Chapter: II

THEORETICAL OVERVIEW

A thorough knowledge of the theoretical aspects that are related with the study are highly essential for the in-depth inquiry of any research problem. The theoretical ideas will ignite the light of wisdom which is essential for the study. The present study under investigation concentrates on diagnostic assessment and remedial programmes of disadvantaged children. This indicates that theoretical ideas about educational diagnosis, diagnostic assessment and remedial programmes are highly essential for the fruitful conduct of the study. Conceptual ideas about the disadvantaged nature of children also need special attention. On examining these aspects, it has been found that the following theoretical aspects are to be focused in this study of effectiveness of remedial programmes in Mathematics for the disadvantaged children of primary schools.

2.1 Disadvantaged Children

2.2 Educational Diagnosis

2.3 Diagnostic Assessment

2.4 Remedial Programmes

2.5 Remedial Measures for the Disadvantaged children
2.1 Disadvantaged Children

In every sphere of social, economical, political or cultural scenario, some individuals predominantly belong to certain deprived groups. These groups of individuals, usually poor and belonging to a minority community can be characterised as disadvantaged. The poor child lives in a deprived home and social environment, detrimental to the development of his personality. The urban child grows up in a home without stimulating cultural vistas and limited to learning a non standard language is disadvantaged. Katz (1970)\(^1\) offered three interpretations of disadvantage:

They are:

(a) Cultural deprivation  (b) Cultural conflict  (c) Educational deprivation.

In cultural deprivation, it is hypothesised that the learning difficulties of disadvantaged children are due to the failure of socialisation process in the home. Panda (1999)\(^2\) explains that harsh authoritarianism of parents, undesirable distance between parents and children, and exaggerated influence of the peer group are responsible for disadvantage.

White (1966)\(^3\) found that the poor mothers lack an adequate mothering style to bring up competent children. He emphasised four aspects of good mothering which the disadvantaged houses lack.

They are:

(a) Language interaction with children.
(b) Firmness of material discipline.
(c) Mothers’ role in structuring the time and the task activities of the child.
(d) Availability of stimulation for manipulative activities in the home environment.

The cultural conflict hypothesis propagated by Riessman (1962)\textsuperscript{4} states that, minority group cultures have defective systems of values and goals that are not taken into account in the schools. The values and objectives that the schools sponsor are not the ones the children of lower socio-economic strata want to adopt. Thus, there is a conflict.

The low achievement, poor self identity and inadequate motivation of some students will lead to educational deprivation. The low level performance below the expected level of the learners in contrast with the high level expectancy of the teachers and parents will result in educational deprivation.

Coleman and Browen (1972)\textsuperscript{5} have identified six conditions in the families of the socially disadvantaged children on the basis of several researches in this area. These conditions are:

1) Lack of cultural art ideas such as books, magazines and toys.

2) Lack of cultural experiences such as visits to library, museum and zoo.

3) Limited parent-child interaction and the inhibiting nature of interaction.

4) Physical and arbitrary punishment without any explanations.

5) Noise, overcrowding and disorganisation.

6) Ineffective model of parents as teachers.

There is, a need for re-conceptualisation of deprivation or disadvantage in the Indian socio-cultural context. It is multi-dimensional. It is characterised by
experiential deprivation in the family, school and society at large. Socialisation practices, socio-economic conditions, educational deficiencies, physical and nutritional factors all need to be considered in the conceptualisation process.

2.1.1 Measuring Disadvantage

Measuring disadvantages was a serious concern of the researchers for many years. Many approaches were used to measure the disadvantage of pupils. One of the approaches, was the usage of deprivation index. Whiteman and Deustch (1968) included six variables in their deprivation index, namely housing dilapidation, parental educational aspirations, number of children under ten years, dinner time conversation, total number of cultural experiences anticipated by children in the weekend and attending pre-school.

The other approaches in use include caste comparison, rural-urban background and Socio Economic Scale (SES) data. The Socio-Economic Scale is acceptable at a very macro level of analysis and is quite convenient and popular.

There have been several techniques of measuring deprivation using SES. But these SES scales are more localised, individualised and lack comprehensiveness in terms of accounting the experimental input. They are absolute and nominal categorical from which only gross generalisation could be made.

Recently, steps for development and standardisation of a scale to measure SES in urban and rural communities in India was done by Tiwari, Kumar and Kumar (2005). The final version of the scale consisted of seven profiles. They are:

1) House profile
2) Material possession profile

3) Profile of the educational status of the family members

4) Occupational profile

5) Income profile

6) Possessed land

7) Social profile

**Scoring of the profile**

Scoring was made by using a scale. Scoring in the scale was easy and of quantitative type. All the seven profiles were equally weighted, each having a maximum score of ten up to sixth profile. Every alternative had only one weightage score that ranged from two to ten. The seventh profile was additive in nature.

**SES categories and the score range**

Once the information on the seven profiles were collected, scored and added, the SES categories could be derived by the score range using inclusive method.

**Updating of the scale**

To keep SES valid for a long period, the authors suggest that the items given in the profile of the scale should be re-defined from time to time preferably after every five years. The items incorporated in the list given against the house hold gadget and conveyance facility in the material possession profile might be included or dropped from time to time considering the importance in defining the SES.
The SES developed by Tiwari and others were used for the study. Through the SES scale, the social, cultural, educational and economic conditions of the learners were ascertained. The main profiles included were educational status of parents, income of the family, number of family members, cultural background of the family members and religious nature. Each profile was given equal weightage and scores were calculated. Learners who got SES score from 10 to 24 were termed as lower class and pupils who got scores from 25 to 49 points were termed as middle class and the learners who got scores from 50 to 70 points were termed as upper class. All the learners in the lower class were considered as the disadvantaged children for the purpose of the study.

2.1.2 Characteristics of Disadvantaged Children

Panda (2004)* has identified three characteristics of disadvantaged children. They are:

1) Progressive decline in intellectual functioning
2) Cumulative academic achievement deficit
3) Premature school termination or higher dropout rate

2.1.3 Various Categories of Disadvantaged Children

Scheduled Castes, Scheduled Tribes, Other Backward Classes who were economically weak, and from forward community - culturally, educationally and economically backward children are included in the category of disadvantaged children.
2.2 Educational Diagnosis

Educational Diagnosis is one of the essential components in the field of educational evaluation. To diagnose the strengths and weaknesses in learning different subjects, scientific procedure is highly essential. Once a pupil has experienced difficulty in the subject, it is essential that he should receive some individual help, whether his handicap is a minor or a major one. Very often the right kind of individual help given in the early stages prevents confusion in the later stages and minimise the possibility of backwardness. For individual aid to be fully effective, it must be given systematically. It should produce positive results. This is only possible where diagnosis has been both accurate and comprehensive.

2.2.1 The Nature of Educational Diagnosis

Educational diagnosis seeks to determine the nature and causes of unsatisfactory adjustments to the learning situation. It is concerned with the specific weaknesses of individual pupils. According to Tigges (1968), a major function of diagnosis is to facilitate the optimum development of every student. Individual attention has to be provided to every learner for optimum development. Good (1945) defines diagnosis as, “the procedure by which the nature of a disorder, whether physical, mental or social, is determined by discriminating students of the history of the disorder and of symptoms present.”

It is a matter of common knowledge that many serious learning difficulties arise, from factors such as faulty habit-formation, lack of interest, or a poor home environment. Ross (1956) pointed out that, the learning process at anytime is usually conditioned by many factors, both inside and outside the learner.
He classified the factors as follows:

1. **Internal factors.**

   a) **Physical:** Sensory equipment, glandular balance, health status, stage of maturity level, and other physical traits.

   b) **Intellectual:** General intelligence, specific talents, and deficiencies.

   c) **Emotional:** Attitudes, interests, drives, prejudices, feelings of inadequacy, and the like.

   d) **Educational:** Background, work habit, and other aspects of learning.

2. **External Factors.**

   a) **School environment:** Educational programme, teacher, playmates, equipments, and other learning environment in the schools.

   b) **Extra school environment:** Home, community, church, recreational facilities and other social supporting features of learning activities.

   A thorough idea about these factors are essential for a teacher to check the weaknesses of the students in learning. Sheldon (1960)\cite{12} proposed the following principles for the teachers to check the disabilities of the pupils diagnostically.

   (1) Diagnosis is an essential aspect of teaching and is a preliminary step for sound instruction.

   (2) Diagnosis should be continuous because child’s growth in various skills depends on the sequential development of each skill, which is promoted to the teacher’s knowledge of the progress of each child.
(3) Diagnosis is the individual task and reflects the fact that each child is different.

(4) Since the instruments of diagnosis have not been perfected, the limitations of each instrument must be thoroughly understood.

The various factors described and the principles for checking the disabilities may provide the necessary inputs for the teacher to practice diagnostic assessment.

2.2.2 The scope of educational diagnosis:

The scope of educational diagnosis has also increased to keep pace with the growing concept of education. To make it synonymous with the growth of personality, it is no longer proper to limit the scope of diagnosis to locate the causes that reduce the academic progress of the pupil. The diagnostic aspect related with social adjustment and personality disorders of the pupils are also important in the scope of educational diagnosis.

Intelligence tests and diagnostic achievement tests, both standardised and teacher made, as well as various pieces of lab apparatus for measuring sensory activity, co-ordination, forms of appraisal such as rating scales, uncontrolled observations, questionnaires and interviews are used in educational diagnosis. In order to keep the scope alive, practical knowledge on individual enquiry, analysis of errors and remediation are needed. That is why, Ross (1956) have suggested five levels of diagnosis.

They are:

1 Who are the pupils having problems?

2 Where are the errors located?
3 Why do the errors occur?

4 What remedies are suggested?

5 How can the errors be prevented?

These may enable the teacher to plan the activities by taking all essential precautions of diagnosis. The problems concerned with educational diagnosis suggested by Brueckner and Bond (1955)\textsuperscript{14} are the following:

1. The appraisal of pupil’s progress towards desirable educational objectives.

2. The identification of factors in teaching learning situation that may be interfering with the optimum growth of individual learners.

3. The adjustment of aspects of the teaching –learning situation to the needs and characteristics of the learner so that his continued growth will be assured.

The teacher would be interested in finding out the result of the educative process of the individual child. The resulting behavioural change in the learners has to be appraised to a reasonable degree of accuracy. The appraisal would give the teacher a correct picture of the reactions of the pupil to the learning situation.

All methods of teaching should take the learners in to account. The diagnosis provides an insight into the reactions of the learner under specified conditions.

Thus educational diagnosis enables the teacher to identify the strengths and weaknesses of the individual. This process not only helps the weaker students but the better students as well.
2.3 **Diagnostic Assessment**

Educational diagnosis is determined with the help of subject specific diagnostic tools. Diagnostic Assessment is a very important method used for learner assessment and to evaluate the performance of the learners. These are generally used to discover difficulties encountered by pupils who are failing to make normal progress in school subjects. The diagnostic tests help us not only to diagnose the difficulties encountered by pupils but also to ascertain the level of difficulties.

Adval (1968)\textsuperscript{15} in ‘The Third Indian Year Book on Education’ describes that, scientific procedures have been devised in western countries to diagnose the strengths and weaknesses in learning different subjects, so that appropriate remedial measures can be adopted. With regard to diagnostic testing Adval further describes that, these tests will enable the teacher to use evaluation for the improvement of pupil’s performance rather than just for measuring his achievement. Thus, it bridges the gap between teaching- learning procedures and evaluation by making the latter useful in improving the former.

2.3.1 **Process of Diagnosing the Learning Difficulties**

Wright (2007)\textsuperscript{16} clarifies the usage of diagnostic assessment by saying that, when a student’s learning problems are so persistent of formative assessment, a more intensive study of the student’s learning difficulties is called for. It is here that diagnostic assessment is useful.

The process of diagnosing learning difficulties involves four important steps. They are:

(1) Observation of the student’s behaviour.
(2) Classroom interaction of the students.

(3) Usage of oral questions to the level of understanding.

(4) Testing the performance through a unit test.

By observing the learners’ behaviour, the attitude in learning the subject can be ascertained. The general interest and involvement in the learning process will help for the preliminary diagnosis.

The classroom interaction helps to realise the strengths and weaknesses of the learner. The specific difficulty felt by the learner can be ascertained if the teacher is keen in observation.

The oral questions, if used purposefully will reveal the problems in acquiring the fundamentals of the concept under study.

The test should be diagnostic in nature. It should enable the teacher to find the shortcomings and difficulties encountered by the learner in learning a particular unit or area.

Thus, by doing all these activities, the teacher will be able to know the level of students’ understanding and their learning difficulties.

2.3.2 Determining ‘Who is Having Difficulty?’

Linn and Grounland (2003)\textsuperscript{17} vision that children of all ability levels can have difficulty in learning a subject. Being unable to understand a concept which others have mastered is frustrating for any child. Early grade difficulties with the subject and the associated feeling of frustration and loss of a sense of self efficiency, are the reasons to avoid the subject.
Here, to ascertain who is having difficulty, we can divide the pupils into two categories.

(1) Learners who are having problems in the fundamentals and basic skills of the content area.

(2) Learners who are having difficulty in social relations, emotional and personal adjustments.

The major areas to consider are the study skills, health and physical condition, emotional adjustment, home environment, relationship with peers, interaction with parents, social mind and the like. Unfavourable factors in any of these areas might cause or contribute to learning problems.

When the learners’ difficulty is in the basic skill area, a logical follow up procedure is essential in the administration of diagnostic test. Such tests are based on the common errors that the learners make and thus provide a systematic method for locating the specific problem.

2.3.3 Determining the Factors Causing the Learning Difficulties

The analysis of the performance of students in schools will reveal that some learners at the primary and secondary levels have never mastered the fundamentals needed for learning a subject. What causes are operative to create this condition? The causes are virtually as numerous as are the learners needing help. Hence, a careful diagnosis should be made of each learner who is having trouble with the subject in order that the specific causal factors in his particular case may be uncovered.
Glenn Myers Blair (1956) advocates the teachers that the diagnosis should make a thorough appraisal of the learners’ physical condition, his auditory equipment, his achievement in the other school subjects, his general mental ability, his home conditions, his attitudes and interests, his work habits and specific error patterns. Only by taking all possible backgrounds and personal factors into consideration as well as specific difficulties in the subject, it is possible to form an accurate judgement of the cause of a learner’s disability.

The following factors also need much attention here:

- Improper teaching methods or instructional methods.
- Unsuitable curriculum and complex course materials.

Here, we should focus our attention on locating and correcting the shortcomings in our instructional methods and materials. It should be noted that the causes for learning difficulties are multiple and complex. These cannot be fully determined by a teacher. However, a review of learner’s cumulative record, special testing, observations and interview with the learner and possibly a home visit should provide sufficient information for diagnosis.

2.3.4 The General Functions of Diagnostic Tests

The general functions of diagnostic tests can be summarised as stated below:

1. Learning items, concepts and facts which are understood by majority of students can be located and teaching – learning process can be adjusted accordingly.

2. Learning items, concepts and facts which are not understood by majority of students can be located, and hence special emphasis can be attempted.
3. When the items, in which the majority of students are weak, the reasons for this condition can be identified. This would lead to new learning techniques, identifying curriculum defects and correcting defective conditions of learners.

4. Individual weaknesses can be located which would serve as the basis for individual correction work and personal guidance.

5. Diagnostic tests can be used in prognosis. Hence, the possible success in a certain type of course on vocation can be predicted with a high degree of reliability. So, it can be used as the basis of guidance and counselling work.

6. Diagnostic tests can be made on the basis of individualised instruction. Differential teaching methods, ability grouping, and individualised activities and differentiated assignments.

7. Diagnostic tests measure “real understanding” as opposed to “superficial mastery” of subject areas measured by achievement tests. Hence, they measure real attainments of learners in subject areas.

8. It can indicate the effectiveness of specific methods of teaching in dealing with specific teaching situations.

9. It can assist the learner in locating the weaknesses and can be corrected with maximum ease and economy.

10. Diagnosis of learners’ weaknesses and self discovery can lead to motivation and assure the learners’ co-operation in future teaching-learning situations.
2.3.5 Steps Involved in Developing a Diagnostic Test

A simple and common framework of diagnosis was suggested by NCERT in the Handbook on Evaluation. (2003)\textsuperscript{19}. This consists of three important steps.

1) Screening of performance of students

2) Describing the nature of the problem

3) Analysing the capacity of the learner

1) Screening of performance of students:

In order to determine whether any learning problem exists or not, on the part of the learner, the most commonly used method is teacher’s regular observation of the students’ performance. The other methods used are asking oral questions, testing the difficulties through a unit test or conducting standardised diagnostic test to identify the learning difficulties.

2) Describing the nature of the problem:

It is intended to describe the nature of the learning problem. In other words, the way he explains the concept under a teaching unit and the way he comprehends the concept or sub-unit. Through this process, the teacher can find out the relatively broader area of curriculum and the type of concept/sub-unit in which the learner is facing learning difficulty.

3) Analysing the capacity of the learner:

This involves a much closer study of learner’s behaviour, in order to determine the precise nature of difficulty experienced. In some cases the learning problem
may be so persistent and severe that the pupil should be referred to a specialist for intensive diagnosis.

Further analysis of learning difficulties can be done through rating scales, check lists and anecdotal records or a combination of all the methods.

Thus, diagnostic testing enables the teacher to identify the specific weakness of the students in learning a particular task. It will help the teacher for individualised attention which results in mastery learning.

2.4 Remedial Programmes

Learning takes place from simple to complex. If for some reason, the learner has not learned the basics, it is futile to teach him the advanced topics. Remedial teaching is not revising the topic repeatedly. Careful analysis of the learners’ performance in the examination and diagnosing the areas of difficulty are key aspects in remedial teaching. Teachers often feel that, what has not been learned at the primary level, cannot be taught simultaneously with the prescribed topics at the secondary level, as they are busy in completing the syllabus. Experience shows that once the basics are taught, the learning process is accelerated and the slow learners comprehend and grasp the given topics of the class, since they have already attained the mental age.

2.4.1 Concept of remedial teaching

Remedial teaching is employed to remedy or remove the defects of teaching learning process. It may be concerned with the teacher also who for one reason or another has formed ineffective methods of handling the tools of education. According to Schonell (1957)20, “carefully graded remedial material, scientifically prepared and supplemented by play-way methods, will in almost all instances, bring
marked improvement.” Obviously some of the so called backward students require remedial teaching of a special kind to overcome their particular difficulties. But all of them need the same kind of sympathetic, encouraging approach to produce early success and to dissipate the effects of past failure.

In addition to this, we can see learners who may not possess any inherent disability which needs correction, but there are learners who may urgently need assistance in developing increased competence in reading and other fundamental processes. In those cases, it is not primarily a problem of re-teaching or remedying of evils, but it is rather teaching for the first time these skills which are essentially needed and which apparently are lacking.

Blair (1956) summarises that remedial teaching should concentrate on the following activities:

1. Eliminating ineffective habits and unwholesome attitudes, and re-teaching skills which have been incorrectly learned.

2. Teaching for the first time those habits, skills and attitudes which have never been learned but should have been and which are needed by learners.

2.4.2 Alternative Remedial Activities for Overcoming the Learning Difficulties

There is no set pattern to be followed in helping pupils to overcome the difficulties. In some instances it may be a simple matter of review and re-teaching. In others, an extensive effort to improve motivation, correct emotional difficulties so as to overcome deficiencies in work study skills may be required. The specific remedial procedure used in any given case will depend on the specific nature of the learning difficulty and the factors which have caused and contributed to it.
Testing and evaluation can play a vital role in most remedial programmes. The use of periodic testing during remedial teaching might serve any of the following functions:

1) Clarify to the learners the specific type of responses that are expected.

2) Provide further diagnostic information about the learners’ difficulties and learning needs.

3) Give the learner a feeling of success through the use of a carefully graded series of tests and exercises.

4) Motivation by providing short term goals and immediate knowledge of progress.

5) Provide information concerning the effectiveness of the remedial procedures.

Other evaluation techniques such as rating scales, check-lists, and anecdotal records can, of course, be used to provide feedback concerning learning progress and success of remedial programmes.

Though the immediate aim of remedial work is the correction of specific learning difficulties, our interest should not stop with that.

A careful analysis of evaluation results during diagnosis and treatment may reveal learning errors that can be prevented and causal factors can be modified. The ultimate aim of a remedial programme should be an improved curriculum and more effective instructional methods.
2.5 Remedial Measures for the Disadvantaged Children

Certain remedial measures have been recommended by Panda (1999)\(^2\)

It is true that deprivation does exist among the socially disadvantaged children due to predominantly,

(a) In adequate early socialisation.
(b) Mark of oppression.
(c) Organic deficits
(d) Inadequate social environment
(e) Culture conflicts and educational deprivation.

In order to reverse the ill effects, research studies support certain measures.

(a) Early modelling and imitation of desirable behaviour.
(b) Language enrichment programme and stimulation at home.
(c) Affective attention and acceptance.
(d) Providing initial success experience to build better motivation and striving for success.
(e) Removal of discrimination attitudes on the part of teachers and other significant members of society.
(f) Humanistic approach to teaching the under privileged in school.
(g) Instructional programme may be geared to their needs and ability level.
(h) Giving responsibility, recognition, tangible rewards and positive remarks.

(i) Exposure to sensitivity training, exposure to literature, discussion and group contacts, role playing, case conferences relating to their problems.

(j) Presenting learning materials using images, aids and providing adequate organisers and drill.

The main theme of the study is remedial teaching. The theoretical basis about the educational diagnosis, remediation and disadvantaged nature of learner will surely pave the way for doing the research work with great confidence. It will help in preparing sophisticated tools for the study, help in effective planning for data collection, and enable to do accurate analysis of the problem and derive findings. The remedial teaching which follows the diagnosis of individual difficulties should, of course, be geared to weaknesses that have been found in the pupils’ processes and habits of work. The teacher who has to make an outstanding success of remedial work must be well equipped not only with the best psychological procedures, but should in addition have at hand a wealth of appropriate remedial exercises and materials. Also, there is a need for reconceptualisation of deprivation or social disadvantage in the Indian context. The socio-cultural profile has to be revisited from time to time. Teachers may also be made aware of such disadvantaged nature of students.
REFERENCES


