1

TOOLS OF EVALUATION

Unit Structure :

1.0 OBJECTIVES

After studying this unit students will be able to know Concept of tools of evaluation-

- Know meaning, characteristics of evaluation
- Understand meaning of performance test
- Know Oral test, its merits, limitations and suggestions for improvement.
- Meaning of practical test, It's merits, Limitations & suggestions for improvement.
- Understand written tests, objective tests and it's merits, Limitations and suggestions for improvement
- Know Essay type tests, its merits, limitations and suggestions for improvement. Understand Norm Referenced testing.
- Understand Criterion Referenced testing
- Know Online tests and it's features, merits, limitations and challenges for online tests etc.

1.1 INTRODUCTION.

The term evaluation means to make a judgment by improving and providing marks and grades based on level of achievement. It is a systematic process of determining to what extent educational objectives have been achieved.

Evaluation is the process of observing and measuring a thing for the purpose of judging it and for determining it's value either by comparing to similar things or to a standard.

Tools of evaluation are important Components of the process of Continuous and Comprehensive Evaluation (CCE). Interpretation of gathered information needs to be given in numerical scores, grades as well in qualitative terms.

Multiple tools can be used for evaluation. Evaluation tools can be used standardized and non standardized.

1.2 TOOLS OF EVALUATION

A tool of evaluation is used in education is a device or technique that will facilitate the process of measuring and recording the characteristics of pupils. Tools of evaluation are Sophisticated technique of appraisal intelligently, designed to measure what is required to measured.

1.2.1 Meaning of evaluation

Evaluation is a process of judging the value or something by certain appraisal. Evaluation is said to be the most complex and comprehensive process. Evaluation is a broader term than any of the diagnostic terms like test or measurement. The purpose of the evaluation is not only to check the knowledge of learner but to test all the aspects of the learners.

Definitions of the Evaluation

“The process of gathering and interpreting evidence changes in the behaviour of all students as they progress through school is called evaluation”

-Hanna.

Evaluation is a Continuous process and is concerned with than the formal academic achievement of pupils. It is interpreted in the development of the individual in terms of desirable behavioural change relation of his feeling, thinking and actions."

-Muffat

1.2.2 Characteristics of Evaluation

These are as follows,

1. Evaluation is a Continuous process.
2. Evaluation includes academics and non- academic subjects.
3. Evaluation is a procedure for improving the product

4. Discovering the needs of an individual and designing learning experiences.
5. Evaluation is purpose oriented.
6. It is a Systematic process.
7. Evaluation is comprehensive process.
8. Discovering the needs of an individual and designing learning experience
9. To improve the educational process.

Check your progress

Discuss tools of Evaluation, Meaning of evaluation and it's characteristics

1.3 PERFORMANCE TEST

How can I measure the students' achievements, working habits, behavior or attitude?

Some of the skills are based assessed with paper and pencil test. but other skills particularly those independent judgment, critical thinking and decision making are best assessed with performance testing.

"Performance test is direct, systematic observation of an actual pupil performers and rating of that performance according to pre established performance criteria"

- The north Central Regional Educational Laboratory, NCREL 2001

Performance test is an assessment that requires and examinee to actually perform a task or activity rather than simply answering questions referring to specific parts. It require students to demonstrate that they have master specific skill and competencies by performing or producing something.

1.3.1 Oral test

Oral test is a direct means of assessing students learning outcomes by questioning them. The student has to answer the question in such a way as to demonstrate sufficient knowledge of the subject to pass the exam.

Merits of oral test

These are as follows

1. Since they are easy to prepare, they are useful tools.
2. Well known exam types by the teachers.
3. Suitable for measuring high level behaviors in the knowledge, comprehension, analysis, synthesis, application and evaluation stages of cognitive learning.
4. Suitable for measuring and developing behaviors that cannot be easily measured by other tools such as Creative Thinking critical thinking.

5. Student Have the Independence of answering
6. Exam stress is less
7. Lack of luck increases reliability
8. Printing and copying are easy
9. It is suitable to be used in exams for groups with high participation

Limitations of oral test.

These are as follows

1. It is basically an individual examination and restricted to the verbal interaction of the examiner and examinee for any one question.
2. It is time consuming especially when it involves in depth questioning.
3. Application and scoring are tiring and time consuming
4. Scoring validity is low and open to evaluator bias. Different evaluators may give different grades to the same exam paper.
5. Lack standardization
6. Permit few reason and possible abuse of contact.
7. Suffer from undue influence or irrelevant factors.
8. Difficult to evaluate so many things at once (grammar, vocabulary, pronunciation)

Suggestions for improvement

Formal training programs can be adopted to increase both validity and reliability of oral test. Develop orientation manual, day - long workshops, an examiner evaluation system and a device to organize content between examination teams and prevent redundancy in the examination.

1.3.2 Practical test

Practical tests are also known as performance tests. As the name states, the exam tests the candidates on the basis of their performance and ability to apply the theoretical knowledge to the actual practice state. The practical exams are usually conducted in schools, colleges or universities during the final term. Preparing for practical test is a very good way of learning a particular subject because it is a complete detailed account of the same in a physically doable format. However, preparing for practical exam has much more real world implications than you would think. It helps you in improving your problem solving skills because you will use your practical learning experience to create solutions to problems that you would not have learned in theory.

Merits of practical tests

These are as follows

1. It improving your skill set
2. Gives a better understanding of the subject.
3. Better knowledge retention.

4. Applying theory effectively
5. Enhancing creativity

This way of learning helps students to remember the topic for a long time and also master it. Practical learning makes the study more fun and engaging for students. Practical learning based exams show the actual intellect of students, Unlike the marks obtained by mugging up night before.

6. Can be adopted and implemented quickly
7. Can make longitudinal comparisons.
8. Can test large number of students

Limitations

There are many limitations of practical test as well. These are as follows

1. It measures relatively superficial knowledge or learning
2. Unlikely too much the specific goals and objectives a program / institution
3. it is time consuming process
4. it is not feasible for large group
5. It is not considered an objective method of evaluation
6. Exams can generate depression
7. Comparison among students
8. Lessened effectiveness

Suggestions for improvement of practical test.

1.4 WRITTEN TEST

A written test is a technique to assess students' knowledge, skills or abilities. Tests are usually divided into different parts, each covering a different area of the field to be tested. It administered on paper or on computer.

A written test or piece of work is one that involves writing rather than doing something practical or giving spoken answers. Importance of written test to develop their extraordinary thinking, self assessment, overcome failure, filling them with positivity.

Types of written test

The types of written tests are

1. objective test
2. subjective test

1.4.1 Objective test

An objective test is a test that has right or wrong answers and so can be marked objectivity. Objective test require a user to choose are provide a response to a question whose correct answer is predetermined.

Objective implies that subjective judgment of the scorer do not influence an individual's score.It is also known as "selected response" and " structured response" items It also include multiple choice matching and alternate choice items. Objective test typically assess lower levels skills such as knowledge, comprehension and application. Are relatively easy to administer, score, analyze and often based used for diagnostic assessment.

Merits of objective tests.

These are as follows,

1. It is based on objectivity, no scope for subjectivity.
2. There is no need to write in detail.
3. It requires short and specific answer
4. It is better for knowledge identification.
5. It is better for scoring and aparting comprehensive knowledge.
6. Partiality is impossible, if two students are equal in knowledge then get equal marks.
7. It can be scored objectively and easily. The scoring will not vary from time to time or from examiner to examiner. The mood of the examiner in no way affect scoring.
8. In this type, more extensive and representing sampling can be obtained. This reduce the role of luck and craming of expected question.
9. It can be made to cover more material than traditional type.

Limitations of objective test

There are some limitations of objective test as follows

1. Objectives like ability to organize matter, ability to present matter logically and in coherent fashion, etc cannot be evaluated.
2. Guessing is possible. No doubt the chances of success may be reduced by the inclusion of large number of items.
3. If a respondent mark all responses as correct, the result may be misleading.
4. Construction of objective test items is difficult while answering them is quite easy.
5. They demand more of analysis then synthesis
6. Linguistic ability of the tastee is not at all tested.
7. Printing cost considerably greater than that of an essay test

Suggestions for improvement of objective tests

There are some general suggestions for the improvement of objective tests.

1. Is item must be clearly expressed i.e. there must be precision in writing the test items
2. Test for important fact and knowledge and not trivial details
3. Avoid ambiguous statements. Each item should be subjected to one and only one interpretation.
4. Quantitative rather than qualitative words should be used. Words such as few, many, low, high, large etc are vague, indefinite and therefore, should be avoided
5. Avoid lifting statements verbatim from the textbook. The use of textbook language in a test encourages a pupil to memorize rather than to understand the subject matter.
6. There should be only one correct answer.
7. Avoid negative questions whenever possible. An indiscriminate should be avoided. It take it take more time to answer.

1.4.2 Essay type

The essay tests are still commonly used tools of evaluation, despite the increasingly wider applicability of the short answer and objective type questions. An essay test may give full freedom to the students to write any number of pages. The required response may vary in length.

An essay type questions requires the pupil to plan his own answer and explain it in his own words. The pupil exercises considerable freedom to select, organise and present his ideas. Essay type test provide a better inclination of pupil's real achievement in learning. The answers provide a clue to nature and quality of the pupil through process.

That is, we can assess how the pupil presents his ideas (wheather his manner of presentation is coherent, logical and systematic) and how he concludes. In other words, the answer of the pupil reveal the structure, dynamics of pupils mental life.

The essay questions are generally thought to be the traditional type of questions which demand lengthy answers. They are not amenable to objective Scoring as they give scope for halo- effect, inter examiner variability and intra examiner variability in scoring.

Merits of Essay tests

These are as follows

1. It is relatively easier to prepare and administer a six question extended response essay test than to prepare and administer a comparable 60-item multiple choice test items.

2. It is the only means an that can access examinee's ability to organize and present his ideas in a logical and coherent fashion.
3. It can be successfully employed for practically all the school subjects.
4. Some of the objectives such as ability to organize idea effectively, ability to criticise or justify a statement, ability to interpret, etc. can be best measured by this type of test
5. Logical thinking and critical reasoning, be systematic presentation, etc. can best developed by this type of test.
6. It helps to induce good study habits such as making outlines and summaries , organizing the arguments for and against etc.
7. The students can show their initiative the originality of their thought and the fertility of their imagination as they are permitted freedom of response.
8. The responses of the students need not be completely right or wrong. All degrees of Comprehensiveness and accuracy are possible.
9. It largely eliminates guessing.
10. They are valuable in testing functional knowledge and power of expression of the pupil.

Limitations

These are as follows

1. One of the Serious limitations of the essay tests is that these tests do not give scope for larger you cannot sample the course content so well with six lengthy essay questions you can with 60 multiple choice test items.
2. Such tests encourage selective reading and emphasis Cramming.
3. Moreover, scoring may be affected by spelling, good handwriting. coloured ink,neatness, grammer, length of the answer etc.
4. The long- answer type questions are less valid and less reliable, and as such they have little predictive value.
5. It requires an excessive time on the part of students to write while assessing, reading essay is very time-consuming and laborious.
6. It can be assessed only by a teacher or competent professionals.
7. Improper and ambiguous wording handicaps both the students and valuers.
8. Mood of the examiner affects the scoring of answer scripts.
9. There halo effect - biased judgment by previous impressions.
10. The Scores may be affected by his personal bias or partiality for a particular point of view, his way of understanding the question, his weightage. to different aspect of the answer, favoritism and nepotism etc.

Suggestions for Improving Essay tests.

The teacher can sometimes, through essay tests, gain improved insight into a students abilities difficulties and thus have basis for guiding his / her learning.

Give adequate time and thought to the preparation of essay questions, so that they can be re-examined, revised and edited before they are used. This would increase the validity of test.

1. Use word which themselves give directions eg. Define, illustrate, outline, select etc
2. Give specific directions to students to elicit the desired response.
3. Indicate clearly the value of the question and the time suggested for answering it.
4. The wording of the questions should be clear and unambiguous
5. Supply the necessary training to the students in writing essay fests.
6. Essay questions should provide value points and marking schemes.

Check Your Progress.

1.5 NORM REFERENCED TESTING.

A norm- referenced test is a type of test, assessment, or evaluation which yields an estimate of the position of the tested individual in a predefined population with respect to the trait being measured. Assigning scores on such tests may be described as relative grading, marking on a curve or grading on a curve. A norm referenced measure is used to ascertain an individual's status compared with the performance of other individual on that measure.

Norm - Referenced test is a “Test or other type of assessment designed or provide a measure of performance that is interpretable in individual's relative standing in some known group.” (Grolund)

Norm- Referenced test on way of interpreting student's performance is to describe individuals achievement in terms of their relative standing in some known group when the interpretation is made in terms of relative position held in some known group." It is a evaluation which relates to some norm. It is an attempt to interpret performance in terms of a norm group that serves as a referent. The purpose is to see how far an individual differs from the group performance to which he belongs. All public examinations are norm referenced as the results are interpreted in terms of particular class and judgment are formed in term of particular class.

e.g. Seema got more marks than 80 % of students in her class. Ruby got less marks than the class average. These judgments relate to the class norm or average performance. So these are norm referenced judgments. Norm referenced interpretation permits the teacher to make meaningful comparison among students in terms of their achievement.

Characteristics of Norm - Referenced Test

1. It's basic purpose is to measure students achievement in curriculum based skills.
2. It is prepared for particular grade level.
3. It classifies achievement as above average, average or below average for a given grade.

1.5.1 Criterion - Referenced Test

In contrast to norm - Referenced test, we can refer to a students performance to a predetermined criterion which is well defined specified, and acceptable in terms of instructional learning outcome desired standard of performance. It is determining an individual's status with reference to well defined criterion.

Results are interpreted in terms of clearly defined learning outcomes which serves as referent (criteria). Well defined level of achievement is necessary for success of Criterion - referenced test. A criterion referenced test is designed to measure performance which is interpreted in terms of clearly defined and delimited domain of learning task.

Glaser and Nitko defined a Criterion referenced test as “one that is deliberately constructed so as to yield performance that is directly interpretable in terms of specified performance standards.

A criterion referenced measure is used to ascertain an individual's status in a defined assessment performance standards.

Criterion-referenced assessment is to "test other type of assessment designed to provide a measure of performance that is interpretable in terms of clearly defined domain of learning task.

Check your progress

1. Write detail note on Norm - Referenced test.

2. Give account of criterion referenced test.

3. Distinguish between Norm- Referenced test and Criterion referenced test.

1.6 ONLINE TESTS.

Online test is the process of conducting a test online to gauge the participants learning and mastery over a particular subject. An online tests may be administered with a specific intent, such as ascertaining a candidate's skills, knowledge or learning abilities.

Online tests may include numerical reasoning, inductive logical thinking and verbal reasoning assessments, personality questionnaires, and much more besides.

In simple terms Online test is a structured, meticulous evaluation of an individual's skill, characteristics, knowledge or expertise. The test is hosted online via modern web-based technologies.

It comprise of a series of questions that assess mutiple aspects of a test-taker.

Features of online tests.

with the use of a of systematic online test, it has become very easy for an organization to carry out periodic and continuous assessment. It help them to save both time and money yet provides a good tool to continuously assess the knowledge of students.

Exam scheduling and planning is easy.

1. Configuring different type of question
2. Instant Result Evaluation
3. Instant Result Analysis is possible

Merits of online Test

These are as follows.

1. Accessibility and convenience: Access from anywhere, minimizing or eliminating architectural barriers or any other impediment due to displacement.
2. Time and travel savings- you do not have to go anywhere to take the exam, you can do it from the place you choose even from your home, and without spending hours travelling.
3. Cost reduction - Online test do not require paper or support material beyond a Computer and internet connection. This represents a clear economic saving for all involved
4. Simultaneous evaluation of large groups of students.
5. Immediate Grades Depending on type of assessment,takers can see scores as soon as they finish the test.
6. More objective results: Thanks to the different automated scoring methods. There is no room for subjectivity in multiple choice binary or multiple choice tests.

Limitation of online tests.

These are as follows,

1. It requires access to technology
2. There is no equity in the conditions to take the exam.
3. Technical problems or connection errors may occur.

4. The context of the examinee may be incompatible with taking the exam.
5. The student may lack concentration due to not having the habit of virtual work.
6. There is a risk of hacking the online test by impersonation, involvement of third parties or consultation of unauthorized sources.

Challenges of online test.

These as follows

1. Lack of motivation in students.
2. Infrastructural problems.
3. Digital Literacy and Technical Issues.
4. Lack of In- person Interaction.
5. Lack of Ed Tech and Online Learning options for special needs of students
6. Course structure and quality.
7. Lack of Accredited Degrees from Top Universities.
8. Abundant Distractions, Lack of Discipline.

1.7 SUMMARY

This module enables you to understand concept of tools of evaluation, its meaning and characteristics. Further this module enables you to know more about Performance test, Oral test practical test, written test, objective test in detail with it's merits, limitations and it's suggestions for improvement as well

Further this module enables you to understand Essay type testing, Norm-Referenced testing, Criterion Referenced testing in detail.

Further this module enables you to find out what is online test and it's characteristics, it's merits and limitations. and challenges of online test as well.

Suggestions for improvement of practical test

1. Clear and concise instructions - Ensure that the instructions are clear and concise, and provide all necessary information. The instruction should be easy. to understand, and the language should be appropriate for the target audience.
2. Develop practical tests that stimulate real world scenarios.
3. Provide feedback - providing feedback to test takers is essential for helping them to understand their strengths and weaknesses and to improve their skills.

4. Standardized Evaluation Criteria- Develop standardized evaluation Criteria to ensure that all test takers being evaluated fairly and objectively.
5. Equipment and materials- Ensure that all necessary equipment and materials are available and in good working Condition
6. Consistency- Ensure that the same equipment and materials. are used for all test takers. This will help to ensure consistency in testing conditions and results.
7. Training for evaluators.- provide training for evaluators to ensure that they are able to evaluate the practical test el effectively and consistently. This will help to ensure that all test takers are evaluated fairly and objectively.
8. Continuous Improvement. Collect feedback from test takers evaluator and other stakeholders to identify areas for improvement in the practical test

(1.2.2) Check your progress

1. Discuss tools of Evaluation, meaning of Evaluation and it's characteristics

(1.3) Check your progress.

1. write short note on performance test
2. Explain Merits and limitations. of Oral test.
3. Explain Merits, limitations and suggestion for improvement of practical test

(1.4) Check your progress.

1 Discuss Objective test with it's merits.

2. Explain limitations and suggestions for improvement of objective test.
3. Discuss Essay type test with it's merits, limitations. and suggestions for improvement.

(1.5) Check your progress

1. Write short note on Norm Referenced test.
2. Explain characteristics of Norm referenced test.

(1.6) check your progress

1. Write note on online test
2. Explain features of online test.
3. Explain merits and limitations of online test.
4. Explain challenges of online tests.

1.8 REFERENCE

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2

OBSERVATION TECHNIQUES

Unit Structure :

2.0 OBJECTIVES.

After studying the unit students will be able to

- know on concept of observation techniques.
- Meaning of checklists along with its characteristics, merits and limitations.
- Meaning of Rating scales along with its types, characteristics, merits and limitations of Rating scale.
- Understand Anecdotal Records along with it's characteristics, merits and limitations..

2.1 INTRODUCTION

There are many alternatives available to collect relevant data. The researcher should select one of these methods of collecting data, taking into account the nature of the investigation, scope and objective of inquiry, financial cost, availability of time and the desired accuracy. Collecting

credible data is a tough task and it is worth remembering that one method of data collection is not inherently better than another. Therefore, which data collection method to use would depend upon the research goals and the advantages and disadvantages of each method. In order to collect data, the researcher should be able to access the data that needs to be collected for the study. Data gathered from a number of sources including written documents, records, workplaces, the Internet, surveys or interviews, observation etc. Among these, we will proceed to study observation techniques in detail.

2.2 CONCEPT OF OBSERVATION TECHNIQUES. OBSERVATION TECHNIQUES.

Observation is a technique of collecting qualitative data in which such as gestures (the way a student behaves), places (condition in the classroom), phrases or interjections (types of interaction between a teacher and student), figures (number of people in waiting room), time (average time for an activity), etc may be observed. This technique is based on close monitoring of the a facts and practices of the target groups, without attempting to change them, using an appropriate procedure, observation of human behaviour is a much-used, data collection technique. It can be undertaken in different ways.

There are many types of observations such as naturalistic and controlled observation, covert and covert observation, participant and non- participant observation.

This technique is used in behavioural sciences. It is about collecting primary data by investigator's own direct observation of relevant people, actions, and situations without asking the respondent. Observation can yield information which people are normally not willing or able to provide.

For example, by observing many copies of class work, the untidy copies indicate that quality of teaching is not satisfactory. There are three major tools of data collection in observation techniques.

a) Check lists

b) Rating scales and

c) Anecdotal records.

Each of these is described in detail, in the following section

2.3 CHECK LISTS [MEANING]

A checklist is a form that is used for quickly and easily recording data or identifying actions or requirements. It is usually easy to exact data in a useful manner from a checklist. It is particularly effective at registering the occurrence of incidents, events, tasks or problems. Checklist is one of the most commonly used instruments for performance evaluation. A checklist

enables the observer to note only whether or not a trait is present. It consists of a listening of steps activities and behaviours which the observer records to note only whether or not a trait is present. It consists of a listening of steps, activities. and behaviours which the observer records when incident an occurs.

2.3.1 Definition of checklist

1. A checklist is a simple instrument consisting prepared list of expected items of performance or attributes, which are checked by a researcher for their presence or absence.

2. Checklists are constructed by breaking a performance and the quality of a product which specifies the presence or absence of a product, which specifies the presence or absence of an attributes or trait which is then "checked" by the rater/ observer.

2.3.2 Characteristics of checklist.

These are as follows,

1. Observe one respond at one time.
2. Clearly specify the characteristics of behaviour to be observed.
3. Use only carefully prepared checklist to avoid more complex traits.
4. The observer should be trained hoe to observe and how to record the observed. behaviour.
5. Use checklists only when you are interested in calculating a particular characteristics.
6. Checklists should have criteria for success based on expected outcomes.
7. Checklists should be short enough to be practical (eg. One sheet of paper)
8. Checklists should have tasks into logical sections or flow from start to finish.
9. Checklists should highlight Critical tasks.
10. Checklists should have sign off points that prevent students from proceeding without approval, if needed..

2.3.3 Merits of checklists.

These are as follows,

1. A checklists allows inter individual. Comparisons.
2. They provides simple method to record observations.
3. They are adaptable to subject matter areas.
4. It is useful in evaluating learning activities expected to be performed.
5. They helpful in evaluating procedure work.

6. Properly prepared checklists allows the observer to contains the direct attention.
7. Checklist have objectively to evaluate the characteristics.
8. It decreases the chances of errors in observation.
9. It can be developed very easily, quickly.
10. Align closely with tasks.
11. Effective for self and peer assessment.
12. Make learners aware of task requirements, allowing them to self-monitor progress.
13. Useful for sharing information with parents and other stakeholders.

2.3.4 Limitation of checklists.

1. Checklists are produced by people or maybe only one person and so are likely to be incomplete.
2. Some people find long checklists demotivating or distracting.
3. Checklists have headings but otherwise do not specify the dependencies between the items on the list, so failing to define the order in which the items need to be carried out and risking things being done out of order.
4. Checklists are a prime target for artificial intelligence, so reliance on them exposes you to the risk of redundancy.
5. Checklists don't tell you whether the organisation will achieve it's goals.
6. Provide limited information about how to improve performance.
7. It do not indicate quality of performance.
8. It assures only presence or absence of behaviour
9. It's usefulness is limited.
10. It can be time consuming.
11. Teachers may not consider assessments with checklist's as valid measures.
12. Teachers find it difficult to adapt teaching and evaluation behaviours to include checklists.

Check four progress.

1. Discuss the observation technique.
2. Give definitions of checklists.
3. Explain Merits and limitations of checklists.
4. Discuss the characteristics of checklists.

2.4 RATING SCALE

The rating scale is a closed-ended survey question used to represent respondent feedback in comparative form for specific a particular features / products / services. It is one of the most established question types for online and offline surveys where survey respondents are expected to rate an attribute or feature. The rating scale is a variant of the popular multiple choice question which is widely used to gather the information that provides relative information about a specific topic.

Researchers use a rating scale in research when they intend to associate a qualitative measure with the various aspects of a product or feature. Generally, this scale is used to evaluate. The performance of product or service, employee skills customer service, employee skills, customer service performances, customer first strategy, processes followed for a particular goal, etc. A rating scale survey question can be compared to a checkbox question, but a rating scale provide more information on than merely yes / No .

Definition of Rating scale

1. Rating Scale refers to a a set of opinion, which describes varying degree of dimensions of an attitude being observed.

2. A rating scale is a device by which the opinion concerning a trait can be systematized.

3. Barr & others define rating as “Rating is a term applied to expression of opinion or judgement regarding some situation, object or character. Opinions are usually expressed on a scale of values. Rating techniques are devices by which such judgements may be quantified"

2.4.1 Types of a Rating Scale

Broadly speaking, rating scales can be divided into two categories

Ordinal and interval scale

An ordinal scale is a scale that is a scale that depicts answer options in an ordered manner. The difference between the two answer option may not be calculable, but the answer options will always be in a certain innate order. Parameter such as attitude or feedback can be presented using an ordinal scale .

An interval scale is a scale where not only is the order of the answer variables established, but the magnitude of difference between each answer variable is also calculable. An absolute or true zero value is not present in an interval scale. The temperature in Celsius or Fahrenheit is the most popular example of an interval scale. Net promoter Score Likert scale and Bipolar Matrix Table are some of the most effective types of it.

Four primary types of rating scales are as follows:

1. Graphic Rating Scale Rating Scale - It indicates the answer options on a scale of 1-3, 1-5, etc. Likert scale is a popular graphic rating scale.
   e.g. Respondent can select a particular option on a line or scale to depict rating. This rating scale is often implemented by HR managers to conduct employee evaluation.
2. Numerical Rating scale - It has number as answer options and not each number corresponds to characteristics or meaning. e.g. a visual Analog scale or a semantic differential scale can be presented using a numerical scale.
3. Descriptive Rating scale - As the name suggests, it expects respondents to answer a particular question in terms of comparison, i.e. based on relative measurement, or keeping other organisations / products / features as a reference.
4. Comparative Rating scale - As the name suggests, it expects respondents to answer a particular question in terms of comparison, i.e., based on relative measurement or keeping other organisations products / features as a reference.

2.4.2 Characteristics of Rating scale

1. They are value judgements of the attributes of one person by another person
2. These scales are most commonly used tools to carry out structured observations.
3. They are generally developed to make quantitative judgements about quantitative attributes.
4. They provide more flexibility to judge the level of performance or presence of attributes among subjects.
5. Clarity - It must be constructed using short, concise statements in simple and unambiguous language.
6. Relevance - The statement should be relevant to the phenomenon and should be exactly in accordance with the variables understudy.
7. Variety -monotony of the statements must be avoided and variety and difference statements must be ensured.
8. Objectivity - It must be objective in a nature so that it is in a convenient for the rater to judge the attributes or performances of the subjects under study.
9. Uniqueness - each statement constructed must be unique in itself so that the attributers can be judged appropriately.

4.3 MERITS OF RATING SCALES:

These include the following.

a. Rating Scales consume much less time than other methods of scaling like pair comparison and rank ordering.

b. Rating Scales are quite interesting to the raters, especially if graphic methodsare used.

c. Best ratings can be obtained by presenting one stimulus to a rater at a time.

d. Rating scales can be used with large numbers of stimuli to a rater at a time.

e. Rating scales can be used with raters who have very little training for the purpose.

f. Rating scales have much wider range of application and can be used for tutor - rating, personality ratings, school appraisal, sociological surveys, etc.

g. Assessment of interest and attitudes and personal characteristics.

h. They are used to evaluate performance skills and product outcomes.

i. Rating Scales are adaptable and flexible assessment instruments.

2.4.4 Limitations of Rating Scales.

a] Error of leniency:- There is a tendency among the raters to rate those whom they know well, higher than they should. Such rater are called ‘easy raters’. Some raters become aware of their east rating and consequently rate individuals lower than they should. Such rater are called ‘hard raters’. The leniency error refers to a general and consistent tendency for a rater to rate too high or too low for whatever reasons.

b] Error of central tendency

Most of the raters hesitate to rate the individuals on the extremes of the scales. Instead, they tend to rate the individuals on the middle of the scale thereby distorting the results.

c] The logical error. The error is due to the fact that judges are likely to give similar ratings for traits, which they feel, are logically related to each other.

d] Halo-effect :- Hallo effect is an error which obscures the clusters of traits within an individual. The rater forms a general opinion about the person's merit. His / her ratings on specific traits are greatly influenced by this general impression. It results in a spurious positive correlation among the traits, which are rated.

e] The contrast error- The contrast error is due to a tendency of a rater to rate others in the opposite direction from himself / herself in a trait.

f] The proximity error - It has been seen that adjacent traits on a rating scale tend to inter- correlate higher than the remote ones. their degree of actual similarity being approximately equal. This error may be counteracted to some extent by placing similar traits farther apart and the dissimilar one closer.

Check your progress:

1] Give the definitions of Rating scale

2] Explain the Merits and Limitations of Rating scale.

3] Discuss the characteristics of Rating Scale.

2.5 ANECDOTAL RECORDS.

An anecdotal records is an observation that is written like a short story. They are descriptions of incidents or events that are important to the person observing. Anecdotal records are short, objective and as accurate as possible.

Definition

Anecdotal records. is a record of some significant item of conduct, a record of an episode in the life of students, a word picture of the student in action, a word snapshot at the moment of the incident, any narration of events in which may be significant about his personality.

\- Randall

Meaning

Informal device used by the teacher to record behaviour of students as observed by him from time to time.

It provides a lasting record of behaviour which may be useful later in contributing to a judgement about a student.

2.5.1 Characteristics of anecdotal records

*. Anecdotal records must possess certain characteristics. as given "below

1. They should contain a factual descriptions of what happened, when it happened, and under what circumstances the behaviour occurred.
2. The interpretations and recommended action should be noted separately from the description.
3. Each anecdotal record should contain a record of a single incident.
4. The incident recorded should be that is considered to be significant to the students growth and development of example.
    - Simple reports of behaviour
    - Result of direct observation.

- Accurate and specific
- Gives context of child's behavior.
- Records typical or unusual behaviours

2.5.2 Merits of Anecdotal records.

These are as follows,

1. Supplements and validates of others structured instruments.
2. Provision of insight into total behavioural incidents.
3. Needs no special training.
4. Use of formative feedback.
5. Economical and easy to develop
6. Open ended and can catch unexpected events.
7. Can select behaviours or events of interest and ignore others, or can sample a wide range of behaviours. (different times environments and people)

2.5.3 Limitations of Anecdotal Records.

These are as follows.

1. If carelessly recorded, the purpose will not be fulfilled.
2. Only records events of interest to the person doing the observing.
3. Incidents can be taken out of context.
4. Subjectivity
5. Lack of standardization.
6. Difficulty in scoring.
7. Time Consuming.
8. May miss out recording specific types of behaviour.
9. Limited application.

2.6 SUMMARY

This module enables you to understand concept of observation techniques. Further this modules enables to know 3 major tools of data collection in observation techniques.

a) Check lists

b) Rating scales

c) Anecdotal Records

Further, this module enables you to understand characteristics of check list, Merits and Limitations of check list, characteristics of Rating scales, merits

and limitations of rating scales, meanwhile. This enables to find out definition, characteristics, merits and limitations of Anecdotal Records.

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3

GRAPHICAL REPRESENTATION

Unit Structure :

3.0 OBJECTIVES

1) To enable the students to acquire the knowledge of the concept of graphical representation

2) To comprehend the importance of graphical representation of data

3) To develop an understanding about the different types of graphical representation such as Histogram, Frequency Polygon, and pie diagram

4) To develop the understanding about the merits and demerits of different types of graphical representation

5) To develop the skill of construction of different types of graphical representation such as Histogram, frequency polygon and pie diagram

3.1 INTRODUCTION

The word data is from the Latin word Datum, which means something given. The numerical figures collected through a survey are called data and can be represented in two forms - tabular form and visual form through graphs. Once the data is collected through constant observations, it is arranged, summarized, and classified to finally being represented in the form of a graph. There are two kinds of data - quantitative and qualitative. Quantitative data is more structured, continuous, and discrete with statistical data whereas qualitative is unstructured where the data cannot be analyzed.

Graphical representation of data.

3.2 CONCEPT :

A graphical representation is a visual display of data in the form of a diagram or graph. A chart is a graphical representation of data, in which "the data is represented by symbols, such as bars in a bar chart, lines in a line chart, or slices in a pie chart". It represents the set of data in a meaningful way. It is a Graphical representation of data is an attractive method of showcasing numerical data that help in analyzing and representing quantitative data visually. A graph is a kind of a chart where data are plotted as variables across the coordinate. It became easy to analyze the extent of change of one variable based on the change of other variables. Graphical representation of data is done through different mediums such as lines, plots, diagrams, etc. Let us learn more about this interesting concept of graphical representation of data, the different types, and solve a few examples.

3.2.1 Definition of Graphical Representation of Data

A graphical representation is a visual representation of data statistics-based results using graphs, plots, and charts. This kind of representation is more effective in understanding and comparing data than seen in a tabular form. Graphical representation helps to qualify, sort, and present data in a method that is simple to understand for a larger audience. Graphs enable in studying the cause and effect relationship between two variables through both time series and frequency distribution. The data that is obtained from different surveying is infused into a graphical representation by the use of some symbols, such as lines on a line graph, bars on a bar chart, or slices of a pie chart. This visual representation helps in clarity, comparison, and understanding of numerical data. Graphical presentation of data is about

generating insights into the relationships and patterns in data, and clearly communicating those insights and results to others

3.2.2 Principles of Graphical Representation of Data

The principles of graphical representation are algebraic. In a graph, there are two lines known as Axis or Coordinate axis. These are the X-axis and Y-axis. The horizontal axis is the X-axis and the vertical axis is the Y-axis. They are perpendicular to each other and intersect at O or point of Origin. On the right side of the Origin, the X-axis has a positive value and on the left side, it has a negative value. In the same way, the upper side of the Origin Y-axis has a positive value where the down one is with a negative value. When -axis and y-axis intersect each other at the origin it divides the plane into four parts which are called Quadrant I, Quadrant II, Quadrant III, Quadrant IV. This form of representation is seen in a frequency distribution that is represented in four methods, namely Histogram, Smoothed frequency graph, Pie diagram or Pie chart, Cumulative or ogive frequency graph, and Frequency Polygon.

3.3 IMPORTANCE OF GRAPHICAL REPRESENTATION OF DATA

Listed below are some advantages and disadvantages of using a graphical representation of data:

- It improves the way of analyzing and learning as the graphical representation makes the data easy to understand.
- It can be used in almost all fields from mathematics to physics to psychology and so on.
- It is easy to understand for its visual impacts.
- It shows the whole and huge data in an instance.
- It is mainly used in statistics to determine the mean, median, and mode for different data
- The main use of a graphical representation of data is understanding and identifying the trends and patterns of the data.
- It helps in analyzing large quantities, comparing two or more data, making predictions, and building a firm decision.
- The visual display of data also helps in avoiding confusion and overlapping of any information. Graphs like line graphs and bar graphs, display two or more data clearly for easy comparison. This is important in communicating our findings to others and our understanding and analysis of the data.
- Graphical representation often facilitates understanding of a set of data.
- It is easier to read and interpret a graphical data.
- It helps us in analysing numerical data

- It helps in comparing different frequency distributions to each other.
- It catches the eyes and holds the attention which other statistical evidences fail to attract.
- It helps us to dilute the abstractness of ideas by translating numerical facts into a more concrete and understandable form.

3.4 DISADVANTAGE OF GRAPHICAL REPRESENTATION

The disadvantages of graphical representation of data is that

1) It takes a lot of effort as well as resources to find the most appropriate data and then represent it graphically.
2) At times it may be very difficult to denote the scores in case of decimals, fractions etc. on the graphical representation
3) It requires expert knowledge to interpret the data represented on graphical representation.
4) The part of the area lying above any given interval cannot be taken as proportional to the frequency of that class interval owing to irregularities in the frequency surface.
5) The assumption that all the scores within a class interval fall at the midpoint of that interval produces a larger error when N is large than when N is small.
6) It is less precise than the histogram is that it does not represent accurately. i.e in terms of area , the frequency upon each interval.

3.5 RULES OF GRAPHICAL REPRESENTATION OF DATA

While presenting data graphically, there are certain rules that need to be followed. They are listed below:

- **Suitable Title:** The title of the graph should be appropriate that indicate the subject of the presentation.
- **Measurement Unit:** The measurement unit in the graph should be mentioned.
- **Proper Scale:** A proper scale needs to be chosen to represent the data accurately.
- **Index:** For better understanding, index the appropriate colors, shades, lines, designs in the graphs.
- **Data Sources:** Data should be included wherever it is necessary at the bottom of the graph.
- **Simple:** The construction of a graph should be easily understood.
- **Neat:** The graph should be visually neat in terms of size and font to read the data accurately.

3.6 TYPES OF GRAPHICAL REPRESENTATION OF DATA

Data is represented in different types of graphs such as plots, pies, diagrams, etc. They are as follows, Generally, the frequency distribution is represented in four methods, namely

- Histogram
- Smoothed frequency graph
- Pie diagram
- Cumulative or ogive frequency graph
- Frequency Polygon

3.7 HISTOGRAM

3.7.1 Meaning

- It is a graph in which class intervals are represented along the horizontal axis called the x-axis and their corresponding frequencies are represented by areas in the form of rectangular bars .
- The vertical y-axis represents the number count or percentage of occurrences in the data for each column. It appears asa series of bar graphs placed one ext to the other in a vertical array.
- Columns can be used to visualize patterns of data distributions.

3.7.2 How to prepare Histogram

Step1- Draw a horizontal line at the bottom of a graph paper along which mark off units to represent the class intervals. It is usual to start with the class intervals of lowest value.

Step 2- Draw a vertical line through the extreme end of the horizontal axis along which mark off units to represent the frequencies of the class intervals. Choose a scale which will make the largest frequency (the height) of the polygon approximately 75 percent of the width of the figure.

Step-3 Draw rectangles with class units as base, such that the areas of rectangles are proportional to the frequencies of the corresponding classes.

For example :

A census focused on the demography of a town may use a histogram to show how many people are between the ages of zero - 10, 11 - 20, 21 - 30, 31 - 40, 41 - 50, 51 -60, 61 - 70, and 71 - 80.

This histogram example would look similar to the chart below. Let's say the numerals along the vertical access represent thousands of people. To

read this histogram example, you can start with the horizontal axis and see that, beginning on the left, there are approximately 500 people in the town who are from less than one year old to 10 years old. There are 4,000 people in town who are 11 to 20 years old. And so on.

Histograms can be customized in several ways by analysts. They can change the interval between buckets. In the example referenced above, there are eight buckets with an interval of ten. This could be changed to four buckets with an interval of 20.

Another way to customize a histogram is to redefine the y-axis. The most basic label used is the frequency of occurrences observed in the data. However, one could also use percentage of total or density instead.

Importance of histogram

1) It is simple and easily made.
2) A comparison among the different columns can be made by constructing a single histogram.
3) It gives us the graphic form of the distribution of the scores, whether they are piled at the low or high end of the scale.
4) It tells us whether the scores are evenly and regularly distributed or not
5) When the scores are pile up at the lower end of the scale, it shows that the test is difficult, if they pile up at the higher end, the test is easy.

3.8 FREQUENCY POLYGON

3.8.1 Meaning

A polygon is a many angled close figure. Another method of representing a frequency distribution graphically is, what is known as frequency polygon. It is a graphic representation of frequency distribution in which the mid points of the class interval are plotted against the frequencies.

3.8.2 Steps to construct the Frequency Polygon

Obtain the frequency distribution and find the midpoints of each class interval.

- Represent the midpoints along x-axis and frequencies along the y-axis.
- Plot the points corresponding to the frequency at each midpoint.
- Join these points, using lines in order.
- To complete the polygon, join the point at each end immediately to the lower or higher class marks on the x-axis.

Construction of frequency polygon

Question :

Draw the frequency polygon for the following data

Class Interval	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Frequency	4	6	8	10	12	14	7	5

Solution :

Mark the class interval along x-axis and frequencies along the y-axis.

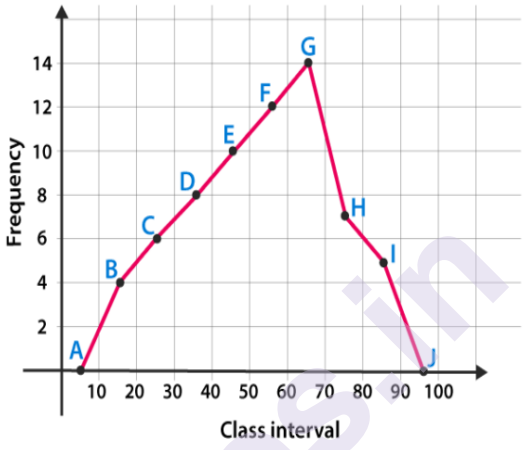
Let assume that class interval 0-10 with frequency zero and 90-100 with frequency zero.

Now calculate the midpoint of the class interval.

Class Intervals	**Midpoints**	**Frequency**
0-10	5	0
10-20	15	4
20-30	25	6
30-40	35	8
40-50	45	10
50-60	55	12
60-70	65	14
70-80	75	7
80-90	85	5
90-100	95	0

Using the midpoint and the frequency value from the above table, plot the points A (5, 0), B (15, 4), C (25, 6), D (35, 8), E (45, 10), F (55, 12), G (65, 14), H (75, 7), I (85, 5) and J (95, 0).

To obtain the frequency polygon ABCDEFGHIJ, draw the line segments AB, BC, CD, DE, EF, FG, GH, HI, IJ, and connect all the points.



3.8.3 Importance

1) It is simple and easily made.

2) It is possible to superimpose more than one frequency polygon on the sae graph by using coloured lines, broken lines, dotted lines etc.

3) Comparison of several frequency distributions can readily be made via frequency polygons.

4) It can be smoothed.

3.9 PIE CHART

3.9.1 Meaning : The "**Pie chart"** is also known as a "circle chart", dividing the circular statistical graphic into sectors or sections to illustrate the numerical problems. Each sector denotes a proportionate part of the whole. To find out the composition of something, The pie chart is a type of graph in which a circle is divided into Sectors where each sector represents a proportion of the whole

3.9.2 Importance of pie chart

1) Pie charts will helps us to understand the scale of our portions. They are commonly used in business presentations and education to display proportions among a broad range of categories, such as expenditures, population groups, and survey responses.

2) It gives an overall graphic representation of data which makes the reader to easily compare the contribution of different sectors.

3) It also helps in promoting research based on the numerical values.

4) It helps the policy makers to arrive at conclusions based on the interpretation of data from the pie diagram.

5) It can be easily constructed as well as comprehended by any person.

3.9.3 Construction of pie diagram/chart

Imagine a teacher surveys her class on the basis of favourite Sports of students:

Football	Hockey	Cricket	Basketball	Badminton
10	5	5	10	10

The data above can be represented by a pie chart as following and by using the circle graph formula, i.e. the pie chart formula given below. It makes the size of the portion easy to understand.

Step 1: First, Enter the data into the table.

Football	Hockey	Cricket	Basketball	Badminton
10	5	5	10	10

Step 2: Add all the values in the table to get the total.

I.e. Total students are 40 in this case.

Step 3: Next, divide each value by the total and multiply by 100 to get a per cent:

Football	**Hockey**	**Cricket**	**Basketball**	**Badminton**
(10/40) × 100 =25%	(5/ 40) × 100 =12.5%	(5/40) ×100 =12.5%	(10/ 40) ×100 =25%	(10/40)× 100 =25%

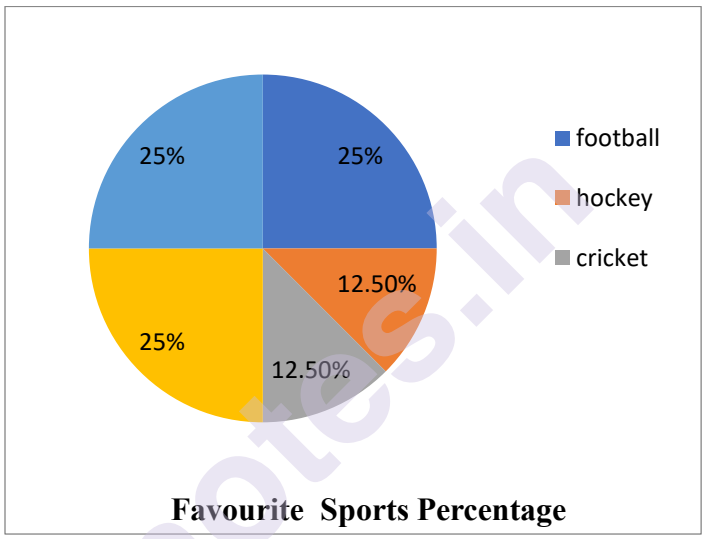
Step 4: Next to know how many degrees for each "pie sector" we need, we will take a full circle of 360° and follow the calculations below:

The central angle of each component = (Value of each component/sum of values of all the components)×360°

Football	Hockey	Cricket	Basketball	Badminton
(10/ 40)× 360° =90°	(5 / 40) × 360° =45°	(5/40) × 360° =45°	(10/ 40)× 360° =90°	(10/ 40) × 360° =90°

Now you can draw a pie chart.

Step 5: Draw a circle and use the protractor to measure the degree of each sector.



3,10 CONCLUSION

Graphical representation is an important component in research and for evaluation purposes. It is a diagrammatic representation of numeric data. It make the complex data easy by depicting the statistical data in a pictorial form. It is easy to draw and represent the given data. However interpretation of data shown in a graphical presentation needs insight and expertise. There are different types of graphical representation of data. In this unit Histogram, Frequency polygon and Pie chart is discussed with their respective importance.

3.11 CHECK YOUR PROGRESS

Q1 What is meant by graphical representation ?

Q2) Explain the importance of graphical representation of data?

Q.3) Differentiate between a Histogram and frequency polygon.

Q.4) list the demerits of graphical representation of data.

Q.5) Construct a histogram for the following frequency distribution.

Height (in cm)	101 – 110	111 – 120	121 – 130	131 – 140	141 -150
Number of children	15	18	12	6	9

Q.6) Draw the frequency polygon for the following data

Class Interval	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Frequency	8	4	10	8	14	12	5	2

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4

INTERPRETATION OF RESULTS

Unit Structure :

4.1 ORGANISING DATA FROM CLASSROOM ASSESSMENT

Collecting the information requires a serious effort on the part of social researchers who seek to increase their knowledge of human behaviour .To interview or otherwise elicit information from welfare recipients , college students, drug addicts or other respondents requires a degree of foresight, careful planning, and control, if not actual time spent in the field. Data collection yields raw materials that social researchers use to analyse data , obtain results, and test hypothesis about the nature of social reality.

The cabinetmaker transforms raw wood into furniture; the chef converts raw food into more palatable versions served at the dinner table. By a similar process, the social researcher aided by the recipes called formulas and statistical techniques – attempts to transform raw data into meaningful and organised set of measures that can be used to test hypotheses. The first step is to construct a frequency distribution in the form of a table.

Data should be labelled using a consistent and descriptive file naming system.

Data should be organized with a consistent and easy to navigate file structure. Maintaining such a structure can help reduce the risk of data loss and unnecessary replication.

Connections give context. Data and other materials should be organized in a manner that emphasizes the links between them. This may refer to different versions of the same file or different files related to the same aim or project.

Organization of data means classification, tabulation, graphical presentation and diagrammatic presentation of data. The methods that we use to organize data include classification, tabulation, graphical presentation and diagrammatic presentation.

Classification of data refers to categorization of data. It includes the summary of the frequency of individual scores or ranges of scores for a variable. Data is grouped on the basis of their similarities. Another method is tabulation of data. It is way to systematically arrange the data in rows and columns. The objective is to simplify the presentation and to facilitate comparisons keeping in view the objectives of the study.

The other technique is graphical presentation. Data is plotted on a pictorial platform formed of horizontal and vertical lines. The purpose is to provide a systematic way of "looking at" and understanding of the data.

4.2 CALCULATING AND INTERPRETING MEASURES OF CENTRAL TENDENCY- MEAN, MEDIAN, MODE

Researchers in many fields have used the term average to ask such questions as these :What is the average income earned by high school and college graduates? How many cigarettes are smoked by the average teenager? What is the grade= point average of the female college student? On average, how many automobile accidents happen as the direct result of known as a measure of tendency, because it is generally located toward the middle or centre of a distribution where most of the data tend to be concentrated. The social research 's conception is much more precise. It is expressed numerically as one of the several different kinds of measures of average or central tendency that may take on quite different numerical values in the same set of data. Three best known measures of central tendency are

1. The mean
2. Median
3. Mode

1. **The Mean :** By far the most commonly used measure of central tendency , the arithmetic mean , x is obtained by adding up a set of scores and dividing by the number of scores. Therefore, we the mean more formally as the sum of a set of scores divided by the total number of scores in the set.

   By formula X= EX/N

   Where X=mean

   E=Sum (expressed as the Greek capital letter sigma)

   X= raw score in a set of scores

   N=total number of scores in a set

   The mean can be regarded as the " canter of gravity " of a distribution.

   The weighted mean:

   Researchers sometimes find it useful to obtain a " Mean of Means ' - that is , to calculate a total mean for a number of different groups.

   Suppose for example , that the students in three different sections of introductory sociology received the following mean scores on their final exams for the course

   Section 1: X1=85 N1=28

Section 2=X2=72 N2=28

Section 3=X3=79 N3=28

Because exactly the same number of students were enrolled in each section of the course , it becomes simple to calculate a total mean score.

X1+X2+X3/3=85+72+79/3=236/3

=78.67

2. **Median:** When the ordinal or interval data are arranged in order of size, it becomes possible to locate the median the middle point in a distribution. Therefore, the median is regarded as the measure of central tendency that cuts into 2 equal parts, just as the median strip of a highway cuts into two. The position of the median value can be located by inspection or by the formula . Position of median=N+1/2.If we have an odd number of cases, then the median will be the case that falls exactly in the middle of the distribution. Thus 16 is the median value for the scores 11,12,13,16,17,20,25; this is the case that divides the distribution of numbers, so that there are 3 scores on either side of it.If the number of cases is even, the median is always that point above which 50% of the cases fall and below which 50% of the cases fall. For an even number of the cases , there will be 2 middle cases. To illustrate, the numbers 16 and 17 represent the middle cases for the following data : 11,12,13, 16, 17, 20,25,26.By the

   Formula (8+1)/2=4.5, the median will fall midway between the fourth and fifth cases; the middlemost point in this distribution turns out to be 16.5; because it lies halfway between 16 and 17, the fourth and fifth scores in the set. Likewise, the median is 9 in the data 2,5,8, 10,11,12,again because it is located midway between the 2 middle cases (6+1)2=3.5

3. **Mode:** The mode is the most frequent, most typical, or most common value in a distribution. For example, there are more protestants in the United States than people of any other religion : so, we refer to this religion as the mode. Similarly , if at a given university, engineering is the most popular major ,this, too would represent the mode. The mode is the only measure of central tendency available for nominal - level variables, such as religion and college major.
   To find the mode, find the category that occurs most often in a distribution. The mode can be easily found by inspection, rather than by computation, for instance in the set of scores 1,2,3,1,1,6,5,4,1,4,4,3,the mode is 1 .because it is the number that occurs more than any other score in the set(it occurs 4 times)

   The mean, mode and median are a part of descriptive statistics.

4.3 NORMAL PROBABILITY CURVE – CONCEPT, MEANING AND CHARACTERISTICS

Probability is explained as a proportion. What is probability? When we speak of expected relative frequency of an outcome. What is outcome? It is the result of an experiment you are trying to do. What is frequency? Frequency means how many times a thing repeats. Relative frequency means the number of times something happens relative to the number of times it could have happened.

We ask such questions as' How likely is it that I will get an A on this exam? ' How likely is it that this marriage will last?' " What is the chance that this team will win the series?". In everyday conversation , we answer these questions with vague and subjective hunches, such as ' Probably," " Pretty good chance," or " unlikely. "

There are two types of probability, one based on theoretical mathematics and the other based on systematic observation. Theoretical probabilities reflect the operation of chance or randomness , along with certain assumptions we make about events. In the simplest case we know that the probability of getting a head on a coin flip is .5 under the that very reasonable assumption that the coin is fairly weighted so that both sides are equally land face up Empirical probabilities are those for which we depend on observation to determine or estimate their values. Although there are two possible outcomes(leaving aside the possibility of twins or triplets) there are more males than female births.

Number of times the outcome or event can occur

Probability of an outcome or event

= _____

Total number of times any outcome or event can occur

For example , if a room contains three men and seven women, the probability that the next person coming out of the room is a man would be 3 in 10.An important characteristic of probability is found in the addition rule , which states that the probability of obtaining any one of the several different and distinct outcomes equals the sum of their separate probabilities. Suppose, for example , that we wish to find the probability of drawing the ace of spades , the queen of diamonds , or the king of the hearts in a single draw from a well shuffled pack of 52 cards. By adding their separate probabilities (1/52+1/52+1/52), we learn that the probability of obtaining any one of these cards in a single draw is equal to 3/52(P=.06). In other words, we have 6 chances in 100 to obtain the ace of spades, the queen of diamonds or the king of hearts in a single draw.

Another important property of probability occurs in the multiplication rule, which focuses on the problem of obtaining two or more outcomes in combination. The multiplication rule states that the probability of obtaining a combination of independent outcomes equals the product of their separate probabilities. The assumption of independent outcomes means that the occurrence of one does not change the likelihood of the other. For example, what is the probability of getting heads on both of two-coin flips- that is , heads on the first and heads on the second flip? We refer here to flipping

two different coins at the same time, but all the results we obtain apply equally to two successive flips of the same coin. On the first flip , the probability of obtaining a head is ½(P=.50); On the second flip , the probability is also1/2(P=.50)

The normal curve as a probability distribution

The normal curve can be used for describing distribution of scores, interpreting the standard deviation , making statements of probability. The normal curve is an essential ingredient of statistical decision making whereby the researcher generalises her or his results from samples to populations.Before proceeding to discussion of techniques of decision making ,it is first necessary to gain an understanding of the properties of the normal curve.

Characteristics of the Normal Curve

The normal curve is a type of smooth, symmetrical curve whose shape reminds many individuals of a bell-shaped curve. Perhaps the most outstanding feature of the normal curve is its symmetry: if we were told to fold the curve at its highest point at the centre , we would create two equal halves, each the mirror image of the other.

In addition , the normal curve is unimodal, having only one peak or point of maximum frequency-that point in the middle of the curve at which the mean, median and mode coincide. From the rounded central peak of the normal distribution , the curve falls off gradually at both tails, extending indefinitely in either direction and getting closer and closer to the base line without actually reaching it.

It should be also noted that some variables in social science, as elsewhere, simply do not conform to the theoretical notion of the normal distribution. Many distributions are skewed: others have more than one peak ;some are symmetrical but not bell-shaped. As a concrete example let us consider the distribution of wealth through out the world. It is well known that have-nots greatly outnumber the haves.

Interpretation of percentages, Percentile rank and Percentiles

Percentage is useful in comparison. Any two quantities, when represented in their percentage form, can easily be assessed. This is because no matter what the numbers are, when they are converted to the form of ‘per 100’, their interpretation is simplified.

Let us consider the following statements:

- Asmita scored 96% in the Math test.
- Rita spent 40% of her pocket money.
- 10% of Arnav’s candies are strawberry.

They can be interpreted in the following way:

- Asmita scored 96 out of 100 marks.

- Rita spends Rs 40 for every Rs 100 pocket money that she gets.
- Out of every 100 candies that Arnav has, 10 of them are strawberry

4.4 PERCENTILE RANK

In the world of statistics, **percentile rank** refers to the percentage of scores that are equal to or less than a given score. Percentile ranks, like percentages, fall on a continuum from 0 to 100. For example, a percentile rank of 65 indicates that 65% of the scores in a distribution of scores fall at or below the score at the 35th percentile. Percentile ranks are useful when you want to quickly understand how a particular score compares to the other scores in a distribution of scores. For instance, knowing someone scored 235 points on an exam doesn't tell you much. You don't know how many points were possible, and even if you did, you wouldn't know how that person's score compared to the rest of his classmates. If, however, you were told that he scored at the 90th percentile, then you would know that he did as well or better than 90% of his class. The formula for calculating percentile ranks is relatively simpl and straight forward. Knowing only the distribution of scores, you can easily calculate the percentile rank for any of the scores in the distribution. The percentile rank formula is

R=P/100(N+1) R represents the rank order of the score. represents the percentile rank .N represents the number of scores in the distribution

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5

CLASSROOM ASSESSMENT DATA A: ANALYSIS & INTERPRETATION

Unit Structure :

5A.0 OBJECTIVES

1. To enable students to understand meaning of Classroom Assessment.
2. To enable students to understand uses of Classroom Assessment.
3. To enable students to critically analyze various Classroom Assessment Techniques.
4. To enable students to examine nature of Classroom Assessment.
5. To enable students to analyze and interpret Classroom Assessment using computer.

5A.1 INTRODUCTION

Since the terms Assessment, Evaluation and Measurement are used interchangeably, it becomes confusing to address these terms for distinct purposes. Many experts claim that assessment includes measurement, testing and evaluation as well. However assessment, evaluation measurement and test have all different meaning and uses.

Rita Berry an associate professor and deputy head of the Department of Curriculum and instruction at the Hong Kong Institute of Education has given following example to make these concepts clear.

For instance a teacher wants to check whether students in her class can hear well. She does the following

1. Plans to Test their hearing.
2. Using a proper procedure that Measures their hearing acuity.
3. Assess their need for hearing aid devices, relying on the results of the test.
4. Evaluates the effectiveness of the action taken, by assessing the degree to which students now are able to hear and understand instruction and checking whether the hearing aids were good for the students.

(SRA-Strategic Researches Academy) defines Assessment as the various methods used by educators to measure and document the academic achievement and skill of students during preschool adulthood. It is a process of inquiry to collect and synthesize evidence that concludes the status or quality of a program, product, person, policy, proposal or plan.

Classroom Assessment may have three forms

Assessment for Learning
Assessment as Learning
Assessment of Learning
Assessment for learning can also be regarded as formative assessment. Assessment for learning aims at helping students acquire knowledge and discover their innate potentials, strengths and weaknesses. This takes place in a continuous way inside the classroom. Hence assessment for learning is what happens during the learning process and not at the end or after it.

Assessment as learning is an opportunity is given to the students to assess themselves and their peers during the class. This enables the students to self analyze in order to work on their weaknesses.

Assessment of learning is to achieve the educational goals at the end of the instructional period. It is also known as summative assessment which takes place after a certain instructional period. This is the most popular type of assessment around the world. Many schools prepare their students from the very first day of the school.

Classroom Assessment

Class room assessment is both a teaching approach and set of techniques. Classroom assessment as a teaching approach refers to knowledge of what and how students are learning in a class. This knowledge enables a teacher to plan her/his teaching activities better. Techniques are simple, non graded, anonymous, sometimes spontaneous in-class activities which gives a teacher and her student's useful feedback about the effectiveness of teaching and learning process.

Difference between classroom assessment and other forms of assessment

Classroom assessment can be regarded as assessment for learning and assessment as learning. It is that part of formative assessment which is

aimed at making teaching learning better. It is not for assigning grades. Classroom assessment is generally aimed at improving the learning of the students. It is to understand student's learning so as to improve one's teaching.

5A.2 CLASSROOM ASSESSMENT CAN BE USEFUL FOR TEACHER AS WELL AS STUDENTS.

For the teacher

- Classroom Assessment allows for short term feedback to the teacher as well as students. It allows for any modification or correction during the teaching learning process.
- Provides useful information without investing much on planning and executing the traditional mode of learner assessment.
- It fosters good bonding between student and the teacher.
- It increases the efficacy of teaching and learning.
- It enables the teacher to know about learning difficulties and disabilities of students in her class. It then can be dealt with appropriate intervention.
- Classroom assessment helps assessing the Higher Order Thinking skills of the students.

For the students

- Classroom assessment enables the students to monitor their own progress.
- It breaks down disconnect which the students may feel during larger and longer courses.
- It facilitates reflection and analysis of one's study habit and learning style
- Classroom assessment comes as connect between teacher and student.

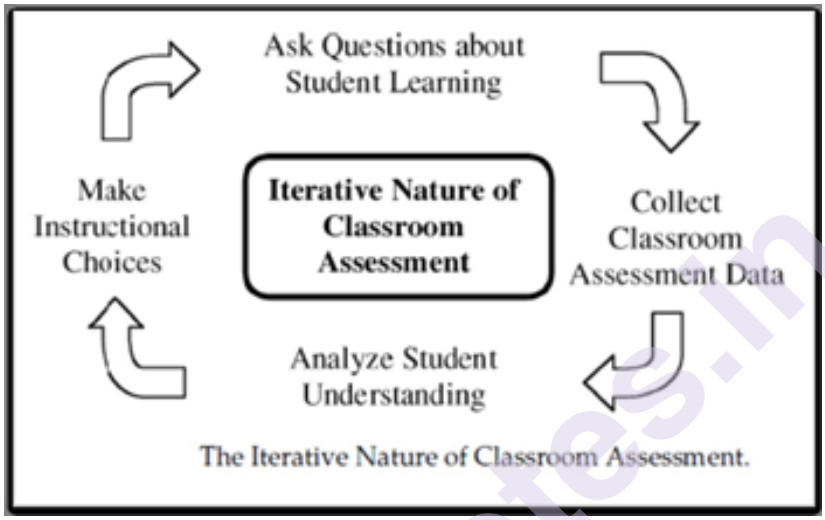
5A.3 CLASSROOM ASSESSMENT TECHNIQUES (CAT)

CAT are spot checks that are quick easy and effective. This enables the student to check their own comprehension and reorganize their own ideas. These activities are effective for introducing, clarifying and summarizing information at any point of time in a given classroom session. It is advisable and essential to conduct Classroom Assessment through these techniques more often to make the teaching and learning effective. CAT reinforces correct concept formation and clarifies misconceptions.

5A.4 NATURE OF CLASSROOM ASSESSMENT

Tanner and Allen (2004) describe the iterative nature of classroom assessment as cycle of

- Ask Questions about Student learning
- Collect Classroom assessment data
- Analyzing student understanding
- Making instructional choices



The Iterative Nature of Classroom Assessment.

1. **Ask questions about student learning**: The teacher must ensure the following while asking question. Appropriate questions in appropriate time offers best results

   - Keep in mind the course goals
   - Specific and direct question
   - Ask questions throughout the class
   - Ask one question at a time, avoid two or more question together (leads to confusion as students are unsure of which question's answer you want to hear)
   - Ask open- ended questions (avoid yes or no questions)
   - Use Bloom's taxonomy to be sure of addressing various levels of cognitive capacity students have.
   - Refine and reflect on questions after class.

2. **Collect Classroom assessment data**: There are several ways to collect the classroom assessment data. Following techniques helps teachers collect essential data about their learners. Some technique might better for some teachers than others. Some techniques better in certain classroom than others.

- Formative Data : short quizzes, question and answer, simple hand and neck gestures
- Observational Data: observing while interacting with the students, when they are working on assignments by themselves or on a group assignment.
- Student files and student reported data: Student record provide useful information. Student portfolio, counseling records etc. offers some reference points about student's learning.

3. **Analyze student understanding**: Student understanding is analyzed and communicated by the teacher to motivate and set further goals of learning for the students.

- Explain to the student what they need to know and how they will learn it
- Student self analysis in form of reflection must be accommodated while planning for future.

Example of Methods of Analyzing Assessment Data			
Question: How did Michael do on the assessment if he earned 65 points?			
Answer: To know if Michael did well on the assessment, his 65 points needs to be COMPARED against something else:			
EXAMPLE	**Question answered by assessment**	**Data Analysis Method(s)**	**Challenge**
55 is passing and 70 is a perfect score	Are students meeting my standards?	Standards-based; Competency based; Criterion referenced	Establishing sound performance standards
The class average is 75	How do students compare to peers?	Benchmarking; peer-referenced; norm-referenced	Identifying appropriate peers & collecting information from them
System average is 75 but average at SUNY Orange is 85	How do students compare to the best of their peers?	Best practices perspective; "best in class"	Commitment to improving teaching & learning; Identifying best practice peers
Michael scored 35 a year ago	Are students improving?	Value-added perspective, growth, change, improvement, pre-post	Imprecise assessments hide growth, motivating students on pre-test; is growth due to "us"
Class average is 75 now and 40 three years ago	Is the teaching & curriculum improving?	Longitudinal perspective	Using the same assessment

The example was provided by Linda Suskie, Middle States Commission on Higher Education, June 2005 presentation titled, "Making Student Learning Assessment Work: Creating a Culture of Assessment & Putting Results to Good Use"

4. Make instructional Choices: Through the process of Classroom assessment the teacher can gather assessment data to strategically plan and deliver individualized instruction in daily practice of teaching.

- Classroom data is collected and evaluated to use through instruction.
- Develop daily instructional strategies
- Providing appropriate resources to reinforce understanding
- Determining future goals for student and the teacher.

Steadman (2008) has suggested following questions before using CAT in the classroom

Purpose of CAT	Questions to consider when choosing CAT
To improve student learning	What is my definition of "improved" student learning? What will my students learn about their learning from this CAT? Does this CAT model any learning strategies?
To monitor student learning	What will I learn about my students' comprehension?
To improve teaching	What skills am I interested in improving? How will I use feedback to make changes in my teaching?
To obtain feedback on teaching and classroom activities	What do I expect to learn about my teaching? What practices or classroom activities do I need feedback on?
To improve communication and collaboration with students	How does this CAT offer students a voice and a stake in controlling the class?

5A.5 EXAMPLES OF CLASSROOM ASSESSMENT

Following Examples for Classroom Assessment Data analysis and evaluation can be considered while teaching

Name	Description	What to do with data	Time required
Minute paper	During the last few minutes of the class period, ask students to answer on a half-sheet of paper: "What is the most important point you learned today?"; and, "What point remains least clear to you?". The purpose is to elicit data about students' comprehension of a particular class session	Review responses and note any useful comments. During the next class periods emphasize the issues illuminated by your students' comments.	Prep: Low In class: Low Analysis: Low

Chain Notes	Students pass around an envelope on which the teacher has written one question about the class. When the envelope reaches a student he/she spends a moment to respond to the question and then places the response in the envelope	Go through the student responses and determine the best criteria for categorizing the data with the goal of detecting response patterns. Discussing the patterns of responses with students can lead to better teaching and learning	Prep: Low In class: Low Analysis: Low
Directed paraphrasing	Ask students to write a layman's "translation" of something they have just learned -- geared to a specified individual or audience -- to assess their ability to comprehend and transfer concepts	Categorize student responses according to characteristics you feel are important. Analyze the responses both within and across categories, noting ways you could address student needs	Prep: Low In class: Med Analysis: Med
One-sentence summary	Students summarize knowledge of a topic by constructing a single sentence that answers the questions "Who does what to whom, when, where, how, and why?" The purpose is to require students to select only the defining features of an idea	Evaluate the quality of each summary quickly and holistically. Note whether students have identified the essential concepts of the class topic and their interrelationships. Share your observations with your students.	Prep: Low In class: Med Analysis: Med
Application cards	After teaching about an important theory, principle, or procedure, ask students to write down at least one	Quickly read once through the applications and categorize them according to their quality. Pick out a	Prep: Low In class: Low

	real-world application for what they have just learned to determine how well they can transfer their learning.	broad range of examples and present them to the class.	Analysis: Med
Student generated test questions	Allow students to write test questions and model answers for specified topics, in a format consistent with course exams. This will give students the opportunity to evaluate the course topics, reflect on what they understand, and what good test items are.	Make a rough tally of the questions your students propose and the topics that they cover. Evaluate the questions and use the good ones as prompts for discussion. You may also want to revise the questions and use them on the upcoming exam.	Prep: Med In class: High Analysis: High (may be homework)
Muddiest Point	Allow students to describe the most unclear/confusing part of the lecture, discussion, homework, assignment etc. Ask students to write down a quick response to one question 'What was the muddiest point in……..?'	Read the responses and revisit the topic with better and more relevant examples	Prep: low In class: Med Analysis: Med
Concept Map	Ask students to create a concept map that analyses and synthesizes ideas from readings or discussions.	Analyze how students have formed associations between different concepts and represented that visually. Clarity in concept map indicates better understanding	Prep: low In class: Med Analysis: Med

Application card	Ask students to write down one possible real world application of the concept, theory, principle they have learned.	Look for any misconception if the student has developed about the concept taught in the class. Revisit the topic with better and relevant examples	Prep: low In class: Med Analysis: Med

5A.6 COLLECTION, ANALYSIS AND INTERPRETATION OF CLASSROOM ASSESSMENT DATA USING COMPUTER

Following assessment tools will help collect and analyze classroom assessment data

- Students receive monthly assessment once they log on during a calendar month.
- On demand assessment can be given at any time during the school year between monthly assessments.
- Assessment reports can be used productively for effective measures at individual level (student), class level (all students of the class), at school level (curriculum changes).

Analyzing assessment data

- Plan individual instructional intervention to help students improve skills they struggle with. The teacher can thoughtfully infuse skills which need emphasis in the classroom. Teacher can plan for additional support strategies for teaching the students
- Develop daily instruction strategies to see the big picture. This enables the teacher to move from assessing individual students to grouping students based on relevant assessment data trend.
- Targeted goals for students and teachers ensure success for effective teaching.

  Short term and long term goals which are specific, measureable and relevant and attainable must be ensured for both teacher and students
- Monitor student and teacher progress: All in one assessment tool will help in analyzing progress of the student and the teacher. Monitoring at regular intervals will reveal effectiveness of the teaching and learning.

5A.7 CONCLUSION

Classroom assessment is something all teachers do as part of their professional commitment for making teaching and learning more effective. Classroom assessment plays an important role in enhancing student motivation, documenting performance of the students and reporting for accountability purpose. There are variety of classroom assessment that can be used keeping in mind the purpose and time at hand. All the techniques have their own limitation and effectiveness. The teacher must base his/her assessment on known indicators of high standards, align their assessment with clear and appropriate objectives, with meaningful feedback to facilitate student learning and motivation.

5A.8 STUDY QUESTION

1. What is meant by Classroom Assessment?
2. How does Classroom Assessment facilitate Formative Assessment?
3. Describe the nature of Classroom Assessment.
4. What are the uses of Classroom Assessment to the Teacher and the students?
5. Practical work and engagement

1. Make a detailed report of any of the above given CAT on any particular pedagogy (English, Mathematics, Social Science, Science)

Submit the report as follows

- Title page – Topic for the study
- Introduction
- Stating the problem
- Collecting the data
- Analysis of data
- Results
- Your Reflection
- Bibliography

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B: RATING SCALE

Unit Structure :

5B.0 OBJECTIVES

1. To enable the students to understand meaning of Rating Scale
2. To enable the students to understand different types of Rating Scale
3. To enable the students to illustrate advantages of Rating Scale.
4. To enable the students to state limitations of Rating Scale
5. To enable the students to create a Rating scale on the basis of examples given.

5B.1 INTRODUCTION

In classroom assessment, the use of rating scale is becoming more and more popular. Rating is a technique in which expression of opinion concerning a particular trait is systematized and synthesized to make judgment about behavior/trait of and individual. Rating scales can be used for comparing data and make appropriate inferences.

Definitions of Rating

Rugh Strang ‘ Rating is in essence, directed observation’.

A.S. Barr and others, ‘Rating is a term applied to expression of opinion 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’.

Garrett 'The rating scale is a device for obtaining judgments of degree to which an individual possesses certain behavior traits and attributes not readily detectable by objective tests'.

Wright Stone ' Rating scale is a selected list of words, phrases, sentences or paragraphs following which an observer records a value or rating based upon some objective scale of values.

Summarizing above definitions, it can be inferred that rating scale in education enables measurement of personality and performance of an individual. It is regarded as a closed ended survey question used to represent respondent feedback in a comparative form. It is one of the most established question types for online and offline surveys where survey respondents are expected to rate an attribute/ feature.

Researchers use rating scale in educational researches to evaluate the performance of a teacher/student/ curriculum etc. Rating scale is more than a checklist. A checklist just ensures presence of a certain characteristic. Rating scale determines the degree of the presence of a certain characteristic.

5B.2 TYPES OF RATING SCALES

Broadly rating scale can be divided into two categories: Ordinal scale and Interval Scale

1. **Ordinal Scale**: It is a rating scale that depicts the answer option in an ordered manner. The difference between the two answer options may not be calculable but the answer options will be in a certain order. Rating scales are also referred to as attitude scale as it aims to capture attitude of an individual towards something.

For example:

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
4	3	2	1	0

Ordinal scale is the collection of ordinal variables which are in a particular order : 'High, Higher, Highest' or 'satisfied, dissatisfied, extremely dissatisfied'. The difference between two options is not the same or uniform.

- **Interval Scale**: Interval scale is a scale where not only the order of the options is established but the difference between two ordered options is calculable. Absolute or true zero value is not present in an interval scale. Temperature in Celsius or Fahrenheit is the most popular example.

Examples of Interval scale

- In IQ test there is no zero point for IQ. A person cannot have zero intelligence. IQ is numeric data expressed in intervals using a fixed measurement scale.

- Age is another variable that can be measured on interval scale. If A is 15 years old and B is 20 years old, it is clear that B is older than A and by 5 years.

- **Numerical scale**: In such scales, scores are assigned to each trait. Such scales can be of various types. They are generally 3 point scale, 5 point scale and 7 point scale. In 3 point scale score of 3 means maximum occurrence of that trait. However in 7 point scale 7 indicates the occurrence of maximum quantity of that trait.

On a scale of 1 to 5, how would you rate yourself on punctuality?

	less satisfied(1)	Satisfied(2)	Highly satisfied(3)
How would you rate yourself on punctuality			

- **Graphic Rating scale**: Graphic scale is also known as ' Behavioral Statement Scale'. It is similar to descriptive scale. It is also called as continuous rating scale. It is quite simple and is commonly used in practice. Graphic scale makes use of continuum along which the subject rates himself/herself with respect to presence of that characteristic.

  Example: If a teacher has to evaluate student's personality. The following graphic rating scale on personality rating of the student can be used.

a. Emotional stability unstable…….…….
   Well balanced 1 2 3 4

b. Organization disorganized……highly organsied 1 2 3 4

   Graphic rating scale is relatively easy to use and allows for more refined assessment of a certain characteristic. However Graphic scale rating may depend upon respondent's frame of reference.

- **Descriptive Scale**: Descriptive scale provides descriptive work or phrases that indicate the degree to which individual is believed to possess certain characteristic. A numerical value is not always related to the answer options in graphic rating scale.

Example of a behavioral rating scale

Moral values	never	Seldom	sometimes	usually	always
I cheat in exams					
I forgive people (if they have done any wrong to me)					

5B.3 USES OF RATING SCALE

Rating scales are generally used for making appraisals. In education field, rating scales can be used for appraising students or teachers. Rating scales direct attention to a number of aspects/traits of an individual to be rated and provides a scale for assigning values to each of the aspects of characteristics of a person/phenomenon through the use of series of numbers, qualitative terms and named attributes of verbal description. Rating scales are used in the field of education in many ways

- ✓ Gain relative information about a particular student.
- ✓ Teacher ratings are used for selection, evaluation and prediction
- ✓ Personality ratings are used for a better formative assessment of a student
- ✓ Curriculum appraisals are used for evaluating effectiveness of various practices, programmes.
- ✓ Compare and analyze data of students in assessing their progress in the given academic year.

5B.4 CONSTRUCTION OF RATING SCALE

1. Rating scale includes three factors

   - The subject/phenomenon to be rated
   - The continuum along which subject(individual) will be rated
   - The judges who will do the rating

   These are limited number of aspects of a certain trait of an individual. Hence it should be carefully defined and designed.

2. The continuum: the rating scales may have as many divisions. However, usually they contain five divisions. By numbering each

division in sequence the description can be converted into arithmetic values for averaging and for further statistical application.

3. The rating scale is composed of two parts
   - An instruction which names the subject and defines the continuum
   - A scale which defines the points to be used in rating
4. Usually we can arrange the rating scales in four ways
   a. On a straight line IDOL course material is

Very good	Good	Average	poor	very poor

   b. Rating can be marked in a column at the right with an instruction to encircle/underline the response

      IDOL course material is: very good/ good/ Average /poor /very poor

   c. The scale can also run down the page and look like a checklist

   IDOL course material is

   a. Very difficult to understand
   b. Difficult to understand
   c. Reasonably understandable
   d. Clearly understandable

d. Rating scale may also be in form of ranking items as per preference/choice. The rater may have to choose from given option

   Rank following course material in terms of content.

   - Education in contemporary India
   - Educational Evaluation
   - Educational psychology
   - ICT in Education

     a-1,b-2, c-3,d-4

     where a – satisfactory , b- average, c- good, d- very good

5B.5 ADVANTAGES OF RATING SCALE

- With the help of rating scale, it is convenient to write reports of the students.
- This method supplements other methods of appraising an individual
- This method enables a counselor in guidance procedure.

- Rating scales motivates learners as it helps them to improve on their weakness.
- Rating scales helps in evaluating teacher's effectiveness.
- Rating scale is useful in acquiring the knowledge about the educational achievements, personality traits and behavior characteristics of the pupil.
- Rating scale as a method of assessment is easy to understand
- Rating scales are used for collecting both qualitative and quantitative data.

5B.6 LIMITATIONS OF RATING SCALE

Rating scale as a method of assessment may have following limitation.

- Biases of the Rater
- Unscientific rating scale

  Biases of the rater: one of the problems of constructing a rating scale is conveying to the rater exactly which quality one wishes to evaluate.

- Halo effect: This error occurs when a rater tends to rate an individual high or low on several characteristics because of a general impression that the rater has towards the subject whom he is rating.
- Personal Bias : It is an error that is made when a rater is prejudiced with regard to certain group/ individual and tends to rate too low or high on a certain characteristic
- Generosity error: sometimes raters are very reluctant to give any rating at the lower end of the scale. Hence they tend to rate everyone as average or above average on all characteristics
- Leniency and Severity: Rater rates everyone too low on all characteristics having severity tendency while having leniency tendency makes them rate everyone too high.

Unscientific Rating scale:

- Define the terms clearly which can be easily misinterpreted: Terms like, 'value', 'moral' etc can be interpreted differently by different people. Hence the wordings must be very clear of the rating scale.
- Double negative statement must be avoided:

  Gym classes in schools or no : Strongly agree/ agree/ Neutral/ disagree/ strongly disagree

  It should be reworded as Gym classes in schools: Strongly agree/ agree/ Neutral/ disagree/ strongly disagree

- Give adequate options

  Gym classes in schools: Strongly agree/ agree/ disagree/ strongly disagree

  Rater may be neutral on above option. Hence adequate option must be given.

- Avoid double barreled statements

  Special children must be instructed separately and assigned to special schools : Strongly agree/ agree/ Neutral/ disagree/ strongly disagree

  In the above statement the rater may be in favor of separate instruction but may be against special school. Hence wherever there are two separate ideas are assessed it must be in two different statements.

  Special children must be instructed separately: Strongly agree/ agree/ Neutral/ disagree/ strongly disagree

  Special children must be assigned to special school: Strongly agree/ agree/ Neutral/ disagree/ strongly disagree.

5B.7 EXAMPLE OF RATING SCALE

Following are some examples of rating scale from the field of Education

Intrinsic Motivation	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I find learning enjoyable and satisfaction.				
2. I enjoy my subjects in school				
3. I like difficult and challenging assignments				
4. I am interested in learning new things				
5. I find learning pleasurable.				
6. I join a certain activity in class because I find it challenging				
7. School activities bring me enjoyment				

8. I like learning new things because it boosts my confidence				
9. I want to be recognized as one of the top student in class				
10. I participate in school activities because I find it fulfilling.				

Learning Style Inventory

SA A D SD

1. I prefer watching a video to reading.
2. When I sing along with my CDs or the radio, I know the words to the songs.
3. I have athletic ability.
4. I can picture the setting of a story I am reading.
5. I study better with music in the background.
6. I enjoy hands-on learning.
7. I'd rather play sports than watch someone play them.
8. Reading aloud helps me remember.
9. I prefer watching someone perform a skill or a task before I actually try it.
10. I color-coordinate my clothes.
11. I'm good at rhyming and rapping.
12. I need to look at something several times before I understand it.
13. I prefer having instructors give oral directions than written ones.
14. I have difficulty being still for long periods of time.

SA-strongly Agree, A-Agree, D-Disagree, SD- strongly disagree

5B.8 CONCLUSION

Rating scales are quick, straight and simple way to engage students and teachers for making teaching and learning process more effective. They are easy to attempt and answer. The limitation of being restricted in option can be compensated by combining an open ended question about the effectiveness of the teaching learning process. Rating scales can be effectively used to quantitatively measure a more abstract and subjective phenomenon. Unlike other question formats, rating scales help to

understand an individual's degree of satisfaction, agreement, frequency, interest and importance about that phenomenon. Therefore it is important to consider the subject of analysis carefully. This is because some rating scales are better suited for certain types of subject than others for example a numerical scale is better suited for quantitative subject T V viewing habits of students , Study habits of students etc.

5B.9 STUDY QUESTION

1. What is a Rating Scale?

2. What are the uses of Rating Scale?

3. Enumerate advantages and disadvantages of Rating Scale.

4. Illustrate criteria for constructing a good rating scale.

5. Practical Work and Engagement

Student must prepare a rating scale on any topic of education and administer the same on sample of 10 individuals. Analyze and interpret the same and present a report.

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