

Quadrant-I(e-Text)

Details of Module and its structure

Module Detail	
Subject Name	Education
Course Name	Assessment for Learning
Course Code	EDU503
Module Name/Title	Construction of Diagnostic Test: Meaning, importance and purpose of Diagnostic test; remedial measures: need, type and strategies.
Module Code	AFL011
Pre-requisites
Learning Outcomes	After going through this lesson, the learners will be able to: <ol style="list-style-type: none">1. Write down the meaning, nature, purpose and importance of diagnostic testing;2. Differentiate between achievement test and diagnostic test;3. Follow the steps and stages of diagnostic testing in the classroom teaching-learning process; and4. Conduct remedial teaching in classroom situations.
Keywords	Diagnostic testing, Achievement test, teaching-learning process and remedial teaching

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1.0 Introduction

The main role of a teacher is to promote quality learning among the students. This is possible only when you act as a guide and the students actively participate in the process of learning. During the teaching-learning process, the teacher has to locate and identify the areas where the learner commits mistakes. It is the crucial stage of the teaching-learning process where he/she has to DIAGNOSE and prepare instructional material for REMEDIAL TEACHING to ensure the desired quality of learning. It is used in education to determine the learning difficulties or deficiencies of the learner. In this lesson an attempt is being made to discuss the organization of Diagnostic Tests and undertaking appropriate remedial measures.

2.0 Meaning of Diagnostic Test

Diagnostic test is a form of pre-assessment that allows a teacher to determine students' individual strengths, weaknesses, knowledge, and skills prior to instruction. It is primarily used to diagnose students' difficulties and to guide lesson and curriculum planning.

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 instruction to individual differences. Recent research on characteristic differences between traits and performances of good and poor achievers in several areas of learning has yielded a rich body of information, which proved to be having considerable value in diagnosis.

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 teacher in identifying the status of the learner at the end of a particular lesson, lesson or course of learning as to what specific teaching or learning points have been properly grasped by the learner. If such a deficiency is located in several students, it become obvious to the teacher to reflect upon whether something went wrong with his method of teaching. After administering a diagnostic test or battery test to students, a teacher takes remedial measures to overcome the deficiencies thus discovered.

3.0 Difference between Diagnostic Test and Achievement Test

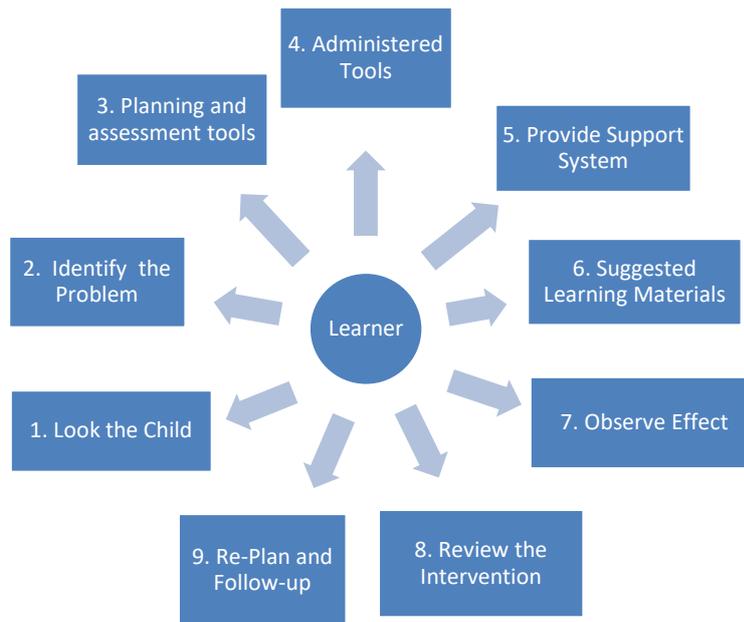
Diagnostic test differs markedly from achievement test though every achievement test has some diagnostic value and vice versa. The main difference is in the way items are sampled. In an achievement test, sampling of questions is not so exhaustive to cover each and every learning point as the content is generally a large portion; whereas in a diagnostic test each learning point has several items, each cluster of such items forming a subtest. The diagnostic value of the test is obtained from the total score which is the sum of the scores on these subjects. The coverage of subject matter is more detailed, though based on a smaller area than an achievement test. A diagnostic test thus requires a very careful analysis of the content and a detailed study of the common errors made by the students.

S.No.	ACHIEVEMENT TEST	DIAGNOSTIC TEST
1.	It is used to test a students' general ability to achieve the objectives of the course.	It is used to identify the students' strength and weakness with intention to ascertain what further teaching is required.
2.	It covers wide area content.	It focuses on difficult area.
3.	Its items are very complex.	Its items are very simple.
4.	Total scoring of achievement test is necessary.	Diagnostic test required no scoring.
5.	Its follow norms and it has fixed time limit.	It does not follow any norms and has no fixed time limit.
6.	Its nature is quantitative.	Its nature is qualitative.

4.0 Elements of Diagnostic Tests

There are different elements of diagnostic tests which should keep in mind while developing any diagnostic test for students:

- Look at the child
- Identify the problem
- Planning and then select the appropriate assessment tools
- Administration of the tools
- Provide Support system
- Suggest learning materials
- Observe the effect of assessment tools
- Review the intervention done by administrator
- Then, Re-plan and follow-up



1. Importance and Purpose of Diagnostic Test

Diagnostic assessments are "small scale" tests, usually one-on-one, with the purpose to gather specific data to help for planning a child's specific learning path. These may be, but are not limited to; assessments that help identify specific learning disabilities. They are often, but not exclusively, used for students with special needs. They are typically given by highly trained staff members who understand the benefits and limits of these tests.

The importances of diagnostic tests are as follow:

- The diagnostic test takes up where the formative test leaves off.
- A diagnostic test is a means by which an individual profile is examined and compared against certain norms or criteria.
- Diagnostic test focuses on individual's educational weakness or learning deficiency and identify the gaps in pupils.
- Diagnostic test is more intensive and act as a tool for analysis of Learning Difficulties.
- Diagnostic test is more often limited to low ability students.
- Diagnostic test is corrective in nature.
- Diagnostic test pinpoint the specific types of error each pupil is making and searches for underlying causes of the problem.
- Diagnostic test is much more comprehensive.
- Diagnostic test helps us to identify the trouble spots and discovered those areas of students' weakness that are unresolved by formative test.

5.0 Diagnostic Test in School Subjects

Different subjects in different schools are according to level of classes. Students face several difficulties especially in language and arithmetic. To remove the doubts and difficulties of the students, different kinds of tests

are designed, which are given below

5.1. Diagnostics Reading Test

Diagnostic reading test includes the following sub-tests.

- Poetry Comprehension and appreciation
- Vocabulary In different areas
- Meaning of sentences
- Paragraph of comprehension
- Rate of reading and Comprehension of prose.

5.2. Diagnostic Mathematical skill Test

This test is used to detect the following types of errors- Committed by the student during mathematical operations as addition, subtraction, multiplication and division.

- Carry over in addition
- Borrowing in addition
- Placement of decimal error
- Borrowing and reducing one from next
- Nothing wrong number
- Tables are not remembered in divisions
- Tables are not remembered in multiplication

6.0 Steps and Stages in Diagnostic Test

The essential steps in educational diagnosis are:

- i) Identifying the students who are having trouble or need help.
- ii) Locating the errors or learning difficulties.
- iii) Discovering the causal factors of slow learning.

i) Identifying the students who are having trouble or need help

First, one must know the learners who require help. For this you can administer a general achievement test based on the topics already taught. After evaluation you will be in a position to make lists of students who are below average, average or above average. Next, one has to locate the area where the error occurs in order to have a deeper insight into the pupils' difficulties.

ii) Locating the errors or learning difficulties

After identifying the students who need help and visualising the necessity of additional instructional material to improve the quality of learning, your main role is to find out the area where the learner commits mistakes or which is the area where learning difficulties lie.

iii) Discovering the causal factors of slow learning

In some cases of learning difficulties, the causal factors are relatively simple. A student may be inattentive during teaching-learning or may be committing errors due to insufficient practice or irregular attendance.

Sometimes the cause is ill-health or faulty work habits etc. It has also been observed sometimes that the basic cause of low achievement is a feeling of helplessness or the complexity of the subject-matter which perhaps is much above the level of their comprehension.

Sequential presentation in the below Figure shows how diagnosis leads to improved quality of learning:

Teaching- Learning → valuation → Unsatisfactory Performance of Pupils



A Case for Diagnosis → Administer a General Achievement Test or use the data of previous testing → Identify students who need help



Locate the area difficulty → Identify Causal factors → Provide Remedial Measures → Improved Quality of Learning
This is how quality can be improved through diagnosis.

7.0 Remedial Measures

While diagnosis is the process of investigating the learners' difficulties and the reasons for this, its follow up leads to actions that may help children make up their deficiencies. This step is generally termed remedial teaching. So you have to be skilled in preparing or arranging for such materials which may be used to undertake corrective instruction and thus enhancing the quality of learning.

The term 'remedial teaching' is generally used instead of remedial instruction by various educationists. The definitions are given below:

The dictionary meaning of the term 'remedial teaching' given by **Carter** is :

"Remedial teaching means special instruction intended to overcome in part or in whole any particular deficiency of pupil not due to inferior general ability, for example, remedial reading instruction for pupils with reading difficulties."

"Remedial teaching tries to be specific and exact. It attempts to find a procedure which will cause the child to correct his errors of the past and thus in a sense prevents future error."

-Yokam

"Remedial teaching of course has one of its chief functions the remedying or removal of the effects of originally poor teaching and poor learning. It is thus concerned with the pupil who for one reason or another has formed ineffective methods of handling the tools of education. It is based upon careful diagnosis of defects and causes and aims to correct weaknesses and eliminates bad habits which may be found".

- Blair

From the above definitions, it is clear that remedial teaching is a special instruction. It is intended to overcome the difficulties of the students related to instruction. It is based upon careful diagnosis of defects and causes. It eliminates bad habits of learning. It also prevents future errors.

8.0 Selection of Materials

The following points should be kept in mind while selecting appropriate instructional material:

- i) The corrective material should be designed to correct the students' individual difficulties.
- ii) You have to analyze the work of slow learners by means of observation, interview and Diagnostic Testing. A careful consideration of the three may help decide what kind of corrective material is to be designed and whether material will be adequate to correct the specific difficulties of learners.

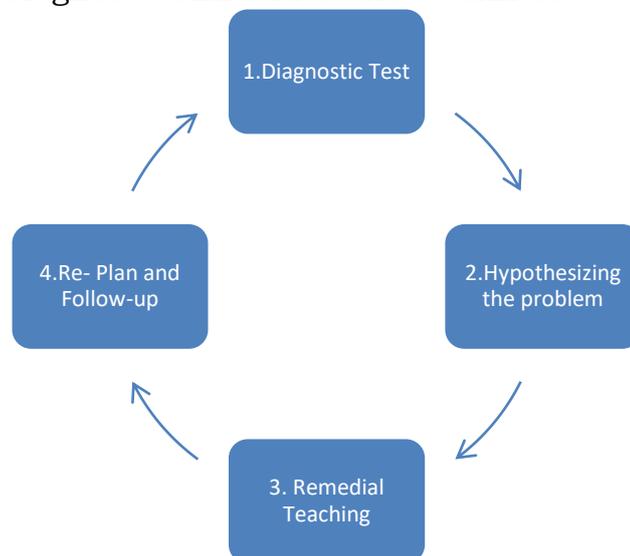
iii) The corrective material should be graded, self-directive and should permit students to work independently. Written directions, which accompany the material, should be easily readable and comprehensible by the students.

iv) The corrective material must permit individuals to progress according to their pace.

v) The material should encourage systematic recording of evidence of pupils' progress.

9.0 Diagnostic Testing and Remedial Teaching Cycle

- Diagnostic testing for knowing the child's weakness and learning difficulties.
- Hypothesizing problem causes for weakness and difficulties.
- Applying remedial teaching for removing these weakness and difficulties.
- Containing the repeat above for process to achieve desired success in removing the diagnosed difficulties and weakness.



10. Strategies for Remedial Teaching

The strategies for remedial teaching are as follow:

1. Class Teaching

A particular lesson or lesson or topic is repeated on the normal classroom by using special aids or strategies the class as a whole is benefited through such type of remedial teaching.

2. Group Tutorial Teaching

Students of the class divided in to homogeneous group called tutorial group. On the basis of their common learning difficulties teacher teach then by using various strategies.

3. Individual Tutorial Teaching

Difficulty of each student is attended individually by using special strategies. In this schedule every learner who feels learning difficulty of one or the other nature is attended individually.

4. Auto Self Learning

This responsibility of overcoming difficulties is handed over to the learners. Self learning self corrections are done by the student. Teacher's also supervises the learning process.

5. Auto Instructional Learning

In this technique the learners provided with auto correct instructional as self learning materials and equipments like programmed learning text books and packages auto learning modules teaching machines and computer assisted programmed instruction.

6. Informal Teaching

Learning difficulties arise act of lack of interest and non availability of first and experience are overcome by providing informal teaching situations like excursions field trip etc.

11. Summary

From the above paragraphs, it can be concluded that diagnostic testing and remedial instruction are like two sides of the same coin. Remedial instruction is a dynamic aspect of diagnostic testing. Evaluation procedures are useful in all phases of diagnostic and in remedial work. Though the immediate aim of the remedial work is the correction of the specific learning difficulties, teachers' interest should not stop there. A careful analysis of evaluation results during diagnosis and treatment will reveal learning errors that can be prevented and causal factors that can be modified. The ultimate result of the remedial programme should be an improved curriculum and effective instructional methods.

In this lesson you have learnt about Diagnostic Testing which is the most important part of the teaching-learning process. It implies a detailed study of learning difficulties. Its aim is to analyze, not to assess. The nature and purpose of Diagnostic Testing is to identify the areas of difficulties where the learner commits errors. The stages of diagnostic testing are:

- i) Identifying the students who need help.
- ii) Locating the error/learning difficulties.
- iii) Discovering the causal factors.

After locating the area where the difficulty lies, as a teacher you will devise some strategy to remove problems in learning and the causes due to which the learner has faced the difficulties. The strategy used by you to remove the weakness of the learner is known as remedial teaching. Diagnostic Testing leads to remedial teaching in which you have to prepare instructional material for quality learning, adopting different methodologies as per needs of the individual or a particular group.

Quadrant-III - (Learn More / Web Resources / Supplementary Materials):

Books, articles, research papers, journals, case studies etc.:

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Glossary:

- assess
- detailed
- located, analysis
- identify
- errors

Quadrant-IV: (Self-Assessment)

➤ Multiple Choice Questions

- 1.** Diagnostic Test is used:
 - a) To motivate the students
 - b) To help the students in learning
 - c) To diagnose the strength the strength and weakness of learners
 - d) To diagnose the personality disorder

- 2.** Diagnostic Test is a form of :
 - a) Pre assessment
 - b) Post assessment
 - c) Pre and post assessment both
 - d) None of the above

- 3.** Which sentence is not correct about diagnostic test:
 - a) Diagnostic test covered each and every point of the content
 - b) The coverage of subject matter is detailed
 - c) Diagnostic test measured the achievement of weak students
 - d) Diagnostic test is a detailed study of common errors made by learners

- 4.** The centre of diagnostic test is:
 - a) Learner
 - b) Teacher
 - c) Curriculum
 - d) Teaching-learning process

- 5.** Diagnostic test is usually used as:
 - a) Group test
 - b) Individual test
 - c) Both a and b
 - d) Verbal test

- 6.** Arrange the correct sequence of steps of diagnostic test:
 - I) Discover the causal factors of slow learning.
 - II) Locating the errors or learning difficulties.
 - III) Identifying the students who are having trouble or need help.
 - a) I, II, III, b) II, I, III, c) III, II, I, d) III, I, II

- 7.** Remedial teaching is:
 - a) Diagnosis the weakness of the learner
 - b) Diagnosis the strength of the learner
 - c) Follow up of actions to make up the deficiencies of the learner
 - d) Follow up of actions to make up the deficiencies of the teacher

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8. "Remedial teaching tries to be specific and exact. It attempts to find a procedure which will cause the child to correct his errors of the past and thus in a sense prevents future error." This definition is given by:
- Yokam
 - Carter
 - Blair
 - None of the above

Ans. 1-c, 2-a, 3-c, 4-a,5-b,6-c, 7-c, 8-a

- Mark the following statements either in true or false:
- Diagnostic test is more often limited to low ability students.
(True)
 - Any test that yields more than a single overall score is diagnostic.
(True)
 - There is difference between achievement test and diagnostic test.
(True)
 - Diagnostic test are exclusively, used for students with special needs.
(False)
 - Diagnostic test is centred on schooling process such as the curriculum programme, administration and so on.
(False)
 - The term 'remedial teaching' is generally used instead of remedial instruction by various educationists. (True)
 - Diagnostic assessment is the follow up assessment of Remedial teaching.
(False)
 - Remedial teaching is a group based activity.
(False)
 - Remedial instruction is a dynamic aspect of diagnostic testing.
(True)
 - The strategy used to remove the weakness of the learner is known as remedial teaching.
 - (True)