1

CONCEPT OF EDUCATIONAL EVALUATION

Unit Structure :

1.0 OBJECTIVES

At the end of this chapter, the student will be able to:

a) Describe the concept and characteristics of educational evaluation.

b) Compare the types of educational evaluation.

c) Differentiate between test, assessment and evaluation.

d) Explain the relationship between test, measurement, assessment and evaluation.

e) Describe the functions and applications of educational evaluation.

1.1 INTRODUCTION

The National Curriculum Framework for School Education, 2000, observes, "Teaching for successful learning cannot occur without high quality evaluation."

Evaluation is a part of life. In educational settings, evaluation is all the more important because only through evaluation, a teacher can judge the growth and development of students, the changes taking place in their behavior, the progress they are making in the class and also the effectiveness of her/his own teaching in the class, Thus, evaluation has been an integral part of any teaching and learning situation. It exerts an

overwhelming influence on our educational system. The quality of any educational system is, thus, directly linked with the quality of evaluation.

Teachers must be well trained in all the aspects of evaluation in order to improve the quality of education. This unit will help the students to have an idea of the concept of evaluation, types of evaluation, purpose of evaluation, principles of evaluation and characteristics of a good evaluation programme.

1.2 MEANING, NATURE AND PURPOSE OF EDUCATIONAL MEASUREMENT, ASSESSMENT AND EVALUATION

The Meaning, Nature And Purpose of Educational Measurement :

Measurement means quantification of some measurable phenomena.We can measure anything that exists in some quantity. We can measure heights, weight, age and intelligence, aptitude, and the interest of a child. Some of the measurements are physical and some are mental measurements which are rather complex and which can't be measured through physical measurement.

In the words of E. L. Thorndike (1914) "If a thing exists, it exists in some amount; and if it exists in some amount, it can be measured."

J.P Guilford defined measurement as "Assignment of numerals to object or event according to certain rules is called measurement"

Measurement refers to the process of assigning numerals to events, objectives etc. According to certain rules, measurement quantifies data obtained through observation rating scale or any other device can be quantified.This measurement also ascertains the extent and quantity of something.

In other words, **Measurement is an act of giving a numeral index (i.e quantification) to whatever being assessed, in some meaningful and consistent manner**. The result of measurement is simply a number which expresses the amount of characteristics possessed by an individual.

Measurement can be defined in number of ways-

1. Measurement means comparing an unknown quantity with a known quantity which is taken as unity.
2. Measurement means "to give a precise quantitative value".
3. Measurement is the process of assigning symbols to observation in some meaningful and consistent manner.
4. Measurement is assignment of symbols to the dimension of the phenomena in order to characterize the status of the phenomena as precisely as possible.

5. Measurement aims at determining the magnitude of a variate.

6. Measurement ascertains the extent and quantity of anything being measured.

The three types of Measurement:

(1) **Direct Measurement**: When we wish to find length, breadth and weight. This is accurate, if the measuring tool and the measuring method are valid.

(2) **Indirect Measurement**: When we wish to know the quantity of heat contained by a substance, it involves the measurement of the temperature of substance by using a thermometer and then we calculate the heat contained by the substance.

(3) **Relative Measurement**: When we measure the intelligence of a pupil, it involves relative measurement, as the score obtained by the pupil in an intelligence test is compared with the norms.**The Nature of Educational Measurement**

1. Educational Measurement is quantitative
2. Error is naturally present in Education Measurement with improvement of Measurement technique the margin of error decreases and thereby results become more and more exact.
3. Educational Measurement is generally indirect rather than direct.
4. Educational Measurement is relative. It is not in any sense absolute. Because there is no established zero point. There is no unit of degree of personality

The Meaning, Nature and Purpose of Educational Assessment :

Assessment in teaching learning process refers to strategies designed to confirm what students know, demonstrate whether or not they have met curriculum outcome or the goals of their respective programme or to certify the proficiency and make decisions about students, the future of the programme or their placement. It is designed to provide evidence of achievement to parents, educators, the students themselves and sometimes to outside groups.

The Meaning, Nature And Purpose of Educational Evaluation :

Evaluation is an act or process that assigns 'value' to a measurement.

Evaluation means 'to find the value of' or judge the worth of when we are evaluating we are making a judgment as to the suitability, desirability or value of a thing.so evaluation is qualitative.

Evaluation is an act or a process that allows one to make a judgment about the desirability or value of a measure. The word evaluation means the act or process of determining the value of something

Example:

1. A teacher measures Rahul's height to 110 cm. She evaluates his height when she says that he is short.
2. Riva and Shiva study in the same class, Riva gets 85 marks in history while Shiva gets 35 marks. After getting these measurements their parents evaluate their achievement in history when they say that comparatively, Riva's progress is better.

Principles of Evaluation :

1. A teacher must be clear about the purpose of evaluation. In other words, he must be quite clear as to what is to be evaluated. He must formulate the instructional objectives and define them clearly in terms of pupil behaviour.
2. The teacher should select the appropriate evaluation technique. Different evaluation techniques are used for different purposes.
3. For comprehensive evaluation teachers can use a variety of evaluation techniques.
4. Evaluation is a means to an end, but not an end itself. Evaluation is a means to know the effectiveness of instruction and to assess how far the objectives have been fulfilled.

THE NEED AND IMPORTANCE OF EVALUATION :

1. Evaluation helps teacher to know his pupils in details i.e. his abilities, interest, attitude
2. Evaluation helps the teacher to determine, evaluate and refine his instructional technique.
3. Evaluation helps the teacher to know entry behaviour of students
4. Evaluation helps an administrator in planning, selection, classification and placement
5. Education is a complex process. Thus there is a great need for processes and products. It helps to design better educational programmes.
6. Evaluation helps us to know whether instructional objectives have been achieved or not.
7. Evaluation helps in the improvement of the curriculum.

It is quite evident that evaluation is quite essential for promoting pupil growth.It is helpful for parents, teacher, student and administration. Evaluation acts as a watchdog to all educational efforts.It creates an awareness of objectives at every stage of education.

PURPOSE OF EVALUATION :

1. To achieve the important objective of education following the main four purposes of evaluation can be identified.
2. Categorize students in different classes or sections of a class according to their ability in some subject areas.
3. Diagnose individual students weakness in subjects to plan remedial work for him and revise teaching strategies.

Check your progress:

1. Explain the types and purpose of Measurement.

2. Why is Assessment important to students, parents and teachers?

3. Why is Evaluation important in education?

1.3 THE RELATIONSHIP BETWEEN TEST, MEASUREMENT, ASSESSMENT AND EVALUATION

Evaluation is a comprehensive and continuous process which covers every aspect of an individual's achievement in an educational programme. It is an integral part of education in which students and teachers are partner. Measurement implies only a quantitative assessment of instructional objectives.

Evaluation depends on measurement but is not synonymous with it.

Measurement is a quantitative determination of how much an individual's performance has been, while evaluation is a qualitative judgment of how good or how satisfactory an individual's performance has been.

Evaluation is not only quantitative but also qualitative and includes value judgment mathematically.

It may be said that Evaluation = Measurement (Quantitative description of students achievement eg. a qualitative description of students abilities and value judgment about students achievement and abilities.

Measurement is not an end in itself. It is only a part of the total process of evaluation. Measurement simply gives us quantitative data which must be properly interpreted through evaluation. Thus measurement provides data for evaluation. Interpretation will be clear when the data are quantified and a value judgment is assigned. When we say ‘A Performance is better, it does not give us the full picture, as to how much better is his performance when compared with others in the same class.

Measurement answers "how much" whereas Evaluation answers 'How good' or "How well".

Evaluation attaches meaning or value judgment to measurement.

Evaluation is the :

1. Quantitative description (Ex- Ram got 40 in a test of mathematics)
2. Qualitative description(Ex-Ram is not diligent.He is not studious)
3. Value judgment- Ram is an average student.

For all practical purposes assessment and measurement can be considered synonymous. When assessment is taking place information or data are being collected and measurement is being conducted.

Thus, Evaluation is a process that includes measurement, that is an act or process that involves the assignment of a numerical index to whatever is being assessed. The last stage in the process of gathering, using and interpreting all relevant and accurate information is that of evaluation.

The Interrelation among Assessment, Evaluation and Measurement :

Though the terms assessment and evaluation are often used interchangeably (Cooper, 1999), various writers differentiate between them.

Assessment is defined as "gathering information or evidence", and evaluation is "the use of that information or evidence to make judgments" (Snowman, McCown, and Biehler, 2012).

Measurement involves "the assigning numbers or scores to an attribute or characteristic of a person, in such a way that the numbers describe the degree to which the person possesses the attribute". (Nitco and Brookhart, 2011).

For eg. Allotting of grades and scores on a standardized achievement test.

Assessment, Measurement and Evaluation:

These concepts are Mostly used interchangeably by learners and if they have the same meaning. This is not so. As a teacher, you should be able to distinguish one from the other and use any particular one at the appropriate time to discuss issues in the classroom.

Measurement: The process of measurement as it implies involves carrying out actual measurement in order to assign a quantitative meaning to a quality i.e. what is the length of the black board? Determiningthis must be physically done. Measurement is therefore a process of assigning numerals to objects, quantities or events in order to give quantitative meaning to such qualities. In the classroom, to determine a child's performance, you need to obtain quantitative measures on the individual

scores of the child. If the child scores 80in Mathematics, there is no other interpretation you should give it.

You cannot say he has passed or failed. Measurement stops at describing the quantity but not making value judgment on the child's performance.

Assessment: Assessment is a fact finding activity that describes conditions that exist at a particular time. Assessment often involves measurement to gather data. However, it is the domain of assessment to organize the measurement data into interpretable.

Educational Evaluation forms on a number of variables. Assessment in an educational setting may describe the progress students have made towards a given educational goal at a point in time. However, it is not concerned with the explanation of the underlying reasons and does not proffer recommendations for action. Although, there may be some implied judgment as to the satisfactoriness or otherwise of the situation. In the classroom, assessment refers to all the processes and products which are used to describe the nature and the extent of pupils' learning. A number of instruments are often used to get measurement data from various sources. These include tests, aptitude tests, inventories, questionnaires, observation schedules etc. All these sources give data which are organized to show evidence of change and the direction of that change. A test is thus one of the assessment instruments. It is used in getting quantitative data.

Evaluation: Evaluation adds the ingredient of value judgment assessment. It is concerned with the application of its findings and implies some judgment of the effectiveness, social utility or desirability of a product, process or progress in terms of carefully defined and agreed upon objectives or values. Evaluation often includes recommendations for constructive action. Thus, evaluation is a qualitative measure of the prevailing situation. It calls for evidence of effectiveness, suitability, or goodness of the programme. It is the estimation of the worth of a thing, process or programme in order to reach meaningful decisions about that thing, process or programme.

Check your progress:

1. How is assessment different from Evaluation ?

2. Priya gets 30 marks in Test A and 65 marks in Test B.

   Sonal gets 45 marks in Test A and 65 marks in Test B.

   Explain who has shown progress in their learning.

3. Explain how evaluation is dependent on assessment.

1.4 TYPES OF EVALUATION: FORMATIVE EVALUATION AND SUMMATIVE EVALUATION

FORMATIVE EVALUATION

Formative evaluation is an integral part of the teaching-learning process. It includes classroom interactions, questioning, structural classroom activities and feedback aimed at helping students to minimize learning gaps. Students are also actively involved in self assessment and peer evaluation. Formative assessment tasks with timely and appropriate feedback should be used throughout a course. Classroom based formative assessment has taken on an increasingly important role in education policy in recent years.

Formative evaluation focuses on getting and providing feedback about learners' achievement and instructional impact. Use of readiness tests for better placement using higher order of questions during teaching and students questioning and during instructional phase are all meant to improve quality of learning and instruction. It is carried out during a course of instruction for providing continuous feedback to both teachers and learners. Formative evaluation motivates teacher and students and reinforces learning by providing feedback both to pupil and teacher.

While teaching, a teacher gives pupils some new ideas, to evaluate learning outcomes based on which he modifies method and techniques of teaching to provide better learning experiences.Thus formative is concerned with teacher, content instructional objectives and provision of learning experience.

Ebel and Frisbie said, ”Formative Evaluation is conducted to monitor the instructional process and to determine whether learning is taking place as planned..”

Characteristics of Formative Evaluation

1. Formative Evaluation relatively focuses on specific analysis of instructional material for mapping the hierarchical structure of the learning tasks and actual teaching for a certain period.
2. Formative Evaluation seeks to identify learning difficulties.
3. Formative Evaluation is designed as flexible and exploratory
4. Formative Evaluation monitors the teaching-learning strategies during the instructional process.
5. Formative Evaluation provides opportunities to students to get mastery (perfection) in the content.

SUMMATIVE EVALUATION

Ebel and Frisbie "Summative evaluation is conducted at the end of an instructional segment to determine if learning is sufficiently complete to warrant moving the learner to the next segment of instruction.

Summative evaluation is done at the end of a course of instruction.summative evaluation is done at the end of a course of instruction .summative evaluation helps a teacher to know how far the objectives has been accomplished and to what extent the instruction has been of active university exam are examples of summative evaluation.

Summative evaluation is judgemental and terminal in character. It comes at the end of the course of instruction. Eg. The teacher made a standardized test.

Summative evaluation is concerned with the outcome of learning or product of education.

The term summative evaluation refers to assigning a grade for learners achievement at the end of term, semester, course or instructional programme.

Summative Evaluation can provide an overall picture on the basis of learners performance, the effectiveness of teaching and the instruction is evaluated. It serves the purpose of assigning grades or certifying learners mastery of intended learning outcome.

Characteristics of Summative Evaluation :

1. Summative Evaluation is concerned with broad ranges procedure, completed programme or product.
2. Summative Evaluation comes at the end of a programme or course.
3. Summative Evaluation is the terminal assessment of learners performance at the end of instructions.
4. Summative evaluation determines to what extent instructional objectives are achieved.
5. Summative Evaluation gives feedback to teachers as well as students.
6. Summative Evaluation measures the extent to which the learner has achieved the desired outcome.
7. Summative Evaluation is almost non reactive .
8. Summative Evaluation is reliable and accurate means of grading students achievement
9. Summative Evaluation uses well defined evaluation designs
10. Summative Evaluation focuses on descriptive analysis.

The Difference between Summative Evaluation and Formative Evaluation :

1. Formative evaluation provides feedback and reinforces learning by mastery whereas summative valuation is the final test of learners' achievement.
2. Formative Evaluation is conducted during the development and improvement of a programme whereas Summative Evaluation is conducted after the completion of programme.
3. Formative Evaluation is organized for the benefit of internal and Summative Evaluation is organized for the benefit of external purpose.
4. Formative Evaluation takes the form of a dialogue between teacher and learner while Summative Evaluation tests learning out of specific instructional objectives.
5. Formative Evaluation checks learners progress by continuous feedback whereas Summative Evaluation checks the final status of learners.
6. Formative Evaluation is frequent and Summative Evaluative is less frequent
7. Formativeevaluation maintains record,profile of achievement and summative evaluation uses limited records
8. Formative Evaluation scoring based on criterion referenced test while summative evaluation scoring is norm referenced test.
9. The purpose of Formative Evaluation is to diagnose the strength and weakness of students whereas Summative Evaluation classifies and promotes students.
10. Formative Evaluation refers to continuous evaluation by means of unit test, assignment and Summative Evaluation refers to paper pencil test and annual test
11. Formative Evaluation Results in further improvement of instruction whereas Summative Evaluation results are used for certification.

Check your progress:

1. Explain two characteristics of formative evaluation with two examples.
2. Explain two characteristics of summative evaluation with two examples.
3. How is formative evaluation different from summative evaluation?

1.5 FUNCTIONS AND APPLICATIONS OF EDUCATIONAL EVALUATION

How does Evaluation help students, teachers and administrators?

Evaluation helps the students:

a) Feedback: evaluation provides feedback which will identify the pupils strength, weaknesses & thus it plays a major role in guiding the students future efforts. The feedback thus provides the pupil to improve upon the subsequent performance.

b) Increases motivation: The knowledge that one's performance is to be tested increases the pupils motivation which ultimately facilitates learning & thus provides or motivates pupils to perform better. It serves as a stimulus for greater effort on the path of pupils.

c) Encourages good study habits: Frequent evaluation encourages good study habits as the pupil gets to know his own progress & also development of certain skills whether he can apply his knowledge and understanding to a normal situation. This kind of evaluation will thus encourage him/her to build up a good study habit.

Evaluation helps the teacher:

There are three components of teaching and learning, which constitute an integrated network in which each component depends on the other. Thus, through evaluation, the teacher not only assesses as to how far a student has achieved the objectives of teaching but also judges the effectiveness of the learning experiences, methodologies, means and the materials used for achieving those objectives.

a) Evaluation provides the teacher with the direct knowledge concerning a student's entry behavior, the pupils capacity for learning. What the pupil currently knows For eg. to calculate the time of a particular place – the information about the longitude & latitude is essential.

b) Evaluation helps the teacher in refining, clarifying setting objectives on the basis of knowledge of the students' entry behaviour.

c) It also helps the teacher to improve her classroom procedure from the results that are obtained.

d) Evaluation provides the teacher with a comprehensive picture about the pupils progress.

Evaluation helps the administrator in making educational decisions: wherein selection, making decisions regarding either admission, placement or for classification. Also for guidance and counseling either educational or vocational guidance. Also evaluation helps the administrator to evaluate the efficiency of the teacher in her method of

teaching & also serves as the basis for reporting to parents about the progress of their children.

Evaluation helps the Headmaster to judge the extent to which the objectives have been achieved, to identify the strengths and weaknesses in the curriculum & also to appraise the various activities in the school.

Check your progress:

1. Describe the functions of Educational Evaluation for students.

2. Describe the functions of Educational Evaluation for teachers.

3. Describe the functions of Educational Evaluation for administrators.

1.6 SUMMARY

At every step of the teaching-learning process, the appraisal of students is necessary. The diagnostic and formative evaluation have to go hand in hand. At the end of the session, summative evaluation needs to be made to classify, grade, promote and certify students. Thus, evaluation helps the teachers to make judgments and take decisions at different stages in a pupil's educational career. If the school keeps the above aspects of evaluation in mind, there is no doubt that it will lead to bringing about qualitative improvement in education. The schools, which carry out improved evaluation practices, may really prove to be effective schools.

To sum up, educational evaluation is an important aspect of any educational system. It is a systematic process carried out in the classroom or school for providing information for taking important decisions. A teacher should be well versed with the concept of evaluation and procedures used for evaluation in order to make herlhis teaching more purposeful and effective. The teacher should know what are the objectives that are to be tested, what techniques and tools are to be used for testing them most appropriately and how to use evaluation for making good educational decisions.

1.7 REFERENCES

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Weblinks:

1. Assessments in Education:

https://www.youtube.com/watch?v=0xQKPz0zDL8

2. Formative Assessment:

https://www.youtube.com/watch?v=-RXYTpgvB5I

3. Summative Assessment:

https://www.youtube.com/watch?v=SjnrI3ZO2tU

4. Comparison of Formative and Summative Assessments

https://www.youtube.com/watch?v=bTGnJnuVNt8

5. Purpose of Assessments:

https://www.youtube.com/watch?v=JHZsz_j_z7A

6. 14 Types of Assessments

https://www.youtube.com/watch?v=zTkQjH-_97c

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2

ASSESSMENT AND EXAMINATIONS

Unit Structure :

2.0 OBJECTIVES

At the end of this chapter, the student will be able to:

a) Describe the concept and purpose of assessment.

b) Compare the types of educational assessment.

c) Differentiate between formative and summative assessment

d) Differentiate between continuous and comprehensive assessment

e) Describe the concept and purpose of open book examinations

f) Describe the concept and purpose of online examinations

2.1 INTRODUCTION

We sometimes speak of testing and assessment together even though tests are a specific type of assessment. When used in this way, assessment emphasizes the broader array of performances and projects that might not be called to mind by the word testing.

Assessment is a much more comprehensive and inclusive term than measurement or testing. Assessment on the other hand, may include both quantitative descriptions (measurements) and qualitative descriptions (non measurements) of students.

2.2 TYPES OF ASSESSMENT

The Meaning, Nature And Purpose of Educational Assessment :

"Assessment" is considered as the systematic collection and analysis of information to improve student lifelong learning.

Assessment is the process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know, understand, and can do with their knowledge as a result of their educational experiences;

Nature of Assessment:

Assessment is tightly linked with the learning process. Similarly, it unites with the course of study and teaching. For keeping a check on students progress and achievement, courses of study play a constant role. Also, the teacher and students work to achieve the outcomes of the course of study.

Thus assessment includes all those activities undertaken by teachers, and by their students in assessing themselves, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged.

The Functions of Assessment

Functional assessment is a continuous collaborative process that combines observing, asking meaningful questions, listening to family stories, and analyzing individual child skills and behaviors within naturally occurring everyday routines and activities across multiple situations and settings. The most important part of assessment is the interpretation and use of the information that is gleaned for its intended purpose. Assessment is embedded in the learning process.

Perspectives of Assessment:

Assessment for learning, Assessment of learning & Assessment of as learning.

Types of Assessment:

One major purpose of assessment is to inform. The results from an assessment process should provide information that can be used to determine whether or not intended learning outcomes that faculty have set are being achieved. The information can then be used to determine how programs can be improved.

1. Diagnostic assessments.
2. Formative assessments.
3. Summative assessments.
4. Norm-referenced assessments.

5. Ipsative assessment

6. Criterion-referenced assessments.

1. Pre-assessment or diagnostic assessment:

Before creating the instruction, it's necessary to know for what kind of students the teacher is creating the instruction. The goal is to get to know the student's strengths, weaknesses and the skills and knowledge they possess before taking the instruction. Based on the student data collected, the teacher can create a specific instruction.

2. Formative assessment:

Formative assessment is used in the first attempt of developing instruction. The goal is to monitor student learning to provide feedback. It helps identify the first gaps in the instruction. Based on this feedback the teacher can know what to focus on for further expansion for the instruction.

3. Summative assessment:

Summative assessment is aimed at assessing the extent to which the most important outcomes at the end of the instruction have been reached. But it measures more: the effectiveness of learning, reactions on the instruction and the benefits on a long-term basis. The long-term benefits can be determined by following students who attend your course, or test. You are able to see whether and how they use the learned knowledge, skills and attitudes.

4. **Norm-referenced assessment:**

This compares a student's performance against an average norm. This could be the average national norm for the subject History, for example. Another example is when the teacher compares the average grade of his or her students against the average grade of the entire school.

5. Criterion-referenced assessment:

It measures student's performances against a fixed set of predetermined criteria or learning standards. It checks what students are expected to know and be able to do at a specific stage of their education. Criterion-referenced tests are used to evaluate a specific body of knowledge or skill set; it's a test to evaluate the curriculum taught in a course.

6. Ipsative assessment:

It measures the performance of a student against previous performances from that student. With this method you're trying to improve yourself by comparing previous results. You're not comparing yourself against other students, which may be not so good for your self-confidence.

Check your progress:

1. Describe the concept of educational assessment.

2. Explain the functions of assessment for the teacher

3. Explain any three types of assessment, with a suitable example.

2.3 INTERNAL ASSESSMENT & EXTERNAL ASSESSMENT

Internal Assessment and External Assessment:

The word assessment refers to a systematic process of collecting, understanding, and acting upon the data related to a student. Furthermore, this data helps in understanding the students learning about what they know and what they do not know. Also, the performance of a student is done on the basis of their educational experience. Besides, internal assessment refers to the evaluation of the performance of students on the basis of their internal performance. On the other hand, external assessment refers to the evaluation of a student's performance by outside persons like boards.

Internal Assessment

Internal assessment is the process in which the teachers and schools judge the students' performance on the basis of his performance. Also, this process does not involve any outside person for assessment.

The Need for Internal Assessment:

The internal assessment helps to give credit in the final assessment. Also, it reduces the burden and tension related to the final examination. In addition, it acts as a link which provides data related to a student's performance. This gives teachers an opportunity to evaluate the students. Moreover, it helps students in continuous learning.

Principles of Internal Assessment:

The subject teacher prepares these assessments. Furthermore, it is continuous and does not replace exams. It is a suitable evaluation technique and tool. Also, they carry a fixed portion of marks for the assessment. Most noteworthy, it gives feedback to teachers so that they can improve their teaching. On the other hand, it gives students a chance to improve their external assessment grade by seeing internal assessment results. So, that student can improve learning.

Advantages of Internal Assessment:

It reduces the weight age of external assessment. Moreover, students engage themselves in study throughout the year. The students will be more attentive to studying in class. In addition, it reduces the chances of anxiety and nervous breakdown in students.

Disadvantages of internal assessment:

There are chances that teachers may misuse it for their own benefit. Also, in the hands of the inexperienced and insincere teacher, it can cause harm to students. Most noteworthy, it will lose its importance due to unfairness, favoring a student, and bias-ness.

External Assessment

External assessment is a process and method of assessment developed and used by an examination body or agency other than the learner's school. This process commonly involves standardized testing and often serves to candidates for further educational opportunities for certification purposes.

1. External assessment is usually in the form of written examination
2. It is performed in groups.
3. It is conducted on a specific topic.
4. It is rigid in nature
5. It's theoretical in nature.

Successful learning depends on proof (evidence), produced by learner during learning activities, which shows that:

1) A learner is ready to learn
2) In spite of trying and attempting to learn and teach, a learner has not yet understood.
3) Through this one can understand what measures or steps of improvement should be taken.

External examinations are planned and executed by examination authorities who are experts in their field. It's carried out under supervision.

Here, students are being assessed by trained staff and this process is independent from school in which the student learns. Students should always try to keep in mind that examinations and results should not be viewed in light of a scorecard but should be taken as an opportunity to explore, learn, understand , clear concepts and should also have a practical approach rather than just studying mechanically for examination purposes.

The most important thing that should be given utmost weightage and importance. The aims and objectives should be clearly defined.

Question papers should be planned, organized, supervised and executed by an expert or such team giving due importance to the whole content with proper weightage and marks to all types of questions.

Importance of External Examinations:

1. It helps to keep a track of the students progress
2. It has a great responsibility because it needs to maintain the overall standard of the whole education system.
3. It sets selection criteria for taking admission in different schools, colleges, universities.
4. It develops good studying habits among students.
5. Parents who are satisfied can also take a sigh of relief because of belief in a true and fair assessment process.
6. Curriculum can be evaluated
7. Teachers have a chance to reflect and work on strengths and weaknesses.

Advantages of External Examinations:

1) Students can analyse his/ her performance, and learn and grow because of exams
2) It forms and develops a habit of working hard, sincerely which automatically helps in future.
3. It can have an overall positive impact on one's personality and confidence if taken in the right spirit.
4. Students can know their knowledge level and develop a positive competitive spirit

Disadvantages of External Examinations:

1. There is a chance that some students cdn adopt unfair means of practice during examinations which is like an obstacle in their progress.
2. The inner personality apart from academics cannot be known only through such examination.
3. Each and every topic may not be covered during exams.
4. Sometimes students can cheat and get good marks, which impacts results and the reliability of the results comes under question.
5. Sometimes students may not study or cover the whole syllabus and may study only selected topics in a hurry during examination.

Check your progress:

1. What is the concept of internal assessment?
2. What is the purpose of internal assessment?
3. What is the purpose of external examinations?

2.4 CONTINUOUS AND COMPREHENSIVE ASSESSMENT

Concept of Continuous Assessment :

The term continuous is used here to emphasize that evaluation is a continuous process. It involves regular assessment - unit test, feedback for self evaluation, using corrective measures.

It is the educational policy where students are examined continuously. It is often also used as an alternative to a final examination.

The best way is to pay attention to overall development of child.Each area needs to be given due importance - physical,emotional and cognitive

The essence of continuous and comprehensive assessment is that the child can know his/ her area of strength and weaknesses.

Continuous assessment means assessing aspects of learners' language throughout their course and then producing a final evaluation result from these assessments.

The best part is it provides an accurate and complete picture of the learners level and has a positive impact on learning.

This can be compared with a final or summative assessment, which only assesses the learner at the end of the course

Continuous assessment helps in developing a habit of regularly studying with attention by :

1. Understanding the concept properly
2. Learning to correct ones error which also develops a beautiful habit of self-reflection, becoming one's own critic and learning to be aware of oneself
3. Making decisions (eg. choosing one's career subject, courses, careers) and it helps than when they are directed towards their asking of meaningful questions to students helps them to think in the right desired direction, clear concepts and in turn explain their thinking and actions and put their own view point.
4. Sharing of new information and materials helps them to work on their query and find relevant useful information.

Practical based conversation - teachers can plan individual or group conversations which can help them to explore new ideas and learning occurring through enquiry

It not only deals with the learning ability of a child, but also includes teachers' efficiency to do one's duty properly and encouraging fellow teachers to do so… for a healthy teaching - learning environment.

Objectives of Continuous Assessment :

1. to develop cognitive ability, thinking process of an individual.
2. to make continuous evaluation a very important part of teaching - learning process.
3. to use the available data after evaluation for further improving different teaching-learning strategies.
4. to keep learning activities as student centric.

Importance of Continuous Assessment :

1. Teacher knows how much the student has understood
2. Whether the student has gained knowledge
3. Whether the students can apply his knowledge practically whenever, wherever necessary.
4. Whether the student can analyse things properly.
5. How creative the student is, encouraging him to make best use of it
6. It works towards continuous and overall growth of students be it emotional, physical, cultural, social development.
7. It helps in bringing awareness not only in child but also in teachers and parents about the achievement
8. It also includes daily class work, course related projects, practical work. Sitting and listening closely - One of the interesting thing in this is the behaviour of students is observed and their conversations are listened to carefully to understand them wherever needed questions are asked and rest of the time they are not being interfered with.

Characteristics of Continuous Assessment :

1. Continuous assessment means you will be assessed right through the learning process and not only after the learning.
2. With the help of continuous assessment one can see how much the learner has improved, accordingly guidance will be prolearning
3. Students are closely observed while they are engaged in learning
4. The students' learning activity is regularly assessed which follows constructive regular feedback.
5. Practical skills are observed: Eg: workshops, projects, lectures.
6. Continuous assessment also involves assessment criteria, how it was carried out, what went right and which things we should work on.

Concept of Comprehensive Assessment The term ‘comprehensive' means that the scheme attempts to cover both the scholastic and the co-scholastic aspects of the students' growth. A comprehensive assessment system includes summative, formative, interim and classroom assessment all of these helps in getting intended learning outcomes.

Summative assessments are given at the end of the course which helps to determine how much that student has understood the content, their performance standard and concerted efforts should be made to extract instructional relevant information from these assessments. Design clear, effective questions

Interim assessments are given periodically at the end relative to small units of instruction. This helps us to know students progress, helps in evaluation and prediction purposes.

Formative assessment is a range of formal and informal assessment conducted by teachers during the learning process in order to modify teaching and learning activities to improve. Eg: class discussions, weekly quiz.

1. Keep clear criteria for what defines good performance.
2. Encourage students' self reflection.
3. Give students detailed actionable feedback.
4. Provide the opportunities to close the gap between current and desried performance.
5. Encourage teacher and student dialogue around learning.
6. This practice is performed around mid semester feedback and small group feedback sessions.
7. Promotes positive motivational beliefs and self esteem.
8. Collect information which can be used to help shape teaching.

Classroom assessment Includes a wide range of activities and procedures that teachers use to obtain information and provide feedback about students progress on important learning outcomes.

A serious weakness of many classroom assessment is that they are not properly aligned with the content standards they are used to assess

Check your progress:

1. What is the concept of continuous assessment?
2. What is the purpose of comprehensive assessment?
3. What is the purpose of continuous examinations?

2.5 OPEN BOOK ASSESSMENT AND ONLINE EXAMS

Online examinations: Coming across the online system of education anyone would wonder how they conduct the examination in this. The types of examination involved in the online exams are online mock tests, semester or text exams, campus placements, entrance exams, and other types of assessments.

Advantages of online examination system

1. Less damage to nature

It is a sorry state of affairs that environmental damage is the least discussed dilemma of the day.

2. Technological advancements

In this regard, use of technology and getting better enhancements are much appreciated.

3. It is cheaper

When any exam is organized there are many requirements, for example, allocating a large space for students, printing, and copying the paper, providing the exam answer sheets, and then there are hiring invigilators as well. All of this combines to form much of an expense. Now consider switching to the online exam in which none of the above is required.

4. Online exam is time-efficient

All of that time is now saved up by conducting the exams online because all you need is to install software and then get the evaluations right away.

5. Online exam is secure

Many people may assume that online exams are not cheating proof. Well to bust the myth, online examinations have been working on many levels to make the process as secure as possible.

6. Easy usage

The best thing about it is that anyone can give an entrance examination from anywhere without worrying about the transportation charges and timings.

7. The automated system of grading.

Teachers can take advantage of this system because it saves their time and energy through an automatic system of grading

9. Online exams are setting new trends in how exams are conducted.

Disadvantages of online examination system

1) Technological glitches If an institute is planning to adapt to the online examination then there should be proper training of the students and teachers.

2) Availability of facilities. We need to give systems required with stable internet connections and power supply.

3) Limitations in question types. Although teachers in the first place design the exam questions a major limitation is that these questions are best evaluated close-ended.

4) Chances of cheating are wide. One form of it is deceitfulness in which the actual examinee is replaced by someone else. Another form can be the use of smartwatches or smartphones that can hack the examination.

5) Use of external material. If students are taking the exam from anywhere then they are more susceptible to peek at their helping material as well making it an open book assessment that turns out to be of no use.

6) Lack of proctoring. Even if institutes come up with a plan through which they are able to hire a proctor it will be very costly and the purpose of online examination serves is that it saves up on the cost of hiring invigilators.

So those institutes which consider online exams to bring ease to their examinee have to accept the problems related to it. However, we can be optimistic about the future that these problems can be addressed and resolved for the better.

Types of Tests

1. Diagnostic test. With this test you can test how much students already know about a given subject or topic.

2. Placement test.

3. Progress or Achievement tests.

4. Internal test.

5. Objective tests.

6. Subjective tests.

Four types of examinations

Essay, completion, multiple-choice, and true-false, were constructed to cover exactly the same subject matter.

The validity of the four types, when each is checked against the composite of the three others, is nearly equal. Completion and multiple-choice tests are most reliable. The essay examination shows less correlation with

intelligence than do the three others. Considering the choice of all students, the multiple-choice and true-false tests are preferred to the other two types.

Open Book Tests and Examinations

Open-book exams allow you to take notes, texts or resource materials into an exam situation. They test your ability to find and apply information and knowledge, so are often used in subjects requiring direct reference to written materials, like law statutes, statistics or acts of parliament.

Advantages of Open Book Examinations

1. Less difficult on recall, as students can check the books.

2. Students get a second chance to obtain knowledge.

3. Enhances retrieval skills, in remembering things for a longer duration.

Disadvantages of Open Book Examinations

1. If students are not guided well to give open-book exams, they may just copy what is in the textbook.

2. Training a large number of evaluators in the new evaluation method is also a challenge.

3. The lack of quality teachers in India will be a serious challenge in implementing the new way of teaching.

Practical Examinations

1. Practical exams test students' practical skills and techniques usually in laboratory, clinical or field settings.

2. They can be administered individually, in pairs or small groups.

Advantages of Practical Examinations

1. Practical learning, as mentioned above, has the unique ability to help students apply their skills in a non-classroom environment.

2. Increases Your Understanding.

3. Creates a Deeper Impact.

4. Better Knowledge Retention.

5. Improved Skill Sets.

Disadvantages of Practical Examinations

1. Measures relatively superficial knowledge or learning.

2. Unlikely to match the specific goals and objectives of the program

3. May be cost prohibitive to administer as a pre- and post-test.

4. More summative than formative (may be difficult to isolate what changes are needed).

Check your progress:

1. What is the purpose of open book tests and examinations?

2. What is the purpose of online examinations?

3. What are the disadvantages of open book tests and examinations?

2.6 SUMMARY

Much assessment occurs during classroom interactions between teacher and learners. The quality of questions asked by the teacher and learners, the depth of answers supplied by learners, the quality of class discussions and the detailed observations of learners at work all provide evidence of learning. Effective questions encourage learners to think more deeply and provide the teacher with greater insight into the level of understanding of student groups and individuals.

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4. Comparison of Formative and Summative Assessments

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3

EDUCATIONAL OBJECTIVES

Unit Structure :

3.0 OBJECTIVES

At the end of this chapter, the student will be able to:

a) Describe the concept of educational aims and objectives.

b) Explain the Revised Bloom's Taxonomy of the Cognitive Domain,

c) Explain the Krathwohl and Masia's Taxonomy of the Affective Domain

d) Explain the Dave's Taxonomy of the Psychomotor Domain

e) Explain the relationship between aims and objectives, classification of educational objectives.

3.1 INTRODUCTION

We are aware that any activity has some aim before it is done and there is a very close relationship between activity and its aim. Education is a purposeful activity and hence the process of education also has aims. An aim is a conscious purpose which is set prior to performing any task or an activity. The process of education will not take place if there are no because an aim is always pre-determined which further inspires the activity of education.

3.2 CONCEPT OF EDUCATIONAL AIMS AND OBJECTIVES

Although the words aim and objective are often used synonymously, professionals and researchers from the field of education define the educational aims and objectives in a narrow manner and consider them to be distinct from each other. They state that aims are concerned with purpose whereas objectives are concerned with achievement.

Aims act as an umbrella term where it can be chucked into various objectives which together help in achieving the aim. Aims usually have a long-range perspective which reflects aspirations and ambition of the entity.In the words of John Dewey "An aim is a foreseen end that gives direction to an activity or motivates behavior".

While talking about objectives they relate to gaining of an ability, a skill, some knowledge, a novel attitude etc. rather than merely having completed a given task. The achievement of objectives takes place during the course and the aims look forward into the individual's life beyond the course.Aims are relatively framed keeping in long term achievements whereas objectives can be restricted to the duration of the course.

Importance of Educational Aims and objectives:

All the teaching methods, the curriculum and the system of evaluation are shaped and molded according to the aims and objectives of education. It is the ignorance of right aims that has vitiated our educational system, its methods and its products, and has successfully resulted in the physical, intellectual and moral weaknesses of the race. There is a great necessity of aims and objectives in education::

1. **To direct efforts**: Aims and objectives provide direction to the teaching-learning process. Formulated aims and respective objectives help the teacher and the taught to be on the correct track. They help by providing a line of action and guidance to the teachers and also direct learners and zest to their work. Wastage of time and energy is avoided if proper aims and objectives are determined.

2. **To evaluate ourselves**: The aims and objectives act as a yard-stick with which can be used to measure our success as well as our failure. They are mandatory to assess the outcome of the educational process.

3. **To provide efficient administration**:They are necessary for efficient working of the school's administration and organization. They help the school authorities in organizing, equipping and administering the school providing them with opportunities to progress.

Factors determining Educational Aims and Objectives:

There are many factors that contribute to determining educational aims and objectives. These factors reflect every phase of human life that has passed, that is or what will be in future, and are listed below:

1. **Factors that are associated with Philosophy of life**: Aim and objectives of any educational system are always influenced by the philosophy of life of the people of that country. Example, the aims and objectives of the Indian education system will be different than those from others because of the philosophy that we follow.

2. **Factors associated with Psychology**: The aims and objectives of education should always be determined according to the needs, inspiration, nature and interest of the learners. They should correlate with knowledge and activities of life.

3. **Factors associated with Political ideology**: The aims and objectives of education are fixed as per the ideology of the state to uphold the right of state.

4. **Factors associated withSocio-economic Problem**: Not just political ideologies of a country but its social economic problems also determine the aims and objectives of education.

5. **Factors associated with exploring knowledge**: As far as educational aims and objectives are considered; education has given due consideration to the advancements in knowledge as per the era that we are living in.

6. **Factors associated with Culture**: Preserving and developing culture and heritage of our country is the most important function of the education. The changing and developing pattern of cultural factors directly influence the aims of education.

RELATIONSHIP BETWEEN AIMS AND OBJECTIVES

The word 'aim' is often misconstrued with objective, as they talk about what an individual or entity may want to achieve. The following points are important to understand the relationship between aims and objectives:

1. The word 'aim' is described as the ultimate goal, which an individual strives to achieve. The term 'objective' is something a person seeks to achieve by chasing it continuously.

2. Aims reflect long-term outcomes whereas its objectives indicate the short-term targets. Aims are usually long-term statements of purpose that are achieved over a long duration of time, maybe a year or few years. Objectives on the other hand are bound to specificity and a short duration of time say for example one teaching period or during teaching learning of one chapter.

3. The base of aim formation is provided by Philosophy but psychology provides a base to objectives.

4. Aims are broader in nature whereas objectives are narrower. You may need to enlist a number of objectives in order to achieve one aim.

5. Aims relate with the general direction of an individual/ institution/content. Objectives on the contrary are more specific to the goal of an individual or institution.

6. Aim is a foreseen end whereas Objectives are driven by aims. Aim is related to the mission and purpose whereas objectives are concerned with the achievements.

7. Aim helps in answering the question, what is to be achieved? Unlike objectives which help in answering, how it is to be achieved?

8. Objectives are time bound whereas aims are not. Aims do not have a time frame within which they are to be achieved. Objectives are always accompanied with a time frame, within which it must be achieved.

9. The most important difference between these two is on measurability. Aims may or may not be easily observable and measurable but objectives are.

3.3 REVISED BLOOM'S TAXONOMY OF THE COGNITIVE DOMAIN

One extremely useful guide in order to develop a comprehensive list of educational objectives is the Taxonomy of Educational objectives. The word taxonomy has been derived from a Greek word 'taxis' - plural, taxa - meaning "arrangement" "division". It is originally associated with biology. It refers to a system of classifying plants and animals based on division, class, order, family, germs and species. In the field of education, taxonomy refers to any systematic organisation.

Benjamin Bloom in 1956, headed a group of educational psychologists who invented and developed the classification system for levels of cognitive skills and learning behaviour. This classification system that was created is often referred to as Bloom's Taxonomy of cognitive domain. The word taxonomy refers to the classification of structures.Bloom's Taxonomy is a hierarchical structure ordering of cognitive skills according to six cognitive levels of complexity, with knowledge at the base followed by comprehension, application, analysis, synthesis and evaluation at the top. With the exception of Application, each of the categories viz. knowledge, comprehension, analysis, synthesis and evaluation were broken into subcategoriesThese categories are ordered from simple to Complex and from concrete to abstract that helps teachers teach and students learn. The classification is often referred to as a progressive claim in order to develop a higher level of thinking with the highest-level being

evaluation, at the top of the pyramid. The taxonomy is depicted in the figure below:

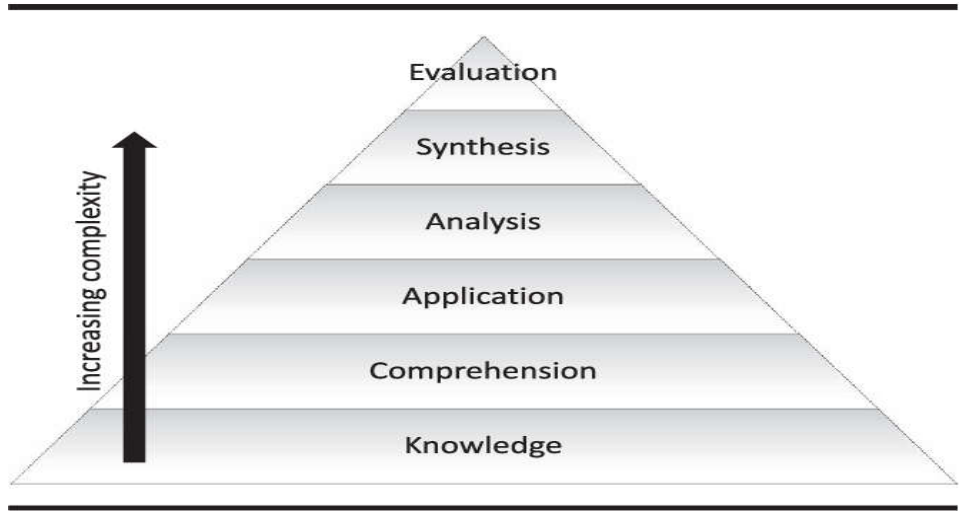

Figure 1: Bloom's Taxonomy (1956)

The basic or lowest level in the hierarchy or the taxonomy deals with simple acquisition of knowledge. At this level students simply memorize or recall list and repeat information that has already been learnt.The cognitive complexity grows at a very early age and when the individual reaches at the highest level they are able to build a cognitive structure from diverse elements and are also able to put parts together in order to form a whole as well as to make judgment about the values of ideas that they possess. Bloom's Taxonomy can be used to create assessments for students, plan lessons as per cognitive abilities, evaluate the complexity of assignments keeping the hierarchy in mind, design curriculum maps, develop online courses and content, plan higher-order learning like project-based learning and also helps in self-assessment.

In 1990's, Lorin Anderson and a group of other cognitive psychologists updated Bloom's taxonomy. The revisions that were made may appear fairly minor, however, they have a significant impact on how people use the taxonomy. The changes in the taxonomy can be divided into three following categories: terminology, structure and emphasis.

Terminology in the revised version of Bloom's taxonomy changes the names of each of the six levels.The six levels are remembering, understanding, applying, analyzing, evaluating and creating. The Knowledge level which was the lowest level of the original taxonomy was renamed and classified as remembering. The most significant change to the Cognitive Domain was the removal of 'Synthesis' level and the addition of 'Creation' as the highest-level of Bloom's Taxonomy. Creation being at the highest level, its implication is that it is the most complex and demanding cognitive skill. It is equally important to note that the change in the name of levels in the taxonomy is from noun form to verb form in order to describe the different levels of the taxonomy. The names were changed to indicate action because thinking implies active engagements. Say for example Knowledge is an outcome of thinking, it is not merely a

form of thinking. Consequently, since the word "knowledge" inaccurately described a category of thinking, it was replaced with the verb "remembering."The revised Bloom's taxonomy with respect to terminology is depicted in the figure below:

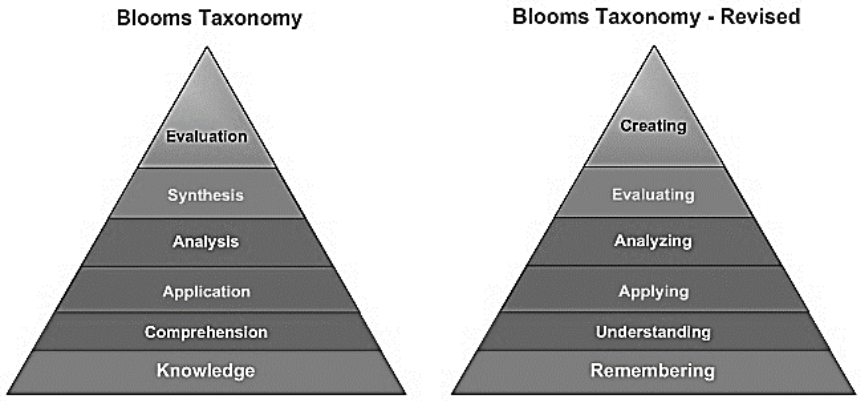

Figure 2: Revised Bloom's Taxonomy based on change in Terminology

Structure in the revised version of Bloom's taxonomy

The top two levels are swapped from the old to the new version. The revised taxonomy places the "evaluation" stage down by a level and the highest element becomes "creating." At the second to the highest-level that is at the evaluation stage people try to defend, justify, support and evaluate their opinion on the information. whereas at the highest level that is the creating level people try to generate new concepts, ideas, create or construct a new perspective. This major change was made as the taxonomy is viewed, since its origin as a hierarchy which reflects complexity of thinking in an increasing manner. Also, creative thinking that is the creating level is considered a far more complex form of thinking as compared to critical thinking that is the evaluating level as per the revised taxonomy. The justification for this can be such that a person can evaluate information without being creative, but for creative thinking it is mandatory to have some level of evaluation or critical thinking in other words for an individual to be creative it is important for them to evaluate the effectiveness of their novel idea.

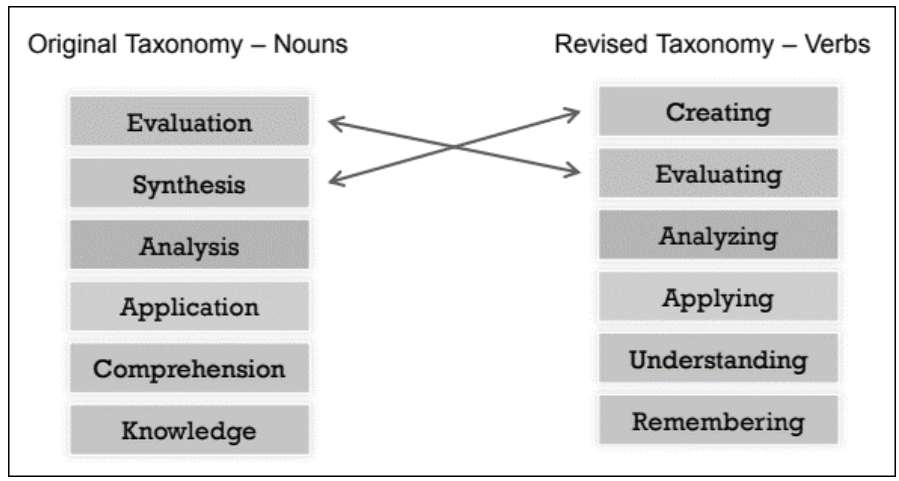

Figure 3: Revised Bloom's Taxonomy based on change in Structure

The revision in the taxonomy emphasizes the application of it as a tool for aligning curriculum planning, instructional delivery and assessment. The additional benefit of it is that the revision is aimed at a broader audience. The original taxonomy was viewed and best used as a tool that was applied for younger grades at school. However, the revised version is more universal and easily applicable not only at elementary, secondary grades but also for adult training.

The six levels of cognitive learning in the Revised Bloom's Taxonomy

1. **Remembering:** Relates to retrieving, recalling or recognizing relevant knowledge or information from long-term memory. For example, students try to recall important dates of events in Indian history, remember the components of a plant and animal cells, etc. Appropriate learning outcome verbs for this level include: identify, cite, name, match, define, tabulate, reproduce, describe, enlist, label, list, outline, quote, recall, report, etc.

2. Understanding: Demonstrate comprehension through one or more forms of explanation. For example, classifying foods based on their nutritional values, comparing ritual practices in two religions. Appropriate learning outcome verbs: abstract, explain, elaborate, estimate represent, arrange, articulate, associate, categorize, clarify, classify, compare, compute, conclude, contrast, defend, diagram, differentiate, discuss, distinguish, exemplify, extend, extrapolate, infer, generalize, give examples of, illustrate, interpolate, interpret, match, rearrange, outline, paraphrase, predict, reorder, rephrase, restate, summarize, transform, translate, etc.

3. **Applying:** Appropriate use of information or a skill in a novel situation. e.g., use Newton's third law to solve a problem, apply various statistical measures in order to do analysis, etc. Appropriate learning outcome verbs: employ, apply, calculate, organize, carry out, classify, complete, compute, demonstrate, dramatize, examine, predict, execute, experiment, generalize, interpret, illustrate, transfer, implement, infer, manipulate, modify, operate, outline, solve, translate,

4. Analyzing: The analyze level considers breaking the material into its constituent parts and then determining how these parts relate to one another and to the overall structure or purpose. e.g., analyze the relationship between different working systems in our body like the respiratory, digestive, excretory, nervous system; analyze the relationship between different characters in a play; analyze the relationship between different religious contributions to our society. Appropriate learning outcome verbs: analyze, detect, arrange, break down, explain, categorize, classify, relate, compare, connect, contrast, identify, deconstruct,diagram, differentiate, discriminate, divide, integrate, inventory, order, organize, separate, structure, distinguish.

5. Evaluating: The evaluate level helps to make judgments based on provided criteria and standards. e.g.,judge which out of the two methods is the best way to solve a given problem, determine the quality of a product based on the provided disciplinary criteria. Appropriate learning outcome verbs: appraise, apprise, test, argue, assess, compare, conclude, judge, grade, consider, contrast, convince, rank, determine, criticize, critique, decide, discriminate, evaluate, justify, measure, rate, recommend, review, score, select, standardize, support,validate, etc.

6. Creating: Create level helps students to put each element together to form a new coherent or functional whole, in other words it reorganizes elements into a new pattern or structure. For example, write a project or thesis, develop an alternative hypothesis based on criteria, invent a novel product, compose a piece of music. Appropriate learning outcome verbs: arrange, propose, assemble, build, collect, reorganize, combine, compose, rearrange, constitute, construct, create, design, develop, devise, formulate, generate, prepare, hypothesize, integrate, invent, make, manage, modify, organize, perform, plan, produce, reconstruct, revise, rewrite, compile, specify, synthesize, write, etc.

3.4 KRATHWOHL AND MASIA'S TAXONOMY OF THE AFFECTIVE DOMAIN

Most people think that learning is an intellectual or mental function, however, the fact is that learning is not just limited to cognitive (mental) functions individuals can also learn behaviors, attitudes and physical skills. These different categories as described create three domains of learning that can be categorized as cognitive (knowledge) domain, psychomotor (skills) domain and affective (attitudes) domain.

The affective domain also known as attitude domain (Krathwohl, Bloom, Masia, 1973) includes the manner in which a person deals with situations emotionally, such as values, feelings, enthusiasm, appreciation, motivations and attitudes. This domain is further categorized into 5 major subdomains as enlisted below moving from the lowest order to the highest.

1. Receiving (actively participating in the process of learning)
2. Responding (not only aware of a stimulus, but reacting to it in some way)
3. Valuing (ability to see the worth of something and express it.)
4. Organization (Putting together different information and ideas, relating them and creating own novel value system)
5. Characterization (Acting consistently in accordance with the values that have been internalized)

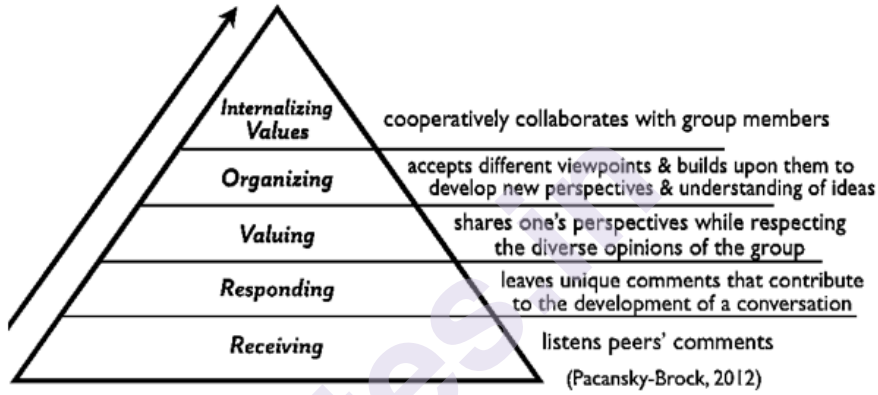

Figure 4: Krathwohl and Masias Taxonomy of Affective Domain

1. **Receiving:** forms the lowest level of the affective domain. It is simply the awareness of one's feelings and emotions. It involves paying attention passively and being aware that certain ideas, material or phenomena do exist. No learning can take place without this level. If no information is ever received then it cannot be remembered as well.

   Examples: Listening attentively to someone who is talking or listening to a lecture, watching a movie, observing the sunset and sunrise, etc.

   Key Words: acknowledge, asks, attentive, courteous, dutiful, follows, gives, listens, understands, etc.

2. **Responding** is placed above receiving which involves the learners

   participating actively in the learning process. They are not only aware of the stimulus, but also react and respond to it in some way. Learning outcomes may emphasize compliance in responding, willingness to respond or satisfaction in responding (motivation).

   Examples: Participation in class or group discussion, giving a presentation on a particular topic, questioning new ideals or concepts

in order to fully understand them, Knowing the safety rules and practicing them, etc.

Key Words: answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, presents, tells.

3. **Valuing:** People attach value to a particular object or phenomenon or behavior depending on the importance of that particular object. This ranges from simple acceptance to the most complex state of commitment. Simple acceptance includes innovations, desire to improve the skills or talent of the team whereas more complex level of acceptance includes taking the responsibility for the overall development of the team. Valuing is dependent upon internalization of a set of specified values, while clues to these values are expressed in the learner's overt behavior and are often identifiable.

   Example: proposing a plan in order to improve skills among the team and enhance social behavior to achieve long time commitments, demonstrate problem solving skills and also a feeling of democracy, sensitivity towards individual and cultural differences, etc.

   Key Words: appreciates, cherishes, treasure, demonstrates, initiates, invites, joins, justifies, proposes, respect, shares.

4. **Organizing:** involves putting together different information, values,

   concepts and ideas that are related to the existing belief system in order to form new ideas and philosophies and also a unique value system.Essentially, it is the ability to prioritize one value over another and create a unique value system. The emphasis is on comparing, relating, and synthesizing values.

   Example:Accepting the professional ethical standards that have been predetermined, spending more time studying rather than playing sports, recognising the importance of balance between work and families, also utilizing time effectively in order to meet the desired goals, etc.

   Key Words: compares, relates, synthesizes.

5. **Characterizing:** forms, the highest level of the Affective domain

   which is all about internalizing values. Here, the value system controls the individuals' behaviors. The behavior is pervasive, consistent, predictable and form the most important characteristic of the learner. In other words,the values are internalized and then they guide and control individuals' behavior.

   Examples: spending time with family, reframing priorities, making friends based on personality and not looks, value people for what they are rather than how they appear, cooperating while conducting group activities, etc.

Key Words: acts, discriminates, displays, influences, modifies, performs, qualifies, questions, revises, serves, solves, verifies.

3.5 DAVE'S TAXONOMY OF THE PSYCHOMOTOR DOMAIN

Psychomotor skills are those skills or abilities that require a physical component. Rather than using the cognitive or metacognitive skills, or individuals' ability to speak and observe in order to develop social skills, these are things that are done physically. These skills require a degree of dexterity, suppleness or strength and motor control.

In order to understand the Psychomotor Domain, the psychomotor taxonomy developed by R. H. Dave has been elaborated below. This model of psychomotor domain was finalised by Ravindrakumar Dave in 1975, who argued that learners must first observe, imitate skills, and then repeat them from memory before mastery can be achieved.

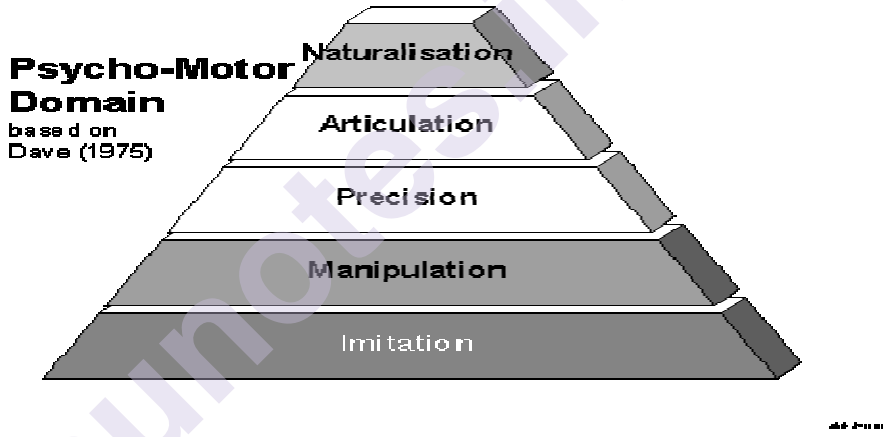

Figure 5: Dave's Taxonomy of the Psychomotor Domain

1. **Imitation:** As the name suggests it means simply observing and copying someone else or patterning their behavior. Performance through imitation may be of low quality. Example: Copying a work of art, copying the way letters are written, etc. Key Words: copy, follow, mimic, repeat, replicate, reproduce, trace.

2. **Manipulation:** is guided via instruction and practice to perform a certain action or skill or task. Example: Creating a model on your own after reading about or observing it, following the route by provided instructions, etc.In other words, it is being able to perform certain actions by memory or following instructions. Key Words: act, build, execute, perform.

3. **Precision:** Without the presence of original source, accuracy, proportion and exactness exists in the skill performed.Refining, becoming more exact and accurate. Example: Working and reworking on something to gain accuracy or till the point 'it's just right', performing skills and task

without any assistance. Here, performing a skill is with a high degree of precision.Key Words: calibrate, demonstrate, master, perfectionism.

4. **Articulation:** has two or more skills combined, sequenced and performed consistently.Coordinating a series of actions, achieving harmony and internal consistency. Example: Producing a video that involves music, drama, color, sound, etc. Combining a series of skills or activities to meet a novel requirement.Key Words: adapt, constructs, combine, creates, customize, modifies, formulate/

5. **Naturalization:** When two or more skills combined, sequenced, and performed consistently and with ease. The performance is automatic with little physical or mental exertion.Having high level performance become natural, without needing to think much about it. Examples: Michael Jordan playing basketball, Nancy Lopez hitting golf ball, etc. Mastering a high-level performance until it become second-nature or natural, without needing to think much about it.Key Words: create, design, develop, invent, manage, naturally.

3.6 CHECK YOUR PROGRESS

1. What do you understand by the term aim and objectives?
2. State the various factors that affect aims and objectives
3. Why are aims and objectives important?
4. Differentiate between aims and objectives
5. Define the taxonomy and domain
6. What is the cognitive domain? Explain Revised Bloom's Taxonomy of the Cognitive Domain.
7. Explain Krathwohl and Masia's Taxonomy of the Affective Domain
8. Elaborate on Dave's Taxonomy of the Psychomotor Domain

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4

LEARNING EXPERIENCES AND OUTCOMES

Unit Structure :

4.0 OBJECTIVES

At the end of this chapter, the student will be able to:

a) Describe the concept of Learning Experiences

b) Describe the significance of value-based Learning Experiences

c) Describe the concept of Learning Outcomes

d) Differentiate between test, assessment and evaluation.

e) Explain the relationship between Objectives, Specifications, Learning Experiences and Evaluation

4.1 INTRODUCTION

Learning occurs when the pupil has an experience, ie. when the individual reacts and responds to the situation in which s/he finds him/herself. Individuals learn by thinking, feeling and doing. Learning results from the active participation of the individual, to the stimulus situation which the teacher creates in the class. Experiencing is seeing, hearing, tasting, smelling and touching. The individual reacts to these experiences and learning takes place. All experiences are learning experiences. Learning takes place by interaction between the situation and the learner. Learning will not take place in the absence of any experiences.

4.2 LEARNING EXPERIENCES: MEANING, TYPES, SIGNIFICANCE OF VALUE BASED LEARNING EXPERIENCES

Meaning of Learning Experiences:

Experiencing is simply seeing, hearing, feeling, tasting, smelling &so on. The individual reacts to those experiences and learning take place. We learn because things happen to us and we do something in turn. It is only through experience that we learn. Learning will not take place in the absence of any experience. The phrase learning experience is probably a tautology. All experiences are learning experience.

A child exposed to various learning experiences Learning Experiences are not just a part of the syllabus, nor is it a unit or a teaching point. It is not a traditional lesson plan or simply activity. It is the interaction of the learner and the situation provided by the teacher. Each of these learning experiences modifies the behavior of the pupil.

Definition of Learning Experiences: 'Learning experiences are pupils' activities planned with the specific purpose of producing desired behavior change in them.'

Characteristics of Learning Experiences:

The responsibility of the classroom teacher is to provide to his students a learning situation composed of a variety of learning activities, so that they may have direct as well as indirect learning experiences which ultimately results in learning.

1] It should be directly related to the instructional objectives

2] It should be meaningful. E.g. asking students to take down the theorem written on the blackboard without understanding it will not result in a meaningful experience.

3] It should satisfy the psychological needs of the learner. E.g. for adolescents, detective stories may be made available and for school children the fairy tales.

4] It should be appropriate to the maturity level of the learner. E.g. primary school children should be asked to write essays on topics like the cow, the postman, while secondary school children should be asked to write essays like if I were a headmaster, patriotism, an evening at the seashore.

5] It should be related to life situations.

6] While selecting the experience, availability of material and of time should be considered.

7] It should be varied and rich in content and novel. E.g. a student who studies the digestive system of various animals will get a richer experience than the one who studies the digestive system of only one animal. E.g. a pupil who observed the habits of birds and their nests has a richer experience than the one who merely sees the habits of one bird.

Sources of Learning Experiences:

1] **Home:** It is one of the influential centers of education. The child learns a number of things at home. The home, an informal agency, provides a number of learning experiences, e.g. sitting, standing, walking, running, talking, oral expression etc. Some children get enough material for reading and & games. Parents influence the child's behavior by their own actions.

2] **Society:** Many desirable and undesirable experiences are provided by society. Many likes or virtues can be developed through all these experiments, lottery, gambling are some of the illustrations which may have an adverse effect while some other experiences have a whole some effect. People who work in society with a sense of dedication provide desirable learning experiences. You can develop honesty or dishonesty. This is again an informal agency.

3] **Mass media:** Radio, TV. Newspaper, libraries enrich the lives of individuals by providing rich and varied material.

4] **Play ground:** It is our experience that many qualities are developed on the playground. Skill in various games, attitude of co-operation, lead ship qualities are likely to be developed through activities on the playground.

5] **Peer group:** A child learns a number of things while he/she is among his/her peers. Qualities such as co-operation, honesty, helpfulness, leadership, etc are developed in the peer group.

6] **Journeys and excursions:** they provide learning experience which may help students to develop certain good qualities like cooperation, helpfulness etc. again they help to develop the skill to budget for the expenditure & how to face problems. The students come in contact with people of various types speaking different languages.

7] **Schools:** A school is a miniature society. This is a formal agency providing a variety of learning experiences including:

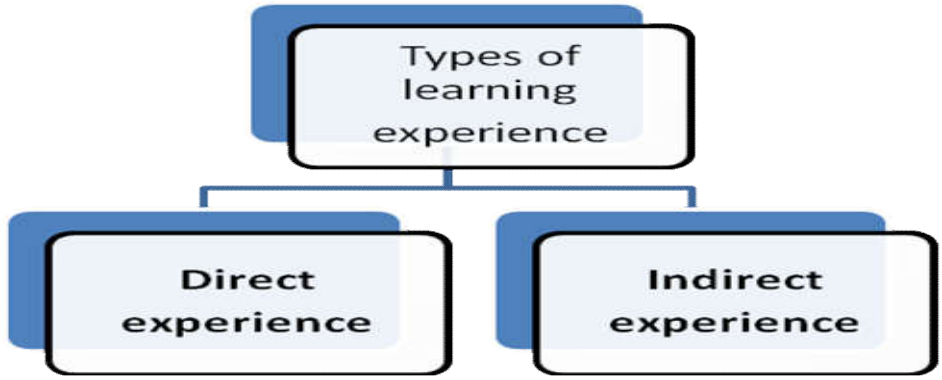
a) **Experiments:** provide learning experiences related to laboratory skills.

b) **Audio-Visual aids**: Radio, films, film shop, epidiascope etc, enrich teaching and develop pupil interests. They widen the scope of knowledge and understanding. Again, they provide learning experiences which develop pupil's interest.

c) **Co-curricular activities:** Debating, elocution, dramatization help students to achieve skill in expression systematizing arguments, reasoning.

d) **Method of teaching:** Group discussion method, assignment method, workshops, seminars etc provide various types of learning experience to widen the horizon of the students knowledge and understanding.

Types of Learning Experiences:



A] Direct Learning Experiences: First hand experiences with various objects or symbols are formed by direct experience. These experiences are more than perceptual learning in the sense that they include experiences with symbols. Perceptual learning arises out of experiences dependent upon seeing, hearing, smelling, tasting, touching, feeling, handling etc through perceptual learning. We use symbolic words to describe them.

Merits of Direct Learning Experiences:

1) It is a firsthand experience.

2) It is most reliable.

3) It is long lasting.

4) It gives an opportunity for developing an observation skill.

Limitations of Direct Learning Experiences:

1) For each content it is not possible. E.g. heart

2) It is very different to have direct experience in all matters.

E.g. earthquake.

B] Indirect Learning Experiences: Those experiences which are not firsthand experience are formed indirect experiences.

1) It makes use of the direct experience of others.

2) We learn much through the experience of others.

3) This experience includes such activities as reading, looking at pictures, listening to lectures and discussion and so forth.

4) We must keep in mind constantly however that the ability of the learner to profit by the experiences of others depends upon the extent and adequacy of his previous first hand and direct experience.

Merits of Indirect Learning Experiences:

1] It can be used easily in classroom teaching.

2] Students are given opportunities to observe with proper class control.

3] Indirect experiences are less time and energy consuming.

4] Indirect experiences can be given as per regular classroom periods with the help of different teaching aids to complete the syllabus on time.

5] There is no risk involved as only pictures, models and charts are used for teaching. For e.g. while conducting an experiment in the laboratory, involving the preparation of gases, students might be harmed in case of leakage of gases.

6] Indirect experiences are useful in teaching concepts which cannot otherwise be taught with the help of direct experiences.

7] While narrating certain incidents or explaining meanings of proverbs or phrases, verbal explanation is necessary and effective.

Limitations of Learning Experiences

1) These are indirect, so could be a limitation to comprehend the whole concept or incidences.

2) These experiences are limited in nature.

3) These are not too effective to understand.

4) Not suitable for slow learners.

5) Not effective for small children.

Check your progress:

1. What are Learning Experiences?

2. Describe the various sources of Learning Experiences

3. Describe the types of Learning Experiences, with suitable examples,

4.3 LEARNING OUTCOMES

Meaning of Learning Outcomes: meaning and significance.

Learning outcomes are descriptions of the specific knowledge, skills, or expertise that the learner will get from a learning activity, such as a training session, seminar, course, or program.

Learning outcomes are measurable achievements that the learner will be able to understand after the learning is complete, which helps learners understand the importance of the information and what they will gain from their engagement with the learning activity.

Learning outcomes are statements that describe significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course or program. In other words, learning outcomes identify what the learner will know and be able to do by the end of a course or program.

Creating clear, actionable learning outcomes is an important part of the creation of training programs in organizations. When developing these programs, both management and instructors need to be clear about what learners should understand after completing their learning path.

Learning outcomes also play a key role in assessment and evaluation, making clear what knowledge learners should have upon completion of the learning activity.

A well-written learning outcome will focus on how the learner will be able to apply their new knowledge in a real-world context, rather than on a learner being able to recite information.

The most useful learning outcomes include a **verb** that describes an observable action, a **description** of what the learner will be able to do and under which **conditions** they will be able to do it, and the **performance level** they should be able to reach

OUTCOMES: An outcome indicates the change of behavior that is observable and measurable.

Criteria for writing the statement of learning outcomes:

1) The statement of specification should contain an action verb.

   E.g. The pupil calculates the percentages of the given problem.

2) The statement of specification should indicate a worthwhile objective.

   E.g. for 7^{th} standard student The pupil criticizes the policy of Lord Curzon. (Not proper) The pupil constructs different types of triangles. (Proper)

3) The statement of specification should be related to human ability. Teachers should not frame the following type of statement of specifications.

   E.g. The pupils explain the method of changing the features of a face. (Not proper)

4) The statement of specification should also mention the subject matter area (content)

   E.g. The pupil explains (modification part) causes of freedom struggle of 1857(content part).

5) The statement of specification should be in the form of a student's achievement. E.g. The pupil recalls the names of mountains and rivers of India

6) The statement of specification should be written in the form of the achievement of every single pupil.

   E.g. Pupils recall the names of mountains and rivers of India. (improper) The pupil recalls the names of mountains and rivers of India. (Proper)

7) The statement of specification should contain only one ability to be developed or achieved or modified.

   E.g. the pupil recognizes and draws different parts of the flower. (improper) The pupil recognizes different parts of the flower. (Proper) The pupil draws different parts of the flower. (Proper)

SIGNIFICANCE OF LEARNING OUTCOMES:

1. Learning outcomes help the student choose appropriate courses/programmes.
2. Well defined learning outcomes remove the risk of wasting time. Reduce unnecessary stress on the students.
3. Learning outcomes gives a clear headstart idea to students of what they are going to learn or achieve at the end of the class.
4. Learning outcomes highlights what exactly and more importantly students should know to achieve from that particular course.
5. By achieving Learning outcomes students can demonstrate that he/she has reached the summit of the course.

Benefiting Teachers find it easy to plan a lesson

1. Learning outcomes help teachers plan a lesson
2. Learning outcomes give a clear idea of what and how much to teach and plan accordingly. Learning outcomes help teachers design their teaching material more effectively
3. Learning outcomes help teachers select appropriate teaching strategies.
4. Learning outcomes help teachers avoid extra teaching which ultimately helps in saving time.

Help in writing Assessments & Evaluation

1. Learning outcomes make assessment mapping clear & easy.
2. Learning outcomes make midway corrections possible.

3. Learning outcomes make students study on their own and come to the class well prepared. Evaluation
4. Learning outcomes help in measuring the effectiveness of the unit.
5. Learning outcomes play a major role in allocation of marks while setting question papers.

Check your progress:

1. Explain the parts of a well written learning outcome.
2. Why are learning outcomes important?
3. Explain any two criteria for writing good learning outcomes, with suitable examples.

4.4 RELATIONSHIP BETWEEN LEARNING OBJECTIVES, SPECIFICATIONS, EXPERIENCES AND EVALUATION

Evaluation is a systematic process of collecting, analyzing and interpreting evidence of a student's progress. Proper evaluation of learners is necessary for successful teaching. Evaluation is integrated with the process of teaching and learning.

Learning Objectives may be general or specific. General objectives include appraising the changes in student behaviour, to relate measurement to the goals of the instruction, etc.

Specifications indicate behavioral changes that are observable and measurable.

Learning Experiences are planned and organized based on the objectives. It refers to any interaction, course, program, or other experience in which learning takes place.

Evaluation is a continuous process of discovering the extent of the effectiveness of the experiences at every stage in the learning process to bring out the desired changes in students.

Relationship of Educational Goals and the Curriculum

The knowledge, skills, and abilities that students achieve at the end of their courses are affected by how well courses and other experiences in the curriculum fit together and build on each other. Any curriculum can be organized into three major components:

1. objectives (“where” are we going),

2. content or subject matter (“what” we’re doing to get there), and

3. learning experiences (“how.” we get there).

Curriculum developers and teachers must always be concerned about what should be included in the curriculum and how to present and arrange what is selected. In other words, the teachers must:

1. formulate behavioral objectives, which act as a road map for the curriculum development and implementation process.

2. deal with subject matter (content analysis) , and then,

3. deal with the learning experiences.

Regardless of the curriculum approach or development model used, curriculum developers and teachers cannot ignore these three components. Curriculum Developers must decide not only what content and learning experiences to include, but also, and more importantly, the relationship of objectives and content as well as the relationship of objectives to learning experiences.

Relationship of Educational Objectives and Learning Content

Objectives are usually stated in terms of expected outcomes. For example, a school science teacher might develop a chronological list of topics to be covered in a biological science course: functions of human organisms, use of plant and animal resources, evolution and development, etc. This type of list shows what the science teacher intends to teach but not what the expected outcomes of instruction will be.

The **content outline** is useful for the teacher in planning and guiding instruction, but it is insufficient for the statement of behavioral objectives. To be useful in teaching, behavioral objectives must be linked to the content (learning material).

The real contribution of stating objectives for learning is to think of how each objective can be achieved by students through the content or subject matter they learn.

1. The first type of behavior is to develop understanding of important facts and principles;

2. The second type is to develop familiarity with dependable sources of information;

3. The third type of behavior is to develop the ability to interpret data;

4. The fourth type is to develop ability to apply principles that are taught in that specific subject content to concrete and real problems in life;

5. The fifth type of behavior is to develop the ability to study and report the results of an investigation;

6. The sixth type is to develop broad and mature interests as they relate to the subject, and

7. The seventh type of behavior is to develop social attitudes.

Instructional Objectives (Learning Specifications):

During a classroom session, the instructional objective is the **teacher's specific statement** of a measurable step it will achieve that leads to an instructional goal. Instructional Objectives capture the means by which the teacher will implement its stated mission, as specified in course criteria. Measurable instructional objectives specify the minimum acceptable performance in terms of quality, quantity or time. These objectives are used by the institution to evaluate progress in meeting its basic educational mission and may be expanded as appropriate to encompass the complex nature or special focus of each institution.

Major difference between an instructional objective and a competency is:

1. Instructional Objectives specify what the institution intends to do to achieve its instructional goals.

2. Competencies, on the other hand, clearly define what the student will do to demonstrate learning for a workforce-related need.

Relationship of Objectives to Learning Experiences

The term "learning experience" is not the same as the content with which a course deals nor the activities performed by the teacher. Learning takes place through the active behavior of the student. **Learning experiences** refer to **the interaction between the learner and the external conditions in the environment to which he/she can react**.

Relationship of Learning Experiences to Assessment and Evaluation: The measurable and observable Learning Outcomes (Instructional Objectives) are directly linked to questions, to **measure and quantify the results of learning**; through various assessment techniques of testing (oral-written-performance tests), student presentations, and assignments.

Check your progress:

1. Describe the relationship between Objectives, Specifications, Learning Experiences and Evaluation

2. Describe the relationship between Learning Experiences to Objectives and Assessment

3. Describe the importance of Instructional Objectives.

4.5 SUMMARY

The purpose of focusing on learning outcomes is to make learning more meaningful and effective for both students and teachers. Making education more meaningful for students requires that they understand that education can enable them to enrich their lives, by developing learning experiences based on what students should be able to do with their knowledge.

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5

PRACTICAL WORK IN EDUCATIONAL EVALUATION

Unit Structure :

5.0 OBJECTIVES

After reading this unit you will be able to:

- State the meaning of Practical Evaluation,
- Explain the factors affecting on practical work.
- Explain the advantages and limitations of Practical exam.
- Enlist the ways to assess practical exam.

5.1 INTRODUCTION

Evaluation is the wider term and play a very important role in teaching learning process. Assessment of student learning requires the use of a number of techniques for measuring students achievement. But assessment is more than collection of techniques. It begins with the identification of the goals and ends with a judgment concerning the extent to which those goals have been attained.

The secondary education commission observed ,"nevertheless examination and especially external examinations have a proper place in any scheme of education. External examinations have a simulated effect both on the pupils and teachers by providing a well-defined goal and objective standard of evaluation .

Evaluation means to ascertain the growth and changes, taking place in pupils as a result of teaching learning experiences. To evaluate means to characterize the work or value of something. It is a methods of determining the extent to which established goals or objectives have been achieved. It is a "process of making an overlay of the outcomes as an educative experience against the background of anticipated or stated objectives". It is not restricted to the result of tests and examination or the teachers 'estimate but includes the learners' own estimates of his own ability.

5.2 EVALUATION METHODS

An evaluation can use quantitative or qualitative data, and often includes both. Both methods provide important information for evaluation.

These methods are rarely used alone; combined, they generally provide the best overview of the project.

Forms of Evaluation:

1. **Quantitative**

a) Written Nominative

b) Oral Projective

c) Practical

2. **Qualitative data**

a) Observation

b) Self

Quantitative Methods

Quantitative data provides information that can be counted to answer such questions as "How many?", "Who was involved?", "What were the outcomes?", and "How much did it cost?"

Quantitative data can be collected by surveys or questionnaires, pretests and posttests, observation, or review of existing documents and databases or by gathering clinical data.

Surveys may be self- or interviewer-administered and conducted face-to-face or by telephone, by mail, or online. Analysis of quantitative data involves statistical analysis, from basic descriptive statistics to complex analyses.

Quantitative data measure the depth and breadth of an implementation (e.g., the number of people who participated, the number of people who completed the program).

Quantitative data collected before and after an intervention can show its outcomes and impact.

The strengths of quantitative data for evaluation purposes include their generalization ability (if the sample represents the population), the ease of analysis, and their consistency and precision (if collected reliably).

Qualitative Methods :Qualitative data answer such questions as "What is the value added?", "Who was responsible?", and "When did something happen?''

Qualitative data are collected through direct or participant observation, interviews, focus groups, and case studies and from written documents, essays, scenarios, projects, artifacts, personal experiences, introspection, visual texts, portfolios, direct observation, role play or simulation.

Analysis of qualitative data include examining, comparing and contrasting, and interpreting patterns. Analysis will likely include the identification of themes, coding, clustering similar data, and reducing data to meaningful and important points, such as in grounded theory-building or other approaches to qualitative analysis. Observations may help explain behaviors as well as social context and meanings because the evaluator sees what is actually happening.

Observations can include watching a participant or program, videotaping an intervention, or even recording people who have been asked to "think aloud" while they work.

Interviews may be conducted with individuals alone or with groups of people and are especially useful for exploring complex issues.Interviews may be structured and conducted under controlled conditions, or they may be conducted with a loose set of questions asked in an open-ended manner. It may be helpful to tape-record interviews, with appropriate permissions, to facilitate the analysis of themes or content. Some

interviews have a specific focus, such as a critical incident that an individual recalls and describes in detail. Another type of interview focuses on a person's perceptions and motivations.

The strengths of qualitative data include providing contextual data to explain complex issues and complementing quantitative data by explaining the "why" and "how" behind the "what" . The limitations of qualitative data for evaluation may include :

1. Lack of generalizability
2. The time-consuming data collection,
3. Costly nature of data collection,
4. The difficulty and complexity of data analysis and interpretation

Advantages of Quantitative Techniques :

- They help to produce more accurate, objective and conclusive results.
- They can help you to quantify the progress of your project and assess whether or not you have met the indicators outlined in your log frame.
- They are useful in establishing baseline data at the start of a project (eg. Proportion of pupils aged 12 to 16 passing end of year exams in mathematics)
- They can enable you to generalize on the basis of your findings. With statistically significant sample sizes, the results can sometimes even be generalized to an entire target group
- They can allow you to draw comparisons and correlations (e.g. is the percentage of girls aged 14 passing science exams lower than boys of the same age and, if so, could this be linked to differences in the school syllabus followed by boys and girls?
- They are particularly important where there is a need for accurate, concrete answers (e.g. on improved literacy rates, increased annual yields, percentage of population vaccinated)
- They can also be particularly appreciated by donors who put a premium on the demonstration of success.
- They can be used with hard and soft data
- They can be used to display data visually in meaningful tables, graphs, pie-charts, and other formats. See the example below from Development Initiatives.

Disadvantages of Quantitative Techniques :

- Quantitative techniques can lead to misleading results, not least if you use them incorrectly. If, for example, you count the number of children sitting an exam rather than the percentage of those passing it or if you

focus only on the past three months when the yield was high and ignore the 21 months before where the yield was extremely low

- They are not good at capturing feelings
- They can be open to misrepresentation or misinterpretation. Graphs can suggest sharp or slow increases depending upon the variables used in the X and Y axes
- They may require a certain skill set or level of numeracy if they are to be drawn on effectively and accurately
- They can lead to over-generalization: for example if you make claims that your findings apply to an entire country when they relate to a sample of only two towns or regions

ACHIEVEMENT TESTS: This test that measures the achievement of an individual after a period of learning is called achievement test. Achievement test: Teacher Made: Oral ,Written and Practical

5.3 PRACTICAL WORK

"Knowledge is of no value unless you put it into practice." – Anton Chekhov.

The world of education has changed. In today's education, a student focuses on learning skills and gaining knowledge. Practical learning has replaced bookish education in many ways. Though theoretical education is important, practical education is the key to understanding life better.

Can anyone teach you to swim in a classroom? The answer is impossible. You should get into the situation to learn a few things with expertise. These skill-based learning's change students into successful individuals. Theory gives you good grades but only if you apply practical learning to it, only then actually become knowledgeable.

Practical work is an important aspect of science education. It includes a range of activities and is also used for a range of purposes, such as: illustrating a concept or idea to help students generate arguments from evidence in the process of knowledge construction

Science practicals are one of the fundamental tools enabling our students both to learn scientific knowledge, and how to do science. Practical work has clear benefits, helping students acquire the essential skills that not only give a fluid transition to higher-study, but open the doors to science as a profession.

Different purposes in which practical work has been used has provoked vigorous contestations among researchers. Practical work activities have been described as enhancing learning of science and developing scientific skills among students. The goals of practical work are to improve students' understanding, develop their skills in solving problems and understanding the nature of science, by replicating the actions of scientists.

5.4 PRACTICAL ASSESSMENT

It is used for those subjects in which pupils are taught to follow specific procedures and / or create some products.

5.5 NEED OF PRACTICAL ASSESSMENT

1. Supplements the written examinations to provide comprehensive evidence of pupil's development.
2. Practical application of theory brings in realism.
3. Provides an opportunity for developing the fundamental skills related to vocations of a practical nature.
4. Develops manipulative skills.
5. Develop skills in observation and recording of data.

5.6 MERITS OF PRACTICAL ASSESSMENT

1. Facilitates Learning by Doing
2. Enhances psychomotor skills
3. Better retention
4. Builds up concentration power
5. Emphasis on application of skills

5.7 LIMITATIONS OF PRACTICAL ASSESSMENT

1. Time consuming
2. Not feasible for large groups
3. Scope of manipulation
4. Lack of skilled and trained teachers
5. Requires practice

5.8 SUGGESTIONS FOR PRACTICAL TEST

1. Small groups (may be 5 to 7 students)
2. Efficient and trained teachers
3. Proper guidelines
4. Neatness and cleanliness
5. Constant supervision

6. Ability to perform the given task
7. Patience
8. Feedback (how and why aspect)

Criteria for evaluation – Practical Test

1. Planning phase
2. Execution phase
3. Reporting phase

Aspects of practical work

1. Skill in observation & recording of data
2. Ability to assess & interpret data
3. Ability to plan procedures of solving problems
4. Manipulative skill

Attitudes towards practical work

1. Acceptance
2. Enthusiasm

5.9 METHODS OF EVALUATION

1. Set exercises (presenting practical problem)
2. Project work
3. Course work (community work, Socially Useful Productive Work)
4. Oral questions
5. Observation or impression (teaching aids preparations)

5.10 PRACTICAL ACTIVITIES CAN INCLUDE THE FOLLOWING

1. Making and using simple machines and equipment;
2. Carrying out experiments in a classroom, laboratory or field;
3. Working on a farm or garden, establishing a nursery, growing or planting trees, growing crops or rearing animals;
4. Doing management tasks like keeping records, accounts, etc.;

Everyone learns differently, and learning styles can vary from person to person, from visual, to aural, verbal, physical or logical learning styles.

But there's one type of learning that benefits most students, and that's practical learning.

When studying, it's important to get a hands-on understanding of your subject and how the theory you learn applies to real-life situations. Practical learning allows you to learn quick adaptations needed for daily challenges and scenarios and allows you to get a better understanding of your course topic.

Benefits to practical learning

1. **Improved Skill Set:** Practical learning, as mentioned above, has the unique ability to help students apply their skills in a non-classroom environment. While it's important to learn the theory of a topic or subject, getting out and applying the theory to a practical situation enables you to build upon existing skills such as problem-solving.

   It also allows you to apply your technical knowledge in the field, which is incredibly beneficial in all subjects but particularly in subjects such as horticulture, aged care and disability care.

2. **Increases Your Understanding:** There are some things that need to be experienced to be understood, and this is true for most subjects. For example, a certificate in aged care may prepare you theoretically, but working one-on-one with a senior citizen in need of your help will give you a better understanding of how to care for something, and the best way to do certain tasks.

3. **Creates a Deeper Impact:** Interactive education in the form of practical learning can strengthen your understanding and comprehension on a subject. While theoretical education utilized textbooks and research papers, practical learning allows you to learn things first hand. This learning is a fundamental part of education and works incredibly well to improve a student's learning level and understanding.

4. **Better Knowledge Retention:** Taking a hands-on approach to learning often results in more ingrained knowledge, with the ability to retain information quickly and for longer periods of time. The reason being that when learning in a theoretical, text-based style, our brains attempt to remember words. However, when learning in a practical environment, we're remembering actions and scenarios which our brains find easier to retain.

Why is Practical Learning more important?

1. **Promotes Self-learning:** Your thought process slowly matures in this process. The seed of practical education should be sown right from the beginning. A student understands and imbibes a practical approach which changes his learning style. This way of practical learning boosts your confidence levels too.

2. **Powerful Memory Tool:** Practical learning is a powerful memory tool. It's always said and proved that you remember something better when you do it on your own. With good practice and experience comes great memories. Let's take an example of car driving. When you learn while driving and practice it well, you can learn it better.

3. **Deep Understanding:** In theoretical education, students are passive and slow learners. Many students fail to memorise and often end up mugging their notes. On the other hand, practical education makes students understand the concepts at a different level. It makes you active learners. There will always be clarity in the thought process too.

4. **Improves Skill Set:** Bookish knowledge helps you to pass an exam but it needs the right skills to perform a job. Why are new employees trained before they start their job? To polish their skills and brush up their basics before they start off. Skills play a major role in a person's development. This practical approach is a boost to your analytical skills. You can understand and analyse better.

5. **Handle Real Problems:** The main motto of practical learning is to shape you into a better individual. If you are theoretically strong, you will just be an employee who knows how to operate. But if you are capable enough to manage and solve real life problems and deal with situations, you can become the boss. This is the difference between an employee and his boss. If students are exposed to practical learning from a young age, they'll apply it later in their jobs and become a pro in what they do.

6. **Boosts Interest to Learn:** What's more interesting? A classroom lecture or a field trip. For students, learning should be made interesting and fun. Classroom learning and examinations make students pressurized. Learning is not about grades and targets. A learning environment has to be created where they can practically understand what they've listened to in class. For example, a chemistry class becomes more interesting when the students are taken to a lab where they can understand the reactions.

7. **Interactive approach:** Practical education is not one-sided like theoretical education where students are fed with lectures. When students think and understand on their own, they come up with many doubts. Clarifying doubts and making it an interactive session helps students understand more. The inputs from students are a great source of understanding their level of thinking. Teachers should surely incorporate interactive sessions in practical education.

5.11 SUMMARY

Practical education is the best way to gain knowledge and skills to manage things. To survive in this competitive world and enhance your skills, you need to learn every day. Books give you knowledge but experience teaches you life lessons. Trial and error method is the best way when it comes to practical learning. You will learn from your mistakes and will never repeat them again. There are a lot of hard things you can learn by practically doing and experiencing it.

"I hear and I forget. I see and I remember. I do and I understand." – Confucius

5.12 EXERCISE

Q.1 Why Practical Work is important?

Q.2 What are the benefits of Practical Work?

Q.3 How can we create interest in teaching the learning process through practical work?

Q.4 What are the merits and demerits of Practical work ?

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