicago) made under the direction of Charters and Waples described and analyzed the activities of several thousand teachers, and searched previous studies for opinions of writers on additional activities in which classroom teacher should engage.

#### **4. Content or Document Analysis**

Content analysis, sometimes known as document analysis, deals with the systematic examination of current records or documents as sources of data. In documentary analysis, the following may be used as sources of data: official records and reports, printed forms, text-books, reference books, letters, autobiographies diaries, pictures, films and cartoons etc. But in using documentary sources, one must bear in mind the fact that data appearing in print are not necessarily trustworthy. The evaluation of documents used in descriptive research must be subjected to the same type of criticism employed by the historian.

This content or document analysis should serve a useful purpose in research, adding important knowledge to a field to study or yielding information that is helpful in evaluating and improving social or educational practices.

#### **5. A Follow-up Study**

A follow-up study investigates individuals who have left and institution after having completed programme, a treatment or a course of study, to know what has been the impact of the institutions and its programme upon them. By examining their status or seeking their opinions, one may get some idea of the adequacy or inadequacy of the institutes programme. Studies of this type enable an institution to evaluate various aspects of its programme in the light of actual results.

Dillon, Seagoe, Terman and Oden, Hanemann and West have made a follow-up study.

#### **6. Trend Studies**

The trend or predictive study is an interesting application of the descriptive method. In essence, it is based upon a longitudinal consideration of recorded data, indicating what has been happening in the past, what does the present situation reveal and on the basis of these data, what will be likely to happen in the future.

An excellent example of the trend study is presented in *An Economic Portrait of Indiana in 1979*. This type of study furnishes valuable data for furnishing programmes in whatever area they may be. These trends have important implications for college, officials, who must find ways of providing building and equipment, teaching staff and financial support for a greatly expanded programme of higher education. The commission on higher education anticipated that a flood of young people will be knowing at college and university doors and coming years.

#### **CRITERIA FOR A GOOD CASE STUDY**

The essential characteristics of a satisfactory case study include continuity, completeness of data, validity of data, confidential recording and synthesis that is scientific.

### 1. Continuity

There should be desirable continuity of information provided by two successive psychological examinations at any interval of a year, and by an elementary school record in relation to performance in high school.

### 2. Completeness of Data

In so far as possible, the potential range of data or information includes symptoms, examination results, (psycho-physical, health, educational and mentality) and history (health, school, family and school).

### 3. Validity of Data

A doubtful birth data may be verified through the Bureau of vital statistics, and employment record by reference to employers.

### 4. Confidential Recording

Educational workers have something to learn from medicine with respect to the confidential nature of professional records, the difficulties of individual teachers or pupils in relation to discipline, failure, achievement or mentality should be recorded as professional problems to be treated in a confidential manner.

### 5. Scientific Synthesis

This is an interpretation of the evidence that is more than a mere enumeration of data secured, it embraces diagnosis in identifying casual factor, and prognosis in looking toward treatment or developmental procedure.

If a case-study have all these characteristics, it will be an excellent study.

## SOURCES OF CASE DATA

1. **Personal Documents:** Diaries, autobiographies, memoirs, letters, confession, etc.
2. Life history records.
3. **Related Persons:** Parents, neighbours, friends, teachers, etc.
4. **Official Records:** Baby books, school records, police courts, military organizations, clubs, institutions, etc.
5. The subject himself.

These sources have been defined in the following paras briefly.

### 1. Personal Documents

These possess the events of life of the subject and his reactions to them. They also represent a community of experience which helps to illuminate the writers' personality, social reactions, and philosophy of life.

### 2. Life Histories

It is a combination of facts and events. Because of thin aid in studying complex behaviour and situations in scientific detail, Burgess refers to the life history as "the social microscope".

Life history data are generally gathered through prolonged interviews.

### **3. Related Persons**

Here with the altogether different of view of the informers, the different aspects of the subjects' life are attacked. Here 'trait acquaintancy' should be in the persons. Also, here chances of biases and misinterpretations are high, and it is the discriminating power of the researcher acting as a serve in separating the biased and factual facts.

### **4. Official Records**

Most of the social and academic life is got from the official records.

### **5. Subject Himself**

Sometimes of the patient or the subject may serve as the major source of data. But, however, here reliability of information is very low.

## **RATIONALE OF CASE STUDIES**

Case studies generally involve the co-operation of a number of investigators pooling their resources toward the diagnosis, the prognosis, and perhaps the treatment of problem. In the guidance of a child who is displaying anti-social behaviour, for example, a team, consisting of the school psychologists, teachers, guidance workers, social workers, and other interested persons, pools its information and insights in order to gain an understanding of the case. Eventually a diagnosis is reached and remedial steps are prescribed. The latter validates the diagnosis; if the treatment alleviates the symptoms, it can be assumed that the source of difficulty has been properly identified, and that the problem is properly on its way toward disappearance. Conversely if the symptoms persist, it might be suspected either that the cause of the difficulty has not been properly identified or that an improper inference has been made about the treatment implied by the diagnosis.

In the social sciences, the problems of devising remedial producers and of implementing to the solution are also more difficult. Failure of the home to cooperate, for instance, may preclude a cure. Consequently, when treatment does not work it is difficult to know who is to blame for the failure or even to know if a failure is involved. Improvement frequently is slow, and even the most correct technique can aggravate the symptoms while reorganization is taking place, which may cause the person in charge to give up the treatment just as improvement is about to occur. It is also difficult to attribute success to any one cause. In reading, for instance, it is common to attribute the child's improvement due to the remedial procedures, when it may stem, in part at least from the greater attention the child is receiving. Thus, even when a cure is affected, the investigator may not have learned very much from a scientific point of view.

## **THE STEPS OF CASE STUDY**

If it is to be accepted as a scientific technique, the case study must follow essentially the same steps and meet essentially the same criteria as do the other research methods. On the other hand, it presents a number of problems which are relatively unique, either in kind or in degree. These are probably best considered in connection with the steps through which such a study must proceed.

The following are the steps in the case study

- Step 1 :** Status of the Situation or Unit of Attention.
- Step 2 :** Collection of Data, Examination and History.
- Step 3 :** Diagnosis and Identification of Casual Factors.
- Step 4 :** Adjustment, Treatment and Therapy.
- Step 5 :** Follow up Programme.

### 1. Status of the Situation or Unit of Attention

The identification of the need-situation, aspect of behaviour, or phase of the life process as tile unit for study. For example, reading disability, habitual truancy, exceptional talent in music, superior mentality of a breadwinner out of a job. Typically, the case has centered on the situation as the unit of attention rather than on the individual or client as such, although the development of non-directive or client-centered therapy has introduced a new emphasis. As clearer insights and more refined techniques become a part of the equipment of investigators who use the case-study method and other research procedures, more penetrating discrimination is exercised in identifying cases for corrective or developmental attention. For example, it was only natural that the rather obvious maladjustment's of the physically handicapped received attention before cases of low mentality, special talents, and deficiencies in the school subjects were studied. Even more recent is the recognition in the types of social maladjustment, involving personality difficulties and behaviour disorders.

### 2. Collection of Data

Collection of data is the second step in the case study but with emphasis on the research for facts that may serve later as a basis for diagnosis or identification of the casual factors operating.

**(a) Examination and History Outlines:** The range of data useful in studying the circumstances associated with the particular situation of unit is well illustrated in an abbreviated outline for use in pedagogical case study.

1. Examination
  - (a) Psycho-physical (b) Health (c) Educational (d) Mentality
2. Health History
3. School History
4. Family History and Home Conditions
5. Social History and Contacts.

**(b) Personal Documents:** As such documents as the life history, biography, auto-biography, diaries, and journals, letters records of dreams and expressive interview are valuable. Angell has analysed a variety of studies based on personal documents and identifies their contributions to the methodology of sociology in six categories.

1. Personal documents are collected with a view to the particular purpose of the study in hand, and the data therefore bear specifically upon the questions to be answered by the study.
2. Other types of data, particularly ecological and statistical are combined with the data from personal documents both to give more inclusive picture and to test of the reliability of documentary material.
3. There is increasing precision in conceptual analysis both before and after obtaining the personal documents.

4. Thorough-going attempts are made to use case studies for the prediction of human behaviour as in the effects of the impact of the depression upon family organization.
5. Hypotheses are so stated and methods sufficiently outlined in certain of these studies so that they can be checked by further investigation.
6. Logical and psychological procedures have been developed that should make more objective the use of the personal document and rid this method of much of the odium of inexactness associated with it.

(c) **Life History:** The life history differs from the usual autobiography in its emphasis on the natural history of the individual, his reactions to early social stimuli that have led to development of attitudes and values, evolutions of a philosophy of life, personal experiences, mental and social conflicts, crises, adjustments, accommodations and release of tensions in other words “a deliberate attempt to define the growth of a person in a cultural milieu and to make theoretical sense of it”. In term of such definition the life-history view of social facts represents longitudinal rather than cross sectional observations.

A definite analysis of criteria considered indispensable for judging life-history technique has been outlined and illustrated at length by Dollard.

1. The subject must be viewed as a specimen in a cultural series.
2. The organic motors of action ascribed must be socially relevant.
3. The peculiar role of the family group in transmitting the culture must be recognized.
4. The specific method of elaboration of organic materials into social behaviour must be shown.
5. The continuous related character of experience from childhood through adulthood must be stressed.
6. The social situation must be carefully and continuously specified as a factor.
7. The life-history material itself must be organized and conceptualized.

(d) **Autobiography, Biography and Diaries:** Autobiography as historical narration is usually a relatively formal document, written with one eye on the judgment of the public, as is frequently true of the diaries of distinguished persons who have anticipated publication. Autobiography and biography are written in retrospect, while entries in a diary are recorded concurrently as experiences and events take place.

### 3. Diagnosis and Identification of Casual Factors

The structural pattern of diagnosis is the formulation of a theory or hypothesis of causation. From causation diagnosis looks towards the possibilities for growth and adjustment of the individual as a personality and as a social being who shares experiences with others. For example, a large number of children and youth require special diagnostic study in the solution of their educational and social problems. This group includes:

1. The mentally and physically handicapped.
2. Those who are maladjusted socially, morally, or emotionally.
3. Those who perform below their level of learning capacity.
4. Others whose latent talents and special aptitudes became the cause of inadequate stimulation, are never given expression.

From this point of view, diagnosis and treatment at times are interwoven, diagnosis frequently parallels treatment and does not simply precede adjustment procedures, however desirable an orderly sequence of steps many seem to the logical mind.

### ***Criteria for Successful Diagnosis***

The following are some of the criteria for successful diagnosis:

1. Must provide valid evidence of strength and weakness related to the objectives.
2. Must be reasonably objective to permit other competent investigators to reach similar conclusions in employing the same diagnostic technique.
3. Must be reliable, so that repeated diagnosis of other samples. from the same learners will give similar results.
4. Must be carried to a satisfactory level of specificity.
5. Must provide comparable data, measurement of progress at intervals requires equivalent test forms or procedures adequately standardized and controlled.
6. Must provide sufficiently exact data, for diagnostic purposes measuring instruments should be discriminating enough to indicate in units of weeks or months rather in semester of year.
7. Must be comprehensive or complete, in a particular subject deficiencies in memorization of facts frequently are analyzed, without determining the ability to use these facts in reflective thinking or problem solving.

### ***Techniques of Diagnosis***

Most of the data-gathering instruments and procedures named in discussing the preceding steps of case study contribute to diagnosis, in that the resulting data contain the clues for identifying casual factors. Techniques that have contributed especially to diagnosis include:

1. Tests of general intelligence, aptitude, personality and achievement.
2. Observation of the pupil's study habits. attitudes and 'reactions.
3. Analysis of the pupil's written work.
4. Analysis of the oral responses and reactions of the learner.
5. Objective devices to determine the nature and significance of faults, as illustrated by diagnostic handwriting charts.
6. The interview, and
7. Laboratory procedure.

### ***Causation***

In addition to the discussion of casual relationships in other chapters concerned with descriptive study, experimentation and historical research, a brief statement should be made with respect to identification of casual factors in diagnosis. The major factors associated with learning difficulty are physical, intellectual, pedagogical, emotional, social and environmental. To use difficulty in reading as an example. before locating the cause of the poor performance it may be necessary to study a wide range of factors: perceptual, motor, intellectual, linguistic, emotional and methodological. Causation may be primary, secondary, or contributory.

Rogers, "component-factor" method of diagnosis recognizes eight interacting forces and elements both within and without the individual child that must be considered in analyzing the behaviour of the problem-child-heredity, physical factor, mentality, family environment, economic and cultural forces, social factor, education and training outside the home, and the child's own insight into his present situation.

#### 4. Adjustment, Treatment and Therapy

Functional Relationship Between Diagnosis And Adjustment: If the time and effort spent in reaching a diagnosis of casual factors are to be fully justified, an appropriate adjustment of conditions should be affected.

Rogers, analysis of the process of therapy, in terms of non-directive or client-centered concepts, included certain hypotheses that are based on an increasingly large body of experience.

1. Change or movement in therapy, as revealed in the type of verbal comment presented by the client; for example, from talk about his problems and symptoms, to insightful statements showing some self-understanding to relationship between his past and current behaviour, to discussion of new actions in accord with his new understanding of the situation.
2. Change in the client's perception of and attitude toward self: (a) sees himself as a more adequate person, with increased worth and greater possibility of meeting life (b) draws on more experiential data, thus achieving a more realistic appraisal of himself his relationships, and environment (c) tends to place the basis of standards of values within himself rather than in the experience or perceptual object.

#### 5. Follow Up Programme

To complete the cycle of case study and case work, it is necessary to check the validity of the remedial treatment. After medication or surgery the physician follows the convalescence of the patient to determine whether recovery takes place. In instances of failure to make reasonable progress, a new diagnosis and a modified treatment may be required employed generality in case work.

Only through careful analysis is possible to identify the factor that produces the changes observed. A patient may recover because of strong constitution rather than as the result medicines administered.

Useful work has been done in following normal children through the school years and especially after leaving school to evaluate the effectiveness of the educational program in relation to civic and social efficiency and to vocational adjustment although such investigations have employed survey techniques more commonly than case study. A series of large scale investigations of bright children has used case study as one instrument in following the subjects over a period of years through school into maturity. However, much remains to be done byway of tracing the after school history of the physically handicapped. of those with personality and behaviour maladjustments of others who learn below capacity and yet others especially talented in a particular field, if appropriate adjustments are to be made in instructional and treatment programmes for such groups.

The Case Study of an Individual: A case study of an individual may take place ever a longer range of information. These are very significant incidents of his life which can be analysed and studied with a view to range of information regarding an individual through the study of facts relating to the individual. The case study of an individual means a range over the following sources:

1. Family history
2. Cumulative records, personal interview of the individual.
3. Personal habits.
4. Interviewing his associates and friends.
5. Individual school records.
  - (a) Status in the class. .
  - (b) Achievements.

- (c) Kind of aspiration.
- (d) Teachers attitude towards him.
- 6. Individual participation school playground and other places.
- 7. Individual and emotional adjustments against the class social groups.
- 8. On this basis the profile of the case is formed. The profile helps the investigators to diagnose and suggestions for remediation may be provided.
- 9. History of the case may be prepared.

### **CASE STUDY OF A GROUP**

The whole group is studied with regard to the problem and special attention is paid to the problem of the group. These precautions are to be taken against the probability of the group being heterogeneous irrespective of the problem. Sociometry tool is generally employed to analyse the group dynamics and the following five major steps are used for case study of a group. The cycle of case work includes the following five steps:

1. Status of the situation.
2. Collection of data.
3. Diagnosis and identification of casual factors.
4. Step adjustments and therapy (remediation).
5. Follow up the adjustment of the programme or to evaluate the effectiveness of the programme.

### **THE CASE STUDY OF AN INSTITUTION**

Here institution is unique as compared earlier to situation. This whole situation is studied to discover the significant facts related to the institution from its origin. The suggestions can be given for the improvement.

### **LIMITATIONS OF CASE STUDY**

A case study generally suffers from the following limitations:

1. It is difficult to study objectively.
2. There is difficulty in formulation of hypotheses.
3. The data of informations are not collected in a systematic order.
4. The statistical inferences cannot be drawn.
5. Parents and relatives do not like to mention the weakness of the case or individual.
6. It is more time consuming and costly method.
7. It does not contribute to new knowledge and field studied.

### **COMPARISON WITH OTHER RESEARCH METHODS**

It borders on historical research, for instance, in the sense that the present case can be understood only in view of its past. It is clearly related to documentary research in that it deals with living individuals in their present social environment. Case studies resemble survey studies in that they are concerned with the present status of phenomena. They differ from survey studies, however, in that the determination



of status is only a secondary aspect in the situation, the more fundamental question is discovering how it got that way.

Case study, as the term is generally used, differ from experimentation in that they display a greater element of subjectivity and institution and, as they are usually conducted that is, in a guidance rather than in a research setting - they are generally oriented towards the solution of a particular problem at the individual level, rather than towards the derivation of generalizations that have scientific validity.

Although case studies constitute the most comprehensive means of studying the whole child, a distinction needs to be made between their guidance and their research functions. Undoubtedly, case studies used for guidance purposes can lead to the derivation of relationships that have a bearing on the research and vice versa. Yet, in the strict sense of the term, research is concerned with the derivation of generalizations that apply beyond the individual case, and case studies become research only when they are able to supply such generalizations. Consequently, the case study of Johnny, undertaken for the purpose of helping him to adjust to the school situation, has limited bearing on research.

## CASE STUDY VS. STATISTICAL METHODS

In fact, all the methods of scientific research may broadly be classified into two :

**(a) Statistical Method:** These are based on large scale collection of facts. For example, questionnaire, schedule, Interview, observation, etc.

**(b) Case Study Method:** These are based on Intensive study of comparatively fewer cases.

However, both these methods frequently supplement each other since each views a given social situation from different angles and each places a different emphasis on the social factors in the situation. However, in the following way we can compare the two:

### Differences Between Case Study and Statistical Method

<i>Case Study</i>	<i>Statistical Method</i>
1. It depends upon narrative type description of life situation.	1. It tries to measure (description of situations quantitatively).
2. It takes fewer cases but studies intensively.	2. It believes in interia of large number for valid generalization.
3. Selection of cases is not based on sampling.	3. Here based on sampling.
4. Generalization by common sense and less reliable.	4. Here based on rigid mathematical treatment, and so more reliable.
5. Here greater emphasis upon emotional aspect in order to be applied to social activities of men of groups.	5. It takes an assumption that if large number of cases are taken, the study of even stray aspect of life is possible.

**Similarities:** Actually, both the methods are similar and interdependent upon each other. For valid generalization case study rests upon statistical techniques, Kmiball Young also says:

“As a matter of fact many of the basic problems of case study method are not unlike those of statistics.”

Kimball Young gives the following points of similarity:

### **1. Case Study Accepts Sampling**

The more careful case studies also recognize the problem of sampling, since the aim is to avoid the temptation to generalize from one case.

### **2. Accepts Central Tendency**

In case study references are frequently made to typical cases, which is similar to measure of central tendency or averages.

### **3. Accepts Variability**

Case also try to locate the variations in the reactions and activities of the subject.

### **4. Also Accept Correlation**

The case study data are also compared with other cases to find out the points of similarity and generalizations, thus drawn, are like those of correlation.

It is, thus, quite obvious that fundamentally the two methods are same and interdependent upon each other. Bain has correctly remarked:

“The question today is not case study or quantitative research, it is rather an ‘and’ relationship.”

## **APPLICATIONS OF CASE STUDY**

Case study procedures have been extensively followed in the following fields as law and juvenile delinquency, medicine, psychiatry, psychology, education, counselling and guidance, anthropology, sociology, social work, economics, business administration political science and journalism.

Previously it was limited to only the problems of maladjustment, such as truancy or failure in school a broken or poverty-stricken home or an under privileged or malfunctioning community. But now this approach is also extended to the investigation of normal or bright children, successful institutions and agencies and well organised communities or effectively functioning cultural groups.

The usefulness of the children and case approach may be illustrated by the field of clinical psychology in general and more specifically by counseling psychology and personality study. Clinical psychologists perform a variety of services in many settings dealing with a wide range of human problems. Psychologists first try to achieve understanding based on the hypothesis and techniques of their professional field of knowledge. Then they apply understanding so as to help the people to help themselves with such activities frequently evaluated “diagnosis” and “therapy.”

In many instances case study is supplementary to or related to other investigational procedures. The life history of an individual of an institution or of a community resembles historical research in sources and techniques. Case investigation uses many of the data gathering instruments as used in descriptive survey studies. Case investigations of an individual have common interests in growth and development, although ordinarily the direction of movement in case study is backward whereas its genetic research the movement in forward as growth takes place.

**EXERCISES**

1. Define the term 'case study'. Indicate the contributions of case study.
2. Enumerate the objectives, phases and types of case study. Illustrate your answer with suitable examples.
3. Indicate the criteria for a good case study. Justify that it is method as well as technique of research.
4. Differentiate between historical and case study. Case study is also casual-comparative study but different from experimental method. Elaborate your answer with examples.
5. What are the various sources of data of case? Enumerate the characteristics of a good case study.
6. Describe the steps employed in conducting a case study. Give rationale for case study.
7. Case study concerns with past (diagnosis), present (prescription or remediation) and future (effect). Elaborate this statement.