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TOPIC - EVALUATION IN SCIENCE

SUBJECT - TEACHING OF SCIENCE

SUBMITTED TO - MRS. JASPREET MAM

SUBMITTED BY - TANISHA THAKKAR

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EVALUATION IN SCIENCE

Introduction

Evaluation is a continuous appraisal of the achievement of the aims of education, the methods of teaching, and the learning experiences. With a view to do continuous improvement to make education dynamic and self-developing. The primary purpose of evaluation, in addition to gaining insight into prior or existing initiatives, is to enable reflection and assist in the identification of future change.

Definition:-

According to Stufflebeam, "A study designed to assist some audience to assess an object's merit and worth."

According to St Leger and Wordsworth Bell, "The critical assessment in as objective a manner as possible, of the degree to which a service or its component parts fulfill stated goals."

Conclusion:-

It is concluded that is on attaining object knowledge and scientifically or quantitatively measuring predetermined and External Concepts as well as value-laden judgments of the programs outcomes and worth.

Purpose of Evaluation:-

Evaluation helps us to set tasks and goals which are higher than what we aspired for earlier. Thus facilitating advancement of education. According to Dobbin N.H. the purposes of evaluation are

1. Providing information for grading and promoting students and reporting to parents.
2. Evaluating the effectiveness of a single teaching method or to appraise the relative worth of several methods.
3. Motivating the students
4. Selecting the students
5. Collecting information for effective education and vocational counselling.

In the broader aspect the purposes are

Learning level:-

It can improve the pupils learning by the following way

- (i) Clearing the intended learning outcomes.
- (ii) giving short term goals to work.
- (iii) Providing feedback concerning learning progress.
- (iv) giving information for over coming learning problems and selecting future learning experiences.

2. Teaching level:-

Information from developed evaluation

techniques can also be helpful to assess and improve instruction. It can be only possible if:-

- a) Instructional objectives should be appropriate and attainable. Instructional materials should be useful.
- b) the instructional methods should be effective.

Guidance and Counselling level:-

The results of evaluation are very important and useful for guidance and counselling. The selection of curricula, extra curricular activities, vocational decision, personal and social adjustment problems, abilities, attitudes, interests of students. The more clear picture is more effective the guidance and counselling will be.

~~School~~ School administration level:-

A continuous evaluation programme in the school helps the evolution or which to base administrative decisions concerning grouping etc.

5) Curricula development level:-

The teachers committees formed in each major content area to develop under of work in their respective fields they are suppose to be perform following functions.

a) State and intended learning outcomes that the students are expected to perform at the end of the unit making a list of instructional materials and learning activities.

b) Class room research level Evaluation is also helpfully for school research programme. It helps to study the comparative effectiveness of different curricula and different methods of teaching.

TYPES OF EVALUATION -

According to P.W. Acredion and G.F. Modaus the evaluation procedure is classified as

- 1) Placement evaluation
- 2) formative evaluation
- 3) Diagnostic evaluation
- 4) Summative evaluation

1) Placement evaluation:-

It determines pupil performance at the beginning of instruction. It helps to know the beginning of instruction. It helps to know the knowledge skill and objection should be given to the students according to its needs & interest.

2) Formative evaluation:-

It is used to know progress that accrued during instruction and to provide continuous feedback given to students reinforce learning

Successes and detect any short coming in learning.

3. Diagnostic evaluation:-

It is called for when learning difficulties persist. It helps to detect the underlying causes of the problems and to formulate a suitable plan of remedial action.

4. Summative evaluation:-

This is concerned with making judgements to which extent the instructional objectives have been achieved. The techniques used include teacher-made achievement tests, seating of laboratory skills, models and project reports.

-: EVALUATION PROCESS :-

The evaluation process consisting following steps.

1. Formulation of objectives:-

The objectives containing knowledge application, skills, attitude, appreciation etc. the main emphasize is given on knowledge objective these days. But all other objectives should be given due stress to develop child's abroad development.

- i) the needs and capabilities of students.
- ii) the nature of the subject matter.

2. Defining objectives in terms of Behavioural change

Once the objectives of teaching is evolved, it is expected that pupils will develop some new behaviour pattern. e.g. particular group of students have been taught a particular portion of the syllabus say optical instruments with the view to achieve the knowledge objective. It is easy to test the behaviour than the objective the content and to test the change.

Some objectives of Science teaching are defined in terms of behaviour pattern

Objective. I:-

To acquire the knowledge about scientific facts, terms, concepts, procedures etc. are use in daily life.

Behavioural changes:-

- 1) the pupil retains and recalls the information imparted.
- 2) He can establish the relationships
- 3) He will be able to compare and contrast the situation
- 4) He will classify the facts.
- 5) He can draw the inferences from scientific data.

Objective. II:-

To apply knowledge of Science in every day life

Behavioural changes :-

- 1) He can identify the principle involved in a specific situation.
- 2) He can suggest a modified behaviour in a new situation.
- 3) He can predict from facts.

Objective III :-

It is to develop scientific thinking.

Behavioural change :-

- 1) The pupil can develop keen and eager systematic observation.
- 2) He will develop objective outlook.
- 3) He can develop scientific attitude for shaking dogmas and superstition.

Objective IV :-

It will include Behaviour

Behavioural change :-

- 1) The pupil will become eager to know about nature.
- 2) He will develop different hobbies relating to science.
- 3) He will appreciate the gifts of sciences.

Objective V :-

It will include Behaviour.

Behaviour change

- 1) The pupil can develop the ability to manipulate.
- 2) He will be able to prepare improvised apparatus.

3. Developing the learning experience

The defined objectives and the behavioural changes are brought about through particular learning situations. The student learns the content of a syllabus to attain the behaviour. It springs from content and grows towards behaviour. It emerges from behaviour in relation to content. The students can get learning experiences through a number of ways TV, audio library, science books.

Method to develop learning experience

- 1) Contrast method
- 2) Identification method.

4. Devising and Adapting measurement methods

A number of ~~tests~~ tools and techniques must be devised to test the change in behaviour. A battery of tests should be devised for complete assessment of the personality of the child. It may include different tests are as follows

- | | |
|----------------------|--------------------------|
| 1) Personality tests | e) Teacher's observation |
| 2) Achievement tests | f) Interview |

- | | |
|-------------------------|--------------------|
| 1) Ability tests | 8) Records |
| 2) Intelligence tests | 9) Sociometry |
| 3) Interest Inventories | 10) Pupil Products |

The question paper must be framed taking into account the following steps.

- 1) Planning and preparing design
- 2) preparing the blue print
- 3) Designing Question
- 4) Editing the Question paper
- 5) Administering the test.
- 6) Scoring key and the marking scheme
- 7) Evaluating the paper

1) Planning and preparing Design:-

- The teacher will consider the following points to plan and prepare designs and
- 1) ~~at~~ weightage to objectives i.e. Selection of objectives and allotting marks to each.
 - 2) weightage to different areas of content.
 - 3) weightage to different forms of question.
 - 4) Scheme of options
 - 5) Section in the question paper.

2) preparing the blue print:-

The design of the question paper will be given a concrete shape in the form of a blue print. A blue print is a grey grid having content spread along

3 Allocation of marks to question type: -

Question types	No of questions	Marks
Short answer(SA)	7	44
Structured (ST)	4	56
		100

Blueprint

SN	Content Area	K		C		A		S		An/In	Total
		SA	ST	SA	ST	SA	ST	SA	ST		
i	Mechanics	3	14	3	6	3	3	3	3		38
ii	Electricity	3	6	3	3	3	*	3	3		24
iii	Light	3	5	*	5	*	2	*	*		15
iv	Heat	6	*	3	*	3	*	*	*		12
v	Sound	5	*	3	*	3	*	*	*		11
	Total	20	28	12	14	12	5				
		45		24		17		6	6		100

Conclusion: It is process of appraisal of value of evidences of achievement of a student collected. It provides experiences and activities to the achievement of objectives. It is evaluate the marks of question and arrange the Content area.

REFERENCE

- 1) SONI ANJU
- 2) NIKITPEDIA.COM.

6) Scoring Key and Marking Scheme:-

A Scoring Key is prepared for the objective questions & a marking Scheme is prepared for the essay & short answers type. The Marking Scheme is necessary, as it indicates.

- (i) the no. of steps or pts expected in the answers
- (ii) the outline of each step of pt expected in the answer.

7) Evaluating the paper:-

A few questions need to be asked if the scores are too high it may be argued the test was too easy for class. If scores are low the test were difficult for class. Hence the teachers must scrutinize the question paper & involves three steps.

1) Questionwise Analysis (ii) Critical analysis (iii) Item analysis
 Sample diagram:- 1. Allocation of marks by abilities to be tested.

Ability	Marks	Ability	Marks
Knowledge	45	Skill	6
Comprehension	26	Analysis	6
Application	17	Total	100

2 Allocation of marks by course content areas

Content area	Marks
(i) Mechanics	38
(ii) Electricity	24
(iii) Light	15
(iv) Heat	12
(v) Sound	11