TOOLS OF RESEARCH

Unit Structure :

9.0 Objectives
9.1 Introduction
9.2 Rating scale
9.3 Attitude scale
9.4 Opinionnaire
9.5 Questionnaire
9.6 Checklist
9.7 Semantic Differentiate scale
9.8 Psychological Test
9.9 Inventory
9.10 Observation
9.11 Interview
9.12 Let us sum up

9.0 OBJECTIVES :

After reading this unit you will be able to :

• State different types of tools and techniques used for data collection
• Distinguish the basic difference between tools and techniques.
• Describe concept, purpose and uses of various tools and techniques in research.
• State the tools coming under enquiry form, psychological test observation and Interview.

9.1 INTRODUCTION :

In the last chapter, you have studied about how to prepare a research tool. In this chapter we will study what are those research tools, their concepts and uses in collection of data.
In every research work, it is essential to collect factual material or data unknown or untapped so far. They can be obtained from many sources, direct or indirect. It is necessary to adopt a systematic procedure to collect essential data. Relevant data, adequate in quantity and quality should be collected. They should be sufficient, reliable and valid.

For checking new, unknown data required for the study of any problem you may use various devices, instruments, apparatus and appliances. For each and every type of research we need certain instruments to gather new facts or to explore new fields. The instruments thus employed as means for collecting data are called tools.

The selection of suitable instruments or tools is of vital importance for successful research. Different tools are suitable for collecting various kinds of information for various purposes. The research worker may use one or more of the tools in combination for his purpose. Research students should therefore familiarise themselves with the varieties of tools with their nature, merits and limitations. They should also know how to construct and use them effectively. The systematic way and procedure by which a complex or scientific task is accomplished is known as the technique. Techniques is the practical method, skill or art applied to a particulate task. So, as a researcher we should aware of both the tools and techniques of research.

The major tools of research in education can be classified broadly into the following categories.

A. Inquiry forms
   Questionnaire
   Checklist
   Score-card
   Schedule
   Rating Scale
   Opinionnaire
   Attitude Scale

B. Observation

C. Interview

D. Sociometry
E. Psychological Tests

Achievement Test
Aptitude Test
Intelligence Test
Interest inventory
Personality measures etc.

In this unit we will discuss some of the tools of each categories.

9.2 RATING SCALE :

Rating scale is one of the enquiry form. Form is a term applied to expression or judgment regarding some situation, object or character. Opinions are usually expressed on a scale of values. Rating techniques are devices by which such judgments may be quantified. Rating scale is a very useful device in assessing quality, specially when quality is difficult to measure objectively. For Example, “How good was the performance?” is a question which can hardly be answered objectively.

Rating scales record judgment or opinions and indicates the degree or amount of different degrees of quality which are arranged along a line is the scale. For example: How good was the performance?

Excellent Very good Good Average Below average Poor Very poor

This is the must commonly used instrument for making appraisals. It has a large variety of forms and uses. Typically, they direct attention to a number of aspects or traits of the thing to be rated and provide a scale for assigning values to each of the aspects selected. They try to measure the nature or degree of certain aspects or characteristics of a person or phenomenon through the use of a series of numbers, qualitative terms or verbal descriptions.

Ratings can be obtained through one of three major approaches:

- Paired comparison
- Ranking and
- Rating scales
The first attempt at rating personality characteristics was the man to man technique devised during World-war-I. This technique calls for a panel of raters to rate every individual in comparison to a standard person. This is known as the paired comparison approach.

In the ranking approach every single individual in a group is compared with every other individual and to arrange the judgment in the form of a scale.

In the rating scale approach which is the more common and practical method rating is based on the rating scales, a procedure which consists of assigning to each trait being rated a scale value giving a valid estimate of its status and then comparing the separate ratings into an overall score.

**Purpose of Rating Scale:**

Rating scales have been successfully utilized for measuring the following:

- Teacher Performance/Effectiveness
- Personality, anxiety, stress, emotional intelligence etc.
- School appraisal including appraisal of courses, practices and programmes.

**Useful hints on Construction of Rating Scale:**

A rating scale includes three factors like:

i) The subjects or the phenomena to be rated.

ii) The continuum along which they will be rated and

iii) The judges who will do the rating.

All taken three factors should be carefully taken care by you when you construct the rating scale.

1) The subjects or phenomena to be rated are usually a limited number of aspects of a thing or of a traits of a person. Only the most significant aspects for the purpose of the study should be chosen. The usual may to get judgement is on five to seven point scales as we have already discussed.

2) The rating scale is always composed of two parts:

i) An instruction which names the subject and defines the continuum and

ii) A scale which defines the points to be used in rating.
3) Any one can serve as a rater where non-technical opinions, likes and dislikes and matters of easy observation are to be rated. But only well informed and experienced persons should be selected for rating where technical competence is required. Therefore, you should select experts in the field as rater or a person who form a sample of the population in which the scale will subsequently be applied. Pooled judgements increase the reliability of any rating scale. So employ several judges, depending on the rating situation to obtain desirable reliability.

**Use of Rating Scale:**

Rating scales are used for testing the validity of many objective instruments like paper pencil inventories of personality. They are also advantages in the following fields like:

- Helpful in writing reports to parents
- Helpful in filling out admission blanks for colleges
- Helpful in finding out student needs
- Making recommendations to employers.
- Supplementing other sources of understanding about the child
- Stimulating effect upon the individuals who are rated.

**Limitations of Rating Scale:**

The rating scales suffer from many errors and limitations like the following:

As you know that the raters would not like to run down their own people by giving them low ratings. So in that case they give high ratings to almost all cases. Sometimes also the raters are included to be unduly generous in rating aspects which they had opportunity to observe. It the raters rate in higher side due to those factors, then it is called as the generosity error of rating.

**The Errors of Central Tendency:**

Some observes wants to keep them in safe position. Therefore, they rate near the midpoint of the scale. They rate almost all as average.

**Stringency Error:**

Stringency error is just the opposite of generosity of error. These types of raters are very strict, cautious and hesitant in rating in average and higher side. They have a tendency to rate all individuals low.
The Hallo Error:

When a rater rates one aspect influenced by other is called hallo effect. For if a person will be rated in higher side on his achievement because of his punctually or sincerely irrespective of his perfect answer it called as hallo effect. The biased-ness of the rater affects from one quality to other.

The Logical Error:

It is difficult to convey to the rater just what quality one wishes him to evaluate. An adjective or Adverb may have no universal meaning. It the terms are not properly understood by the rater and he rates, then it is called as the logical error. Therefore, brief behavioural statements having clear objectives should be used.

Check Your Progress - I

Q.1 What is rating scale?


Q.2 What are the approaches of rating?


Q.3 Explain the various purposes of rating scale?


Q.4 What are the factors to be considered during construction of rating scale?

Q.5 What is rating scale? Explain its uses.

Q.6 Write short notes on:
   i) The Generosity Error
   ii) The Logical Error
   iii) The Halo error
   iv) Stringency error
   v) The errors of central Tendency

9.3 ATTITUDE SCALE:

Attitude scale is a form of appraisal procedure and it is also one of the enquiry term. Attitude scales have been designed to measure attitude of a subject or group of subjects towards issues, institutions and groups of people.

The term attitude is defined in various ways, “the behaviour which we define as attitudinal or attitude is a certain observable set”
organism or relative tendency preparatory to and indicative of more complete adjustment.”

- L. L. Bernard

“An attitude may be defined as a learned emotional response set for or against something.”

- Barr David Johnson

An attitude is spoken of as a tendency of an individual to read in a certain way towards a Phenomenon. It is what a person feels or believes in. It is the inner feeling of an individual. It may be positive, negative or neutral.

Opinion and attitude are used sometimes in a synonymous manner but there is a difference between two. You will be able to know when we will discuss about opinionnaire. An opinion may not lead to any kind of activity in a particular direction. But an attitude compels one to act either favourably or unfavourably according to what they perceive to be correct. We can evaluate attitude through questionnaire. But it is ill adapted for scaling accurately the intensity of an attitude. Therefore, Attitude scale is essential as it attempts to minimise the difficulty of opinionnaire and questionnaire by defining the attitude in terms of a single attitude object. All items, therefore, may be constructed with graduations of favour or disfavour.

**Purpose of Attitude Scale :**

In educational research, these scales are used especially for finding the attitudes of persons on different issues like:

- Co-education
- Religious education
- Corporal punishment
- Democracy in schools
- Linguistic prejudices
- International co-operation etc.

**Characteristics of Attitude Scale :**

Attitude scale should have the following characteristics.

- It provides for quantitative measure on a unidimensional scale of continuum.
• It uses statements from the extreme positive to extreme negative position.
• It generally uses a five point scale as we have discussed in rating scale.
• It could be standardised and norms are worked out.
• It disguises the attitude object rather than directly asking about the attitude on the subject.

Examples of Some Attitude Scale:

Two popular and useful methods of measuring attitudes indirectly, commonly used for research purposes are:
• Thurstone Techniques of scaled values.
• Likert’s method of summated ratings.

Thurstone Technique:

Thurstone Technique is used when attitude is accepted as a uni-dimensional linear Continuum. The procedure is simple. A large number of statements of various shades of favourable and unfavourable opinion on slips of paper, which a large number of judges exercising complete detachment sort out into eleven plies ranging from the most hostile statements to the most favourable ones. The opinions are carefully worded so as to be clear and unequivocal. The judges are asked not express their opinion but to sort them at their face value. The items which bring out a marked disagreement between the judges unassigning a position are discarded. Tabulations are made which indicate the number of judges who placed each item in each category. The next step consists of calculating cumulated proportions for each item and ogives are constructed. Scale values of each item are read from the ogives, the values of each item being that point along the baseline in terms of scale value units above and below which 50% of the judges placed the item. It will be the median of the frequency distribution in which the score ranges from 0 to 11.

The respondent is to give his reaction to each statement by endorsing or rejecting it. The median values of the statements that he checks establishes his score, or quantifies his opinion. He wins a score as an average of the sum of the values of the statements he endorses.
Thurstone technique is also known as the technique equal appearing intervals.

**Sample Items From Thurstone Type Scales:**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Scaled value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think this company treats its employees</td>
<td>10.4</td>
</tr>
<tr>
<td>Better than any other company does.</td>
<td>9.5</td>
</tr>
<tr>
<td>It I had to do it over again I’d still work for this company.</td>
<td>5.1</td>
</tr>
<tr>
<td>The workers put as much over on the company as the company puts over on them.</td>
<td>2.1</td>
</tr>
<tr>
<td>You have got to have pull with certain people around here to get ahead. An honest man fails in this company.</td>
<td>0.8</td>
</tr>
</tbody>
</table>

**The Likert Scale:**

The Likert scale uses items worded for or against the proposition, with five point rating response indicating the strength of the respondent’s approval or disapproval of the statement. This method removes the necessity of submitting items to the judges for working out scaled values for each item. It yields scores very similar to those obtained from the Thurstone scale. It is an important over the Thurstone method.

The first step is the collection of a member of statements about the subject in question. Statements may or may not be correct but they must be representative of opinion held by a substantial number of people. They must express definite favourableness or unfavourableness to a particular point of view. The number of favourable and unfavourable statements should be approximately equal. A trial test maybe administered to a number of subjects. Only those items that correlate with the total test should be retained.

The Likerts calling techniques assigns a scale value to each of the five responses. All favourable statements are scored from maximum to minimum i.e. from a score of 5 to a score of one or 5 for strongly agree and so on 1 for strongly disagree. The negative statement or statement apposing the proposition would be scored in the opposite order. e.g. from a score of 1 to a score of 5 or 1 for strongly agree and so on 5 for strongly disagree.
The total of these scores on all the items measures a respondent’s favourableness towards the subject in question. It a scale consists of 30 items, Say, the following score values will be of interest.

\[
30 \times 5 = 150 \quad \text{Most favourable response possible}
\]
\[
30 \times 3 = 90 \quad \text{A neutral attitude}
\]
\[
30 \times 1 = 30 \quad \text{Most unfavourable attitude}
\]

It is thus known as a method of summated ratings. The summed up score of any individual would fall between 30 and 150. scores above 50 will indicate a favourable and scores below go an unfavourable attitude.

**Sample Items from Linkert Type Minnesota Scale on Morale**

<table>
<thead>
<tr>
<th>Responses</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA A U D SD</td>
<td>Times are getting better</td>
</tr>
<tr>
<td>SA A U D SD</td>
<td>Any man with ability and willingness to work hard has a good chance of being successful.</td>
</tr>
<tr>
<td>SA A U D SD</td>
<td>Life is just a series of disappointments.</td>
</tr>
<tr>
<td>SA A U D SD</td>
<td>It is great to be living in those exciting times.</td>
</tr>
<tr>
<td>SA A U D SD</td>
<td>Success is more dependent on lack than on real ability.</td>
</tr>
</tbody>
</table>

**Limitations Of Attitude Scale :**

In the attitude scale the following limitations may occur:

- An individual may express socially acceptable opinion conceal his real attitude.
- An individual may not be a good judge of himself and may not be clearly aware of his real attitude.
- He may not have been controlled with a real situation to discover what his real attitude towards a specific phenomenon was.
- There is no basis for believing that the five positions indicated in the Likert’s scale are equally spaced.
- It is unlikely that the statements are of equal value in ‘forness’ or “againstness”.
• It is doubtful whether equal scores obtained by several individuals would indicate equal favourableness towards again position.

• It is unlikely that a respondent can validity react to a short statement on a printed form in the absence of real like qualifying Situation.

• In sprite of anonymity of response, Individuals tend to respond according to what they should feel rather than what they really feel.

However, until more precise measures are developed, attitude scale remains the best device for the purpose of measuring attitudes and beliefs in social research.

Check Your Progress – II

Q.1 What is attitude scale? Explain it’s purpose and Characteristics.

Q.2 What is attitude scale? Explain the methods of measuring attitudes in research.

Q.3 Define attitude. Explain Likerts scale to measure attitude.
9.4 OPINIONNAIRE:

“Opinion polling or opinion gauging represents a single question approach. The answers are usually in the form of ‘yes’ or ‘no’. An undecided category is often included. Sometimes large number of response alternatives if provided.”

- Anna Anastusi

The terms opinion and attitude are not synonymous, through sometimes we used it synonymously. We have till now discussed that attitudes scale. We have also discussed that attitudes are impressed opinions. You can now understand the difference between opinionnaire and attitude scale, when we discuss of our opinionnaire, it is characteristics and purposes.

Opinion is what a person says on certain aspects of the issue under considerations. It is an outward expression of an attitude held by an individual. Attitudes of an individual can be inferred or estimated from his statements of opinions.

An opinionnaire is defined as a special form of inquiry. It is used by the researcher to collect the opinions of a sample of population on certain facts or factors the problem under investigation. These opinions on different facts of the problem under study are further quantified, analysed and interpreted.

**Purpose:**
Opinionnaire are usually used in researches of the descriptive type which demands survey of opinions of the concerned individuals. Public opinion research is an example of opinion survey. Opinion polling enables the researcher to forecast the coming happenings in successful manner.

**Characteristics:**
- The opinionnaire makes use of statements or questions on different aspects of the problem under investigation.
- Responses are expected either on three point or five point scales.
- It uses favourable or unfavourable statements.
- It may be sub-divided into sections.
- The gally poll ballots generally make use of questions instead of statements.
- The public opinion polls generally rely on personal contacts rather than mail ballots.
Sample Items of Opinionnaire:

The following statements are from the opinionnaire on the reforms in educational administration introduced in A. P. during 1956-66.

1) Democratic decentralization has helped to develop democratic values and practices in rural people. ▲ ▼ △

2) There has been consequent improvements of educational standards. ▲ ▼ △

3) Specified subject inspectorate is better than Panel type of inspectorate. ▲ ▼ △

4) Inspection stripped of Administrative powers does not help much. ▲ ▼ △

5) Primary education should be brought under a separate directorate as was done in some status. ▲ ▼ △

9.5 QUESTIONNAIRE:

A questionnaire is a form prepared and distributed to secure responses to certain questions. It is a device for securing answers to questions by using a form which the respondent fills by himself. It is a systematic compilation of questions that are submitted to a sampling of population from which information is desired.

Questionnaire rely on written information supplied directly by people in response to questions. The information from questionnaires tends to fall into two broad categories – ‘facts’ and ‘opinions’. It is worth stressing that, in practice, questionnaires are very likely to include questions about both facts and opinions.

Purpose:

The purpose of the questionnaire is to gather information from widely scattered sources. It is mostly used in uses in cases where one can not readily see personally all of the people from whom he desires responses. It is also used where there is no particular reason to see them personality.
Types:

Questionnaire can be of various type on the basis of it’s preparation. They are like:

- Structured v/s Non Structured
- Closed v/s Open
- Fact v/s Opinion

Structured v/s Non-Structured Questionnaire:

The structured questionnaire contains definite, concrete and directed questions, whereas non-structured questionnaire is often used in interview and guide. It may consist of partially completed questions.

Closed v/s Open Questionnaire:

The question that call for short check responses are known as restricted or closed form type. For example, they provide for marking a yes or no, a short response or checking an item from a list of responses. Here the respondent is not free to write of his own, he was to select from the selected from the supplied responses. On the other hand, increase of open ended questionnaire, the respondent is free to response in his own words. Many questionnaire also included both close and open type questions. The researcher selects the type of questionnaire according to his need of the study.

Fact and Opinion:

Incase of fact questionnaire, the respondent is expected to give information of facts without any reference to his opinion or attitude about them.

But incase of opinion questionnaire the respondent gives the information about the facts with his own opinion and attitude.

Planning the Use of Questionnaire:

The successful use of questionnaire depends on devoting the right balance of effort to the planning stage, rather than rushing too early into administering the questionnaire. Therefore, the researcher should have a clear plan of action in mind and costs, production, organization, time schedule and permission should be taken care in the beginning. When designing a questionnaire, the characteristics of a good questionnaire should be kept in mind.
Characteristics of A Good Questionnaire:

- Questionnaire should deal with important or significant topic to create interest among respondents.
- It should seek only that data which cannot be obtained from other sources.
- It should be as short as possible but should be comprehensive.
- It should be attractive.
- Directions should be clear and complete.
- It should be represented in good Psychological order proceeding from general to more specific responses.
- Double negatives in questions should be avoided.
- Putting two questions in one question also should be avoided.
- It should avoid annoying or embarrassing questions.
- It should be designed to collect information which can be used subsequently as data for analysis.
- It should consist of a written list of questions.
- The questionnaire should also be used appropriately.

When is it appropriate to use a questionnaire for research?

Different methods are better suited to different circumstances and questionnaire are no exception to it. Questionnaire are used at their most productive:

- When used with large numbers of respondents.
- When what is required tends to be fairly straightforward information.
- When there is a need for standardized data from identical information.
- When time allows for delays.
- When resources allow for the cost of printing and postage.
- When respondents can be expected to be able to read and understand the questions.

Designs of Questionnaire:

After construction of questions on the basis of its characteristics it should be designed with some essential routines like:
• Background information about the questionnaire.
• Instructions to the respondent.
• The allocation of serial numbers and
• Coding Boxes.

Background Information about The Questionnaire

Both from ethical and practical point of view, the researcher needs to provide sufficient background information about the research and the questionnaire. Each questionnaires should have a cover page, on which some information appears about:

• The sponsor
• The purpose
• Return address and date
• Confidentiality
• Voluntary responses and
• Thanks

Instructions to the Respondent :

It is very important that respondents are instructed to go presented at the start of the questionnaire which indicate what is expected from the respondents. Specific instructions should be given for each question where the style of questions varies through out the questionnaire. For Example – Put a tick mark in the appropriate box and circle the relevant number etc.

The Allocation of Serial Numbers :

Whether dealing with small or large numbers, a good researcher needs to keep good records. Each questionnaire therefore should be numbered.

Advantages of Questionnaire :

Questionnaire are economical. In terms of materials, money and time it can supply a considerable amount of research data.

• It is easier to arrange.
• It supplies standardized answers
• It encourages pre-coded answers.
• It permits wide coverage.
• It helps in conducting depth study.

Disadvantages:
• It is reliable and valid, but slow.
• Pre-coding questions can deter them from answering.
• Pre-coded questions can bias the findings towards the researcher.
• Postal questionnaire offer little opportunities to check the truthfulness of the answers.
• It can not be used with illiterate and small children.

Irrespective of the limitations general consensus goes in favour of the use of questionnaire. It’s quality should be improved and we should be restricted to the situations for which it is suited.

Check Your Progress – III
Q.1 Distinguish between opinionnaire and questionnaire.

Q.2 Write short notes on:
(a) Closed and open questionnaire.
(b) Structured and Non-Structure questionnaire.
(c) Fact and Opinion.

The serial number helps to distinguish and locate if necessary. It can also helps to identify the date of distribution, the place and possibility the person.
Coding Boxes:

When designing the questionnaire, it is necessary to prevent later complications which might arise at the coding stage. Therefore, you should note the following points:

- Locate coding boxes neatly on the right hand side of the page.
- Allow one coding box for each answer.
- Identify each column in the complete data file underneath the appropriate coding box in the questionnaire.

Besides these, the researcher should also be very careful about the length and appearance of the questionnaire, wording of the questions, order and types of questions while constructing a questionnaire.

Criteria of Evaluating a Questionnaire:

You can evaluate your questionnaire whether it is a standard questionnaire or not on the basis of the following criteria:

- It should provide full information pertaining to the area of research.
- It should provide accurate information.
- It should have a decent response rate.
- It should adopt an ethical stance and
- It should be feasible.

Like all the tools, it also has some advantages and disadvantages based on its uses.

9.6 CHECKLIST:

A checklist, is a type of informational job aid used to reduce failure by compensating for potential limits of human memory and attention. It helps to ensure consisting and completeness in carrying out a task. A basic example is ‘to do list’. A more advanced checklist which lays out tasks to be done according to time of a day or other factors.

The checklist consists of a list of items with a place to check, or to mark yes or no.
Purpose:

The main purpose of checklist is to call attention to various aspects of an object or situation, to see that nothing of importance is overlooked. For example, if you have to go for outing for a week, you have to list what things you have to take with you. Before leaving home, if you will check your baggage with the least there will be less chance of forgetting to take any important things, like toothbrush etc. it ensures the completeness of details of the data. Responses to the checklist items are largely a matter of fact, not of judgment. It is an important tool in gathering facts for educational surveys.

Uses:

Checklists are used for various purposes. As we have discussed that we can check our requirements for journey, Birthday list, proforma for pass-port, submitting examination form or admission form etc. in every case, it we will check before doing the work, then there is less chance of overlooking any, important things. As it is useful in over daily life, it is also useful in educational field in the following way.

- To collect acts for educational surveys.
- To record behaviour in observational studies.
- To use in educational appraisal, studies – of school buildings, property, plan, textbooks, instructional procedures and outcomes etc.
- To rate the personality.
- To know the interest of the subjects also. Kuder’s interest inventory and Strong’s Interest Blank are also checklists.

Hints on Constructing Checklist:

- Items in the checklist may be continuous or divided into groups of related items.
- Items should be arranged in categories and the categories in a logical or psychological order.
- Terms used in the items should be clearly defined.
- Checklist should be continuous and comprehensive in nature.
- A pilot study should be taken to make it standardized.
- Checklist can be constructed in four different ways by arranging items differently.
(1) In one of the arrangement all items found in a situation are to be checked. For Example, a subject may be asked to check ( ) in the blank side of each activity undertaken in a school.

(2) In the second form, the respondent is asked to check with a ‘yes’ or ‘no’ or asked to encircle or underline the response to the given item. For Example, (1) Does your school have a house system? Yes/No

(3) In this form, all the items are positive statements with checks ( ) to be marked in a column of a right. For Example, (1) The school functions as a community centre ( ).

(4) The periodical tests are held – fortnightly, monthly, quarterly, regularly.

The investigator has to select any one of the format appropriate to his problem and queries or the combination of many as it requires.

**Analysis and Interpretation of Checklist Data:**

The tabulation and quantification of checklist data is done from the responses. Frequencies are counted, percentages and averages calculated, central tendencies, measures of variability and co-efficient of correlation completed as and when necessary. In long checklists, where related items are grouped together category wise, the checks are added up to give total scores for the category wise total scores can be compared between themselves or with similar scores secured through other studies.

The conclusions from checklist data should be arrived at carefully and judiciously keeping in view the limitations of the tools and respondents.

**Merits:**

- Students can measure their own behaviour with the help of checklist.
- Easy and simple to use and frame the tools.
- Wanted and unwanted behaviours can be included.
- Personal - Social development can be checked.
Limitations:

- Only the presence or absence of the ability can be tested.
- Yes or no type judgement can only be given.
- How much can not be tested through checklist.

For example, you want to test the story telling skill of a student. You can check only whether the student developed or not developed the skill but you can not study how much he has developed?

When we want to check ‘yes’ or ‘no’ of any ability, checklist is used.

Check Your Progress - IV

Q.1 Prepare a checklist for any skill.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

9.7 SEMANTIC DIFFERENTIAL SCALE:

Semantic differential is a type of a rating scale designed to measure the connotative meaning of objects, events and concepts. The connotations are used to drive the attitude towards the given object, event or concept.

Semantic Differential:

![Semantic Differential Scale](image)

Fig. 1 Modern Japanese version of the semantic Differential.
Osgood’s semantic differential was designed to measure the connotative meaning of concepts. The respondent is asked to choose where his or her position lies, on a scale between two bipolar adjectives (for example: “Adequate-Inadequate”, “Good-Evil” or “Valuable-Worthless”). Semantic differentials can be used to describe not only persons, but also the connotative meaning of abstract concepts - a capacity used extensively in effect control theory.

Theoretical Background

Nominalists and Realists:

Theoretical underpinnings of Charles E. Osgood’s semantic differential have roots in the medieval controversy between then nominalists and realists. Nominalists asserted that only real things are entities and that abstractions from these entities, called universals, are mere words. The realists held that universals have an independent objective existence either in a realm of their own or in the mind of God. Osgood’s theoretical work also bears affinity to linguistics and general semantics and relates to Korzybski’s structural differential.

Use of Adjectives:

The development of this instrument provides an interesting insight into the border area between linguistics and psychology. People have been describing each other since they developed the ability to speak. Most adjectives can also be used as personality descriptors. The occurrence of thousands of adjectives in English is an attestation of the subtleties in descriptions of persons and their behaviour available to speakers of English. Roget’s Thesaurus is an early attempt to classify most adjectives into categories and was used within this context to reduce the number of adjectives to manageable subsets, suitable for factor analysis.

Evaluation, Potency and Activity:

Osgood and his colleagues performed a factor analysis of large collections of semantic differential scales and found three
recurring attitudes that people use to evaluate words and phrases: valuation, potency, and activity. Evaluation loads highest on the adjective pair ‘active-passive’ defines the activity factor. These three dimensions of affective meaning were found to be cross-cultural universals in a study of dozens of cultures.

This factorial structure makes intuitive sense. When our ancestors encountered a person, the initial perception had to be whether that person represents a danger. Is the person good or bad? Next, is the person strong or weak? Our reactions to a person markedly differ it perceived as good and strong, good and weak, bad and weak, or bad and strong. Subsequently, we might extend our initial classification to include cases of persons who actively threaten us or represent only a potential, danger, and so on. The evaluation, potency and activity factors thus encompass a detailed descriptive system of personality. Osgood’s semantic differential measures these three factors. It contains sets of adjective pairs such as warm-cold, bright-dark, beautiful-ugly, sweet-bitter, fair-unfair, brave-cowardly, meaningful-meaningless.

The studies of Osgood and his colleagues revealed that the evaluate factor accounted for most of the variance in scalings, and related this to the idea of attitudes.

Usage:

The semantic differential is today one of the most widely used scales used in the measurement of attitudes. One of the reasons is the versatility of the items. The bipolar adjective pairs can be used for a wide variety of subjects, and as such the scale is nicknamed “the ever ready battery” of the attitude researcher.

A. Semantic Differential Scale:

This is a seven point scale and the end points of the scale are associated with bipolar labels.

<table>
<thead>
<tr>
<th>1 Unpleasant Submissive</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7 Pleasant Dominant</th>
</tr>
</thead>
</table>

Suppose we want to know personality of a particular person. We have options –

a. Unpleasant / Submissive

b. Pleasant / Dominant
Bi-polar means two opposite streams. Individual can score between 1 to 7 or 3 to 3. On the basis of these responses profiles are made. We can analyse for two or three products and by joining these profiles we get profile analysis. It could take any shape depending on the number of variables.

Profile Analysis

Mean and median are used for comparison. This scale helps to determine overall similarities and differences among objects.

When Semantic Differential Scale is used to develop an image profile, it provides a good basis for comparing images of two or more items. The big advantage of this scale is its simplicity, while producing results compared with those of the more complex scaling methods. The method is easy and fast to administer, but it is also sensitive to small differences in attitude, highly versatile, reliable and generally valid.

Statistical Properties:

Five items, or 5 bipolar pairs of adjectives, have been proven to yield reliable findings, which highly correlate with alternative measures of the same attitude.

The biggest problem with his scale is that the properties of the level of measurement are unknown. The most statistically should approach is to treat it as an ordinal scale, but it can be argued that the neutral response (i.e. the middle alternative on the scale) serves as an arbitrary zero point, and that the intervals between the scale values can be treated as equal, making it an interval scale.

A detailed presentation on the development of the semantic differential is provided in the monumental book, Cross-Cultural Universals of Affective Meaning. David R. Heise’s Surveying Cultures provides a contemporary update with special attention to measurement issues when using computerized graphic rating scales.

9.8 PSYCHOLOGICAL TESTS:

Among the most useful and most frequently employed tools of educational research psychological tests occupy a very significant position. Psychological tests are described to describe and measure
a sample of certain aspects of human behaviour or inner qualities. They yield objective descriptions of some psychological aspects of an individual’s personality and translate them in quantitative terms. As we have mentioned earlier there are various kinds of psychological tests. In this unit we will discuss ‘Aptitude tests’ and ‘Inventories’.

**Aptitude Tests :**

“Aptitude tests attempt to predict the capacities or the degree of achievement that may be expected from individuals in a particular activity”.

Aptitude is a means by which one can find the relative knowledge of a person in terms of his intelligence and also his knowledge in general.

**Purpose :**

The purpose of aptitude test is to test a candidate’s profile. Aptitude test helps to check one’s knowledge and filters the good candidates. The ability of creativity and intelligence is proved by the aptitude test. It always checks the intelligence and fastness of the person in performance.

**Importance of Aptitude Test :**

Research data show that individually administered aptitude tests have the following qualities:

- They are excellent predictors of future scholastic achievement.
- They provide ways for comparison of a child’s performance with other in a same situation.
- They provide a profile of strength and weaknesses.
- They assess difference among individuals.

**Uses Of Aptitude Test :**

Aptitude tests are valuable in making programme and curricula decisions. In general they have three major uses:

**Instructional :** Teacher can use aptitude test results to adopt their curricula to match the level of students or to design assignments for students who differ widely.

**Administrative :** Result of Aptitude tests help in determining the programmes for college on the basis of aptitude level of high-school.
It can also be identify students to be accelerated or given extra attention, for example and in predicting job training performance.

**Guidance:** result of aptitude tests help counsellors to help parents and students. Parents develop realistic expectations for their Child’s performance and students understand their own strength and weaknesses.

Intelligence tests are also a kind of aptitude test as they describe and measure the general ability which enters into the performance of every activity and thus predict the degree of achievement that may be expected from individuals in various activities.

Aptitude test, however have proved of great value for research in educational and vocational guidance, for research in selection of candidates for particular course of study or professional training and for research of the complex causal relationship type.

**9.9 INVENTORY:**

Inventory is a list, record or catalog containing list of traits, preferences, attitudes, interests or abilities used to evaluate personal characteristics or skills.

The purpose of inventory is to make a list about a specific trait, activity or programme and to check to what extent the presence of that ability types of Inventories like

- Internet Inventory and
- Personality Inventory

**Interest Inventory:**

Persons differ in their interests, likes and dislikes. Internets are significant element in the personality pattern of individuals and play an important role in their educational and professional careers. The tools used for describing and measuring interests of individuals are the internet inventories or interest blanks. They are self report instruments in which the individuals note their own likes and dislikes. They are of the nature of standardised interviews in which the subject gives an introspective report of his feelings about certain situations and phenomena which is then interpreted in terms of internets.
The use of interest inventories is most frequent in the areas of educational and vocational guidance and case studies. Distinctive patterns of interest that go with success have been discovered through research in a number of educational and vocational fields. Mechanical, computational, scientific, artifice, literary, musical, social service, clerical and many other areas of interest have been analysed in forms of activities. In terms of specific activities, a person’s likes and dislikes are sorted into various interest areas and percentile scores calculated for each area. The area where a person’s percentile scores are relatively higher is considered to be the area of his greatest interests, the area in which he would be the happiest and the most successful.

As a part of educational surveys of many kinds, children’s interest in reading, in games, in dramatics, in other extracurricular activities and in curricular work etc. are studied.

One kind of instrument, most commonly used in interest measurement is known as Strong’s Vocational Interest Inventory. It compares the subject’s pattern of interest to the interest patterns of successful individuals in a number of vocational fields. This inventory consists of the 400 different items. The subject has to tick mark one of the alternatives i.e. L(for like), I(indifference) or D(Dislike) provided against each item. When the inventory is standardised, the scoring keys and percentile norms are prepared on the basis of the responses of a fairly large number of successful individuals of a particular vocation. A separate scoring key is therefore prepared for each separate vocation or subject area. The subject’s responses are scored with the scoring key of a particular vocation in order to know his interest or lack of interest or lack of interest in the vocation concerned. Similarly his responses can be scored with scoring keys standardised for other vocational areas. In this way you can determine one’s areas of vocational interest. Another well known interest inventories, there are also personality inventories to measure the personality. You can prepare inventories of any ability to measure it.

Check Your Progress – V

Q.1 What are psychological tests? Explain the use of aptitude test as a tool of research.
Q.2 What are inventories? Explain its role in research with example.

9.10 OBSERVATION:

Observation offers the researcher a distinct way of collecting data. It does not rely on what people say they do, or what they say they think. It is more direct than that. Instead, it draws on the direct evidence of the eye to witness events first hand. It is a more natural way of gathering data. Whenever direct observation is possible it is the preferable method to use.

Observation method is a technique in which the behaviour of research subjects is watched and recorded without any direct contact. It involve the systematic recording of observable phenomena or behaviour in a natural setting.

Purpose:

The purpose of observation techniques are:

- To collect data directly.
- To collect substantial amount of data in short time span.
- To get eye witness first hand data in real like situation.
- To collect data in a natural setting.

Characteristics:

It is necessary to make a distinction between observation as a scientific tool and the casual observation of the man in the street. An observation with the following characteristics will be scientific observation.

- Observation is systematic.
- It is specific.
- It is objective.
- It is quantitative.
• The record of observation should be made immediately.
• Expert observer should observe the situation.
• It’s result can be checked and verified.

**Types of Observation:**

On the basis of the purpose of observation may be of varied type like:

• Structured and Unstructured
• Participant and Non-participant

**Structured and Unstructured Observation:**

In the early large stage of an investigation, it is necessary to allow maximum flexibility in observation to obtain a true picture of the phenomenon as a whole. In the early stage, it we attempt to restrict the observation to certain areas, then there we”, be the risk of overlooking some of the more crucial aspects. As the investigator studies the significant aspects and observes some restricted aspects of the situation to derive more and rigorous generalizations. So in the first stage of observation, the observation is wide and unstructured and as the investigation proceeds observation gets restricted and structured.

**Participant and Non-Participant Observation:**

In participant observation, the observer becomes more or less one of the groups under observation and shares the situation as a visiting stranger, an attentive listener, an eager learner or as a complete participant observer, registering, recording and interpreting behaviour of the group.

In non-participant observation, the observer observes through one way screens and hidden microphones. The observer remains a look from group. He keeps his observation as inconspicuous as possible. The purpose of non-participant observation is to observe the behaviour in a natural setting. The subject will not shift his behaviour or the will not be conscious hat someone is observing his behaviour.

The advantages and disadvantages of participant and non-participant observation depend largely on the situation. Participant observation is helpful to study about criminals at least participating with person sometime. It gives a better in sight into the life. Therefore it has a built in validity test. It’s disadvantages are that it
is time consuming. As he develops a relationship with the members, there is a chance of lousing his neutrality, objectivity and accuracy to rate things as they are:

Non-participant observation is used with groups like infants, children or abnormal persons. It permits the use of recording instruments and the gathering of large quantities of data.

Therefore, some researchers feel that it is best for the observer to remain only a partial participant and to maintain his status of scientific observer apart from the group.

**Steps of Effective Observation:**

As a research tool effective observation needs effective
- Planning
- Execution
- Recording and
- Interpretation

**Planning:**

While planning to employ observation as a research technique the following factors should be taken into consideration.
- Sample to be observed should be adequate.
- Units of behaviour to be observed should be clearly defined.
- Methods of recording should be simplified.
- Detail instruction should be given to observes if more than one observe is employed to maintain consistency.
- Too many variables should not be observed simultaneously.
- Excessively long period of observation without rest period should be avoided.
- Observes should be fully trained and well equipped.
- Records of observation must be comprehensive.

**Execution:**

A good observation plan lends to success only when followed with skill and expert execution. Expert execution needs:
- Proper arrangement of special conditions for the subject.
• Assuming the proper physical position for observing.
• Focusing attention on the specific activities or units of behaviour under observation.
• Observing discreetly the length and number of periods and internals decided upon.
• Handling well the recording instruments to be used.
• Utilising the training received in terms of expertness.

**Recording:**

The two common procedures for recording observations are:

- Simultaneous
- Soon after the observation

Which methods should be used depend on the nature of the group? The type of behaviour to be observed. Both the method has their merits and limitations. The simultaneous form of recording may distract the subjects while after observation the observer may distract the subjects while after observation the observer may fail to record the complete and exact information. Therefore for a systematic collection of data the various devices of recording should be used. They are like – checklist, rating scale and score card etc.

**Interpretation:**

Interpretation can be done directly by the observer at the time of his observation. Where several observers are involved, the problem of university is there. Therefore, in such instances, the observer merely records his observations and leaves the matter of interpretation to an export that is more likely to provide a unified frame of reference. It must of course, be recognized that the interpreter’s frame of reference is fundamental to any interpretation and it might be advisable to insist on agreement between interpreters of different background.

**Limitations of Observation:**

- The limitations of observation are:
- Establishing validity is difficult.
- Subjectivity is also there.
- It is a slow and labourious process.
• It is costly both in terms of time and money.
• The data may be unmanageable.
• There is possibility of biasness

These limitations can be minimized by systematic observation as it provides a framework for observation which all observers will use. It has the following advantages.

**Advantages of Observation:**

• Data collected directly
• Systematic and rigorous
• Substantial amount of data can be collected in a relatively short time span.
• Provides pre-coded data and ready for analysis.
• Inter observer reliability is high.

However, observation is a scientific technique to the extent that it serves a formulated research purpose, planned systematically rather than occurring haphazardly, systematically recorded and related to more general propositions and subjected to checks and controls with respect to validity, reliability and precision.

**Check Your Progress – VI**

Q.1 Explain the steps of observational techniques with it’s merit’s and limitations.

Q.2 Write short notes on:
   (a) Participant and non-participant observation.
   (b) Structured and non-structures observation.
9.11 INTERVIEW:

Interviews are an attractive proposition for the project researcher. Interviews are something more than conversation. They involve a set of assumptions and understandings about the situation which are not normally associated with a casual conversion. Interviews are also referred to as an oral questionnaire by some people, but it is indeed much more than that. Questionnaire involves indirect data collection, whereas Interview data is collected directly from others in face to face contact. As you know, people are hesitant to write something than to talk. With friendly relationship and rapport, the interviewer can obtain certain types of confidential information which might be reluctant to put in writing.

Therefore research interview should be systematically arranged. It does not happen by chance. The interviews not done by secret recording of discussions as research data. The consent of the subject is taken for the purpose of interview. The words of the interviews can be treated as ‘on the record’ and ‘for the record’. It should not be used for other purposes besides the research purpose. The discussion therefore is not arbitrary or at the whim of one of the parties. The agenda for the discussion is set by the researcher. It is dedicated to investigating a given topic.

Importance of Interview:

Whether it is large scale research or small scale research, the nature of the data collection depends on the amount of resources available. Interview is particularly appropriate when the researcher wishes to collect data based on:

- Emotions, experiences and feelings.
  - Sensitive issues.
  - Privileged information.
- It is appropriate when dealing with young children, illiterates, language difficulty and limited, intelligence.
- It supplies the detail and depth needed to ensure that the questionnaire asks valid questions while preparing questionnaire.
- It is a follow up to a questionnaire and complement the questionnaire.
- It can be combined with other tools in order to corroborate facts using a different approach.
- It is one of the normative survey methods, but it is also applied in historical, experimental, case studies.
Types of Interview:

Interviews vary in purpose, nature and scope. They may be conducted for guidance, therapeutic or research purposes. They may be confined to one individual or extended to several people. The following discussions describe several types of interview.

Structured Interview:

Structured interview involves tight control over the format of questions and answers. It is like a questionnaire which is administered face to face with a respondent. The researcher has a predetermined list of questions. Each respondent is faced with identical questions. The choice of alternative answers is restricted to a predetermined list. This type of interview is rigidly standardised and formal.

Structured interviews are often associated with social surveys where researchers are trying to collect large volumes of data from a wide range of respondents.

Semi-Structured Interview:

In semi-structures interview, the interviewer also has a clear list of issues to be addressed and questions to be answered. There is some flexibility in the order of the topics. In this type of interviewee is given chance to develop his ideas and speak more widely on the issues raised by the researcher. The answers are open-ended and more emphasis is on the interviewee elaborating points of interest.

Unstructured Interview:

In case of unstructured interview, emphasis is placed on the interviewee’s thoughts. The role of the researcher is to be as unintrusive as possible. The researcher introduces a theme or topic and then letting the interviewee develop his or her ideas and pursue his or her train of thought. Allowing interviewees to speak their minds is a better way of discovering things about complex issues. It gives opportunity for in depth investigations.

Single Interview:

This is a common form of semi structured or un-structured interview. It involves a meeting between one researcher and one informant. It is easy to arrange this type of interview. It helps the researcher to locate specific ideas with specific people. It is also easy to control the situation in the part of the interviewer.
Group Interview:

In case of group interview, more than one informant is involved. The numbers involved normally about four to six people. Here you may think that it is difficult to get people together to discuss matters on one occasion and how many voices can contribute to the discussion during any one interview. But the crucial thing to bear in mind. Here is that a group interview is not an opportunity for the researcher to ask questions to a sequence of individuals, taking turns around a table. ‘group’ is crucial here, because it tells us that those present in the interview will interact with one another and that the discussion will operate at the level of the group. They can present a wide range of information and varied viewpoints.

According to Lewis—

“Group interviews have several advantages over individual interviews. In particular, they help to reveal consensus views, may generate richer responses by allowing participants to challenge one another’s views, may be used to verify research ideas of data gained through other methods and may enhance the reliability of responses.”

The disadvantages of this type of interview is that the views of ‘quieter’ people does not come out. Certain members may dominate the talk. The most disadvantage is that whatever opinions are expressed are acceptable by the group irrespective of their opinions contrary to it. Private opinion does not given importance.

Focus Group Interview:

This is an extremely popular form of interview technique. It consists of a small group of people, usually between six and nine in number. This is useful for non-sensitive and non-sensitive and non-controversial topics. The session usually revolve around a prompt, a trigger, some stimulus introduced by the interviewer in order to ‘focus’ the discussion. The respondents are permitted to express themselves completely, but the interviewer directs the live of thought. In this case, importance is given on collective views rather than the aggregate view. It concentrates on particular event or experience rather than on a general line of equality.

Requirements of a Good Interview:

As a tool of research good interview requires:

- Proper preparation.
- Skillful execution and
- Adequate recording and interpretation.
Preparation for Interview:
The following actors need to be determined in advance of the actual interview:

- Purpose and information needed should be clear.
- Which type of interview best suited for the purpose should be decided.
- A clear outline and framework should be systematically prepared.
- Planning should be done for recording responses.

Execution of the Interview:

- Rapport should be established.
- Described information should be collected with a stimulating and encouraging discussion.
- Recording device should be leased without distracting the interviewee.

Recording and Interpreting Responses:

- It is best to record through tape recorder.
- If the responses is to be noted down, it should be either noted simultaneously or immediately after it.
- Instead of recording responses, sometimes the researcher noted the evaluation directly interpreting the responses.

Advantages of Interview:

Interviews techniques has the following advantages:

Depth Information:

Interviews are particularly good at producing data which deal with topics in depth and in detail. Subjects can be probed, issues pursued lines of investigation followed over a relatively lengthy period.

Insights:

The researcher is likely to gain valuable insights based on the depth of the information gathered and the wisdom of “key informants”.
Equipment:

Interviews require only simple equipment and build on conversation skills which researchers already have.

Information Priorities:

Interviews are a good method for producing data based on informant’s priorities, opinions and ideas. Informants have the opportunity to expand their ideas, explain their views and identify what regard as their crucial factors.

Flexibility:

Interviews are more flexible as a method of data collection. During adjustments to the line of enquiry can be made.

Validity:

Direct contact at the point of the interview means that data can be checked for accuracy and relevance as they are collected.

High response rate:

Interviews are generally pre-arranged and scheduled for a convenient time and location. This ensures a relatively high response rate.

Therapeutic:

Interviews can be a rewarding experience for the informant, compared with questionnaires, observation and experiments, there is a more personal element to the method and people end to enjoy the rather rare chance to talk about their ideas at length to a person whose purpose is to listen ad note the ideas without being critical.

Disadvantages of Interviews:

Irrespective of the above advantages, it has the following disadvantages.

Time Consuming:

Analysis of data can be difficult and time consuming. Data preparation and analysis is “end loaded” compared with, for instance, questionnaires, which are preceded and where data are
ready for analysis once they have collected. The transcribing and coding of interview data is a major task for the researcher which occurs after the data have been collected.

**Difficulty in data analysis:**

This method produce non-standard responses. Semi-structured and unstructured interviews produce data that are not pre-coded and have a relatively open format.

**Less Reliability:**

Consistency and objectivity are hard to achieve. The data collected are, to an extent, unique owing to the specific content and the specific individuals involved. This has an adverse effect on reliability.

**Interviewer Effect:**

The identity of the researcher may affect the statements of the interviewee. They may say what they do or what they prefer to do. The two may not tally.

**Inhibitions:**

The tape recorder or video recorder may inhibit the important. The interview is an artificial situation where people are speaking for the record and on the record and this can be daunting for certain kinds of people.

**Invasion of Privacy:**

Interviewing can be an invasion of Privacy and may be upsetting for the informant.

**Resources:**

The cost of interviewer’s fine, of travel and of transcription can be relatively high if the informants are geographically widespread.

On the basis of the merits and limitations of the interview techniques it is used in many ways for research and non-research purposes. This technique was used in common wealth teacher training study to know the traits must essentials for success in teaching. Apart from being an independent data collection tool, it may play an important role in the preparation of questionnaires and check lists which are to be put to extensive use.
Check Your Progress - VII

Q.1 Explain different types of interview for the purpose of research.

Q.2 Write short notes on:
   (a) Importance of Interview.
   (b) Requisites of a good interview.

9.12 LET US SUM UP:

You would recall that we have touched upon the following learning items in this unit.

For the purpose of collecting new relevant data for a research study, the investigator needs to select proper instruments termed as tools and techniques.

The major tools of research can be classified into broad categories of inquiry form, observation, interview, social measures and Psychological tests.

Among the inquiry forms, we have discussed in this unit are Rating scale, attitude scale, opinionnaire, questionnaire checklist and semantic differential scale. Observation and Interview are explained as the techniques of data collection. In psychological tests, Aptitude tests and inventories are discussed.

Rating scale is a technique which is designed or constructed to assess the personality of an individual. It is very popular in testing applied psychology, vocational guidance and counseling as well as in basic research. They measure the degree or amount of the indicated judgments.
Attitude scale is the device by which the feelings or beliefs of persons are described and measured indirectly through securing their responses to a set of favourable statements. Thurstone and Likert scale are commonly adopted for attitude scaling.

Opinionnaire is a special form of inquiry. It is used by the researcher to collect the opinions of a sample of population. It is usually used in descriptive type research.

Questionnaire is a tool which used frequently. The purpose is to gather information from widely scattered sources. Data collected in written form through this tool.

Checklist is a selected list of words, Phrases, Sentences and paragraphs following which an observer records a check mark to denote a presence or absence of whatever is being observed. It calls for a simple yes / no judgments. The main purpose is to call attention to various aspects of an object or situation, to see that nothing of importance is overlooked.

Semantic Differential Scale is a seven point scale and the end points of the scale are associated with bipolar labels. This scale helps to determine overall similarities and differences among objects.

Aptitude tests are psychological tests attempt to product the capacities or the degree of achievement expected from individuals in a particular activity. The purpose is to test a candidate’s profile.

Inventory is a list, or record containing traits, preferences, attitudes interests or abilities used to evaluate personal characteristics or skills. Strong’s vocational interest inventory is an example of interest inventory.

Observation method is a technical in which the behaviour research subjects is watched and recorded without any direct contact. It deals with the overt behaviour of persons in controlled or uncontrolled situations.

Interview is an oral type of questionnaire where the subject supplies the needed information in a face to face situation. It is specially appropriate for dealing with young children, illiterates, dull and the abnormal.


Unit End Exercises:

1. State the characteristics of a questionnaire.
2. What are the disadvantages of an Interview?
3. Prepare items using Rating scale, Interview and Questionnaire for a research proposal.

Reference Books:


♥♥♥♥