

Diagnostic test

Pedagogy of Commerce

Semester II

2016-17

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What is diagnosis

The process of determining the causes of educational difficulties is known as educational diagnosis. The scope of educational diagnosis is much larger than the use of tests and examinations. It is not proper to limit the scope of diagnosis to locating the causes that interfere with the ordinary academic prognosis of the pupils. An adequate diagnosis may involve the use of intelligence tests, both general and specific, and of diagnostic achievement types of laboratory apparatus for measuring sensory activity, co-ordination and the like. Other forms of appraisal such as rating scales, controlled observation, questionnaires and interviews can also be used for diagnosis in education

Importance of diagnosis

- A satisfactory level of diagnosis can be reached when the teacher has gained sufficient insight into the nature of the child's problem and enables him/her to plan appropriate corrective instruction.
- For attaining maximum effectiveness in teaching, diagnosis of a child's learning difficulties should be made as early as possible.
- When the nature, extent and causes of a child's retardation and acceleration are known, together with data on his/her capacity for learning, effective developmental or corrective teaching can be planned.

Monroe (1965) suggested two major aspects of diagnosis in teaching. They are:

- (i) Determination of the extent to which desirable educational objectives are achieved.
- (ii) Identification of factors that may be interfering with the optimum growth of the individual.

Diagnosis is an understanding of a present situation in terms of its causes, what has brought it about or in terms of what it will cause.

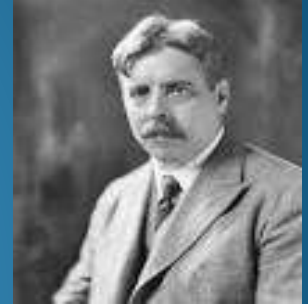
Ross(1956) suggested the five levels of diagnosis. They are:

- (i) Who are the pupils having problem?
- (ii) Where are the errors located?
- (iii) Why did the errors occur?
- (iv) What remedies are suggested?
- (v) How can the errors be prevented?

The first four are grouped as corrective diagnosis and the fifth one is known as preventive diagnosis.

DIAGNOSTIC TEST

- Thorndike and Hagen (1970) suggested that a diagnostic test should provide a detailed picture of the strengths and Weaknesses of a pupil in a particular area.
- Any test that yields more than a single overall score is diagnostic.
- Diagnosis has become an essential phase of developing plans of adaptational instruction to individual differences.



DIAGNOSTIC TEST

➤ A diagnostic test is a test designed to locate specific learning deficiencies in case of specific individuals at a specific stage of learning so that specific efforts could be made to overcome those deficiencies.



➤ It helps the teachers in identifying the status of learner at the end of a particular lesson, unit or course of learning as to what specific teaching or learning points have been properly grasped by the learners.



DIAGNOSTIC VS ACHIEVEMENT TEST

In an achievement test, sampling of questions is not so exhaustive to cover each and every learning point as the content is generally large portion; whereas in a diagnostic test each learning point has several items, each cluster of such items forming a subset.

CHARACTERISTICS DIAGNOSIS

The following are the characteristics of educational diagnosis.

Objective

The diagnosis is essentially the task of locating more specifically those factors which bear more causal relation to the progress of learning of a pupil or a group of pupils. If educational diagnosis is to be a handmade to effective teaching. The essence of educational diagnosis is the identification of some of the causes of learning difficulty and some of the potential educational assets so that, by giving proper attention to these factors, more effective learning may result.

Validity :

Validity refers to the evidence of causal factors to the attainment of the objectives. Investigations have shown that the attempt to diagnose children's difficulties in arithmetic by inspection of the test papers was reasonably valid for detecting kinds of examples that they could or could not solve correctly but the method was not valid for determining the mental processes involved in the children's method of work. This shows that a method of diagnosis may be valid for discovering certain factors while not valid for determining other factors

Objectivity

Third characteristic of a satisfactory diagnosis is its objectivity. The elimination of widely varying personal judgments in diagnosis is essential if diagnostic procedures are to be used with any degree of precision.

Reliability

Increase in reliability is related to the decrease in the fluctuation in conclusion that can be secured by providing a more adequate and representative sample of pupil reaction upon which the conclusions are based. The improvement of the reliability of any diagnosis involves the utilization of a more satisfactory sample of pupil reaction as a basis for the diagnosis.

Level of Diagnosis

A diagnosis that locates only a very general area is obviously less useful than that defines the mistakes more precisely

Comparability

An interpretation of the results of a diagnosis usually rests upon the experience with similar data. Hence, diagnostic procedures that give comparable results are basic to intelligent interpretation. The progress of the pupil over a period of time is basic to the appraisal of the effect of remedial teaching.

Exactness

Some diagnostic tests give only vague results. Diagnostic test may be tried with typical classes to discover their exactness. The exactness may be increased by analysing the characteristics of the progress in learning more minutely and utilizing the symptom thus identified as the base of the diagnosis.

Comprehensiveness

Teachers make a very minute diagnosis in certain limited aspects of pupil activity and no diagnosis at all in other aspects. 'This incompleteness is dangerous because the attention of teacher and learner is apt to be directed primarily towards those things for which a thorough diagnosis has been made

Appropriateness

Certain desirable changes in boys and girls usually develop under a wide variety of educational environments without the necessity of giving very specific treatment. These are the changes that we consider characteristics of maturity. For such cases, an educational diagnosis is unnecessary and inappropriate. Any satisfactory diagnosis must be appropriate to the programme.

Practicability

Many of the most valid and reliable diagnostic procedures that have been developed are impracticable for use in all schools. New diagnostic procedures need to be developed that meet the other qualifications of a satisfactory diagnosis and that at the same time are capable of extensive use under school conditions.

Qualified Diagnosticians

A satisfactory diagnosis usually requires educational diagnosticians who are well qualified. The educational diagnostician, be he a specialist or a teacher, must understand the educational programme in connection with which the diagnosis is being made.

cook(1958:) has stated the following characteristics of an effective diagnostic test.

- Diagnostic test is specific type of test
- These are prepared by experts.
- It should be an integral part of the curriculum, emphasizing and clarifying the important objectives.
- It's test items should require response to be made to situation approximating as closely as possible to be functional
- It must be based on experimental evidence of learning difficulties
- It should reveal the mental processes of the learner sufficiently to detect point of error.
- It should suggest or provide specific remedial procedures for each error detected
- It should be designed to cover a long sequence of learning systematically
- It should be designed to check forgetting by constant review of difficult elements as well as to detect faulty learning
- It should reveal pupil's progress in objective terms.

FUNCTIONS OF DIAGNOSTIC TEST

cook (1 951) suggested the following functions:

➤ **To direct curriculum emphasis by:**

- Focusing attention on as any of the important ultimate objectives of education as possible
- Clarifying of educational objectives to teachers and pupils
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- Determining elements of strength and weaknesses in the instructional programme of the school
- Discovering inadequacies in curriculum, content, and organisation.

To provide for educational guidance of pupil

- Providing a basis for the preliminary grouping of pupils in each learning area
- Discovering special aptitude and disabilities
- Determining the difficulty of material pupil can read with Profit
- Determining the level of problem solving ability in various areas

To simulate the learning activities of pupils

- Enabling pupils to think of their achievements in objective terms
- Giving pupils satisfaction for the progress they make, rather than for the relative level of achievement they made
- Enabling pupils to compete with their past performance record
- Measuring achievement objectively in terms of accepted educational standards, rather than by the subjective appraisal of the teachers

To direct and motivate administrative and supervisory efforts

- Enabling teachers to discover the areas in which they need supervisory aid
- Affording the administrative and supervisory staff an over-all measure of the effectiveness of the school organization and supervisory policies

Diagnostic tests are not administered to all students. Before the administration of diagnostic tests, the students' achievement usually is established as deficient relative to other students. The diagnostic test is expected to indicate the specific skills with which the student is deficient.

CHARACTERISTICS OF DIAGNOSTIC TEST

- It must provide a series of scores, each representing performance in a specific skill.
- The respective skills must be critical to the over all performance being evaluated, such as reading achievement or arithmetic achievement.
- The sub test used to access each of these skills must represent a valid measure.
- Each subset must have high reliability.
- The correlation among subset must be low.

CONSTRUCTION OF DIAGNOSTIC TEST

Diagnostic test may be either standardized or teacher made. Teacher-made test besides being more economical are also more effective, as each teacher can frame it according to the specific needs of students.

PREPARATION OF DIAGNOSTIC TEST

PLANNING

WRITING ITEMS

ASSEMBLING TEST

PROVIDING
DIRECTIONS &
PREPARING
SCORING KEY

REVIEWING THE
TEST



The details regarding the stages of preparation of diagnostic test are given below.

Planning

The unit, on which a diagnostic test is based, requires a detailed exhaustive content analysis. It is broken into learning points without omitting any point. The diagnostic procedure is based on the premise that mastery of the total process cannot be stronger than that of the weakest link in the related concepts and skills. Accordingly each concept, skill of learning point called into play is identified at the time of constructing the test.

As far as a diagnostic test is concerned, it is not very necessary to know the relative importance of the learning points. All the learning points have to be covered in an unbroken sequence. Each learning point should have an adequate number of questions to help identify the area of weakness.

Writing items

All the forms of questions (essay, Short answer & objective Types) can be used for testing different learning points. However, it appears for diagnostic purposes, short answer questions involving one or two steps, are used widely.

Whatever be the form of questions, they should in general be easy, suitable for average students of that age or grade. The questions have to be specifically related to the learning points and should be such as to throw light on the weakness of the students.

The question should be written in simple language. The scope of the expected answer should be clear to the students.

The questions are clubbed around the learning points, even when they are of the different forms; the learning points are arranged sequentially from simple to complex which ensures that students do not have to change their mental sets very frequently.

Assembling the test

Preparation of blue print may altogether be avoided. No rigid time limit need to be specified, though for administrative case a time limit may be set.

Providing directions and preparing scoring key

A set of instructions clear and precise, is drafted. It should also be provided with a scoring key and marking scheme.

Reviewing the test

Before printing the test, it should be carefully edited and reviewed. This ensures that any inadvertent errors are eliminated.

ADMINISTRATION OF DIAGNOSTIC TEST


- Win the confidence of the students and reassure them that test is to help them in improvement of their learning rather than for declaring pass or fail.
- Administered in a relaxed environment.
- Students should be seated comfortably.
- Students should not consult each other during the test.
- If any student is not able to follow something, he should be allowed to seek clarification from the teacher.
- The teacher may ensure that the students attempt all questions.
- Time schedule should not be enforced strictly.

USES OF DIAGNOSTIC TEST

The important uses of diagnostic tests are:

- Items, units or skills, which are understood by a majority of students, can be located and teaching can be adjusted to the situation
- Items, units or skills which are not understood by a majority of pupils can be located and there by special emphasis in these aspects can be attempted.
- The causes for the difficulty in certain items can be found out, for which remedial measures can be taken
- Individual weakness can be found out which would serve as the baseline for individual correction work and personal guidance

- Diagnostic test may be used for prognosis. It helps to predict the possible success in certain type of courses or vocation and therefore it helps in providing guidance and counselling
- Diagnostic tests can be made the basis of individualized instruction. Differentiated teaching methods, ability grouping, individual drill, differentiated assignments etc. can be attempted on the basis of the results of diagnostic tests
- Diagnostic test measures 'real understanding' as opposed to superficial mastery of subject areas measured by achievement of pupils in subject areas
- Diagnostic tests can assist the pupil in locating one's weakness and so they can be corrected with maximum ease and economy

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- Diagnostic tests can indicate the effectiveness of specific methods of teaching in dealing with specific teaching situations
 - Diagnosis of pupils' weakness and self-discovery can lead to motivation and interest can generate co-operation in future teaching learning situation
 - Diagnostic tests can be effectively used for providing feedback to the students and teachers.
 - Helpful in classification of the students in different categories.

CONCLUSION

A useful test not only provides information about students achievement but also reveals the instructional effectiveness as well. If we examine individual performance, we should be able to determine each students degree of proficiency on each objective.

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