

COURSE- 9. (B.Ed. IInd Yr.)

CONSTRUCTION OF A DIAGNOSTIC TEST

Dr. MANJITA SAHAY W.T.C. Patna University

Msahay2009@gmail.com mob:7004313269

DIAGNOSTIC TESTS-Meaning and its Importance

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

The diagnostic process may involve informal assessment by teacher, use of survey battery, individual or group diagnostic tests etc. Individual diagnostic tests are usually administered by testing experts. A standardized diagnostic test can be used to identify the type of errors being made, to make teachers aware of the hard spots of learning and suggest basis for remedial measures.

Through diagnostic tests, a class teacher can identify individual students learning difficulties in a subject, and based on these, the teacher can plan various remedial measures for rectifying the student's learning difficulties.

Thus, the teacher can bring those students having learning problems to the mainstream of other students. Therefore, diagnostic evaluation and the remedial instruction form essential components of school based continuous assessment.

DIFFERENCE BETWEEN DIAGNOSTIC TEST & AN ACHIEVEMENT TEST

The diagnostic test depends upon the nature of the student's learning problems in a subject.

- Diagnostic testing follows an achievement test which precedes it.
- Better sampling of teaching points should be ensured--not only nodal teaching points.
- Diagnostic Test is generally mono objective—not multiple objective.
- Specific items test, specific teaching point in diagnostic tests and not composite teaching points as in achievement tests.
- Items are replicated 3 or 5 times for proper inference in diagnostic test—not in achievement test.
- In diagnostic tests difficulty level is generally low but it covers all difficulty ranges in achievement test.
- Diagnostic test throws light on specific deficiencies in teaching—not a global deficiency as in case of achievement test.

- In diagnostic tests individual analytical approach is followed whereas holistic group approach is emphasized in achievement test.
- Diagnostic tests are more informal about time, marks, instructions etc. unlike achievement tests.
- More emphasis on pedagogical value in diagnostic testing while more emphasis is placed on measurement value in achievement tests.

CONSTRUCTION OF A DIAGNOSTIC TEST

The following steps are usually followed in the construction of a diagnostic test.

Step I: Identifying learning deficiencies: Classroom tests and assignments are two main sources of identifying student's learning deficiencies. A detailed scanning of the answer scripts of weak students provide clue about the domain of learning difficulties of students. School or home assignment may also serve a similar purpose. Besides these, the oral performance of students in classroom is another source of identification of language problems such as reading, communication, pronunciation, vocabulary and so on.

Step II: Analyzing Errors: Error analysis helps the teacher to locate the areas where learning deficiencies of the students occur. It further helps in identifying the frequency

and nature of errors which maybe more than in one area. It is neither desirable nor possible to cover all types of errors in a single test. Different tests are needed for locating errors belonging to different areas of content.

Step 3: Analyzing the Content elements: Through analysis of errors the teacher gets an empirical evidence of learning difficulties. But as the analysis is based on a sample of performance, teacher cannot be sure that the whole universe of errors that are likely to occur are covered. For this purpose, the teacher must develop a diagnostic test. This involves identification of relevant concepts, content elements, like principles, generalization are also the abilities like recall, translation, interpretation, drawing inferences etc. In the initial stages, teacher may start with testing lower level abilities followed subsequently testing the higher order abilities. The rational analysis of the content helps in sequencing the content based on various abilities from lower to higher order.

Step 4: Identifying Learning points to be covered: Once the dual task of the empirical (error analysis) and rational analysis are carried out, the teacher has enough material to pick up learning points that can be included in the test. This would be easy in the subjects where it is possible to build hierarchical learning sequences of the subject matter.

However, in other subjects both the sources for selection of learning points may be needed.

Step-5 Selection of Format and developing test-items:

Before writing various test-items, teacher must decide first about the test format. The two major formats like selection and supply types have their own advantages. It is very difficult to say which one works better for a group of students in relation to the specific content area. It is desirable to

- Write test-items on each of those learning points.
- Replicate each item thrice so that it facilitates in drawing inferences during analysis.

Step-6 Assembling the test

- Organize items into sub-sets of 10-20 items each thereby making each test of 30-60 items.
- Prepare instructions for each sub-test of the battery in simple, precise and unambiguous language.
- Develop a clear-cut learning sequence to arrange items hierarchically.
- Provide a liberal time limit.
- Prepare an outline of the correct response for easy scoring.
- Prepare an outline of the correct response for easy scoring.

Step 7: Administering the test: The teacher may first win the confidence of students and ask them to feel from any apprehension about the results Teacher must ensure that all students are taking the test and attempting all the questions. Students must be provided enough time to complete all the answers.

Step 8: Scoring analysis and interpretation: The scoring of diagnostic test is entirely different from the scoring of an achievement test. Here the teacher must not only mark the correct and wrong answers but also must make a note of the nature of errors in the wrong answers. These errors of students for each question may be recorded in the ‘Student Error Chart’ prepared for everyone separately as shown below.

STUDENTS ERROR CHART

Name of the Student: ----- Class----- Subject -----

Item No.	Right or Wrong	Actual Error (if wrong)
1.		
2.		
3.		
4.		

After having scored all the items for all the students, teacher may prepare a ‘Student Item Chart’ as shown below for identifying the group of students committing mistakes for certain specific items. Students may be categorized as under when say, 30 items (10sets of 3 items each) are there in a test replicating each item 3times.

- Those who show poor performance and lower level items 1-9 in sets1-3.
- Those who show poor performance on items 12to 21 in sets 4-7.
- Those who show poor performance on items 24 to30 in sets 8-10.

Generally, those students who are poor on items 1-9 will also be poor on rest of the items.

Similarly, those students who are poor on items1-9 will also be poor on items 24-30.

Depending upon input resources number of groups can be increased. However, it is difficult to manage more than 3 groups for remedial teaching.

The student item Chart is shown below:

STUDENT ITEM CHART

Subject:

Class:

Test Item Nos.

S. No.	Name of the Student	1	2	3	4	5	6	7
1.								
2.								
3.								
4.								
5.								

Then the teacher may go back to the ‘Student error chart’ of each of these students to get an idea about the nature of mistakes that are committed by these students. Based on this information teacher can plan the remediation.

REMEDICATION AND INSTRUCTIONAL CORRECTIVES:

The remedial instruction planning can be done in two ways: **First** the teacher should discuss with each student the mistakes that he/she commits. This personal consultation provides the individual to look back to the errors and see if she/he can correct some of them. Further personal consultation also helps to identify any personal problems of students and the teacher may refer such a case to a psychologist or an appropriate person.

The **second** way is to plan group-based strategy to overcome identified deficiencies of students. It involves:

- Taking Cognizance of underachievers.
- Understanding of gaps in their learning.
- Classifying under achievers into convenient groups based on learning gaps.
- Selecting relevant correctives and applying them.
- Appraising effect of remediation on mastery of fundamentals.
- Using alternative techniques of remediation for some students, if needed.

Whenever causes are common to a no. of students group remediation may be planned. Diagnostic information must be translated into specific learning or instructional correctives. The same corrective cannot be applied to all students even having the same cause of poor performance.

Basic principles of a corrective for learning units are:

- Teaching the same material as planned in the unit.
- Teaching in a different manner from the planned unit.
- Supplementing the group-based instruction.
- Providing alternative to the group-based plan

Individual or Group based correctives can be used besides Presentational-cum- involve mental correctives.

1.Individual based Correctives

- Alternative textbook (Presentational)
- Workbook (Presentational)
- Flash cards (Presentational)
- Token Rewards (Presentational)
- Referenced self-study (Involvemental)

2.Group based Correctives:

- Re-teaching (Presentational)
- Using Audio Visual material (Presentational)
- Academic games (Involvemental)
- Affective exercise (Involvemental)

3.Presentational-cum-Involvemental

- Programmed instruction (Individual based)
- Tutoring (Individual based)
- Peer group study session (Group based)
- Choosing a corrective and monitoring the corrective phase are also important for effective remediation of students.

To conclude in this way a Diagnostic Test is conducted.