

COMPULSORY COURSE 04 (CC-04)
TECHNOLOGY OF TEACHING

BLOCK 06
MONITORING THE PROGRESS AND
FOLLOW-UP

B.Ed. CC-04 : TECHNOLOGY OF TEACHING

Block

6

MONITORING THE PROGRESS AND FOLLOW-UP

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BLOCK 06 : MONITORING THE PROGRESS AND FOLLOW UP

INTRODUCTION

This Block has been named as “Monitoring the Progress” and it focuses mainly on, the quality maintenance of teaching - learning process. Most of the time students’ learning is more stressed. Hence it is rightly named as ‘Monitoring the progress’. In the first unit of this Block, you will come to know about, the meaning of the progress, its maintenance and importance in general. And also, you will come across some common techniques of monitoring the progress in context with during and at the end of a lesson as well as at the end of a unit. In the second unit, especially you get the information with reference to Follow - Up activities in terms of measures. In the third unit, the discussion will be on Diagnosis in particular, its need and importance, and some techniques of diagnosis. In the fourth unit, you get the information on steps of diagnostic tests in languages, sciences, mathematics, and social studies. The last unit deals in detail with remediation techniques. Here you will come to know about meaning, nature, need and importance of remedial measures like some techniques of remediation, like, self-instructional programmes, giving reading assignments, group studies, peer tuition and also individualised tuition. Each unit will have ‘Check Your Progress’ -, intermittently as well as Unit End exercises.

‘Monitoring’ is nothing but regulating. Here you will learn about the monitoring or regulating the progress. Definitely, it will be with the students’ learning. You may wonder why this concept has been introduced. Isn’t it? See, many a times, it is said that, “whatever best quality of teaching might have been imparted; that does not give any guarantee of Learning”! So, this is experienced by almost all teachers in one time or the other. Therefore the above statement has been accepted as a universal truth. In turn, this has resulted in bringing a dichotomy between the teachings - learning process. This altogether being a different perspective, has generated many concepts, like the one above said, as well as diagnostic tests, and the respective remedial measures, and also, the concept like continuous, comprehensive evaluation etc; So, now let us-further concentrate to know about ‘ Monitoring the Progress’ in detail, in the forth coming discussion.

UNIT - 31 □ MONITORING THE PROGRESS

Structure

- 31.1 Introduction**
- 31.2 Objectives**
- 31.3 Monitoring the progress - Meaning, Importance**
- 31.4 Common Techniques of Monitoring the Progress**
 - 31.4.1 During the Lesson**
 - 31.4.2 At the end of a Lesson**
 - 31.4.3 At the end of a Unit**
- 31.5 Let Us Sum Up**
- 31.6 Answers to ‘Check Your Progress’**
- 31.7 Unit-End Exercises**
- 31.8 References**

31.1 Introduction

You know that, a quality teaching is the one which keeps “watching eye” on the students’ learning. Many new techniques and strategies have to be adopted to monitor the progress. It may take up any incidental events, like; it may be during the lesson, after the lesson or even at the end of a unit. It need not be mere asking questions and getting answers from the students. Rather it may take up any form of evaluation. So, in this unit we will be discussing on the concept of monitoring the progress - its meaning, and importance. You also learn some common techniques of monitoring the progress that could be while the lesson is going on in a classroom, at the end of the lesson, or even at the end of the unit.

31.2 Objectives

After studying this Unit you will be able to

- Explain the meaning and importance of “Monitoring the Progress”
- List out some of the common techniques of monitoring the progress.
- Mention a few techniques of ‘Monitoring the progress’ that could be used during the lesson
- Explain the techniques that are used to monitor the progress at the end of a lesson
- Describe the techniques that could be used to monitor the progress at the end of a unit.

31.3 Monitoring the Progress - Meaning and Importance

Monitoring the progress is the utmost important aspect in an educational system. The term ‘monitoring’ refers to ‘controlling’ of the progress. Here the progress is an obvious resultant of teaching - learning interactions. Hence monitoring progress means, it is the controlling functions of the teacher on the process of teaching - learning. For this, teaching - learning process will have to be managed properly in order to get the desired results. ‘Monitoring’ thus occupies the pivotal role in assuring progress, right from the planning level up to the execution and the final level i.e. results.

According to I. K. David (1971), “In teaching, controlling is the work a teacher does to determine whether his plans are being carried out effectively, organization is sound, leading is in right direction and that, how for these functions are successful in realizing the set objectives”.

The above definitions, in a way, clearly, emphasizes that monitoring is very much essential for the following dynamic educational activities,

- a. Framing the objectives as well as carrying out the task of planning of teaching as Effectively as possible.
- b. Organizing the ‘teaching—learning’ transaction in a systematic way and
- c. Checking the right movements of the teaching—learning in an educational set up.

The above analysis implies that, monitoring progress means, it has to be started at the planning level, during organization and should be continued up to the end results, i.e., students’ learning outcome. This will be well predicted in terms of instructional, objectives. How far these instructional objectives have been achieved, is the major question. And this needs an assessment. This in turn, can work as a controlling factor for the proper functioning of the total teaching - learning process. This process is considered as very significant one because, it brings into lime light the strengths and

weaknesses of the instructional system by assessing and measuring the teaching - learning outcomes, in context with the pre - determined objectives.

Finally, we can say that, the assessment of teaching - learning outcomes or “Progress” in general, it becomes a necessity for exercising desirable control over the **Input** and **Process** of the teaching - learning system. Here the progress is nothing but a desirable behavioural change in the learners. Usually, such types of learning outcomes are measured qualitatively. The teaching - learning outcomes in the form of acquisition of skills and information can be monitored through simple techniques like, achievement tests.

But it is also true that, the field and scope of teaching - learning outcomes cannot be limited to the mere acquisition of information and skills. Because, the main focus of teaching - learning process will be the all-round development of the personality. That is to say, the main goal of teaching - learning process is to bring desirable changes in overall behaviour of the learner covering all the three behavioural domains i.e. cognitive, affective and psychomotor.

So, not only the students’ acquired knowledge and skills, but also, their progress in the areas like interests, attitudes, habits, temperament, personal and social adjustment etc., all these also have to be monitored properly. Hence, the monitoring the progress both quantitatively as well as qualitatively is a must. This is comprehensively termed as “EVALUATION”. Because, according to Ronal Doll “Evaluation is a broad and continuous effort to inquire into the effects of utilising content and process to meet clearly the defined goals”. It is also because, evaluation helps in knowing about the changes in behaviour related to all the domains of the learner’s behaviour as a result of the process of teaching - learning.

‘Check Your Progress’ - 1

1. ‘Monitoring the Progress’ means.....
 - a) Taking care of teaching - learning process
 - b) Controlling the students’ learning
 - c) Regulating the teaching process
 - d) None of the above
2. ‘Monitoring the Progress’ includes
 - a) Learning out come only

- b) Class room teaching only
 - c) Teaching - learning session only
 - d) Planning, organisation, and up to the end results.
3. 'Monitoring the Progress' encompasses, the abilities of
- a) Cognitive Domain only
 - b) Affective Domain only
 - c) Psychomotor Domain only
 - d) All the above
4. 'Monitoring the Progress' is one of the functions of
- a. Pupils
 - b. Teachers
 - c. Subjects
 - d. All the above
5. Give the definition of I. K. Davis that deals with controlling of teaching - learning process.

31.4 Common Techniques of Monitoring the Progress

It is very important to know about the status of progress. What, I mean here is, say, teaching -learning process is going on, and based on this some desirable changes have taken place among the students' folk. These desirable changes may be seen in cognitive, affective as well as psychomotor domains. In this juncture, it becomes very important to know how far or how much progress has taken place. For this one, initial frame of reference becomes the necessity. Based on this, the so called final state of achievement, say, at the end of a lesson or a unit can be gauged. Then only one can very well manage as well as monitor the progress. This cannot be done by merely asking questions to the students at different levels. Hence, several special techniques on devices have been

designed for this purpose. Such techniques and devices represent the ways and the teaching - learning outcomes. The techniques could be quite formal sometimes, or entirely a novel one or it could be just in informal methods also. For example,

- Oral tests
- Developmental and evaluator questions during the teaching - learning process.
- Written tests and examinations consisting of essay, objective and short answer type questions.
- Techniques and devices like observation, discussion, questionnaire, inventory, interview, checklist, attitude scale, rating scale, case study, projective techniques, assignment project work, creative and production work of the students etc.

In order to monitor the progress, a teacher checks the teaching - learning process by three major kinds of evaluation, namely, diagnostic, formative and summative. This will help them to take proper decision as the three stages of their instruction before, during and afterwards. If a teacher knows the background of the students thoroughly, like, their, already acquired competencies, what they know about certain concepts, or the information relevant to the subject to be taught to them. Based on this a teacher can plan his teaching process as the best suitable one according to the needs, interest and abilities. This is very important, because, if the students' interest and attention is captured, then teaching may succeed. So, to get a guarantee of progress this seems to be the first step. This is nothing but, knowing about the "Entry Behavior" of the students.

Likewise, a teacher can take up formative evaluation, while the lesson is going on and a sort of summative evaluation at the end of a lesson or even at the end of a unit. All such sorts of activities are done to get a guarantee of the quality of instruction. But the individual difference possessed by the students makes it a very problematic situation. In order to find out the individual difference in learners and their quality learning you should have a researcher's mind and commitment. There is evidence that some students learn quite well through independent study, while others need highly structured teaching - learning situations. (Congreve, 1965). That is to say, some students will need more concrete illustrations and explanations than others; some will need more examples to get an idea than others, some will need more approval than others, and reinforcement than others and some may need to have several repetitions of the explanations while others may be able to get it the first time.

We all believe that, if every student had a very good tutor, most of them would be able to learn a particular subject to a high degree. In a way, it implies that, the quality of

instruction has a direct influence on the ability of each student to understand the instruction and acquire mastery over that instruction. And you also should know that, assessing or checking the level of performance or their progress in general with an emphasis upon a single subject matter achievement or specific skills and abilities is markedly different from “monitoring the progress” which stresses more on the appraisal of broad personality changes including interests, powers of thinking, and personal - social adaptability. It is like, when the child is learning arithmetic or science, or history, he is at the same time learning attitudes, developing interests, and also making emotional and social adjustments. If he is frustrated by too difficult tasks, or if he is bored by too easy tasks, then his attitudes and emotional and social adjustments will be adversely affected in the learning situations and his progress in general.

The teacher, therefore, must remain aware of the various aspects of a pupil’s behaviour, even though the major purpose of a particular learning experience may be to master the formula for finding the area of a rectangle or recognize the chemical symbol for salt. Every learning situation includes multiple learning, involving not only intellectual concepts and skills but also physical, emotional and social adjustments. Usually, in abroad, they make use of several techniques to record, maintain and check the progress of the students namely, tests, interviews, case studies, group discussions, anecdotal records, observation, files of sample materials, questionnaires, rating scales, check lists, inventories, diaries and sociograms. Even they will have followed - up studies. Tests could be of individual tests as well as group tests; and subjective as well as objective scoring, performances and paper - pencil types, and also could be done for diagnostic purposes.

‘Check Your Progress’ - 2

1. Teaching - learning process and the progress is checked by means of.....
 - a) Examination
 - b) Tests
 - c) Questions
 - d) Evaluation techniques
2. The first step in monitoring the progress is that, a teacher should know about.....of the students.
 - a) Terminal behavior
 - b) Entry behavior

- c) Obedient behavior
 - d) Disobedient behavior
3. A teacher can take up..... evaluation while a lesson is going on
 - a) Normative
 - b) Summative
 - c) Formative
 - d) None of the above
 4. Every learning situation includes.....
 - a) Multiple learning
 - b) Uni-directional learning
 - c) Linear learning
 - d) All the above
 - 5). The sign of progress is.....
 - a) Desirable behavioural changes
 - b) Undesirable behavioural changes
 - c) Some behavioural changes
 - d) All the above

31.4.1 During the Lesson

A teacher has to be very alert in order to manage and monitor the progress of the students. To check the progress, it need not always be at the end, and rather it has to be a part and parcel of the teaching- learning process itself. So, while a lesson is going on, a teacher can take up formative evaluation techniques like, when a teacher has taught some content, may be in terms of one or two concepts, principles or any theory, he or she may feel to know the effectiveness of his or her teaching similarly, students also need to know about their progress in the path of learning. If the formative evaluation is carried out, then it gives very useful information to both the teacher and the students about the progress is general, and their strengths and weaknesses in particular. Based on this, in between modifications in the teaching - learning process, rectifying the mistakes, maintaining the quality of teaching - learning process, assuring the mastery

learning by the students, all these could be made possible. Most of the time, during a teaching - learning session, informal, listening to students comments and conversations, observations of their active participation in terms of answers, or performance of simple experiments - all will help a teacher to gauge their progress. Such frequent formative evaluatory activities pace the students learning and help motivate them to put forth the necessary effort at the proper time.

The appropriate use of such tests helps ensure that each set of learning tasks has been thoroughly mastered before subsequent tasks are started. It also helps a teacher to know, where the students are feeling certain concepts as very difficult to learn may be through their incorrect answers to the questions asked, the ideas, skills and process that they have not learnt adequately. In a teaching - learning session, when a lesson is going on, a teacher will have the freedom of checking, whether the students are with her or not, at anytime. But still abruptly checking may affect the smooth going of the lesson. Hence, you may plan it previously like, when, where and how, the teaching - learning process could be monitored. Like, for example after transacting a natural bit of information, you may feel like verifying. This could be done by mere informal observation and also could be by provoking students to do some activities; asking developmental, interrogatory and evaluatory questions; arranging a short debate on a particular issue between boys and girls; highlighting the illustrations given by the students etc. Apart from this, you may use number of strategies for monitoring the progress while a lesson is going on. Some of them could be as follows.

- Allowing the students to identify and locate the places on a chart or a map in social science classes.
- Similarly, providing an opportunity to students, to locate and name the different parts of a science diagram.
- Allowing the children to solve the mathematical problems.
- Asking the students to construct their own sentences by using the new terms that are taught in the period, this could be done in all the language classes.
- Making the students to recite and singing the poems in poetry classes.

If the above steps are utilised during the lesson, the progress in terms of learning by students is monitored properly. The advantages of such a process could be as follows:

- It gives awareness to the students about their progress mainly about the amount they have yet to learn before achieving the set objectives

- Because it remains informative, relevant to the things being taught, timely, be more beneficial to the learner.
- It also gives a feedback to the teacher by providing him qualitative and quantitative data for bringing necessary modification in his teaching.
- It helps a teacher in guiding the students, planning remedial instruction and prompting them to ask for necessary help.

‘Check Your Progress’ - 3

Complete the following sentences:

1. In order to maintain the progress of students, the knowledge of their andis necessary.
2. While a lesson is going on, a teacher can check the progress in anway also.
3. Frequent formative evaluator activitiesthe students’ learning.
4. The appropriate use of formative evaluationthat each set of learning tasks has been thoroughly mastered before the subsequent tasks have been started.
5. Based on the formative evaluationand.....modifications could be brought out, in a teaching - learning process.

31.4.2 At the End of a Lesson

Usually at the end of a lesson a teacher assigns some sort of homework to the students. But if the given homework is not properly checked and corrected by the teacher means, it serves no purpose. Because, at the end of a lesson, what all will reflect regarding the learning outcome or the progress has to be monitored and verified properly. It could be usually a few oral questions asked by the teacher. In the language of an educationist, it is called ‘Recapitulation’. Here the teacher asks a variety of questions pertaining to all the concepts that he had taught. Prior to that, he may consolidate the information that is taught in the period. The fundamental law of psychology regarding learning is that the consolidation of knowledge takes place only when the knowledge learnt is applied to similar situations. When the acquired knowledge is put and verified in new situations, then it becomes not only very clearer but also, part and parcel of the mental makeup. Here you should note the difference between application and recapitulation. For that, re-capitulation merely denotes revision or repetition of the knowledge learnt

in the lesson, whereas, application requires a good deal of mental activity to think and apply the principles learnt to new situations.

So, here monitoring the progress, can take place in both the forms, like, re-capitulation as well as different forms of activities at the application level. For example, the activities like, constructing working models, projects, still models, solving problems, writing an essay, and drawing of maps, charts or models etc. Re-capitulation could be in the form of objective type tests, oral - tests and daily assignments. The objective type tests help immensely in measuring the factual knowledge, and there are more reliable type of tests. Oral tests are essential for judging pronunciation, comprehension, and verbal expression in languages, practical ability in science, mental calculation and computation in mathematics, and social book with normal speed and accuracy, answering questions orally, reading a thermometer, locating a town on the map, poem - all these could be used with an apt combination or isolated at the end of a lesson. It not only gives the proper feedback but also keeps the progress in a moderate - to - optimum pace.

Similarly assessment of the day - to- day work will include:

- The work done in the class, the impression got by the teacher in the class and participation in discussion etc; in the class room.
- Assessing the work finished in a given amount of time corresponding to the successful completion of a task.

Apart from the above assessments, certain other aspects, like regularity and attendance, comprehension of the subject- matter, hand writing and spelling, ability in expressions with originality also should be taken care off.

31.4.3 At the End of a Unit

After the completion of the whole unit it becomes very essential, to know about the progress among the students. Sometimes, it is done through summative evaluation. Actually it represents a final test or measure of the students' progress or gains made by him as a result of a course of learning. Both formal as well as informal techniques may be used for conducting such evaluation. The formal techniques may include unit tests i.e. a teacher made test or even a standardized test (if available), structured interviews and oral tests, use of questionnaires, rating scales, home assignments, projects - group project as well as individual project etc. Informal techniques may include observations, discussion, comments and feedback given by the students etc., such type of evaluation is chiefly characterized by the following features:

- It gives a total perspective of the final progress of the students as a result of a course of learning a unit.
- It is conducted less frequently than that of formative evaluations, usually at the end of a unit or course of instruction.
- The results of such evaluation could be used for multipurpose. You can compare the students, place them in an order of merit or even what are their learning disabilities what is their level of performance, what measures could be taken to solve their defective learning style, etc.

Through summative evaluation, that is given at the end of a unit, a teacher can check the program, in which several skills or concepts would have combined together to make a broader competency among the students. It is true that the progress monitored during the lesson has to be continued and maintained upto the end of that particular unit. This gives a gestalt picture to a teacher. It is also true that it gives a reference of the cumulative effect of teaching that has been throughout the unit. It helps in assigning grades to the students, certification of skills and abilities, not only this, even the prediction of success in subsequent courses, and initiation point of instruction in a subsequent course, etc., could be done in an efficient and effective way.

A teacher by experience can estimate the difficulty index in a particular area of learning. And by administering the respective tests at the end of a unit, a teacher can identify all the students with their level of performance and also discriminate the students as well. It also gives a functional feedback to the students at the end of a unit. Like, the interpretations of scores, on achievement tests at the end of a unit, will direct students' attention to useful things he may do to make up his deficiencies. At the end of a unit a teacher has to construct a test in such a way that, the test items can reveal various processes, that could be reasonably generalisable about the performance level of the students.

31.5 Let Us Sum Up

In this particular unit, you have come across a special concept, what is known as “Monitoring the Progress”. The implied meaning of this term very well matches with the concept of evaluation. Evaluation could be formative and summative. Evaluation could be used for the diagnosis also, where a teacher will become aware of strengths as well as weaknesses of the students. Intermittently, the teaching - learning process has to be watched of, and evaluated to get an assurance for progress and also to get the knowledge of results. So, monitoring the progress being a dynamic activity could be

conducted by a teacher, like, during and after the teaching of a lesson as well as at the end of a whole unit taught. This unit has mentioned several tools and techniques for formative and summative evaluation. Both the type, of evaluation may make use of techniques and devices like, simple oral questions, simple and objective type tests, rising debatable matters among the students etc. We, say that learning is a desirable behavioural change in a learner; it is a notion for progress. Hence, the desirable changes that are occurring in cognitive, affective and psychomotor domain all these three have to be monitored properly. For this, a teacher has constructed tests or can utilize a few standardized tests also. However, it has to be maintained cumulatively. Even the techniques like formal and informal observations, structured and unstructured interviews, discussions, are of questionnaires, inventories, check lists, attitude scales, rating scales, case studies, projective techniques, assigning project work etc., are used for monitoring the progress. Such checking process can take place during the lesson, after the lesson and the completion of the unit also.

31.6 Answers to ‘check Your Progress’

‘Check Your Progress’ -1

1. a) Taking care of the students’ learning
2. a) Planning, organising and up to the end results i.e., students’ learning
3. d) All the above
4. b) Teachers
5. I.K. Davis definition states that “In teaching, controlling is the work a teacher does to determine whether his plans are being carried out effectively, organization is sound, leading is in right direction and that how far these functions are successful in realizing the set objectives”.

‘Check Your Progress’ - 2

1. d) Evaluation techniques
2. b) Entry behavior
3. c) Formative
4. d) Multiple learning
5. a) Desirable behavioral changes

'Check Your Progress' - 3

1. Strengths and Weaknesses
2. Informal
3. Pace
4. Ensures
5. Qualitative and Quantitative

31.7 Unit-End Exercises

1. Explain the importance of monitoring the progress
2. What are the techniques used to monitor the progress? Give examples
3. Mention the techniques that are used to monitor the progress while a lesson is going on
4. How will you check the progress of the students at the end of a lesson?
5. Describe any two techniques that are used to check the progress at the end of a unit

31.8 References

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UNIT - 32 □ FOLLOW UP OF MONITORING

Structure

- 32.1 Introduction**
- 32.2 Objectives**
- 32.3 Follow up - Meaning, Importance**
- 32.4 Follow up – Techniques, Meaning and Importance**
 - 32.4.1 Self Maintained Progress Report**
 - 32.4.2 Reporting To the Parents**
 - 32.4.3 Diagnosing**
 - 32.4.4 Remediation**
- 32.5 Let Us Sum Up**
- 32.6 Answers to ‘Check Your Progress’**
- 32.7 Unit-End Exercises**
- 32.8 References**

32.1 Introduction

Follow up activities are very significant in monitoring the students' progress. As the term itself is suggesting, follow up activities are the post activities that are executed after the actual, intended programme is over. It can take up any design. For example, the same activity could be conducted on more number of students or it could be further an in depth study. If a follow up activity is not there means, all the prior activities, like, whether it is an enrichment programme or remedial measures etc., will lose their significance. Students also will not take up the special, intended activities very seriously. Hence, the purpose with which an enthusiastic teacher has started the special type of teaching - learning activities will be half done. So, in this Unit you will come to know about the meaning, nature, and types as well as importance of follow- up activities, and also about the follow -up techniques.

After getting the information about the level of performance among the students, a teacher may get quite a good number of ideas with reference to follow-up activities. These follow-up activities may be highly individual specific or group-specific. Depending upon this, a teacher will select the apt activity either as only one or as collective activities and further executes them. Some follow - up activities may take the students for further learning in a linear mode, some may come in the form of diagnostic activities and even some others may come as remedial measures. It could be in the form of feedback given to the students, to their parents, to the teacher himself or to the administrator of a particular school. In the recent days, 'self-maintained progress reports' are also playing a significant role in monitoring the progress.

32.2 Objectives

After studying this Unit, you will able to

- Explain the meaning and importance of follow-up activities.
- Mention the techniques of follow-up activities
- Give examples for self - maintained progress reports
- Justify the need of reporting to the parents
- Explain the nature of diagnosis
- Illustrate with examples for remedial measure

32.3 Follow up - Meaning and Importance

Follow-up activities are the most essential and integral part of monitoring the progress. These are the continued programme to check the effectiveness of the already established programme. For example, a teacher has taken an extra effort to help them in learning effectively or in overcoming their learning disabilities or learning difficulties. This has to be or ought to be followed by a follow-up activity as this process keeps the learner on the track as well as helps him to be focused on the task of learning. If we analyse teaching -learning session as Input, Process and Output, then follow-up activities in order to maintain the progress, can be taken up at both the process level as well as at the out-put level. Usually at the end of a lesson or a unit or a chapter, a teacher gives tests to the students. Like this, at the end of a fortnight or a month at least a series of tests (say three to four) could be conducted and a systematic valuation of such series of

tests give a continuous picture of the students. If it is documented and maintained properly, by having a glance on such documents, anyone can gauge whether a student is progressing or not and also can tell is that progress occurring at an optimum level.

The interpretations of the follow-up activities help the teacher, administrators and supervisors in many ways. All these personnel can join together and design a plan collectively, so that, various instructional problems are perceived with more depth and breadth, and depending upon this more meaningful and functional measures could be conducted. Such follow-up activities help in,

- Determining the status of each pupil in various subjects and in various objectives of curriculum.
- Discriminating identifying and nurturing the respective needs of the “gifted Pupil”, “normal pupil” and “slow -learning pupil”
- grouping pupils for varieties of instructional purposes within the class
- Analyzing or diagnosing an individual pupil’s difficulties and rate of growth.
- Getting a comparative perspective of the status of the individual or class at the beginning and at the relative end of the term.
- The use of all the pertinent data to advice or guide pupil in his physical, mental, emotional and social growth and development. This in turn aids the pupil in selecting appropriate course of study or changing his programme of studies, motivating him to complete high school, selecting a college, understanding his interests and abilities and improving his personal adjustment.

32.4 Follow up - Techniques—Meaning and Importance

Follow-up activities most of the time becomes highly subjective. It is because, a teacher decides the nature and design of a follow up activity in context with the need of the individual or group of students or depending upon the feedback obtained..Say, for example, in one context, a teacher may like to have a sort of interrogation with the parents of a particular student, and counselling the child before them. So, that he can take all these members into his confidence for his further actions. Follow -up activities can be based on several techniques and strategies, namely, maintaining anecdotal records, observations, use of rating scales, personal reports, interviews, and sociometric methods. These are very significant, because, they aid the teacher to assess as well as guide more wisely the growth and development of pupils. If the anecdotal records, observations, rating scales and interview methods have been systematically used to collect data on

personal and social adaptability, the results or findings will have very high significant roles. Like, the results or the knowledge of results could be utilized in a number of ways, for example:

- To identify pupils who are well adjusted and those who are poorly adjusted.
- To diagnose the probable causes or contributing factors for maladjustment and
- To set up individual and group conditions and situations to aid, whenever possible, growth towards better adjustment.

Likewise, sociometric methods may be used as an aid to identify “Leaders” and “isolates” among a pupil group and to establish social relationships in the classroom that will contribute to the maximum social development of each pupil.

Similarly, interest inventories may be used to identify pupil interests in reading or other educational and vocational activities, thus permitting the teacher to counsel the pupils and adapt the curriculum to their needs. Although the case study is usually reserved for application to the seriously maladjusted pupil, the cumulative record should be studied as a method for evaluating and guiding the growth and development of every pupil.

Carefully designed curricula are sometimes made as follow-up activities, for example, of the effectiveness of different methods of teaching reading or teaching arithmetic or meeting the personal social needs of pupils. Occasionally, one may design and conduct a follow-up activity to judge the effectiveness of a curriculum or part of curriculum or an enthusiastic researcher may develop a supplementary curriculum, and use that as follow - up activity based on his initial survey.

Follow up activities could be, enrichment programmes, special classes, bridge courses, certain project works also. Such type will be planned and designed based on the thrust areas as well as need of the target group.

Anyhow a follow-up activity essentially could be of any of the following mode or a good combination of the following also:

That is, a follow-up could be in the form of

- Self maintained progress report
- Reporting to the parents
- Diagnosis and
- Remedial measures

Therefore we shall take up the above said aspects one by one to understand them clearly in the following discussions. Prior to that, you just check your progress by answering the following questions.

‘Check Your Progress’ - 1

1. Follow up activities are.....part of monitoring the progress
 - a. Partial
 - b. Complete
 - c. Integral
 - d. Independent
2. Follow-up activities helps a student to be on the track as well as to be.....on the task of learning.
 - a. Confused
 - b. Focused
 - c. Negligent
 - d. None of the above
3. Follow-up activities are correlated with.....of the students
 - a. Discrimination
 - b. Students’ poor performance
 - c. Good performance
 - d. All the above
4. State whether the following statements are true or false:
 - a. Diagnosis is one among the several follow-up activities
 - b. Diagnosis need not be followed by a remedial measure
 - c. Sociometric methods help in the identification of “Leaders” only
 - d. ‘Self-maintained progress report’ is also an indication of follow up activity
 - e. Follow-up activities are designed based on the need of the target group.

32.4.1 Self Maintained Progress Report

Self maintained Progress Report is that type, in which an individual (maybe the

student or the teacher) maintains his own progress report. It is a best example for autonomy. He can set goals based on his abilities and competencies. Then work in a very deliberate manner to achieve that goal. Usually, the monthly tests, unit tests, mid-term and annual examination all these will give a chance for the student to get self assessed, apart from the teacher's valuation. A student can compare himself with his level of performance in different tests and examinations. Similarly a teacher also can maintain his own documentation to get a comparative idea about her own teaching in different lessons or units, and also the effectiveness of the strategies used. In both the cases, the progress may take up a positive and linear mode or some variations also may occur. Anyhow, here a teacher keeps the records or the progress report of the individual students for herself and it may not be used for any official purpose. And, it could be used for finding the cor-relation between the style of teaching or methods of teaching or use of different strategies with that of learning style of students as well as the level of their achievement.

Similarly, students also could be encouraged to maintain their own progress report. And also, they are advised to check and compare their level of performance often. This is very much appreciated by the students because; in such cases they are seldom compared with other students, and no chance of getting humiliated. This gives an awareness in them that, they should work hard and get good quality results for the sake of learning; professionally, and to make others get impressed or to get any appreciation from others. This is where they learn one philosophical principle what is known as "Learning Knowledge for knowledge sake". Hence, he learns for self satisfaction. If it is done systematically, he will be like a very confident individual in the class. In all learning situation he will be like a "Leader" and not as a follower. Here you should know that, a follower is the one who does the tasks, for the sake of others, i.e., to get recognized, to get identified etc. As soon as such external incentives or popularity is lost, he the follower too will lose interest in studies. Hence, maintaining a progress report on his own may bring about a special commitment in the studies. And such commitments will make him a leader in the task of learning, and he takes care of his own pace of learning. Self maintained Progress Reports need not always be on achievement level only. Even the activities under co-curriculum also could be maintained. For example, a student may appear for a debate competition, at the intra school level in the beginning, followed by inter schools, district level, zonal level, state level and even to the national and international level also. Apart from the school maintaining the progress report on such events, the student also maintains this with all pride! Here also, while moving upward sequentially, the earlier experiences will help him very effectively. Similarly it can happen in the chess tournament also. Even in case of drama competitions or take any type of

co-curricular competitions or extra talents like, becoming an NCC cadet, or member of different types of clubs doing social services etc., could be maintained by the individuals themselves. Suppose a student appears for the competitions at the higher order of hierarchy, then all the certificates, testimonials have to be maintained by himself only, is it not?

From all the above description, it becomes very clear that, a teacher as well as the students can maintain their own progress reports, which may not be used for official purpose to some extent. But it is evident that, this type of awareness will really bring an enhancement in the progress of an individual. A student can spread the whole academic activities for a stipulated time, and prepare the respective time schedule and start studying. Intermittently, he can take up the tests on his own, corrects his answer papers and can see how far he has achieved, his own predetermined goals. This helps in developing confidence in him to face the final examination with a cool mind. Hence, it has its own significance though it may not answer systematically for the aspects like validity and reliability. Therefore it is said that such self - maintained reports are very rarely referred for official purposes or to announce promotion of a student from one grade to another. Because it is maintained by the individual only, the question of mal-adjustments cannot be ruled out. But one actually maintains the self - progress reports for his sake, for his own confirmation sake. Hence it has its own significance though there are weak points also.

‘Check Your Progress’ - 2

State whether the following sentences are true or false:

1. Self - maintained progress report is a documentation done by the teacher about the students
2. Self- maintained progress report is a must for the promotion of a student from one standard to another.
3. Self - maintained progress report enhances the confidence for learning among the students.
4. A teacher may use the self - maintained progress report to correlate his style of teaching and level of achievements by the students.
5. Self -maintained progress reports exclusively confines to academic achievements only.

32.4.2 Reporting to the Parents

School and the family is the place where a child spends most of the time during his school days. All that could not be met within family premises that are made available in the school. That is, being one with all, peer group interactions, co-operation, etc., is possible only in the schools. Therefore school as a unique unit in the society tries to get associated with the people or parents in the community. The important means of securing co-operation between the school and home is sending the reports on the work and progress of children to their parents. This could be on each occasion when an assessment is made. The cumulative record of each pupil maintained in the school should be sent to parents for information and signature as the child is promoted from one class to another class. This will enable the parents to know in detail about the physical, academic, social and moral development of their children in school. Thus, it becomes a very important event in bringing a rapport between the school and the community.

Sometimes, it becomes so inevitable to the teacher to call the parents of certain students, in order to bring some desirable changes in them. It may be with reference to attitudinal changes, their absenteeism, or some problems created by themselves in learning tasks etc., so, a report maintained cumulatively on such incidents, has to be sent to the parents. It is because, the follow up activities are depending upon the co-operation and support by the respective parents. Hence, whatever is deliberately planned will be executed with a joint venture of the school as well as the parents. In this context, a teacher alone cannot do anything. For the sake of progress of the child, the parents also should co-operate. Say for example, a follow-up activity has been thought of in terms of “bridge course” or “special - course” for those students who are lagging behind the normal group. Evidence on this has to be sent to the parents. And they have to be informed about the special curricular treatment their wards are going to receive and its nature also. Suppose for this, such students may be asked to stay apart from the school hours, then, about this the parent must be informed and later on information about the effectiveness of such programmes also, to be sent to them.

So, such a continuous effort, will really help the child to overcome his learning disabilities or any problems faced in the task of learning. Sending the progress reports to the parents, and insisting their signature on it will bring a sort of discipline, and it gains more weightage from the students’ views also. Therefore, keeping the parents well informed about their children’s program, will make, the teacher, the administrator, head of the institution, management, parent and all the available human and material resources to become more focused in bringing an all-round development among the students. Here also, the cumulative records, and other non - scholastic records, statistical

intimation with reference to attendance, etc., can also be sent to the parents. All such efforts will have their positive influence on the whole process of teaching and learning.

‘Check Your Progress’ - 3

State whether the following statements are True / False:

1. Reporting to the parents about the progress of their children will not help in learning process
2. Reporting to the parents is one way of having co-operation between the home and the school
3. ‘Reporting to the parents’ - involves only the marks card of the sequential tests.
4. Insisting parent’s signature on the report sent to them is unpsychological
5. Cumulative record is one of the reports that could be sent to the parents.

32.4.3 Diagnosing

‘Diagnosis’ is the term usually referred by the doctors. But here a teacher is going to diagnose the learning disabilities, learning difficulties that are faced by the students. A student may be quite intelligent by his IQ score, but he may not score at least to the optimum level in context with his potentiality. In such situation, a teacher uses the diagnostic strategy. Here you should understand that, diagnosis, shifts the emphasis from learning outcomes. Placement is concerned with educational status of an individual; whereas, diagnosis is an effort to probe into and analyze specific deficiencies that may make for low status of an individual.

Diagnosis emphasizes that “the failure of the pupil to develop and grow in terms of his own organism pattern - that is, in terms of his own native ability and rate of growth towards socially desirable goals”. Really speaking, it is not the student who fails; it is the school, the teacher, the method of instructions and the conditions which we pose on the students have failed. Diagnosis tries to bridge the gap between the expected and actual achievements of students. Simultaneously it also tries to solve the problem of wastage and stagnation. Diagnosis will be incomplete without remediation. It is because, diagnosis and remediation go hand in hand and no remedial programme can be planned without having diagnosed the weaknesses of students.

Good Carter is of the opinion that, “educational diagnosis is the determination of the nature of learning difficulties and deficiencies; of course, it cannot stop only at the identification of weaknesses in learning but has to go a little deeper to locate their

causes and also suggest remedies for getting rid of them”. He also opines that, remediation for under achievers and enrichment programmes for over achievers, both must be there after the process of diagnosis. In both the cases, we have to study the student in relation to his inherent capacities and potentialities. If he has not reached the level of his capacities he is an under-achiever and needs remedial programme to bring him up to his level. If he has already crossed his level, he is only in need of some enrichment programme to excel him. However, we may say that the immediate concern of the teacher may be correction but the ultimate aim will always remain prevention. A diagnosis will have the following interrelated sequential steps.

1. Identifying students who are in need of remediation.
2. Finding the nature of difficulties.
3. Locating the causes of the disabilities.
4. Providing remedial measures.
5. Preventing the difficulties in further learning.

In order to diagnose, a teacher first should sort out the students into groups, particularly, of underachievers and overachievers in the context of educational diagnosis. Most of the time the evaluation tools help in the above said type of classification of students. But to know about the students who are below or above the average of a group is not going to seem any useful purpose here. It is quite possible that a student who is above average in relation to the group may well need some remedial programme while on the other hand the one below average may not warrant any. .

1. Identification of Students: Diagnostic classification involves the reference point for each student in such a way that, the reference point of each student should rightly be his own expected achievement and we have to sort out the students with regard to their levels of expected achievement. If they have not reached their levels, they will be the ones who are in need of remediation. Suppose, they have already crossed their levels, we may not become complacent about them, but may plan some enrichment programme to help them improve their achievement further.

Usually, through unit tests, the achievement levels of the students could be assessed. But what is very difficult is, to estimate the expected achievement of students. For this job, ordinarily available intelligence tests, scholastic aptitude tests and achievement tests are quite adequate.

2. Find the Nature of Difficulties: In this phase, we have to pin point the specific areas where the students experience difficulties. Although a unit test throw some light

on the nature of students' weakness, it will not pinpoint their learning disabilities and difficulties. To diagnose such difficulties on scientific lines, specially designed diagnostic tests are required. You will come to know about the construction of diagnostic tests in the coming units. As a rule, such tests have a limited scope but they try to explore the area more thoroughly as they cover as many learning points as possible. Diagnostic tests, like all tests, deal with the products or learning outcome. Interested as we are in locating and correcting the difficulties in learning, our attempt appears only to be indirect. However, the analysis and the interpretation of the results of the diagnostic test helps in locating the weaknesses of the students. So, when the weak spots have been located, it becomes necessary to probe into their causes before any remedial programme can be planned. You should know also about that, under achievement may be due to factors within the student, or environmental factors outside the control of the student or a combination of the two. But, while planning remedial programmes the teacher can directly take care of only the factors within the student. Anyway, the environmental factors if they are known, will lead to better planning of remedial measures.

Most of the causes internal to the student may, however, be located in the areas of:

1. Scholastic aptitude
2. Retardation of basic skills
3. Work study habits
4. Physical factors and
5. Emotional factors

Let us take the subject mathematics as an example to understand the factors clearly. A student may not have a good aptitude in that subject, though he is quite intelligent. This lack of aptitude may be clue to absence of motivation, or more interest in some other subject, or may be due to many other factors. Most of the students feel that mathematics is a dry subject and this negative attitude hampers their achievement level in mathematics. A good teacher never lets it happen and will take immediate steps to check it, and gives the remedial measures.

The weakness may also be traced to the deficiencies in the acquisition of basic facts and skills in mathematics. This is because in mathematics each concept is a pre-requisite to learn the next concept. A break in the link somewhere can retard learning. If the students have developed wrong work-study habits, it also results in learning disabilities. Each concept demands a constant practice and drill before it is mastered. Even poor health, certain physical disabilities hinders learning. Learning of any subject

needs hard work. Diseases, ill health, causing absence from school may create their own problems. Defects in eye-sight, and hearing, hinder the student in getting full benefit from classroom teaching. Similarly, an emotionally disturbed child dissipates his energy before it is used for learning.

In addition to the above factors for an under - achievement, there can be a number of environmental factors also, over which a school or a teacher may not have control. But there are certain factors like economic condition of the parents, their literacy and the locality from which the pupil comes etc., could be rectified to some extent.

To go in detail for all the above factors, may not practically be possible. But in less serious cases, just a skillful interview can give many clues. In some cases there the tools like check-lists, rating-scales questionnaires can also be used.

‘Check Your Progress’ - 4

1. Diagnosis by a teacher results in.....
 - a) Finding learning disabilities and learning difficulties
 - b) Physical ill-health
 - c) Giving medicines
 - d) None of the above
2. Diagnosis tries to bridge the gap between the.....
 - a) Teacher and the taught
 - b) Parents and the children
 - c) Expected and actual achievements
 - d) All the above
3. Diagnosis will be incomplete without
 - a) Remediation
 - b) Counseling
 - c) Enrichment programme
 - d) Bridge course
4. Diagnosis helps to identify.....
 - a) Students

- b) Teachers
- c) Parents
- d) Both under-achievers and over-achievers

5. Diagnosis usually will be started by administering

- a) Unit test
- b) Criterion test
- c) Examination
- d) All the above

6. Mention the internal causes that result in an underachievement by a student

7. Mention the sequential steps of diagnosis

8. What is educational diagnosis according to Good Carter?

32.4.4 Remediation

In the previous discussion you came to know about the meaning and the nature of diagnosis. And you also know that without remediation a diagnosis is incomplete or it is half done. Thus remediation becomes very important. But remediation cannot occur

on its own. It needs the foundation of a diagnosis. Hence, diagnosis and remediation are complementary and reciprocal to each other. Therefore in this section, let us try to understand the meaning and nature of Remedial measures.

Remedial measures are applied on the basis of a thorough understanding of a pupil's difficulty in learning. But there is not any set pattern for remedial measures. So, in some cases it may be a simple matter of review and re-teaching. In others, it may need an extensive effort to improve motivation, correct emotional difficulties and overcome deficiencies in work-study skills may be required. In spite of this, two students may be suffering from the same type of learning difficulties, but they differ in the cause for it. And hence, it has to be tackled differently. Likewise remedial measures vary with the subjects also. That is to say, the ends may be the same, but the means will be different.

But, despite the different methods and techniques needed in remediation, there are certain guiding principles that apply to all subject areas and provide a frame work in which the teacher can operate. They are,

- Remediation should be accompanied by strong motivational programmes.
- Remediation should be individualized in terms of the psychology of learning.
- There should be continuous evaluation giving the pupil knowledge of results motivation being the first step, plays a very significant role in remedial measures. The purposes of the measures should be related to the needs of the students who should feel convinced of their utility. Students should take up the remedial activity willingly.

Similarly, you should be aware of the fact, remedial measures will be individualistic and learner specific. Remedial measures given on individual basis will, no doubt, be more motivating. But individualizing the remedial measures in all the cases will be impractical. Hence let us not much concentrate on this fact. And also, there will always be students having similar difficulties caused by factors which can be taken care of collectively, at least in the scholastic field. Such students could be conveniently grouped together accompanied by a continuous evaluation. You should know that remediation does not end the moment remedial activities are given to the students. That is rather the beginning. So many times, remedial measures will be changed depending upon the situational factors also! After all, the remedial programme should be modified to meet the demands of the situation.

Remedial programmes also should fit into the normal school activity. But it is true that they will always mean some extra work for both the teacher and the target group. In

hard cases, some extra time may also be required. In spite of this, a little more attention to underachievers keeping in mind their weaknesses during the class work, and well planned assignments oriented to remove the difficulties will do the trick. Remedial teaching is not some different type of teaching; it is just good teaching.

It is said that prevention is better than cure. This holds well in education also. Educational diagnosis should preferably be carried at a level where the need for remedial measures is completely eliminated. Prevention is not only better but also easier than cure. A proper diagnosis should help a teacher in getting an insight into the types of errors that are likely to occur in learning, their possible causes and the ways of preventing them in future classes. Thus diagnosis should be for improving instruction, modifying its curriculum and also for refining instructional materials. Actually speaking, the ultimate goal of educational diagnosis should be prevention. The knowledge gained through the use of diagnostic procedures must also help in the prevention of learning difficulties and learning disabilities.

‘Check Your Progress’ - 5

State whether the following statements are true or false:

1. There are quite a good number of easily available standard remedial measures.
2. Even re-teaching can be one of the remedial measures.
3. There is no need of evaluating the remedial measures.
4. Remedial measures involve motivation of the target group as the last resort.
5. Same Remedial measures could be imparted on a homogeneous group of the students, who have the same type of learning difficulties.
6. Remedial measures also should fit into the normal school activity.
7. There is no use in giving home assignments as one of the remedial measures.
8. Remedial measures are individualistic and learner specific.
9. A good teaching is also a remedial teaching.
10. Learning difficulties also could be prevented.

32.5 Let Us Sum Up

In this particular unit, follow-up activities, their nature and importance have been discussed. Follow-up activities actually keep the process of monitoring the progress on

the track. Follow-up activities bring a sort of dignity as well as discipline to the profession as a whole. There are quite a good number of follow-up activities. Most of the time they will be highly subjective and learner specific. Findings or the results of follow up activities play a very significant role in rectifying the learner's mistakes. The special type of follow - up activities discussed in this section are four in number, namely, self-maintained progress report, reporting to the parents, diagnosis and lastly the remedial measures. Self -maintained progress Report, though may not be used much for official purposes, it will have its own advantages. Like, for example, if it is properly maintained, a learner will studiously learn like a leader, not as a follower. And reporting to the parents is yet another but meaningful and functional follow-up activity. By this the gap between the school and the society is filled up.

Both the family and the school which are the two significant units of society can focus their attention for the welfare of the pupils. And third type of follow up activity discussed is about diagnosis and the last one is remedial measures. Both the diagnosis and the remedial measures are complementary and reciprocal to each other. Diagnosis helps in detecting both the strengths and weaknesses of a student. Based on this the remedial measures are planned. It will be remedial measures for the under achievers and enrichment programmes for over achievers. However in both the cases, there are no standardized tests or techniques. All the time, these are ought to be or have to be constructed based on the local need and requirements.

32.6 Answers to 'Check Your Progress'

'Check Your Progress' - 1

1. c) Integral
2. b) Focused
3. a) Discrimination
4. a) True
b) False
c) False
d) True
e) True

‘Check Your Progress’ - 2

1. True
2. False
3. True
4. True
5. False

‘Check Your Progress’ - 3

1. False
2. True
3. False
4. False
5. True

‘Check Your Progress’ - 3

1. False
2. True
3. False
4. False
5. True

‘Check Your Progress’ - 4

1. a) Finding learning disabilities and learning difficulties
2. c) Expected and actual achievements
3. d) Remediation
4. d) Both underachievers and the overachievers
5. a) Unit Test
6. The internal causes that result in under-achievement are
 - Lack of adequate scholastic aptitude

- Retardation of basic skills
 - Defective work-study -habits
 - Physical and emotional disturbances
7. The sequential steps of a diagnosis are:
- Identification of the students who are in need of remediation
 - Finding the nature of the difficulties
 - Locating the causes of disabilities
 - Providing remedial measures
 - Preventing the difficulties in further learning.
8. According to Good Carter “Educational diagnosis is the determination of the nature of learning difficulties and deficiencies, of course it cannot stop only at the identification of weaknesses in learning but has to go a little deeper to locate their causes and also suggest remedies for getting rid of them”.

‘Check Your Progress’ - 5

1. False
2. True
3. False
4. False
5. True
6. True
7. False
8. True
9. True
10. True

32.7 Unit-End Exercises

1. What is meant by ‘Follow-Up’? Why is it important?
2. List out the techniques of follow-up activity.

3. Explain the concept of self - maintained progress report.
4. Justify the need of reporting to the parents.
5. Explain the meaning and nature of diagnosis.
6. What is Remediation? Illustrate your answer.

32.8 References

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UNIT - 33 □ DIAGNOSES - INTRODUCTION

Structure

33.1 Introduction

33.2 Objectives

33.3 Diagnosis

33.3.1 Meaning, Nature

33.3.2 Need and Importance

33.3.3 Characteristics

33.3.4 Techniques

33.4 Let Us Sum Up

33.5 Answers to ‘Check Your Progress’

33.6 Unit-End Exercises

33.7 References

33.1 Introduction

‘Diagnosis’ is the term that belongs to the field of medicine. There doctors diagnose the diseases based on the symptoms. They give the medical prescription, a course of treatment based on the diagnosis. The same term “diagnosis’ is also utilised in the field of education with a different context. Here instead of patients, the students with some learning disorders, learning disabilities are treated. And the teachers diagnose such learning disabilities, and provide suitable curricular treatment to the students. Quite interesting, isn’t it? In this unit, we shall discuss the meaning, nature, need and importance of diagnosis and some techniques of diagnosis in detail.

Diagnosis in the field of education takes a sound basis from the process of evaluation. Here the evaluation which results in diagnosis is termed as Diagnostic Evaluation. Though it is a distinct type of evaluation, it is closely related to formative and summative evaluation. It involves valuation, determination, description and classification of some aspect of student behaviour. Diagnosis can serve many purposes.

For example it could be conducted to place the student properly at the outset of instruction or to discover the underlying causes of deficiencies in student learning. So, the further discussion in this line will reveal more information to you.

33.2 Objectives

After studying this Unit, you will be able to

- Explain the meaning and nature of diagnosis
 - Justify the need of diagnosis
 - List out the characteristic features of diagnosis
 - Describe the techniques of diagnosis
-

33.3 Diagnosis

Diagnosis is also a type of evaluation. Based on the purposes, several types of diagnoses are possible. Like, for example, a teacher may do diagnosis at the beginning of an academic activity, to explore the entry behavior of the students. Diagnostic evaluation performed while instruction is underway has its primary function as determining the underlying circumstances or causes of repeated deficiencies in a student's learning. Apart from this, a teacher needs to know, which strategies and tactics to choose, for this also diagnosis is needed.

33.3.1 Meaning and Nature

The word diagnosis is used in education, more or less in the same sense as it is used by doctors. The only difference perhaps is that in medical diagnosis it is a physical or an organic breakdown that is investigated, while in educational diagnosis it is the failure of the process of education or learning that is located and attempted to be remedied. In earlier days, educational diagnosis was confined for most part of the area of academic knowledge and skills. But, now it is emphasizing all aspects of the pupils' growth and development. Therefore, the teacher is concerned with the development of the non-intellectual aspects of the pupil's personality as well as with his academic knowledge and skills. Further more research has shown that personal - social adjustment and personality development cannot be divorced from the learning of knowledge and skills. And it is also found that, pupils with severe subject matter disabilities have often been found to have serious personality disorders. Thus, diagnosis is to be understood in a much broader sense so as to include all the areas of pupil growth. It never confines to

any specific area, but legitimately covers all the domains - cognitive, affective, and psychomotor - of the human growth.

Diagnosis is usually done for placement of students. It could be for determining the presence or absence of pre-requisite skills. May be for determining the student's prior level of mastery, or classifying the student according to various characteristics known or thought to be related to alternative modes of instruction. Diagnosis is also done for the determination of underlying causes of repeated learning difficulties. It makes use of formative and summative instruments for pretests, standardized achievement tests, standardized diagnostic teacher - made instruments, observations, and check lists. Based on placement diagnosis, alternative teaching strategies are developed, as well as alternative curricula could also be developed.

33.3.2 Need and Importance

Educational diagnosis is of utmost important, because, it has emerged as the basic need in an education system. Though we have launched several programmes, like, compulsory primary education, education for all, Sarva Shiksha Abhiyan and also as the constitutional right, the country is facing the problem of wastage and stagnation. Enrolment of the children, their retention, and also their quality learning or mastery in learning - all such aspects is subjected to critical analysis and verification. At the lower stages where the government is constitutionally bound to provide equal educational opportunity, it has assumed gigantic dimensions and has almost become a national problem. There are perhaps economic and social causes of wastage in education but the major blame must be laid on the educational system.

Wastage and stagnation are generally defined in terms of the percentage of students who enter a particular stage of education and fail to complete it or take more time to do it. A student is declared to have failed if he gets less than a certain percentage of marks in different subjects and / or in the aggregate. Failure should not be taken in the narrow sense of inability to reach an arbitrary level but it should be taken as the failure of the pupil to develop and grow in terms of his own organism pattern -that is, in terms of his own native ability and rate of growth towards socially desirable goals. So, if we want to strike at the root of wastage and stagnation, we should primarily concentrate on improvement in the quality of education ensuring scientific educational diagnosis of students and remediation.

We know that, the current examination system is not correct, because it checks only the memory power of the pupils. In fact it should not be restricted only for the

appraisal of achievement but should also aim at the total improvement in a student's personality. That is why one of the criteria for good evaluation is that it should be a dynamic process, meaning thereby that it should provide for a constant feedback with the help of which both teaching and learning are improved. This aspect in the process of evaluation is nothing but educational diagnosis. Diagnostic does the job of rectification of the weaknesses, here it is called "corrective diagnosis" But the highest form of the diagnosis is the preventive one by which the teachers are enabled to take measures to prevent weaknesses among the students from occurring.

Diagnostic evaluation does the function of placement of the students, which is closely related to the question of educational "grouping". It involves grouping and placing the students in the proper instructional group according to their level of prerequisite entry behaviors. And also, helps in discriminating the students as "bright", "average" or "slow". It may be conducted before the instructional process gets started as well as could be as an ongoing process carried out in conjunction with the formative evaluation. Diagnostic evaluation that is carried out during ongoing process, in conjunction with formative evaluation will try to determine whether factors unconnected with instruction are the cause of the breakdown in learning.

The process of diagnosis is so comprehensive that, it takes care of cognitive, affective and psychomotor behaviors of a student. And also diagnoses the physical, psychological and environmental factors that may hinder or enhance the process of learning. It traces out the underlying causes of repeated learning difficulties. All the above said points imply that diagnosis has a very significant role in the education, and because of its significance the need is also felt.

'Check Your Progress' - I

1. Diagnosis is closely associated with
a) Evaluation b) Educational policies
c) Infrastructures d) All the above
2. Diagnosis helps to know the causes for
a)Wastage and stagnation b) Repeated failures
c) Effective teaching strategies d) All the above
3. Failure of the pupils is nothing but,

- a) Promotion withheld b) Failure of the educational system
 - c) Repetition of the course d) Extra burden on the teacher
4. Diagnosis done for the placement of students determines
- a) Presence or absence of prerequisite skills
 - b) Weaknesses of the students
 - c) Strengths of the students
 - d) None of the above
5. To solve the problem of wastage and stagnation,
- a) Diagnosis and remediation are needed
 - b) Government policy is needed
 - c) Literacy is needed
 - d) All the above
6. What are the major functions of diagnosis?

33.3.3 Characteristics

In the previous captions you have understood the meaning, nature and importance of diagnosis. By that previous knowledge, now let us try to lay down the characteristic features of Diagnosis.

- The first and foremost thing that you have to understand is that diagnosis is also a sort of evaluation but it is distinct from formative and summative evaluation.
- The major functions of diagnosis at preliminary level will be valuing, determination, description and classification of some aspects of student behaviour
- It serves two purposes in an educational set up, namely,
 - a. To place the student properly at the outset of instruction and
 - b. To discover the underlying causes of deficiencies in student learning as the instruction unfolds.

- It is used to determine the entry behaviour of the students, to detect the causes for learning disabilities or deficiencies, and to bring about quality improvement in teaching -learning process as a whole, but it is never used as deciding test for the sake of students' promotion from one standard to the next standard.
- Diagnosis tries to pinpoint the reasons for the observed symptoms of learning disorder, may be unrelated to the instructional methods and materials parse, but may instead be physical, emotional, cultural or environmental in nature.
- Diagnostic approach tries to fill the gap between the expected learning outcome and the actual earning outcome.
- Diagnosis helps a teacher to design and impart remedial measures to underachievers and enrichment programme to over-achievers.
- Diagnosis becomes in vain if it is not followed by either remedial measures or enrichment programme.
- Diagnosis discriminates students by giving utmost importance to their individualistic abilities and competencies. It can place the students in rather broad tracks, such as "bright", "average" or "slow", and forms the "teachability groups".
- Through diagnosis a teacher can change or use an apt methodology of teaching, so that it results in optimum learning out come by the students.
- Since the diagnostic tests are highly specific and localized, they are not available easily. Hence, these are going to be prepared by the teachers then and there itself. Hence, you do not get any standardized diagnostic tests. If at all available, they will be very less in number.

'Check Your Progress' - 2

State whether the sentences are True or False :

- a. Diagnostic evaluation is distinct from formative evaluation and summative evaluation
- b. Diagnosis detects the only weaknesses of the students
- c. Diagnosis without remedial measures will be of no use.
- d. Enrichment programmes are meant for under achievers
- e. Remedial measures are meant for over- achievers
- f. Diagnosis is done to explore the entry - behaviour of the students.

33.3.4 Techniques

‘Diagnosis’, as it is pointed out already, has to be conducted in a methodical way. It has its own procedures and techniques to be followed. So, in this section, we shall concentrate on the systematic procedures and the techniques that are to be followed.

Educational diagnosis is done according to the following five distinctive but inter-related and integrated levels, namely:

- a. Classification i.e. identifying students needing remediation
- b. Finding the nature of difficulties
- c. Etiology i.e. locating the causes of the disabilities
- d. Remediation i.e. providing remedial measures
- e. Prevention i.e. not allowing the difficulties to occur

It is actually at the level of locating the causes of the disabilities, a teacher has to deal the situation with critical analysis. Here we have to use a special type of achievements called diagnostic tests.

The diagnosis of weaknesses in the relatively general prerequisite abilities can begin with the administration of a standardized achievement test battery. Such tests allow the teacher to compare the performance of a child of a given grade level or age with that of a normative group in such basic areas of vocabulary, reading, spelling language, usage, arithmetic computation and arithmetic problem solving. First the procedure starts with identifying the general deficiency then it will be followed by the administration of more analytical diagnostic instruments to pin point the nature of learning retardation. Then based on the test marks the teacher prepares the individual profile charts of each student. This provides a graphic picture of the student’s overall level of achievement in relation to either his age or his grade group.

Usually, the standardized achievement test can alert the teacher to the fact that a student is weak in certain general area like reading or arithmetic computation when compared with some normative group, but it does not reveal the exact nature and cause of the difficulty. More sensitive diagnostic instruments are needed for this task. Very often, a technique called use of item data is employed to achieve a somewhat finer diagnosis of weakness on particular sub test. This technique involves examining the item response pattern of a student. If a student misses several items all dealing with the principle of carrying in addition, then a workable hypothesis might be that, the student needs remedial instruction in this skill. A teacher can himself construct such a type of test, so that it gives an individual or group item analysis profile on how each item was

answered. For example see the table given below.

Table 33.1 An example of part of an Item Analysis Chart that Could Be Constructed by a Classroom Teacher

	1	2	7	9	10	12	14	3	4	5	6	11	13	15	16	18	19	20	21	22	23	24	25	26	
Shymala	+	+	+	+	+	+	+	+	+	+	0	0	+	0	0	0	0	0	+	+	+	+	0	+	
Ramshesh	+	0	+	0	0	0	0	0	0	0	+	+	0	0	0	0	0	0	+	0	+	+	0	+	
Swaroopaa	0	+	+	0	+	+	+	0	+	+	0	0	+	+	0	+	+	0	+	+	+	+	+	+	
Pruthvi Raj	+	+	+	+	0	0	+	0	+	+	0	0	+	0	0	0	0	0	+	0	+	+	0	+	
Indira	0	0	0	+	0	+	+	0	+	0	0	0	+	+	0	0	0	0	+	0	+	+	0	+	
Vani	+	+	+	0	+	+	+	0	0	0	0	+	0	0	0	+	+	0	0	0	0	+	+	0	+

Here the teacher simply lists the name of each student in his class (the patterns for only six students are shown in table). Along the top of the chart, term numbers are entered, arranged according to sub test, objective, content or behaviour; vertical lines enclose each group of related items. A plus sign indicates that the item was answered correctly and a zero that it was answered incorrectly. If the chart is read across, the individual's pattern of responses on the related items is revealed; if the chart is read down, the pattern of the class response is shown. These patterns can then be examined to determine whether it appears that an individual or the class as a whole is consistently missing a certain type of item and therefore might be in need of remedial instruction.

In some cases, there are some standardized tests, which provide remedial charts designed to suggest possible causes of low scores on various subsets of the battery.

So, you must be very clear that once general deficiencies have been identified, more analytical diagnostic instruments should be employed to try to pinpoint the nature of the learning retardation. Then diagnostic test evaluates a particular sub skill in much greater detail than it is possible for an achievement test, which must cover many general areas rather broadly. Likewise, since a diagnostic test is designed to assess the weaknesses of students performing below average on a sub-skill, these instruments have many more easy items than do achievement tests, which are designed to measure the entire range of performance.

Apart from this, there may be some non-educational causes of learning disability, namely, physical, psychological or environmental in nature, for example, a student's poor general health may in turn be caused by the parent's inability to provide an adequate diet. Again, a student may be emotionally upset over a long period of time because of

some abnormal condition in the home. So, if a teacher suspects a non-educational factor to be the cause of learning disabilities, he should look for behavioral symptoms of physical, psychological or environmental problems. If he observes several such symptoms, he may use available screening devices to check his hypothesis further. And, based on the acceptance or rejection of the hypothesis, he should take the relevant action on it.

In the category of physical problems visual, auditory, motor, speech, dietary, general health, glandular, or neurological conditions may cause or contribute to students' learning disability. If the problems are related with emotional factors, the diagnosis and the respective remedial measures will take up a different design altogether. Psychological problems; in the form of emotional factors, could impair a student's ability to profit from the instruction. Poor self-confidence the negative emotions, neurosis etc., or simply the tensions associated with adolescence can all complicate the control function of teaching and may make it impossible for a student to get benefits from the usual type of learning experiences.

Similarly, the category of environmental problems includes many factors which can contribute to a student's learning difficulties. For example, certain factors that are due to cultural deprivation, such as poor language, and reading skills, etc. But a teacher cannot become a "Super Hero", to solve all types of problems. The teacher is not expected to be an expert on deep - seated non - educational causes of learning disabilities. But he should recognize the symptoms associated with such causes. And also should be diverting the problems that are beyond his limit towards the right path to get solved.

'Check Your Progress' - 3

1. To diagnose the weaknesses in the Pre-required abilities we need.....
 - a) Achievement Tests
 - b) Observations
 - c) Questioning
 - d) All the above

2. The learning disabilities may be due to.....
 - a) Poor Economic Status
 - b) Illiteracy of the parents
 - c) Physical, Psychological and Environmental Factors
 - d) All the above

3. In order to pinpoint the learning retardation,.....
 - a) More analytical instruments are used
 - b) Repeated tests are given
 - c) Critical observation is done
 - d) None of the above
4. State whether the following statements are True /False:
 - a. The Diagnostic test evaluates a particular sub-skill in much greater detail than is possible for an achievement test.
 - b. Diagnostic test items will be much easier than the achievement test items.
 - c. Learning disabilities always are caused due to some environmental factors.
 - d. Emotions do not have any role in causing learning difficulties.
 - e. A teacher is not responsible to solve all sorts of learning difficulties.

33.4 Let Us Sum Up

In this particular unit, detailed information with reference to Diagnosis is discussed. Here the diagnosis is done to identify, locate and solve the problems that are related to students' learning. As we have seen the fact of individual difference, so is the case of learning difficulties. These learning disabilities or difficulties are individual specific. But as far as achievement goals are concerned, individuals with some type of learning difficulties could be grouped together and further diagnosis could be carried out. Diagnosis is a methodical process. It may be conducted before the teaching of a particular unit, which gives clear idea of the student's entry behavior or it could be conducted while the course is going on. Here both the weaknesses and strengths of the students are explored. Based on this followup activities are going to be designed. Like, for under-achievers, certain remedial measures have to be implemented and for over-achievers enrichment programmes have to be imparted. Apart from the need and importance of diagnosis a detailed account of techniques with reference to diagnosis is also discussed. Now, you go through the 'Check Your Progress' as well as Unit End Exercises and try to answer them.

33.5 Answers to ‘check Your Progress’

‘Check Your Progress’ - 1

1. a) Evaluation
2. d) All the above
3. b) Failure of the educational system
4. a) Presence or absence of Prerequisite skills
5. d) All the above.

‘Check Your Progress’ - 2

1. True
2. False
3. True
4. False
5. False
6. True

‘Check Your Progress’ - 3

1. a) Achievement tests
2. c) Physical, Psychological and environmental factors
3. a) More analytical instruments are used.
4. a) True
b) True
c) False
d) False
e) True

33.6 Unit-End Exercises

1. What is diagnosis? Explain its nature.
2. Is 'Diagnosis' important? Justify your answer
3. What are the salient features of diagnosis?
4. Explain the techniques of Diagnosis

33.7 References

1. Benjamin, S. Bloom : *Hand Book on Formative and Summative Evaluation of Student Learning*.
J. Thomas Hastings
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UNIT - 34 □ DIAGNOSTIC TESTING – 1

Structure

- 34.1 Introduction**
- 34.2 Objectives**
- 34.3 Diagnostic Tests**
 - 34.3.1 Meaning, Nature**
 - 34.3.2 Construction - Steps**
 - 34.3.3 Interpreting Results**
- 34.4 Let Us Sum Up**
- 34.5 Answers to ‘Check Your Progress’**
- 34.6 Unit-End Exercises**
- 34.7 References**

34.1 Introduction

In the previous unit you have already been introduced to the term ‘Diagnosis’. And also, you have come across the nature and significance of diagnosis in the field of education. Most of the time, as it is told earlier, the teacher takes up the responsibility of diagnosing the learning disorders among the students. ‘Diagnosis’ being methodical process, needs a thorough preparation. Usually diagnosis is done for the placement of students, to determine the presence or absence of pre-requisite skills. It is also done to classify the students for alternative mode of instruction; as well as for the determination of underlying causes of repeated learning difficulties. In this context a teacher needs diagnostic tests to administer over the students. And also you should know that, the availability of standard diagnostic tests is very less. Apart from this each learner will have his own learning difficulties that may be very specific to him. Hence, it becomes inevitable for a teacher to construct the diagnostic tests based on the felt needs. Hence in this particular unit we shall concentrate on the meaning, nature of diagnostic tests and also about the steps in the construction of a diagnostic test as well as the interpretation of the results.

Usually after getting a feedback by the students in the form of their level of performance in any sort of achievement tests, a teacher can reflect over the actual causes for the students' wrong answers, low scorings, or learning disorders or learning disabilities in general. In such cases general unit tests will help a very little to the teacher. In order to pin point the learner's weaknesses in learning, there is a need of scientific analysis and educational diagnosis. Most of the time, the critical analysis will be done through a special device known as Diagnostic Tests. Construction of a diagnostic test is not an easy job. It has its own steps to be followed. So, the following discussion will help you to explore those steps and may guide you to prepare the diagnostic tests.

34.2 Objectives

After studying this Unit, you will be able to

- Explain the meaning and nature of diagnostic tests
- List out the steps of diagnostic test construction
- Explain the different steps of diagnostic test
- Justify the significance of interpretation of results.
- Describe the process of interpreting the results.

34.3 Diagnostic Tests

Basically diagnostic tests are of paper-pencil (pen) type tests that could be of one of the achievement tests. The process of diagnosis is a phased activity in which a teacher not only checks the achievement of student but also aims at the total improvement in the student's personality. Hence, this needs not only evaluation, but something beyond that known as educational diagnosis.

The Diagnosis which is used for the rectification of the weaknesses is called "Corrective Diagnosis". At the level of locating the weaknesses of students we need special purpose achievement tests called diagnostic tests. Before knowing the construction of diagnostic tests let us try to understand the meaning and nature of diagnostic test.

34.3.1 Meaning and Nature

It is neither formative test nor a summative test, but can take up the support of these two. Diagnostic tests are utilized for the placement of students, i.e. before the

instruction begins. This often depends upon the results of summative evaluation. Such type of diagnostic test determines the status of students in relation to prerequisite behaviors, level of mastery of each unit, aptitude, or interest thought to be pertinent to a particular type of instruction.

If the diagnostic tests are used to see the effectiveness of teaching, it is administered during an ongoing process, may be in conjunction with formative evaluation. If a student is not showing learning outcomes at a satisfactory level, and continues to exhibit symptoms of failure or disinterest, then diagnostic tests probe deeper to try to discover the cause. It may be through forming hypotheses here. Like, a teacher hypothesizes about the reasons for those persistent learning difficulties based on observation, and then systematically checking each hypothesis, often by referring the student to medical psychological, guidance or remedial specialists.

In many ways, diagnostic tests resemble aptitude tests, particularly in that they give subscale scores for important skills and abilities related to the performance being diagnosed. For example, a diagnostic test on Reading Competence give scores for the following important general characteristics of reading performance; Silent Reading, oral reading, oral vocabulary, reversals, phrase, perceptions, spelling etc.

In certain commercial diagnostic tests, the performance of a student on the group of items making up a sub scale is compared with the performance of a normative group of some kind. The student's score may be in terms of how his performance compared with that of students at various age or grade or in terms of his rank. That is, one is told that he is more or less proficient than others in each of the characteristics being measured.

Diagnostic tests used for placement of the students, usually will result in the formation of individual profile. Diagnostic tests will contain the questions or items that are exhaustive to cover each and every learning point. That is to say, on each learning point there has to be a multiplicity of items in a diagnostic test. The items on each learning point actually constitute a sub-test. We get the diagnostic value of the test from the fact that the total score consists of a large number of part scores on these sub-tests. It is the analysis of these part scores that helps us in diagnosis. We can hence say that, the coverage in a diagnostic test is always much more detailed than in any achievement tests. Therefore, as a natural corollary, it has preference to be based on a smaller subject area than any other tests. As we want to cover each and every learning point, a diagnostic test requires a very careful analysis of the content and detailed study of the common errors made by students.

Another characteristic feature of a diagnostic test will be that by and large, the questions or the items of a diagnostic test are of low difficulty level because the purpose here is not to discriminate among students but to locate their weaknesses.

In a diagnostic test generally no time limit is prescribed. And the test items in a diagnostic test will be arranged around corresponding learning points which are themselves sequenced in order of their complexity.

‘Check Your Progress’ - I

1. Basically the diagnostic test are type
 - a) Paper - pencil Performance
 - b) Oral
 - c) Performance
 - d) All the above
2. The diagnosis which is used for the rectification of the weaknesses is.....
 - a. Placement Diagnosis
 - b) Corrective diagnosis
 - c) Diagnosis of entry behavior
 - d) None of the above
3. The placement diagnosis is done.....
 - a) After a unit is taught
 - b) While the unit is going on
 - c) Well before the beginning of the unit
 - d) Just before the completion of the unit.
4. In many ways, a diagnostic test resembles.....
 - a) Aptitude test
 - b) Achievement test
 - c) Norm referenced test
 - d) Criterion referenced test.
5. Diagnostic tests will contain the questions or items,
 - a) As exhaustive as possible
 - b) As limited as possible
 - c) Upto a moderate level
 - d) All the above

34.3.2 Construction - Steps

Though there are certain standardized, commercial diagnostic tests, the teacher made diagnostic tests are more meaningful and relevant to the learner’s problems in learning. Teacher made diagnostic tests will largely be more economical and effective than standardized tests. Usually, the norms which constitute a strong point with

standardized tests are not called for in diagnosis, as the purpose is to discover the weaknesses of individual students, rather than compare their achievements. The preparation of a diagnostic test requires a special technique different from the one used for building other types of tests. (Norm - referenced, criterion referenced etc.,) Only thing, that the standardization could be done for the improvement of the quality of questions, that's all! Hence, we shall concentrate only on the construction of teacher made diagnostic tests.

The different, sequential and inter-related steps of construction of diagnostic tests will be as follows:

- a. Planning
- b. Writing items
- c. Assembling the test
- d. Providing the directions
- e. Preparing the scoring key and making the scheme
- f. Reviewing the test

In order to be able to make correct diagnosis a teacher needs much more data on the specific difficulties of pupils. Diagnostic test have therefore to be much longer than the achievement tests, to make necessary sub-tests sufficiently reliable. It needs much more detailed, rather exhaustive content analysis. The unit on which a diagnostic test is based should be broken into learning points with an attempt not to omit any of them. If, suppose, some learning points are omitted, the test will become faulty as the weaknesses of those students who are deficient in them will go untouched. The diagnostic procedure is based on the assumption that mastery of the total process can be no stronger than that of the weakest link in the chain of related concepts and skills.

Accordingly, each concept, skill or learning point called into play in the total process is identified at the time of designing and then measured. Here we are not interested in deciding their relative weightages. The basic principle is to cover all of them to give an unbroken sequence. How to cover them effectively is the real issue. Perhaps on each learning point an adequate number of questions will have to be given to provide decisive evidences. If objective type or very short answer questions are used, there should preferably be an odd number of them and never less than three on each learning point. For most of the diagnostic tests in various subjects, the process part will tend to merge with the content, unless process is required to be separated from content for special reasons. All the forms of questions can be employed for testing different learning points.

As we want to collect evidences on all the points, it is desirable to use their short answer or objective type questions. But in case of objective type questions, the number of responses is limited and there will be a serious handicap in case of the student who wants to respond in a different way from what is provided for in the responses. Hence, for diagnostic purposes, short - answer questions involving one or two steps should by and large, be preferred, especially in subjects like mathematics.

But the questions must and should be of easy type in general. A few questions here and there may be of average difficulty level but seldom should a question be difficult for the average students of that age or grade.

Diagnostic tests should not have time restrictions. And diagnosis should be individualized as much as possible and every student should be allowed as much time as he reasonably needs. For the sake of administrative convenience some time limit in which students should try to finish may be indicated along with clear directions that they take more time, if required. It is worth while you to note that, as we do not have to relate content and process, the preparation of a blue print may altogether be avoided in case of a diagnostic test. But you may somewhere notice the number of questions to be asked on different elements.

Writing items for a diagnostic test is not, in any way, different from writing items for a general achievement test. The questions have to be specifically related to the learning points and should be so designed as to throw light on the weaknesses of students. And also these questions must be put in simple and unambiguous language. The scope of the answer or the level of precision expected should also be made clear.

After the items on different learning points are written or selected, they have to be assembled into a test. The basis of arranging questions in a diagnostic test is entirely different from that of other tests. There appears to be a good deal of justification in favor of clubbing questions around points, even when they are of different forms. The learning points themselves can be arranged in order of their complexity. If they are so arranged, the students do not have to change their mental sets very frequently. Moreover, this arrangement also helps in analysing the responses of students with a view to identify their weaknesses, which is one of the important tasks in diagnostic testing.

To complete the test, a set of instructions have to be drafted. It should also be provided with a scoring key and marking scheme. It has to be finally reviewed and edited. This is done to weed out inaccuracies or lapses of wording etc., An analysis of the test listing down learning points with corresponding questions may be prepared at least for the use of other teachers.

‘Check Your Progress’ - 2

I. State whether the following statements are true or false:

- a. Usually the norms which constitute a strong point with standardized test are not called for the Diagnostic tests.
- b. Diagnostic tests will be much longer than the achievement tests.
- c. Content analysis is not an essential step for the construction of a diagnostic test.
- d. Essay type questions are the most used items, in any diagnostic tests.
- e. Scoring key and marking scheme are the integral parts of diagnostic test.

34.3.3 Interpreting Results

It may be of the fundamental notion by the teachers that a conduction diagnostic test is going to be an extra burden on them. But, you should know that, it is not expected that diagnostic tests will be routinely and regularly used as unit tests or like that of some other tests.

Most of the diagnosis will continue to be done, as at present, with the help of achievement tests supplemented by teacher’s observations and school records. It is very true that for locating the weaknesses of students specially designed tests prove themselves to be more scientific. Nevertheless, it is neither necessary nor practicable to give such a test to the class for each and every unit. Hence a teacher should in fact draw up some minimum programme for diagnostic testing. For example, in case of mathematics, the concepts will be sequential and hence, weakness in any concept is bound to have implications for all subsequent units. But there are certain very crucial areas like four fundamental operations which play a very important and crucial role in the comprehension of the subject. The teacher should identify such areas for which diagnostic testing may be provided for in the minimum programme. For other areas, he may continue depending on unit tests and other crude means of educational diagnosis. What is needed is an awareness of the significance of diagnosis. Some sort of diagnosis is always there as it is an inseparable part of good teaching. All that is required is consciousness on the part of the teachers for the use of diagnosis and to put it on a scientific basis, as far as possible.

In the above context, you might have felt by this time, that if the diagnostic tests are constructed and administered over the target, the job is not over. It is the analysis of the student’s performance which becomes more significant, involving scoring and interpretation of the results. However, the scoring procedure and scheme of evaluation is determined during the construction of a diagnostic test itself. Based on this a teacher

will evaluate the students' performance. 'Interpretation of the results, is nothing but, giving meaning to marks - This is better done with the help of a student - item chart. A sample of it that can be used in case of objective type or very short answer questions given in Table 33.1 of modifications in case of short answer and long answer questions.

This is similar to the item analysis chart. It is a two-way grid in which students are listed along the vertical axis while items for various learning points are listed along the horizontal axis. It is preferable to take the students in ascending or descending order of their performance on the test. The learning points and various items on them should as far as possible be arranged in ascending order of their complexity or difficulty level in the test itself so that in the student item chart we have only to keep them in serial order. The answer sheet of each student is separately analysed putting 'X' against the item done wrongly, '0' for the item which is omitted and leaving the space blank if the question is attempted correctly. If sufficient time has been given, then assuming that there is no guessing, the questions omitted should convey the same meaning as those done wrongly. If the ordering of the items is correct, the 'crosses', and 'omits' will tend to occupy a compact portion of the student item chart towards the lower right hand corner, if the students are arranged according to the descending order of their performance.

The above explained analysis helps in locating the weaknesses of the students as revealed by the test. If most of the students come out to do poorly on a particular learning point we get an indication that something is wrong with the instruction relating to that learning point itself. But the causes of such weaknesses have to be explored properly before any remedial programme can be planned.

'Check Your Progress' - 3

1. Diagnostic Tests.....
 - a. Need not be routinely and regularly used
 - b. Should be used as unit tests
 - c. Need unit tests
 - d. None of the above
2. Diagnosis is
 - a. Inevitable programme
 - b. An inseparable programme of good teaching
 - c. A burden on the teachers

- d. All the above
- 3. Analysis of diagnostic tests involves
 - a. Scoring
 - b. Collection of data
 - c. Scoring and interpretation of the results
 - d. Remedial measures
- 4. Diagnostic test items, usually will be
 - a. Questions of essay type answer
 - b. Questions of short answer type
 - c. Objective questions
 - d. Objective type and very short answer questions.....
- 5. On an item analysis, any information has to be arranged
 - a. Either ascending or descending order
 - b. Ascending order only
 - c. Descending order only
 - d. Haphazardly

34.4 Let Us Sum Up

This unit particularly has dealt with the information pertaining to diagnostic test. Diagnostic test is one amongst the powerful tools in the hands of a teacher in bringing a quality improvement in educational processes. Diagnostic tests could be used either for the placement of the students in terms of knowing their entry behaviour or could be used to explore the strengths and weaknesses of the students. As far as possible, standardized diagnostic tests are seldom used. It may be because of lack of their availability. But most of the time, diagnostic tests are constructed and used depending upon the needs of students.

Hence, teacher made diagnostic tests are more needed, as they seem to be more appropriate. Diagnostic tests are paper - pencil type tests. These tests will contain an exhaustive number of test items, covering each and every learning point. It will be much more detailed than any achievement tests. Usually the items that constitute a

diagnostic test will be of low difficulty level, because, the purpose here is not to discriminate among the students but to locate their weaknesses. The steps of constructing diagnostic tests include, planning, writing items, assembling the test, providing the directions, preparing the scoring key and making the scheme, lastly reviewing the test. Scoring the interpretation of the diagnostic test results is quite different from other type of tests. It is done with the help of a student's item chart. Instead of giving importance to the weightage, and acquiring marks by the student, the correct responses from the students are highlighted. Each answer of every student will be analysed to know its correctness or to know the mistakes done by the students. This type of analysis helps in locating the weaknesses of the students. And based on this, the suitable, remedial measures will be planned and implemented.

34.5 Answers to 'Check Your Progress'

'Check Your Progress' - 1

1. a) Paper - pencil performance
2. b) Corrective diagnosis
- 3' c) Well before the beginning of the unit
4. b) Achievement test
5. a) As exhaustive as possible

'Check Your Progress' - 2

1. True
2. True
3. False
4. False
5. True

'Check Your Progress' - 3

1. a) Need not be routinely and regularly used.
2. b) An inseparable programme of good teaching
3. c) Scoring and interpretation of the results

4. d) Objective type and very short answer questions
5. a) Either ascending or descending order.

34.6 Unit-End Exercises

1. What is diagnostic test? Explain in detail
2. Describe the steps of diagnostic test construction
3. Do we need diagnostic tests? Justify your answer.
4. How scoring and interpretation of the results vary with other tests?

34.7 References

1. Singha H.S: *Modern Educational Testing* - (1974)

UNIT - 35 □ DIAGNOSTIC TESTING - 2

Structure

- 35.1 Introduction**
- 35.2 Objectives**
- 35.3 Special Features of Construction of Diagnostic Tests in**
 - 35.3.1 Languages**
 - 35.3.2 Sciences**
 - 35.3.3 Mathematics**
 - 35.3.4 Social Studies**
- 35.4 Let Us Sum Up**
- 35.5 Answers to ‘Check Your Progress’**
- 35.6 Unit-End Exercises**
- 35.7 References**

35.1 Introduction

In the recent days diagnostic tests are occupying a dominant role than any other form of evaluation. Definitely this speaks about its significance. The quality improvement and the diagnostic tests are inseparable, integral parts, - according to the new demand set by the society, now a days. You might have noticed that, the school system has been changed from annual examination pattern to trimester system. And here, it is decided to have more and more number of diagnostic tests, and it is prescribed that each unit has to be followed by such diagnostic tests and the respective follow - up activities. In this context, all the subjects are taught, and will be followed by the respective diagnosis. Students are allotted the grades. Here the essence is not to gauge the student by means of his scores but to get a confirmation about his level of learning outcome.

The philosophy behind the construction and implementation of the diagnostic tests will be the same irrespective of the subjects. But still each subject will have its own specificity as far as its diagnostic tests are concerned. It is because, each subject, whether

it is language or any of the core subjects, is designed with its own general objectives. And these general objectives will be broken down into specific objectives or instructional objectives, confining to the prescribed instructions. And these objectives are achieved by means of developing the required competencies among the students. This is how a teacher plans. Suppose, such achievements are not possible with a certain group of students, then diagnosis is needed. For such cases, each subject should have quite a good number of diagnostic tests. It is in this context, the present unit has been designed. So, in this particular unit, you will come across the special features of construction of diagnostic tests in languages, sciences, mathematics, and social studies. And intermittently you get the 'Check Your Progress' items also. And lastly a brief summary is given.

35.2 Objectives

After studying this Unit, you will be able to:

- List out the special features of construction of a diagnostic test in languages.
- Construct a diagnostic test in the language subject.
- Mention the special features of construction of a diagnostic test in science.
- Construct a diagnostic test in the science subjects.
- Point out the special features of construction of a diagnostic test in mathematics
- Construct a diagnostic test in the subject mathematics
- List out the salient features of construction of a diagnostic test in the subject social studies
- Construct a Diagnostic Test in the subject social studies.

35.3 Special Features of Construction of Diagnostic Tests in

As it has been implied in the objectives of this unit, each subject area will have its own salient features as far as the construction of a diagnostic test is concerned. Hence, apart from the general perspective of the above said task, we shall have the specific information now. So, we shall look into the procedure and salient features of constructing diagnostic tests in languages and core subjects sequentially one after other with suitable examples.

35.3.1 Languages

To diagnose the learning difficulties among the students, a teacher as a first and foremost rule, must be very thorough with the objectives in general and instructional objectives in particular. The instructional objectives or the general objectives help a teacher to inculcate certain competencies among the students. These competencies are nothing but the learning outcomes. The competencies usually developed through language teaching will be pronunciation, communication skills, writing ability, sentence construction, summarizing, which could be categorized under knowledge, comprehension expression and appreciation objectives.

According to the guidelines and the directions prescribed by ‘Sourabha’, Training manual for trimester system - for primary and secondary school teachers - DSERT – 2004, a teacher must assess the achievement of students by keeping 25%, 45%, 30% and 50% weightage to the competencies that are coming under the objectives, knowledge, comprehension expression and appreciation respectively.

The directive principles have clearly set the characteristic features of a diagnostic test, they are as follows.

- a. Diagnostic tests caters to the individual differences.
- b. It detects the learning difficulties / deficiencies as well as their nature that are faced by the students.
- c. It helps the personality development of the students through systematic analysis
- d. Every diagnostic test will have its own specific objective.

The directive principles also say that, the child entering to the secondary school stage, must get diagnosed first. This will be for the placement purpose. Here the weaknesses of the students will be identified. So, a sample of such diagnostic tests in the I Language Bangla and II Language English has been cited below. You can take these tests as frame of reference and later, construct your own diagnostic test, depending upon the need that arises.

Eg : 1 Diagnostic Test in English

Eg : 2 Diagnostic Test in Bangla

DIAGNOSTIC TEST - ENGLISH

Marks: 50

Time: 90 minutes

I. Complete the following sentences filling in blanks with suitable words from those given within the brackets

- 1) This is a secret. Please don't tell.....
(Something, somebody, anybody)
- 2) Helen is studying law University
(In, At, On)
- 3) Silvia took a key her lay and opened the door
(Over, from, out of)
- 4) Rani did very..... in her exams
(Good, well, letter)

II. Rewrite the following sentences using adjective given in the brackets

1. Rama is the owner of the father property (lawful)
2. A war was brought between Puru and Alexander (Fierce)
3. I saw a mountain; it was a sight (Wonderful)

III. Give one word substitute for the following

1. Young member of noble family
2. An act of killing one self
3. A person who goes to holy places
4. A man whose wife is dead

IV Fill up the blanks with suitable preposition

1. I have been invited to a wedding 14 February
2. Hurry up! We have got to go five minutes
3. There are usually a lot of parties..... New Year's Eve
4. The Telephone and the door bell rung same time.

V. Use the following phrasal verbs in your sentence to bring out its meaning

1. Carry on
2. Give up
3. Bring out
4. Keep up

VI. Write the figure of speech used in the following line

1. A camel is the ship of the desert.
2. Just as we use a ship to cross of the sea, we use a camel to cross the desert

VII. Find out animals and their young ones:

1. Sheep
2. Goat
3. Hen
4. Cow

VIII. Change the following sentences as directions given in the brackets:

- a. The boy is intelligent, the boy is hard working (change into compound sentence)
- b. The old man is too weak to walk (Removing too)
- c. December is the coldest month (change into comparative degree)
- d. Am, I a fool? (Change into Assertive sentences)
- e. I said to you, "I am your friend" (Change indirect speech)

IX. Write an application to the general manager for the post of a clerk in your company

X. Write two paragraphs about any one of the following

1. D.Ed
2. Social Service
3. Educational Technology
4. Primary Education

XI. Translate the following passage into Bangla

The queen mother said to the Dewan "Enemies have captured my son by deceit my son you are first my son's friend and then his minister. Bring my son to me.

XII. Translate the following passage into English

XIII. Read the following passage carefully and answer the following questions

Vallabhabhai Patel lost his wife in 1909. He had admitted her to a hospital in Bombay for treatment. He had to conduct an important murder case in Borsad. Therefore he had to come away in the mean while the illness suddenly took a serious turn. The doctor had to conduct an urgent operation in Vallabhabhai's absence.

Vallabhabhai Patel was concluding cross examination in the court, when the telegram was put into his hands, if the cross - examination was not continued and completed that day. The case might well go against his client. Patel controlled his grief and continued the cross examination. This shows that he put service above self of course he felt very sorry that he was not by the side of his wife's death bed. He was only thirty three. When he became bereaved his friends and relatives forced him to marry again. But he firmly refused. His wife had let him a son and a daughter in whom Patel found solace.

Questions.

1. If Patel continued cross examination, without acting on the telegram, what does it show?
2. Why did doctor conduct an operation in Patel's absence?
3. Why did Patel return to Borsad soon after he admitted his wife to a hospital in Bombay?
4. Why did Patel continue and complete cross - examination that day?

35.3.2 Sciences

Like in all the subjects, science teaching also aims at developing certain competencies among the students.. The competencies that are to be developed through science teaching have been recognized as "Science process skills". These science process skills include observation, identification, classification, experimentation, drawing inference, hypothecation etc. The diagnostic tests help a teacher, to check whether these competencies have been acquired by the students or not. This is always done after the completion of a unit or one or two units collectively. You can go through the following diagnostic test as a sample, which has been designed for 9th standard students.

Standard: IX

Time: 90 minutes

Part – I and part - II

Instructions:

1. **Four alternatives are given below for each question. Select the correct answer and indicate by putting a tick mark.**
 2. **All questions are compulsory**
1. A piece of transparent material that has at least one curved surface is called a

- a. Mirror
 - b. Lens
 - c. Glass slab
 - d. Prism
2. A myopic eye can be corrected by using a
- a. Convex lens
 - b. Concave lens
 - c. Concavo Convex lens
 - d. Plano concave lens
3. An object of 2 cm height is kept at twice the focal length of convex lens. The height of the image formed in cm is
- a. 1
 - b. 2
 - c. 3
 - d. 4
4. A small electric lamp placed at the focal point of convex lens after refraction will produce a beam of light.....
- a. Parallel
 - b. Converging
 - c. Diffused
 - d. Diverging
5. The most suitable pair of lenses for construction of compound microscope is
- a. Two convex lenses of different focal lengths
 - b. Two convex lenses of same focal length
 - c. Two concave lenses of different focal lengths
 - d. Two concave lenses of same focal length

(Part I and Part II)

Instructions:

- 1. Four alternatives are given below for each question. Indicate by putting a tick mark.**
 - 2. All questions are compulsory**
1. The planet which is nearest to the Earth is
- a. Venus
 - b. Mars
 - c. Mercury
 - d. Pluto
2. Most of the asteroids are found between the orbits of.....
- a. Mercury and Venus
 - b. Venus and Earth
 - c. Earth and Mars
 - d. Mars and Jupiter

3. The first planet discovered through telescope is
 - a. Saturn
 - b. Uranus
 - c. Neptune
 - d. Pluto
4. Ozone layer protects us from.....
 - a. Ultra Violet Rays
 - b. Infrared radiation
 - c. Solar wind
 - d. Magnetic storm
5. Venus is the brightest planet because it is
 - a. Nearer to the sun
 - b. Self luminous
 - c. Has thick atmosphere
 - d. Moves in orbit
6. The number of valence electrons in an oxygen atom is
 - a. 2
 - b. 4
 - c. 6
 - d. 8
7. Which of the following is a strong electrolyte?
 - a. Potassium Nitrate
 - b. Ammonium Hydroxide
 - c. Acetic acid
 - d. Water
8. Butter is an example for which type of colloid?
 - a. Solid in solid
 - b. Solid in liquid
 - c. Liquid in solid
 - d. Liquid in Liquid
9. Atomic mass of Cu is 64 and its valency is 2. The chemical equivalent of Cu is
 - a. 32
 - b. 62
 - c. 66
 - d. 128
10. Which one of the following exhibits Tyndal effect?
 - a. Sugar solution
 - b. Dilute milk
 - c. Dilute acid
 - d. Salt solution
11. The phenomenon used for cloud seeding is
 - a. Coagulation of colloids

- b. Brownian movement
 - c. Tyndal effect
 - d. Electrolysis
12. The factor on which the mass of the metal deposited on the cathode, during electroplating depends on
- a. Strength of the current
 - b. Thickness of the anode
 - c. Thickness of the cathode
 - d. Concentration of electrolyte
13. The size of the colloidal particles is
- a. Less than $10\ \mu\text{m}$
 - b. From $10\ \mu\text{m}$ to $1\ \mu\text{m}$
 - c. From $1\ \mu\text{m}$ to $20\ \mu\text{m}$
 - d. Greater than $20\ \mu\text{m}$
14. In the upper atmosphere, Oxygen is converted to Ozone by the absorption of this radiation
- a. Visible b. Infrared
 - c. Ultraviolet d. Gamma
15. 1.008g. Silver Nitrate is produced when 1 Coulomb charges flow through a solution of Silver Nitrate. Then the electro chemical equivalence of silver is.....
- a. $0.001118\ \text{gm} / \text{Coulomb}$
 - b. $0.118\ \text{gm} / \text{Coulomb}$
 - c. $0.00811\ \text{gm} / \text{Coulomb}$
 - d. $1\ \text{gm} / \text{Coulomb}$
16. The method of dehydration adopted in the preparation of milk powder is.....
- a. Vacuum drying
 - b. Sun drying
 - c. Hot air blowing

- d. Evaporation by heating
- 17. In irradiation method, the food is exposed to
 - a. Alpha rays
 - b. Beta rays
 - c. Gamma rays Ultra Violet rays
 - d. Evaporation by heating
- 18. A Fumigant will be effective when sprayed
 - a. In the open field
 - b. Between stored bags
 - c. Near the rat holes
 - d. Inside the bags before filling
- 19. Generally we keep curds in a fridge during summer the reason for this is to :
 - a. Avoid further fermentation of the curds
 - b. Keep the curds cool for the season
 - c. Increase the taste of the curd
 - d. Prevent from contamination
- 20. The permafrost is a characteristic feature of
 - a. Desert biome b. Deciduous Forest
 - c. Tundra Biome d. Aquatic Biome
- 21. One of the following is not true with regard to diverse animal life in euphotic zone
 - a. Abundant availability of food
 - b. Optimum penetration of light
 - c. Maximum availability of oxygen
 - d. Less danger of predators
- 22. The correct order of ecological units is
 - a. Biosphere, Population, Community, Biome
 - b. Biome, Community, Biosphere, Population
 - c. Population, Community, Biome, Biosphere

- d. Community, Biome, Population, Biosphere
23. The group of organisms which occupy the same trophic level
- a. Bear, Fox, Wolf
 - b. Tiger, Cow, Zooplankton
 - c. Hawk, Snake, Lion
 - d. Phytoplankton's, Larva, Kingfisher
24. Man has developed both power grip and precision grip due to?
- a. More number of joints in each digit
 - b. Thumb opposing all the other digits
 - c. Powerful muscles of the digits
 - d. Greater flexibility of the wrist
25. In a cross between a tall and dwarf plant in the F1 generation all the pea plants were found to be tall. Which one of the following explains this?
- a. Dominance
 - b. Segregation
 - c. Unit characters
 - d. Independent Assortment

Part - II

1. Write two differences between real and virtual images
2. Why does a concave lens produce virtual image irrespective of the position of the object?
3. How is crust of the earth useful to living beings?
4. Explain how distribution of heat is possible in the earth?
5. Draw a neat diagram of the experiment to verify the Faraday's second law and label its parts.
6. Construct any two types of food chains out of the following organisms and name each type
Fallen Litter, Tree, Protozoa, Algae, Bird lice, Fishes, Earthworm and Birds
7. How does the tropical evergreen forest biome differ from the desert biome with respect to the following?

a. Annual Rainfall b. Distribution of Flora

8. Indicate with a diagram, F₂ generation is a Dihybrid Tall plant with grey seed coat (TG) and Dwarf plant with white seed coat (tg)

35.3.3 Mathematics

A teacher will sense a sort of dissatisfaction when the expected or anticipated learning outcome has not been achieved while analyzing the student's performance, either through oral interaction or through unit test. In order to understand this drawback, a teacher uses the diagnostic test. This Diagnostic test reveals the competencies which have not been achieved by the students.

- The competencies which have not been attained at the mastery level will be listed
- Based on the mistakes or the wrong answers, further analysis will be carried out.
- That will be followed by the listing of competencies, teaching points and learning outcomes.
- Arranging them in an ascending order so that the teaching point, learning outcomes and competencies will be moving from easier level to difficult level.
- Each concept or teaching point must be tested at least through three questions
- Care must be given to see the adequacy of the diagnostic test so that, it will have optimum to maximum number of questions that exceeds the total number of questions in a unit test.
- All the directions must be clearly specified.
- Usually time should not be fixed, but a teacher can manage suitably according to the situation.
- Diagnostic tests could evaluate by means of item analysis method.
- Based on the obtained results or the finding the appropriate, suitable remedial measures have to be framed.

In the subject, mathematics, based on decimal fractions, a diagnostic test could be constructed as follows:

(As only short answer questions have been used, the student item chart used for analyzing responses will need modification. For indicating questions, on the chart which

are partially correct, some appropriate symbol like 0 may be used. A marking scheme for the test has also been provided.

Diagnostic Test on Decimal Fractions

Instructions:

1. This test will not affect your final result in any manner. It is only meant to find out your strengths and weaknesses so as to guide your teacher.
2. Try to work out all the questions in the test.
3. There is no time limit but try to finish the test in two hours.
4. You may find some of the questions difficult. In such a case do not waste time, go on to the next.
5. Solutions to questions may be written on the answer book provided for the purpose. All the working may be shown as a part of the solutions.
6. Marks are immaterial in this test. Nevertheless, each correct answer will fetch two marks.

Answer the Following Questions

1. Express 32.81 in words
2. What is the place value of 7 in 1.3472?
3. How many times is the place value of 3 to the left of the decimal point than that of 3 to the right in 135.632?
4. How many ciphers can be annexed to the right of 6 in .6?
5. How many times is .700 of .7?
6. Which one of .390, .039 and 0.39 is different from the other two ?
7. Add 8 and .75
8. Add .03 and 20
9. What will be the sum of 19 and 1.32?
10. Add 7.5 and 1.2
11. Simplify $13.8 + 18.3$
12. Add 15.7 and 15.05
13. Add 5.34 and 53.4
14. Simplify $3 + 15.7 + 29.003$

15. Subtract 7 from 18.34
16. Subtract 28 from 28.15
17. Simplify 49.01-40
18. Subtract 1.1 from 7.5
19. Subtract 17.39 from 28.78
20. Simplify 65.32 - 6.5
21. Simplify .5 - .19
22. Subtract .0075 from .02
23. Subtract 11.5 from 30
24. Simplify 31 - 3.003
25. What decimal fraction when added to 364.0356 gives 1000?
26. Simplify $3.7 + 7.3 - 1.1$
27. Simplify $8 - 10.5 + 3.11$
28. How much does the sum of 32.03 and 17.96 exceed the sum of 25.67 and 8.7?
29. Simplify 89.321×100
30. Simplify 75.1×10^2
31. Multiply 7.4 by 1000
32. Multiply 3.29 by 2
33. Multiply 42.51 by 12
34. Simplify $.3125 \times 16$
35. Multiply 6.25 by .08
36. Multiply .25 by .25
37. Simplify $16 \times .125 \times .3125$
38. Divide 37.3 by 10
39. Divide .41 by 100
40. What will you get on dividing 31.5 by 10^5 ?
41. Divide 2.87 by 7

42. Divide.216 by 6
43. Simplify $3.2 \div 25$
44. Divide 25 by.5
45. Divide 6 by .15
46. Divide 35 by.56
47. Divide 1.69 by 1.3
48. Simplify. $1 \div .0005$
49. Simplify $.00143 \div .065$
50. Simplify. $7 \times .001 \div 35$

Marking Scheme

1. Three tens, two units, eight tens and one hundredth	2	2
2. One thousandth	2	2
3. Correct place values Correct Answer	$2 \times 1\frac{1}{2}$	2
4. Any number	2	2
5. They are equal	2	2
6. .039	2	2
7. 8.75	2	2
8. 20.03	2	2
9. 20.32	2	2
10. 8.7	2	2
11. 32.1	2	2
12. 30.75	2	2
13. 58.74	2	2
14. 47.703	2	2
15. 11.34	2	2

16.	0.15	2	2
17.	9.01		2
18.	6.4		2
19.	11.39		2
20.	58.82		2
21.	.31		2
22.	.0125		2
23.	18.5		2
24.	27.997		2
25.	635.9644		2
26.	Correct addition Correct and Answer as 9.9	1 1	2
27.	Correct addition Correct subtraction and answer as .61	1 1	2
28.	Correct additions $2 \times \frac{1}{2}$ Correct subtraction and answer as 15.72	2 1	
29.	8932.1		2
30.	7510		2
31.	7400		2
32.	6.58		2
33.	510.12		2
34.	Correct multiplication of Nos. Correct placement of decimal point and Answer as .5		1
35.	Correct multiplication of Nos. Correct placement of decimal point and Answer as .5		1
36.	Correct multiplication of 25×25 Correct placement of decimal point and	1	

Answer as .0625	1		
37. First correct multiplication	1		
Second Correct multiplication and Answer as .625			
38. 3.73	1	2	
39. .0041	2	2	
40. .00315	2	2	
41. Correct division of 287 by 7	1		
Correct placement of decimal point and Answer as .41	1	2	
42. Correct division of 216 by 6	1		
Correct placement of decimal point and answer as .036			
43. Correct division of 3200 by 25			
Correct placement of decimal point to give Answer as .128	1	2	
44. Correct division of 25 by 25	$\frac{1}{2}$		
Correct placement of decimal point to give Answer as 50	$1\frac{1}{2}$	2	
45. Correct division of 60 by 15	1		
Correct placement of decimal point to give Answer as 40			
46. Correct division of 3500 by 56	1		
Correct placement of decimal point to give Answer as 62.5	1	2	
47. Correct division of 169 by 13			1
Correct placement of decimal point and Answer as 1.3			

48. Correct division of 10 by 5		$\frac{1}{2}$
Correct answer	$1\frac{1}{2}$	2
49. Correct division of 1430 by 65		1
Correct answer	1	2
50. Correct multiplication		1
Correct division and answer as .00002		

Analysis of the Diagnostic Test

Learning Point	Various Aspects of the Learning point	Questions
1.0 Concept of a decimal fraction	1.1 Place value	1-3
	1.2 Any number of ciphers can be annexed to the right of decimal fraction	4-6
2.0 Addition	2.1 Addition of a whole number to a decimal	7-9
	2.2 Addition of two decimals	10-14
3.0 Subtraction	3.1 Subtraction of whole number from a decimal	15-17
	3.2 Subtracting one decimal fraction from another	18-22
	3.3 Subtracting a decimal from a whole number	23-25
	3.4 Addition and subtraction combined	26-28
4.0 Multiplication	4.1 Multiplying by powers of 10	29-31
	4.2 Multiplying by whole numbers	
	4.3 Multiplying one decimal by another	
5.0 Division	5.1 Dividing by powers of 10	38-40
	5.2 Dividing by whole numbers	41-43

5.3	Dividing a whole number by a decimal fraction	44-46
5.4	Dividing one decimal fraction by another	47-79
5.5	Multiplication and division combined	50

‘Check Your Progress’ - 1

State whether the sentences are true or false:

1. Usually a teacher constructs a diagnostic test based on the analysis of performance of the students on a unit test.
2. Diagnostic test should not have time restrictions.
3. Diagnostic tests are evaluated by means of item analysis.
4. In diagnostic test, the focus will be on the content and the competencies.
5. All the directions must be clearly specified in a diagnostic test.

35.3.4 Social Studies

The teaching of social studies at secondary school level aims at developing certain competencies among the students. The major competencies that are identified by the educationists are data collection, interpretation, prediction, extrapolation, analysis, synthesis, evaluation based on internal and external evidences, etc,. After teaching a natural bit of information, a teacher can check whether the students have acquired some of the above said competencies. This could be done by administering a diagnostic test over the students. A sample of the diagnostic test has been given below for your reference.

Standard: IX

Time: 90 minutes

(Part I and Part II)

Instructions:

Part - I

- a. *Four alternatives are given below for each question. Select the correct answer*

and indicate by putting a tick mark.

b. All questions are compulsory

1. The Author of “Canterbury Tales” in English
 - A. *Baccacio*
 - B. *Dante*
 - C. *Petrarch*
 - D. *Chaucer*
2. The Pacific Ocean was discovered by
 - A. *Cabral*
 - B. *Christopher Columbus*
 - C. *Balboa*
 - D. *Amerigo Vespucci*
3. Division of labour helps to reduce the cost of
 - A. *Production*
 - B. *Machinery*
 - C. *Raw materials*
 - D. *Powder*
4. The Commander in chief of all the armed forces of our country is
 - A. *President*
 - B. *Vice-President*
 - C. *Prime Minister*
 - D. *Defence Minister*
5. Important type of primary occupation is
 - A. *Lumbering*
 - B. *Banking and administrator*
 - C. *Education*
 - D. *Transport and communication*
6. The main components of Economic infrastructure are
 - A. *Housing and civic amenities*
 - B. *Education, trading and research*
 - C. *Transport and Communication*
 - D. *Welfare and Culture*
7. Which policy requires to import less and export more to increase a country’s wealth?
 - A. *Mercantilism*
 - B. *Capitalism*
 - C. *Socialism*
 - D. *Communism*
8. The year in which Portuguese navigator circum navigated the earth
 - A. *1500 A.D*
 - B. *1520 A.D*
 - C. *1522 A.D.*
 - D. *1525 A.D*
9. Which Scientist proved that planets revolve round the earth in an elliptical path?

- A. Copernicus B. Galileo
C. Newton D. Kepler
10. One of the causes for the rise of nation state in Europe was
- A. The crusades B. Rise of feudal lords
C. Encouragement to literature D. Wanted to discover new trade routes
11. In Europe trade with the east developed due to
- A. National Monarchies B. Renaissance
C. The crusades D. Reformation
12. In American war of Independence many French colonial people supported as
- a. They like Americans
 - b. Wanted to defeat the British
 - c. Both were British colonies
 - d. French wanted to establish their colony
13. Rousseau’s social contract means “The king who received taxes are to”
- a. Protect the rights of the people
 - b. Take care only during war time
 - c. Provide Justice
 - d. Protect their religion
14. Pick out the word that does not belong to the group:
- A. Territorial Army B. Coastal Guards
C. Indian Air Force D. Board security Force
15. Which organization among youth aims to develop a sense of discipline, and attitude for defence?
- A. Territorial Army B. Coastal guards
C. Border Security Force D. National Cadet Corps
16. Which regions are noted as world’s fishing ground

A. Tropical

B. Polar

C. Mid - latitude

D. Sub – polar

17. The countries engaged in commercial fishing on a large scale are
- British Island, Mexico, Canada
 - Korea, Japan, Indonesia
 - Myanmar, India, Sri Lanka
 - USA, UK, Norway
18. One of the causes for air pollution is
- | | |
|----------------------------------|------------------------------------|
| <i>A. Overgrazing</i> | <i>B. More use of ground water</i> |
| <i>C. Destruction of animals</i> | <i>D. Wild fire</i> |
19. By 2000 A.D. under the 20 point programme our government has committed itself to for all
- | | |
|----------------------|---------------------|
| <i>A. Employment</i> | <i>B. Education</i> |
| <i>C. Food</i> | <i>D. Health</i> |
20. How does “Sarva Shiksha Abhiyan” help our people?
- Give education to the people
 - House building to the poor
 - Providing employment to the people
 - Provide self employment to the weaker section
21. If Vascodagama had not discovered the sea route to India
- The Moghul rule would have continued
 - India would have enjoyed peace and prosperity
 - No colonies would have been established
 - No trade between the East and the West
22. What does the statue of Liberty at New York convey?
- Liberty and freedom
 - Democracy and secularism

- c. Equality and fraternity
 - d. Secularism and equality
23. Which president of America sacrificed his life for the sake of abolition of slavery?
- A. *George Washington*
 - B. *Abraham Lincoln*
 - C. *Roosvelt*
 - D. *John F. Kennedy*
24. Which countries had border clashes with India and now heading for harmony?
- a. Bhutan and Nepal
 - b. China and Pakistan
 - c. Myanmar and Bangladesh
 - d. Nepal and Sri Lanka
25. Sunder Lal Bahuguna is a famous
- A. *Writer*
 - B. *Environmentalist*
 - C. *Social reformer*
 - D. *Political Worker*
26.is the place where air pollution is very high.
- A. *Delhi*
 - B. *Chattisgad*
 - C. *Punjab*
 - D. *Uttar Pradesh*
27. Identify the recent means of communication
- A. *Mobile van*
 - B. *Colour TV*
 - C. *Internet*
 - D. *Radio*
28. Identify the invention of Compton
- A. *Spinning Jenny*
 - B. *Cotton Gin*
 - C. *Mule*
 - D. *Steam Engine*
29. The meaning of Mixed farming is
- a. Growing food crops and live stock
 - b. Poultry farming and sericulture
 - c. Rearing of cattle and sheep
 - d. Growing fruits and vegetables
30. Which country is noted for lumbering?

A. U.S.A

B. Brazil

C. Canada

D. Chile

Part - 11

1. Which are the four developmental causes for the emergence of Modern Age ? 2
2. Which are the banks established to provide loans to farmer? 2
3. How did scientific discoveries help in the exploration of the new sea route? 3
4. How are river plains of the developing countries suitable for agriculture? 3
5. Which were the factors that favored unification of Germany? 3
6. Explain the part played by Sunderlal Bahuguna in environmental protection? 3
7. Explain the role of defence forces during peace time. 4

‘Check Your Progress’ - 2

1. The competencies that are developed through language teaching are.....
2. The objective of teaching science subject is to develop.....
3. By learning mathematics students acquire the competencies of.....
4. ‘Map reading’ skill is acquired by learning the subject.....
5. The teaching of history will result in the development of competencies like.....

35.4 Let Us Sum Up

In this particular unit, information with reference to diagnostic test has been presented. Diagnostic tests could be utilized well in advance before starting the teaching of a unit. Then the purpose is said to be to decide the placement of the students. If the diagnostic test is administered after the teaching of a unit, then it tries to explore the strengths and weaknesses of the students and based on this, a teacher can design the enrichment programme or remedial measures. However, the philosophy behind a unit test will be the same, irrespective of any subject. But still each subject will have its own specification that makes it quite different from other subjects. Hence, languages and core subjects prefer to have the diagnostic tests with content specificity. In this unit, the salient features of constructing diagnostic tests in languages as well as the core - subjects

have been described. This is followed by a sample of diagnostic test respectively.

35.5 Answers to ‘Check Your Progress’

‘Check Your Progress’ - 1

1. True 2. False 3. False 4. True 5. True

‘Check Your Progress’ - 2

1. Acquiring knowledge; comprehension; appreciation and expression
2. Science process skills
3. Computing; hypothesizing and problem solving
4. Geography
5. Data collection; Interpretation; prediction and extrapolation

35.6 Unit-End Exercises

1. How do you construct a diagnostic test in languages?
2. What are the salient features of constructing a diagnostic test in the subject science?
3. Construct a diagnostic test in the subject mathematics of any standard of your choice
4. What competencies are evaluated through diagnostic test in the subject History?

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UNIT - 36 □ REMEDIATION

Structure

- 36.1 Introduction**
- 36.2 Objectives**
- 36.3 Remediation**
 - 36.3.1 Meaning, Nature**
 - 36.3.2 Need and Importance**
 - 36.3.3 Principles**
- 36.4 Techniques of Remediation**
 - 36.4.1 Remedial Instruction**
 - 36.4.2 Self Instruction Programmes**
 - 36.4.3 Reading Assignment**
 - 36.4.4 Group Study**
 - 36.4.5 Peer Tuition**
 - 36.4.6 Individualized Tuition**
- 36.5 Let Us Sum Up**
- 36.6 Answers to ‘Check Your Progress’**
- 36.7 Unit-End Exercises**
- 36.8 References**

36.1 Introduction

The analogy expressed between the teaching profession and the profession of medicine, is known to you. So as the doctors prescribe the medicines based on the symptoms, the teacher gives the curricular treatment by means of remediation. This unit especially deals with different varieties of remedial measures and also their respective significance.

Usually, diagnosis done while the instruction is going on will be to determine the underlying circumstances or causes of repeated deficiencies in a student's learning that have not responded to the regular instruction. Based on the observed symptoms of the learning disorder, the possible remedial actions are designed and executed. The causes for a student's failure in a formative unit may be physical, emotional, cultural or environmental in nature. Hence, the respective remedial measures also vary. Hence in this unit you will learn about the meaning, nature and importance of remediation. You will also come across the principles of remediation and later, you get the information with reference to techniques of remediation in general, and a few remedial measures in particular. For example, you get the details of remedial instruction, self instruction programme, reading assignment, group study, peer tuition, individualized tuition, as varieties of remediation.

36.2 Objectives

After studying this Unit, you will able to

- Explain the meaning of remediation
- List out the principles of remediation
- Describe the techniques of remedial instruction
- Explain the process of self - instruction programme as one of the remedial measures
- Narrate the techniques of reading assignment
- Justify the significance of group study
- Explain the nature of peer tuition
- Explain the importance of individualized tuition

36.3 Remediation

Once the pupil's difficulty is understood, we can proceed for applying the remedial measures. But you should be aware that, there is no set pattern or cut and dried formulae for remediation. In some cases it could be a simple matter of review and re-teaching. Where as in other cases, an extensive effort to improve motivation, correct emotional difficulties and overcome deficiencies in work study skills may be required. So, in the further discussion we shall try to concentrate on meaning, nature, need and importance of remedial measures.

36.3.1 Meaning and Nature

As you know the fact that “No two individuals are alike” - similarly, the problems faced by the students in the process of learning also varies from individual to individual. And also the hard fact is that there are no patent remedies in educational practice, for two students having the same learning difficulty may have suffered it because of different causes and may have to be tackled differently. Moreover, since each subject has its own genius and personality, remedial programmes will have to be planned accordingly. Obviously the planning of remedial programmes will differ slightly from subject to subject. That is to say “The ends may be the same, but the means will be different”.

If we take the example of language - teaching the teacher may locate problems faced by the students while learning, as follows:

I Type: Capitalization and Punctuation:

Possible causes of low test scores	Evidences
1. Lack of knowledge of specific and punctuation situations, capitalization	1. Types of errors made on the Tests and in student's other written work.
2. Tendency to over capitalize, over punctuate	2. High proportion of errors involving overuse of capitals or punctuation.
3. Carelessness in proof reading	3. Erratic and careless work in daily written expression in other subjects limited ability to detect errors in written copy.
4. Failure to associate sounds of letters and syllables with spelling of words	4. Results of individual informal test types of spelling errors in daily work
5. Failure to master a method of learning to spell	5. Poor methods of studying spelling.
6. Instructional emphasis on different vocabulary	6. Low score on test in contrast with good record for spelling in daily work.
7. Difficulties in seeing and learning	7. Handicaps detected by observation or medical examination
8. Poor reading comprehension	8. Low scores on standardized reading comprehension tests
9. Low mental ability	9. Low IQ as shown by reliable mental test.

Based on the analysis and exploring the possible causes for low scoring in tests the remedial measures are given respectively. Say for example, if the possible cause is, “poor reading comprehension”, then the remedial measure could be, providing instruction in vocabulary and reading comprehension at the level suggested by test results. And if the possible cause is “Inability to sense what is missing in sentence fragments” the remedial measure could be, giving practice in identifying complete subjects, and complete predicates, particularly in own writing. Provide exercises requiring recognition and completion of sentence fragments. So, in case of the subject mathematics if the possible cause is lack of computation skills, then the remedial measure could be on giving more stress on drill work.

36.3.2 Need and Importance

As would be teacher, you might know the recent developments in the field of education. It is equalization of educational opportunities, education for all; and now education has become a birth right to all Indians. Apart from this, universalization of education, in terms of universalization of enrolment, retention and attendance should also be assessed. This is again extended to declare the universalization of “quality learning”.

In order to bring a quality enhancement in the system of education especially at the primary level several projects have been launched by both central and state government. Sarva Shiksha Abhiyan is the running movement now. In order to achieve the ultimate goal in all the above said aspects, diagnosis and remediation will become the most inevitable factors. In order to remove the dichotomy between the rural and urban; men and women; the rich and the poor; we need a quality education. The class problems, learning difficulties and learning disabilities have to be detected and eradicated. This cannot happen without diagnosis and remediation. Hence, these are the strongest devices in the hands of a teacher.

36.3.3 Principles

Though the remediation varies with nature of the learning problems, subjects and the individuals, it has one thing common. That is the principles of remediation. Despite the different methods and techniques needed in remediation, there are certain guiding principles that apply to all subject areas and provide frame work in which the teacher can operate.

These guiding principles are as follows:

1. Remediation should be accompanied by strong motivational programmes.
2. Remediation should be individualized in terms of the psychology of learning.
3. There should be continuous evaluation giving the pupil knowledge of results.

Now let us try to understand the above said principles in detail by taking one by one.

Remediation and Motivation: The importance of motivation cannot be over-emphasized. No remedial measures can succeed unless the students are duly motivated to take them. “You can take the horse near a pond; you cannot make it drink”. The horse has to do it. Therefore the purposes of the measures should be related to the needs of the students who should feel convinced of their utility. Students should take up the remedial activity willingly. Like the horse in the above said proverb, the students should be made to feel the thirst for remediation.

Individualized Remediation: Inter-related with motivation is the question of individualization of remediation. It is because remedial measures given on individual basis without any doubt will be more motivating. But it is also true that to individualize all sorts of remedial measures is highly impossible. It is because of so many practical problems. In this context, a teacher can visualize the fact from a different angle. That is, there will always be students having similar difficulties caused by factors which can be taken care of collectively, at least in the scholastic field. Such students can be conveniently grouped together.

Continuous Evaluation: Remediation does not end the moment remedial activities are given to the students. Rather it will be the beginning step. Appropriate steps should be taken to find out as to how far they have succeeded. Remediation should be continually evaluated because as it proceeds new problems, new difficulties and new needs among students may arise necessitating a rethinking. Hence, the remedial programme should be modified to meet the demands of the situation.

But experts are of the opinion that, prevention is better than cure in education as elsewhere. Educational diagnosis should preferably be carried at a level where the need for remedial measures is completely eliminated. It is also felt that prevention is not only better but also easier than cure. A creative teacher makes use of diagnostic test and gets an insight into the types of errors that are likely to occur in learning their possible causes and the ways of preventing them in future classes.

‘Check Your Progress’ - 1

1. To give remedial measures.....is important
 - a. Understanding the Pupil’s difficulty in learning
 - b. Availability of resources
 - c. Parent’s co-operation
 - d. Permission from the head of the institution
2. Planning of remedial programmes will:
 - a. Be similar in all the subjects
 - b. Slightly differ from subject to subject
 - c. Be same to all the students
 - d. None of the above.
3. Remediation should be accompanied by
 - a. Diagnostic tests
 - b. Teaching -learning process
 - c. Strong motivation
 - d. All the above
4. Remediation should be.....
 - a. Same to all types of problems
 - b. Collectively given
 - c. Individual specific
 - d. None of the above
5. Remediation should have.....
 - a. Active participation by the students
 - b. Concern by the teacher
 - c. Intermittent modification
 - d. Continuous evaluation

36.4 Techniques of Remediation

Remediation is the one which reciprocates the diagnosis. Hence, while it is executed, it should happen in a conducive environment. It should be a friendly, pleasant and encouraging attitude by the teacher. You should not by look, action or word indicate that the child is facing a difficult situation. Another important point is “humour”. Humour is the most effective element in any human situation. Children are attracted to adults who can occasionally introduce some humour in the day’s round of activities.

Encouragement and praise are powerful incentives with children and adolescents. With the general qualities, you can take up several types of remedial measures. For example, it could be in the form of remedial instruction, self instruction programmes, reading assignment, group study, peer tuition, individualized tuition etc; now let us take up the above said techniques one by one for a clear understanding.

36.4.1 Remedial Instruction

This is the one used by the majority of the remedial situations, and as you know it, for any type of remedial measure, the basic source of information lies with diagnosis. Hence, while diagnosing, if a teacher comes to know that the root cause for the low scoring or lagging behind in learning by a student is his absenteeism. It also could be because of the ill-health of the student. Though the teachers in the beginning of the academic session start their work with a determination to see a reasonable and desirable achievement by the pupils, they come across some low-achievers, against their determination. In such cases, “Remedial instruction” is advised.

Remedial Instruction is a phased activity, and the phases are as follows:

I. Grouping of Students: The students who are in need of remedial measures will be grouped based on the analysis of the diagnostic test. This diagnostic test reveals the areas of weaknesses, like for example, in certain areas of physics and mathematics they are below average in their performance. So, simultaneously both subjects have to be taken care of. Hence you have to prepare a timetable.

II. Planning: Depending upon the weaknesses located in both the subjects, a special course has to be designed, which will be used to re-teach for the needy. For example, to remove the weaknesses in mathematical concepts, and physics, a course consisting of elementary arithmetic, algebra, trigonometry and geometry could be designed, and these concepts can have application and use in the study of physics.

III. Execution: The course will be taught to the target group in mathematical concepts. And also its application will be explained to them in questions and articles of physics explaining at every step how a certain mathematical formula had been used at a certain place in deriving a formula of physics.

Besides the regular class in physics, the selected students will get an extra - hour teaching i.e., “remedial instruction” every day as per time table. It will be in such a way that on every turn, one mathematical formula will be taught, its application shown in derivation of some formula of physics and use of formula of physics explained in solving numerical problems. In the similar lines, an extensive drill work will be given. It will have an integrated approach between the subjects mathematics and physics. Sufficient home assignments will also be given. And these home works also will have novelty in them, unlike to that of conventional home works.

IV. Evaluation: At the end of the remedial instruction, an achievement test will be given in both the subjects. The results of such a post test will reveal the effectiveness of the remedial measure. That means to say; a teacher can easily compare the level of performances of the students in both the tests i.e., a pretest (prior to the remedial measure) and a post-test (after the remedial measure). Here the gain in scores indicates the effectiveness of the remedial measure. If the result is not satisfactory then some other activities in the name of remedial instruction has to take place.

‘Check Your Progress’ - 2

1. Mention the different phases of Remedial Instruction

2. Remedial instruction involves:

- a. Re-teaching
- b. Re-learning
- c. Evaluation
- d. Diagnosis

3. Remedial instruction will be,
 - a. Supplementary to the regular teaching
 - b. Exclusively given, excluding regular teaching
 - c. Just the regular teaching
 - d. All the above
4. The effectiveness of the remedial instruction will be confirmed through
 - a. Observation
 - b. Measurement
 - c. Evaluation
 - d. Student's performance

36.4.2 Self Instruction Programmes

Self instruction programmes are one of the best remedial measures. It is a technique in which a learner will learn according to his own rate of learning. One more advantage here will be, the learner will not be faced with any humiliating situation; there will be no comparison between the two learners. This technique allows the learner to be in the regular teaching as well as to undergo himself in a self - instruction programme. This technique individualizes the instruction to a greater extent. Hence, here the learning will be self - initiated, and self - directed. The main purpose of this technique is to enable the individual to "Learn to Learn". The programmed learning, instructional modules, computer aided instructions, self-learning packages, and teaching machines are some of the self – instruction programmes. In this type, the students are free to select the materials and methods to achieve the goals.

As usual, self instruction programmes like any other educational programmes is a phased activity. And also, a variety of methods are used to prepare individualized instructional materials. The materials can be in the form of printed material, films, machines, laboratory sets. The materials prepared in the form of small learning packages are called Modules. These modules are self - contained, and sometimes will be multi-media packages. The different steps of the preparation of a self - instruction programme is explained below:

- Select a topic and break it down to small manageable units. (That could be finished in a week or two).

- Prepare performance objectives for the learning unit or module.
- Identify the activities for the student to meet the objectives. These activities should be arranged in a logical sequence and may be plotted on a chart to see the progress of the learner.
- Determine the level of mastery or competency needed by the student to begin the activities. For this purpose a pre-test may be given to find out what knowledge and skills the learner already has.
- Now prepare an outline of a study guide for the use of the learner. The guide should include the title of the module, the performance objectives, the sequences of activities, some definitions and references, and basic instructions to help the learner to begin, some exercises for self – evaluation and indicators which tell the student when to get his work checked by the teacher.
- Prepare instructions for helping the student proceed through the module.
- Tryout the module with a few students and observe whether or not the sequence of instructions and available materials are adequate.
- Refine the module from your observation and comments of students and your colleagues.

Self Instruction programme provides a learning environment that encourages the learner to be motivated intrinsically. And also, through such an approach, each learner's interest, abilities and mode of learning is well taken care of. Programmed learning is one of the self instruction programmes. It is "the arrangement of materials to be learned, in graded steps of difficulty, in such sequence and in such manner of representation that, it will result in the most efficient rate of understanding and retention". Programmed learning is primarily based on the principle of "reinforcement". Here the guidance, satisfaction and assurance of knowing immediately how well the child has done enable him in general, to learn faster and retain better. It allows the learner to learn even in the absence of a teacher. These programmes may be in the form of books, cards and computer packages.

Types of Programming:

Generally two types of programming are used, namely

- ii) Linear (B.F. skinner)
- ii) Branched (S. L. Prissy and N.A. Crowder)

Linear Programming:

It has the following salient features:

- A stimulus in the form of statement and a question (S)
- A response by the pupils (R)
- An answer against which the pupil matches his own answer and receives immediate feedback whether he is right or wrong (A) and
- A Linear sequence which everybody must follow.

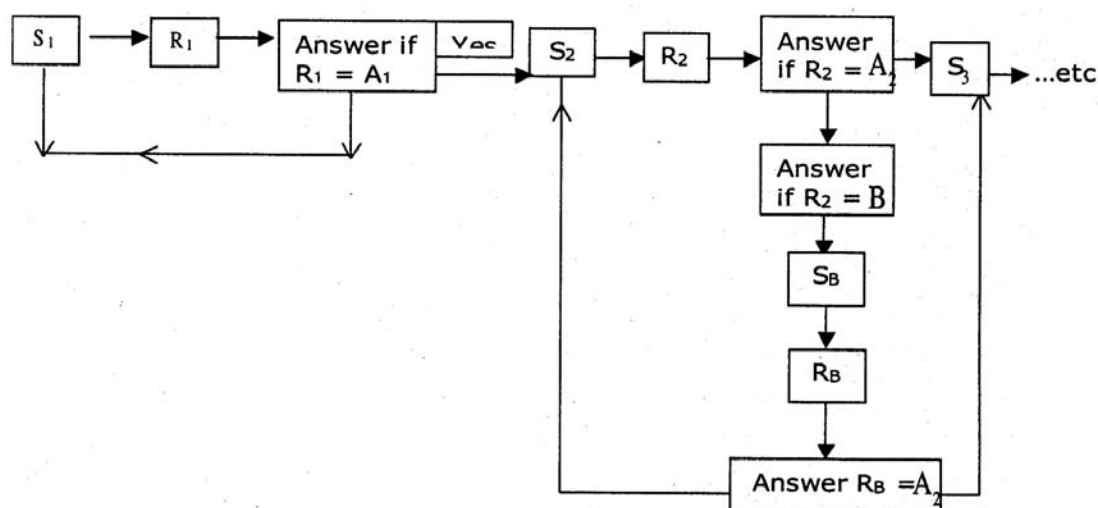
The linear programme can be diagrammatically represented as follows :



Branched Programming:

Here a scope for diagnosis and rectification is found. Similar to the linear programming, the branched programming also contains stimulus, responses and answers.

Crowder used intrinsic programming in which multiple choice items are employed. Here the incorrect answer will result in directing the pupil to materials or information which will correct and guide him back to the correct programme sequence. The branched programming can be diagrammatically represented as below shown below :



‘Check Your Progress’ - 3

1. The self -instruction programmes enables an individual to learn
 - a. Even in absence of a teacher
 - b. In the presence of a teacher
 - c. Under the guidance of somebody else
 - d. All the above.
2. The essence of self instruction programme is
 - a. Live and let live
 - b. Learn to learn
 - c. Acquisition of Psychomotorian skills
 - d. All the above
3. The programmed learning materials employ
 - a. Passive learning technique
 - b. Meaningful learning environment
 - c. Reinforcement technique
 - d. Active learning technique
4. Self instruction Programme is one of the
 - a. Remedial measures
 - b. Diagnostic techniques
 - c. Traditional teaching technique
 - d. Psychological approaches
5. In self - instruction programmes, the motivation is
 - a. Extrinsic
 - b. Intrinsic
 - c. Not at all there
 - d. Both extrinsic and intrinsic.

36.4.3 Reading Assignments

It is usually felt by the teachers that especially the children at secondary school

level are weak in their expression. Because they lack interest in reading English books or any other books, other than their text book and also they are poor in the use of words, structures, and sentence patterns. Especially these defects more confines to learning of English language. They concentrate on reading only text books and supplementary books are hardly read. It is really a problematic situation for the teachers. 'Comprehension' is a general ability, which is necessary for all the subject areas.

Remedial measure in terms of reading assignment involves several steps and those steps are explained in brief, in the following discussion.

Based on the diagnosis; (by making use of a diagnostic test) the sample or the target group will be identified with their areas of weaknesses. Later, if it is in the subject English, the planning and execution will have the following details.

- Graded comprehension passages to suit the level of the target group will be prepared by referring to English Readers and other supplementary books.
- After the preparation of graded passages, assignments in the form of test items will be framed for each passage.
- The pupils will be asked to read the passage, comprehend it and try to answer the questions given at the end of each passage. These answers will serve as an index of their ability to comprehend.

Pupils may be assigned certain tasks which require the use of books. For example:

- During the teaching of a unit, electrochemistry, the class could be divided into groups of three each. They are asked to look in the various books listed on the assignment sheet for demonstrations of electrolytic processes that could be presented to the class.

Pupils may be encouraged to find suggestions for activities that are not closely associated with regular class work; but the activities will be enriching or helping to remove the learning weaknesses of the students. They may present their results during the time regularly set aside for special reports. For example: Each Tuesday, the science teacher provided time for special reports. During such occasion, the weaker students also feel a sort of satisfaction, and feel free to express their findings.

In this way Reading Assignment can become a very apt, challenging activity as a remediation to the students.

'Check Your Progress' - 4

State whether the following sentences are true or false:

1. Reading assignment is not a remedial measure
2. Reading assignment could be used as a remedial measure only in languages.
3. Reading assignment involves the activity of reading of supplementary books other than text books.
4. Use of reading assignment is a phased activity
5. “Reading Assignment” can use a pre-test and post-test technique

36.4.4 Group Study

Usually, group study technique is used in adult education. Since the high school students are at the threshold of adulthood, with suitable modifications, this technique will suit the adolescent group also. For a remedial purpose, group study stands for more effectiveness than other techniques. Hence, Beal, Bohlen and Raudabaugh (1962) have defined Group technique as a pre-designated pattern for human instruction that offers a better potential for progress towards goals than does instructed random behaviour. Here the students are allowed to learn together. Generally, we say that, remedial measures should be individual specific because; it is the question of individual difference. But sometimes, it is well to put a few of the individuals who will have common weaknesses into one group, in which they often do better than when forced to work with pupils who are more successful. The students who need remedial measures are handicapped chiefly by a reduced experience background and a feeling of inferiority in academic matters. These pupils find it meaningful and interesting to learn through direct experiences such as field work, and supplemented by audio-visual aids such as films, slides, pictures and CDs. To profit fully, these pupils must feel that, what they are doing is worthwhile and that they have important abilities. They need the confidence that comes with success.

Group study technique provides many opportunities like they can set up electric circuits, make models, perform experiments, do reading assignments etc; because they will be having common goal, common interest and common abilities, they share learning experiences and complement with each other. Hence it gives a more conducive and encouraging learning environment and thereby fulfills the purpose of remedial measures.

‘Check Your Progress’ - 5

State whether the following sentences are true or false:

1. Usually group study technique is used in adult education
2. Group study technique will be employed over a homogeneous group

3. Group study technique hinders individual's learning
4. Group study technique does not provide a chance for the expression of an individual's talent.
5. All the members in a group share their learning experiences under group study technique

36.4.5 Peer Tuition

Peer group means, it is a group made up of the individual members (say six to eight) of the same age, who will be studying in the same standard. A peer group will have the members who possess common interest, and common goal. Teaching a peer group is a new idea in the field of education. Actually this has its origin in American system of education in 1954. Peer tuition is a special type of teaching in which a special type of instructional organization involving teaching personnel and the peer group assigned to them, work together, for all or a significant part of the instruction of some group of students. Peer teaching is a technique of teaching the students in an active form which makes teaching more effective and a joint venture. Here the teaching will be of joint responsibility, means it includes, instructional planning and other aspects of teaching. Hence, peer teaching is essentially co-operative teaching. It is also a phased activity, in which, the peer group will be identified, and then a special scheduled programme will be launched. In this technique, the best teachers in a school are shared by more students. It involves certain arrangements as follows:

- Re- organisation of teachers, students and schedules.
- Re-assignment of curriculum and class schedules in context with the pre-determined weaknesses of the learning.
- More and extensive use of technological aids.
- Teaching every subject by specialists, yet preserving the inter-relations of content and learning.
- Usually inter-disciplinary approach is advised.

36.4.6 Individualized Tuition

This is a remedial technique, which has the greatest influence on the learner. Usually, the teachers who handle the class can locate and pin-point where the learner is feeling the difficulty in learning. Hence, it is the teacher alone who can cure this defect, based on his / her first hand information, while interacting with the child. Each student will

have his own style of learning. Like, for example, some children will learn with only one sitting, or some may learn a simple circuit after reading about it without writing up a circuit. Some may understand a point perfectly after hearing it explained; some need to see pictures; some need to read about many need to do it.

So, you may see some distinguishing factors between individual tuition and group study or peer tuition. They are,

- The instructional objectives will be learner specific.
- The content points could be given to the student.
- All students are not expected to achieve the same objectives.
- All students do not use the same instructional materials.
- All students are not expected to follow the same procedure while in classroom.
- All students do not work at each subject for the same amount of time.
- These programmes are individually diagnosed and prescribed programmes in their nature.

In order to provide an individualized tuition, a teacher has to schedule a special time table, and it has to be devoted solely to the sample, and needy student. No doubt, it is an extra burden to the teacher, and while executing it poses many practical problems. In spite of this, if it is properly planned and judiciously executed, then the resultant will be of an excellent quality. Here also, as usual, based on the detected learning disabilities of the learner, a teacher can frame the learning objectives. And, the content could be re-analysed, designed with enriching and encouraging learning environment. Here a face to face communication takes place with utmost subjective care by the teachers. It should be in such a way that a student must feel free to participate and learn, rather it should not make him to become doubly conscious. As the teacher knows and pin-points the learner's defect, it is to the satire extent get rectified. So, this is also a phased activity starting from the formulation of instructional objectives, followed by planning, execution and evaluation respectively. This could have some follow up activities as well as record maintenance. This is done parallel to the regular curricular transaction in the class hours so that the child never loses the regular classes.

'Check Your Progress' - 6

1. Peer group means
 - a. Group of individuals of the same age, interest and attitude.
 - b. Class mates.

- c. Friends.
 - d. All the above.
2. Peer tuition means
 - a. Class-room teaching.
 - b. Individual teaching.
 - c. Self-learning.
 - d. Teaching the peer group.
 3. Individualized tuition, means
 - a. A group of students are taught
 - b. Private Tuition system
 - c. Teaching an individual with special care
 - d. All the above
 4. The first step in individualized tuition is.....
 - a. Formulation of instructional objectives
 - b. Content selection
 - c. Teaching
 - d. Evaluation
 5. The person who can give individualized tuition to the learner because of his / her clear perspective of the learner's difficulty.
 - a. Head master
 - b. Parents
 - c. Class teacher
 - d. All the above

36.5 Let Us Sum Up

In this unit, exclusively you have come across a variety of remedial measures. In the beginning of the unit, the meaning, nature and importance of remediation is explained. And also three important principles of remediation are pointed out. This is followed by a brief introduction with respect to different techniques of remediation in general. Next, you see in detail the information with respect to specific remedial measures, namely, remedial instruction, self -instruction programmes, reading assignments, group study, peer tuition and individualized tuition.

36.6 Answers to ‘Check Your Progress’

‘Check Your Progress’ - 1

1. a. Understanding the pupil’s difficulty in learning.
2. b. Slightly differ from subject to subject
3. c. Strong motivation
4. d. Individual specific
5. d. Continuous evaluation

‘Check Your Progress’ - 2

1. i. grouping of students
ii. Planning
iii. Execution
iv. Evaluation
2. a. Re-teaching
3. a. Supplementary to the regular teaching
4. c. Evaluation

‘Check Your Progress’ - 3

1. a. Even in-the absence of a teacher
2. b. Learn to learn
3. c. Reinforcement technique
4. a. Remedial measures
5. b. Both extrinsic and intrinsic

‘Check Your Progress’ - 4

1. True
2. True
3. False

4. False
5. True

‘Check Your Progress’ - 5

1. True
2. True
3. False
4. False
5. True

‘Check Your Progress’ - 6

1. a. Group of individuals of the same age and attitude
2. d. Teaching the peer group
3. c. Teaching an individual with special unit
4. a. Formulation of instructional objectives
5. c. Class teacher

36.7 Unit-End Exercises

- a. What is Remediation?
- b. Explain the principles of remediation
- c. What is remedial instruction?
- d. Describe the technique of self - instruction programme
- e. Explain the technique of reading assignment as one of the remedial measures
- f. Justify the significance of group study
- g. What is meant by peer tuition?
- h. What is the importance of individualized tuition?

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