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Assignment of Pedagogy of Science.

Topic: Evaluation in Science.

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Evaluation in Science

Evaluation is the process of making value of judgement about the quality of performance. It is a relatively new and latest concept of testing the students. Its main objective is to test the modification in behaviour of the students. Many evaluation devices like written test, oral test, practical exam, observation, interview, questionnaire, checklist, records etc. are used.

Here, emphasis is on broad personality changes and major objectives of an educational program.

Concept of Evaluations.

Acc. to Encyclopedia of Education Research, "To measure means to observe or determine the magnitude of variate; evaluation means assessment or appraisal

Acc. to Granlund & Linn, "Evaluation is -the systematic process of collecting, analyzing and interpreting information to determine the extent to which pupils are achieving instructional objectives."

Characteristics of Evaluation

1. Evaluation implies a systematic process which omits the casual uncontrolled observation of pupil.
2. Evaluation is a continuous process. In an ideal situation, the teaching learning process on the one hand and the evaluation procedure on the other hand go together.
3. Evaluation emphasizes the broad personality changes & major objectives of an educational programme.
4. Evaluation is the determination of the congruence between the performance and objectives.

Need & Importance of Evaluation

1. Evaluation leads to improvement of instructions
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3. Help the teacher to know his pupil in detail.
Child's ability, interest, aptitude, attitude etc are to be properly studied so as to arrange instruction accordingly.

(ii) Help teacher to determine, evaluate & refine his instructional techniques.

3. Help an administrator

(i) in educational planning

(ii) in educational decision on selections, classifications and placements.

4. Helps a student in encouraging good study habits in increasing motivation and in developing abilities and skills in knowing the results of progress and in getting appropriate feedback.

5. Evaluation helps to clarify objectives

Evaluation is based on objectives. It has no basis or meaning unless it is related to clearly stated educational objective. Evaluation procedure is a means of clarifying his objectives in teaching his

subject.

6. Evaluation promotes better learning -

Pupils in school are powerfully affected by the examination methods adopted. Today they waste all their energy on memorisation of facts because more knowledge objective is being tested. Their study habits are conditioned by the examination method.

7. Evaluation provides the basis for guidance -

Evaluation helps to provide a good deal of information about the individual student. Particular individual weakness that call for remedial teaching can be identified through evaluation. Further, a school guidance program can be built round the information about pupils and their needs.

8. Evaluation leads to curriculum changes

Objectives form the core of evaluation. Educational objectives are themselves determined by the needs of the learners, the demands of society & the psychology of learning.

Types of Evaluation

Evaluation can be classified into 3 broad categories

viz:

1. Diagnostic
2. Formative
3. Summative

1. Diagnostic Tests and Remedial Teaching

Diagnostic Tests are used to find out the difficulties of the pupils with a view to provide specific remedial measures to them.

Techniques of Diagnosis → The techniques of diagnosis as given by Brueckner are as under:

- 1) Observation of pupil at work on ordinary daily assignments or in standard situations.
- 2) Systematic analysis of various characteristics of the pupil's written work.
- 3) Systematic analysis of the pupil's oral responses and reactions.
- 4) The use of objective analytical diagnostic devices.

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to determine the faults of the pupil

5) The interview either with the pupil, his family or others of his social group to locate contributory conditions.

6) Laboratory procedure

Purpose:

Purpose to study the nature of difficulties of the pupils in the subject matter.

Uses:

1. Diagnostic tests are used as an inventory to find out how much the student knows about a particular phase of the subject matter.
 2. The tests are useful for providing appropriate remedial instruction to the individual students as per their need.
- B. These tests provide no reliable data about the abilities, interests as well as the difficulties experienced by the students.

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4. These tests are mainly used for discovering faults, difficulties, handicaps and weaknesses of the students.

2. FORMATIVE EVALUATION

Formative Evaluation is defined as a technique of evaluation which is conducted to monitor the instructional process and to determine whether learning is taking place as planned.

Functions

1. Feed Back & Guidance → The purpose of formative evaluation is to provide feedback and guidance to teachers and students.
2. Corrective & remedial measures → It informs a student where and what kind of corrective & remedial measures are needed. It also tells a teacher what kind of modification / reform is needed in his instructional package.
3. Scheduled learning → Formative evaluation helps students in pacing their learning and also in remedial

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the particular gaps in their learning of a specific unit. The learning also becomes scheduled avoiding overwhelming amount to be learnt before final summative evaluation.

4. Learning in small steps → In formative evaluation, the entire learning sequence is broken down into smaller steps and each step of the sequential learning programme is evaluated. When the subject matter is sequentially arranged, a student is required to master pre-requisite concepts before learning principles or solving problems on these concepts.

5. Analysis of causes of difficulties → Formative evaluation provides useful feedback to students by locating their difficulties. If a student knows which items he got right and which he got wrong on a formative test, he will have information about which ideas he still needs to learn or review.

6. Overcoming the difficulties → Errors/difficulties detected on formative tests can be corrected by suitable remedial material.

Teachers can provide special remedial materials such as clearer or simpler explanations, concrete illustration, alternative simple instructional materials etc. to help the student overcome a particular difficulty.

7. Alternative instructional material → Another function of this type of evaluation is that an analysis of the error made by the students can be used to identify the facts, concepts, principles etc. with which the students can be used are having difficulty. If majority of the students have not mastered a particular concept, then this may be regarded as inefficiency of the instructional material.
8. Quality control → Formative evaluation material may also be used for quality control purposes. If the courses is similar in content & objectives, the teacher may compare the performance of one year to another.
9. Achievements of objectives → — All the students can achieve the desired objectives of learning if scheme of formative evaluation is appropriately used.

10. Continuous evaluation → When students is continuously evaluated and guided through formative evaluation scheme, there is no reason for his failure in the final summative evaluation.

3. Summative Evaluation

Summative Evaluation is defined as a technique of evaluation which is concluded at the end of an instructional segment to determine if learning is sufficiently complete to move the learner to the next segment of instruction.

Functions

1. The major function of the summative evaluation in the class room is to determine the status of achievement at the end of an instructional segment.
2. Summative Evaluation helps to determine how well things went.
3. Formal class room tests, unit tests, final examinations etc. are the most frequently, used tools in this type.

of evaluation.

4. Relative to formative evaluation, there is great finality associated with summative evaluation.
5. The information gathered through summative evaluation is less detailed in nature but broader in the scope of content or skill assessed.

Conclusion:

The above discussion shows that all the three kinds of examinations & Evaluations have their own place in education measurement.

Therefore, we conclude that all these three types of evaluation should be used as different aspects of the same measuring instrument.