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CHAPTER - I

INTRODUCTION

The way of life is such that the weak and less able persons have to withdraw sooner or later from the struggle of life. The same is also the fate of a slow learner child, in many countries. These days even nursery schools hold tests and interviews for first grade admissions and a slow learner child stands no chance for admission. Where should he or she go for education? Is the system of formal education not for them? Is the entire galaxy of teachers only for abler student? Has the science of education no provision for educating slow learners?

A 'Nothing for Nothing' is the rule of the world. For every hope one entertains, one has a task to perform. All parents hope for educational achievement of their child as today education is directly related with employment and better living and independence. This hope make them committed to their child's education. The stakes are higher and the task is more onerous (burdensome) in the case of a slow-learner. Whatever price, is paid for educational investment, its benefit will reap later. A child does not unfold just naturally like a flower. He unfolds when he is being developed by a sound education.

A child who is unable to succeed in normal academic situation on average rate is a slow-learner. Slow learners are vulnerable section of the student community. Their educational achievement are generally lower than the average and the bright students in the class.

However, they are not mentally retarded so as to require separate special schooling. The reason for the poor academic performance of slow learners are many and complex. But one fact that is evident is that the average students being the largest group in any classroom based on Normal Probability Curve, the instructions given by the traditional method caters generally to the average learners and to the bright or above average learners and the slow learners continue to perform at the same level even when they are promoted to higher standards due to the failure of our educational system to adopt alternative methods to enhance the educational performance of the slow learners within the school system.

UNESCO's declaration of 1959 is relevant in this context.
Declaration of the Rights of the child (1959).

The child who is physically, mentally or socially handicapped shall be given the special treatment, education and care required by his particular condition.

-Principle 5 From Preamble of
Declaration of the Rights of the Child
by UNESCO.

Mathematics is a compulsory component of school education. Every school child upto standard X require to master the basics of mathematics to succeed later in life as a successful adult both in his/her career and in his/ her personal life.

Slow learners can be identified right from standard I to standard X. There is need to tackle their problems right from lower-level. The methods of approach to enhance the educational achievement of slow learners varies at different stages of intellectual or cognitive development theory propounded by Jean Piaget has 4 stages of cognitive development in humans.

1. Sensori-motor stage - birth to 2 years.
2. Pre-operational stage – 2 years to 7 years
3. Concrete operational stage – 7+ years to 11+ years
4. Formal operational stage – 11+ years to 14+ years onwards

The formal operational stage of cognitive development, occurs during Adolescence according to Piaget and is the most crucial and important stage in human being where the mental capabilities can be developed to the maximum level. The mind can be trained to solve problems. If the Education system fails to perform and then loss to mankind is insurmountable. The students in the age group 11+ to 14+ years are in standard VII, VIII, IX and X respectively.

The slow learners who are studying in these standards should not be neglected. Something has to be done either as a part of the educational system within the curriculum set-up or some alternate method to traditional instruction have to be devised and the problem eliminated.

The first and the most difficult task is to identify the slow-learners and study their varied problems. Once this task is done, appropriate programmes may be suggested based on the results of the study to the parents, teachers and students so that the slow-learners

performance may be enhanced and they will be able to master the essentials of Mathematics required for their standard. Hence this study is being undertaken, for a selected group of VIII and IX standard students.

CHARACTERISTICS OF A SLOW LEARNER

1. A slow learner learns to walk and talk to a little later than his normal counterparts.
2. A slow learner is less interested in books and drawing-painting items, etc., as compared to an average learner.
3. A slow learner develops difficulties with school work, time and again. He is unable to achieve a modicum (a small quantity) of success in academic work.
4. Parents are constantly required to prod him or her by telling that it is the time to study.
5. It is difficult to recognise, identify and understand a slow learner at an early stage. It takes time.
6. A slow learner is usually a normal child in appearance and he or she behaves satisfactorily in many situations of childhood life, as against a retarded child. He may have some minimal mental limitation or lack in motivation and interest. Paucity of proper guidance, experiences and opportunities also leads to slow learning.

7. In many cases, the slow learner possesses average common sense and works harder for longer hours. The health is normal. The major deficiency is lack of normal academic ability for school work. A slow learner does not learn the academic skills at the normal rate.
8. In many cases, parents are puzzled and baffled when they find him or her understanding so well at home but having difficulties at school.
9. A slow learner can belong to any type of home. Like a drop out, he need not be largely from culturally disadvantaged families.
10. The general intelligence quotient (IQ) of a slow learner is between 75 and 90. The IQ of 100 is considered average. The IQ of retarded educable child is between 50 and 75. While a retarded child may not go beyond fifth or sixth class of schooling, the slow learner goes further. The other two sub-categories of retarded children are - trainable retarded child with IQ between 25 and 50, and custodial retarded child with IQ between 0 to 25. The slow learner is certainly much above the last two sub-categories of retarded children. His or her major problem is that of lower 'functional intelligence'.
11. There is one more type of children, known as underachiever. They do not exactly fit in with a slow learner. They may be

preferably categorized as immature, delayed learner or the late bloomer. The underachiever does possess normal intellectual ability, his or her obstacles may have been factors like sickness, cultural deprivation, emotional disturbance, too much dependence, physical disturbances and poor teaching. In brief, he or she lacks in self-confidence, largely due to over-protection, whereby the need to learn gets inhibited. Once getting started this child does learn, although may take longer to blossom out and may not achieve top grade in studies. He or she is described a pseudo-slow learner.

12. The slow learners may be slow in reading and arithmetic but not in other activities. They are the born workers in a society. They are an organised lot and mechanical in their work. They are not bored by monotony of repetition. They have potentialities to grow as good mechanics, carpenters, blacksmith and make a mark in similar other such positions.
13. The slow learner is in many respects a noble child. The fear of failure coupled with apprehensions of rejection or scolding, single out this little angle for all out sympathy, affection and tender fostering. Such a child needs one and only one type of experience, the experience of success. Given the taste of success all of his or her problems would be solved. Parents and teachers must organise situations for his or her success. A slow

learner may generally have some of the following shortcomings in academic skills :

- i. poor speech habits and ability,
- ii. short span for attention in learning,
- iii. difficulty in building concepts,
- iv. difficulty in making generalizations,
- v. difficulty in dealing with abstractions,
- vi. difficulty in classifying items,
- vii. difficulty in solving problems,
- viii. difficulty in management of general situations,
- ix. general immaturity,
- x. lack of strong ego,
- xi. lack of involvement in hobbies and events,
- xii. want of the sense of auditory discrimination, which is an essential requirement for learning.

Slow learners have only one common characteristic, which is less than average intellectual ability. In other performances and behaviours they could be much different from each other. Some may be shy and timid, others may be placid or nervous. While many may be having balanced temper, some others may be excitable and aggressive. They are largely affectionate. Some are sensitive and some may be obstinate. Some could be cheerful and outgoing while others may be of withdrawn type. Thus, a combination of various traits is possible in the personality of a slow learner.

Cruikshank et al.(1980 : 290-91) have made an elaborate analysis of the characteristics of slow learners. According to them

low achievers, underachievers, educationally disadvantaged, culturally deprived, emotionally disturbed, and learning disabled are all labels used to describe children having difficulties in school. Teachers are cautioned to avoid labelling children and to consider children for both their strengths and weaknesses and as full members of the human family. If a child happens to learn more slowly than others, he deserves special attention in developing early number awareness.

Slow learners may be identified by intelligence quotient, achievement, teacher observation, reading ability, Piagetian stages, and so on. They generally fall below an average in one or more of these areas. They may have many things in common, but each child is unique with his own set of strengths and weaknesses. Characteristics possessed by slow learners are listed here.

1. Self-concept : Children may learn at a very young age that they are “stupid”. Failure is too easily learned. Many children will not even attempt a task because they are afraid of failure. Teachers must make an effort to ensure success and to look at failure as an acceptable route towards learning. If children themselves as worthwhile, they are more apt to approach a problem with confidence and to have a greater chance for success.

2. Attention span : Slow learners often have short attention spans. This may be because problems are too difficult, too long, or

uninteresting. Children will work for relatively long periods on interesting problems suited to their level. Teachers must ensure children are positively motivated toward appropriate tasks.

3. Specific mathematics disability : Terms such as acalculia, number blindness, and specific minimal brain damage are used to describe children with specific problems in learning quantitative concepts. There may also be perceptual problems that affect learning spatial concepts. These include forming concepts such as position in space (near, far, up, down, left, right), distinguishing a figure from the surrounding background, and eye-hand coordination. Children are easily distracted by extraneous stimuli. Too many problems or pictures on a workbook page, as well as too many objects or people in the classroom can be very distracting. Workbook pages and classroom environment may need to be relatively plain and simple for children with perceptual problems. Teachers should be alerted to these problems and should seek professional help when problems demand it.

4. Poor self-control : Some children may be explosive, hyperactive, or erratic. They always seem to be in motion. They rarely sit still and often wander aimlessly about the room. Some research indicates that these actions may be triggered or aggravated by diet. Much research still needs to be done on how diet affects

children. Hyper-active children require a structured environment with few extraneous distractions.

5. Brain dominance : Recently, attention has been focused on the role played by the left and right hemispheres of the brain. The left hemisphere often seems to affect verbal, numerical, and logical functions; the right hemisphere seems to affect visual, spatial, perceptual, intuitive, and imagination functions. Teachers often direct lesson to the left hemisphere. Children are asked to read, listen, think, and write. This may be suited to children dominated by the left hemisphere, but causes problems for the right hemisphere children who need to see, feel, manipulate, and imagine. Most research in this field recommends strengthening both hemispheres of the brain and the bonds between them. the right hemisphere of the brain seems to be neglected in Western cultures, and teachers can do much to strengthen it by creating opportunities to visualize and imagine.

6. Language problems : Children who have difficulty learning mathematics often have language difficulties. They may not understand such common mathematical vocabulary as up, down, in, out, two, plus, for example. They may be unable to read simple directions, equations, or mathematical symbols. They may be unable to communicate concepts they do understand. Teachers should remember to keep their conversations as simple as possible and be

alert for any misunderstanding of terms. Concepts should be developed through physical manipulation and language.

7. Memory and application : Studies show that slow retarded children are capable of learning complex motor and verbal skills. Their retention may be similar to that of younger children of the same mental age. Overlearning may be required to ensure retention. Teachers need to allow for practice, drill, and repetition but only after a concrete understanding of concepts has been developed. Transfer of learning is difficult but may be accomplished if it is incorporated into the lesson. Slow and retarded children can retain and apply skills when transfer has been practised. Complex problem solving may be too difficult; but simple, rote, factual material such as the memorization and use of basic facts can and should be learned and applied.

8. Piagetian stages : Some children may be slow in mathematics because they are in an earlier Piagetian stage than most of their age-mates. Young children may be in the sensory-motor stage, while their classmates are in the pre-operational stage. Second or third graders may be in the preoperational stage. Topics must be presented differently to these children. They may not be ready for some concepts.

CLASSIFICATION OF DIFFICULTIES

Parents and teachers should have a complete and comprehensive knowledge of various difficulties that a slow learner encounters in different areas of learning. Only then they will be able to assist a child. According to Bond et al. (1979) a slow learner suffers from the following handicaps :

A. Family word identification and recognition

1. Failure to use context and other meaning clues.
2. Ineffective visual analysis of words.
3. Limited knowledge of visual, structural, and phonic elements.
4. Lack of ability in auditory blending or visual synthesis.
5. Overanalytical
 - a) Analyzing known words
 - b) Breaking words into too many parts.
 - c) Using a letter-by-letter or spelling attack.
6. Insufficient sight vocabulary,
7. Excessive locational errors :
 - a) Initial errors
 - b) Middle errors
 - c) Ending errors

B. Inappropriate directional habits

1. Orientational confusions with words.
2. Transpositions among words
3. Faulty eye movements

C. Deficiencies in basic comprehension abilities

1. Limited meaning vocabulary.
2. Inability to read by thought units.
3. Insufficient sentence sense.
4. Lack of paragraph organization sense.
5. Failure to appreciate author's organisation.

D. Limited in special comprehension abilities

1. Inability to isolate and retain factual information.
2. Poor reading to organize.
3. Ineffective reading to evaluate.
4. Insufficient ability in reading to interpret.
5. Limited proficiency in reading to appreciate.

E. Deficiencies in basic study skills

1. Inability to use aids in locating materials to be read.
2. Lack of efficiency in using basic reference material.
3. Inadequacies in using maps, graphs, tables, and other visual materials.
4. Limitations in techniques of organizing material read.

PRIMARY SCHOOL NEEDS

The dangers are best met at the frontier, and the frontier here is the pre-school stage. A slow learner lacks the skills and habits necessary for proper conduct in school life. Such a child needs well-planned flexibility from parents and teachers. We also have to help him or her to change the attitude toward himself or herself and toward the school work. At this stage great care should be exercised for

improving reading ability of the child. These days there are numerous programmes and children's books, and both should be used.

SECONDARY SCHOOL NEEDS

At the secondary school stage as low learner becomes a person of 'shattered dignity' and a 'frightened self'. He or she feels discouraged and defeated, increasingly shying away from learning. This is, therefore, the crucial stage when teachers and parents must participate fully and properly to rescue the child. The strategy should be of making up the deficiencies in all areas of learning and in general reinforcing the academic abilities. Instructions on how to study and personal counselling become vital. Parents should use methods to develop listening comprehension, which must precede comprehension in understanding. The material used should be of child's interest on which he or she should have proper background information. The purpose should be to develop ability to :

- i. relate ideas,
- ii. remember facts, and
- iii. to use the facts in functional manner.

Both, reading and arithmetic require acquisition of certain basic skills. Parents should identify these basis skills, by doing some reading, and try to develop them in a slow learner.

INTIMATE AND WARM ENVIRONMENT

Provide a slow learner just one opportunity to succeed and he or she will do better in subsequent operations. The trick works and often does wonders. Give a slow learner maximum work experience. Parents and teachers should make a slow-learner believe, time and again, that he or she is a person of worth, dignity and capability. Traditional high standard should never be set for a slow-learner. His or her mental age should be established before standards are set, alongwith areas of strength and limitations. Due allowance ought to be made for certain special learning habits and characteristics in such a case.

The remarks like 'Good', 'Excellent', 'Well done' should be used quite liberally and comments such as 'Bad', 'Poor' etc., avoided. A slow learner is already rejected and forsaken by all around him or her. Any negative criticism will only further reinforce the ruling sense of failure. Parents and teachers should remember that praise is better than blame, and that both are better than indifferent attitude toward a slow learner. While working with a slow learner the parent or teacher, has to use all ingenuity, insights and imagination that one possess, in fact, all the qualities of his character and ability for obtaining results.

Some activities a parent must do, particularly with a non-bright child, at early stages are :

- i. Read to him or her when the child is small.
- ii. Encourage to explore the environment when the child is a toddler.
- iii. Take the child on visits to various places.
- iv. Give the child chances to jump, climb, run to that elements of coordination are built in him or her.
- v. Force the child to interact with other children.

In brief, motivation, praise, giving of responsibility and action by the child will improve learning activities.

Atmosphere needed at home for a slow learner :

- i. Minimum of tension in home atmosphere.
- ii. Respect for each member in the family. A slow learner should not be unfavourably compared with another child.
- iii. The home atmosphere should encourage open channel of communication and dialogue.
- iv. There should be humour and music around.
- v. Cultivate team spirit in domestic affairs.

A slow learner may have one or more of the following difficulties, which parents can tackle better than teachers :

1. Disinterest and boredom- he may not be able to see the use of the subject for his purposes and interests.
2. Difficulty in the subject- he may be lacking the minimum background in the subject of which parents and teachers take for granted in him.
3. No aptitude in a subject- the craze in parents to force a child for science education and specialization, while the child may have potentiality for social sciences or humanities.
4. Fear of failure - here a child may be in a state of withdrawal feeling that whatever efforts he may make he will not succeed,
5. Desire to do so something else - puts a child in a state of conflict with studies.
6. Distractions through noise, etc.
7. Emotional upsets in a child.

While a slow-learner creates concern for parents, it should not be forgotten that he or she gives a lot to parents in return. It is not a reward, but it is certainly a compensation. They make us to learn how the development takes place and how to regulate it and provide for it. Just as, at times, we learn more from a slow motion replay in television, similarly a slow learner child educates parents and teachers

in a better manner than an average child. The resulting good is thus multi-faced. It liberates and facilitates the creative potentialities of a slow learner. At the same time it endows the parents as well with real richness of mind and heart. It brings an upsurging sense of triumph, which is missed at the threshold of indifference.

A SLOW LEARNER NEEDS MORE INTIMATE AND WARMER ENVIRONMENT

There is at times a great difference between an average learner and a slow learner. A child may further deteriorate as a slow-learner due to certain situations in a family. Let us take an example of twin brothers- A (average-learner) and S (slow-learner) :

- i) A (Average learner) : May be a short and thick child with rosy-cheeks; may also be noisy, turbulent and stormy; bound to be a happy child- running, playing, talking, smiling and laughing.
- ii) S (Slow-learner) : May look like a stranger with rigid posture; may be a sad child, looking lethargic and possibly with a lean constitution.

There is a great possible danger in the above two cases that the mother of the twins may give much greater attention to child A (average-learner) and unconsciously give least or no attention to the child S (slow-learner). Instead of the two children being twins, they could be elder and younger brothers as well. Such unconscious

neglect of S (slow learner) by the mother will be fatal for the slow learner.

Parents, particularly the mother, must be watchful of the following : A (average-learner) may frequently come to the mother for help and comfort and cuddle up to her spontaneously, while S (slow-learner) dejected with experiences of failure and rejection, may helplessly gaze at the mother from a distance-particularly when A (average-learner) is in close relationship with the mother.

The mother must give greater affection, conversation and company to S (slow-learner) in comparison to the child A (average learner), because S (slow- learner) suffers failure more often than A (average learner). The slow learner must get a good amount of smiles from parents, who should also give good looks at him or her together with constant touch and hug and praise for each positive response. The sole objective of greater parental attention should be to provide compensation to the slow learner. It should never reach the level of allowing monopoly of the child, or over-dependence, because these two features can harm a child.

The Need to Avoid Over-dependence :

When a mother unduly anticipates the needs of a child and provides for them before the child actually experiences pinch and uses the communication system by crying, the over-dependence is likely to be generated; and as the child is deprived of such occasions

of learning- resulting into crying- the child may well be on the way to become a slow-learner, complacently contributed by the over-concerned mother. Suppose, a mother constantly prevents wetness, hunger, heat, cold, loneliness, discomfort, etc. then, she simply deprives the child of experiences and early learning processes; and to start with, the child becomes a slow learner because the experience of needs, and efforts in their communication and demand, do not come the child's way. So, in certain cases slow learning is imposed by the mother. At times mothers also fail in sharpening various senses like eye-contact, smiling, signaling, making faces, suckling experiences, tears, etc. - all being modes of vital learning processes - resulting into a child becoming a slow-learner.

Mother's Vital Role :

The mother is her baby's first teacher. For teaching activity, two things help a great deal - (i) that the learner is well known to the teacher, and (ii) that the teacher understands the needs and capacity of the learner as an individual. The mother is best placed in these two respects of 'teaching-learning process' and she becomes more valuable in case of a slow-learner, as compared to an average learner.

The mother should identify the world of a slow-learner by looking through his or her eyes (not the mother's eyes) and regulate it as per the child's own past experiences. The mother should plan situations wherein the slow-learner should be with other children so

as to learn his or her own lessons. A slow-learner should be encouraged, and supported, to do things by the self, rather than over-protection by the mother.

A mother should have good understanding of the sequence of development that takes place in a child at different stages - when one first sits, walks, utters a word, etc. While the stages are common to all children, the time taken by each stage of development varies in the same manner as in cases of slow and fast trains running between two railway stations.

It is also seen that a slow-learner does not walk and move with the same ease, speed, grace and style as an average-learner. The whole area of physical development of a slow-learner is as important, if not more, as the intellectual development. In fact, a child's intellectual growth is dependent on his physical development and experiences; sight, sound, taste, touch and smell- all have to be physical experience. A slow-learner may have some difficulty in simple daily routines like taking off shoes and socks and in changing dresses. Parents need to be careful in teaching about these routines in more than normal manner, by making the child do it again and again. Parents' attempts to teach the child through their demonstration alone will not help. How others do it, is not the way of perfect learning by a child. The child must do it by self-help to have confidence in performance and in coordination of hands, fingers and eyes in an

activity. Coordination between eyes and hands can be improved by making a slow-learner build towers with blocks, sequencing of different sizes of rings, stringing of beads, and numerous other activities.

Call to Shoulder Parental Responsibility :

It is observed that because of their inertia and indifference parents fail to identify their slow learning child. Non-identification is further compounded with the task of their involvement and continuation of child's alienation. Moreover, the parents usually behave as a passive spectator of a sports event, entertaining either too high or too low hopes about their child. Neither way the situation is helpful to the child, who is able to get an inkling of such parental expectations- howsoever disguised whether in verbal comments or non-verbal signs. Too high expectation causes sneaky fear of failure and disturbs the poise of the child. The child's confidence is shaken even before seeing the bridge. The entertainment of too low expectations is equally worse. It makes a slow learner still more peevish and dispirited. It is taken as a signal of dismissal or rejection. It bruises child's dignity and faith in self and blunts the already not so keen urge in the child. Under these circumstances, the child slows down and becomes an under-achiever.

It is thus clear that parents ought to eschew the attitude of indifference and casualness toward their child. If they foresake their

tiny, helpless child now, there is little hope of recovery in future. The parents must therefore come to grips with the problem in right earnest. It is also morally beautiful that they willingly shoulder the burden of wishing well to their own child. They should spare no pains, patience and skill that is necessary for liberating the bottled up potentialities in their child dubbed as a slow learner. This will also diffuse the general environment favourably to the child. The family concern for the slow-learner will gain in strength. It will inspire older brothers, sisters and cousins doing better in their studies for helping to instruct the slow learner. The possibilities of small mixed classes will thus open up in every home.

ABILITIES OF A SLOW LEARNER

The various abilities people possess can be classified under the following areas :

- i. mental ability
- ii. mechanical ability
- iii. social ability, and
- iv. ability in other areas

The abilities of no two persons are exactly alike. Differences are there between individuals - brilliant, average or slow. A slow-learner is not deprived of abilities. Like a bright child, a slow-learner will also have sectors of poor abilities, average abilities and superior abilities in him or her.

The mental abilities of slow learners are less than average. As mental abilities are of reasoning nature, as slow learner will be less than average in reasoning abilities. He or she will take time in understanding and in using ideas not only in school subjects but in all kinds of daily affairs. But there should be no crisis due to this factor. No individual uses all his or her abilities all the time. It is only a fraction of total ability that a person uses at a time. It is the element of constant hard work that makes an able (or less than an able) person successful in life. Therefore, a slow learner given to hard work, can make steady progress and ultimately succeed in life.

Mechanical ability in a child means that he or she is more at home with tools and materials. A slow learner may be mechanically inclined, with the ability to do the mechanical work better. Since he or she can do mechanical work better, it will be an area of interest to a slow learner. A judicious combination of ability and interest means better prospects of higher success. Parents may (and they do) expect all of their children to score high in mental abilities in the race for prospective careers. However, in general this is practically not possible. It is also against nature to involve all in the single pursuit of becoming a prodigy of learning.

Social ability means being good in human relations. It is sometimes seen that a child of high mental ability is weak in human relations. A slow learner may be good in human relations because he

or she has no strong ego. He or she being tolerant and patient, will fare better in this field than many mentally and mechanically superior children, who can not go along with other individuals.

There are other numerous areas to excel and each child or adult has his or her own areas of superiority.

Inferiority Complex and a Slow Learner :

Each human being sometime or the other, faces inferiority in life. Some face it more frequently than others. A slow learner is a constant victim of inferiority, in the class, at home, in neighbourhood and amongst relatives and friends. Feeling of inferiority in a slow learner enters his or her life in early childhood, and long before he or she becomes consciously aware of it. Inferiority complex means presence of constant fear and timidity about everything one undertakes. It is dominant on a particular set of activities i.e. mental activity, for a slow learner.

This situation in a slow learner can be helped by making him or her :

- i) face the facts boldly with constant support of parents and teachers,
- ii) work hard with the principle of try again and again;
- iii) never to blame the self, because the self has not contributed to the situation in which a slow learner is;

- iv) devote energy and time also to outside school work activities as are of interest and pleasure;
- v) seek compensations in other areas of average or superior ability.

A slow learner should constantly be made to evaluate as to where he or she stands, but sympathy of parents and teachers is prerequisite for such an exercise.

A slow learner should be unreservedly cheered for his or her achievements, no matter how small or in what field. It would enable him or her to appreciate that inferiority is a 'social' and not a self-generated complex. A continuous process of raising of spirits is certain to instill confidence in a slow learner that he or she would eventually be able to remove or compensate deficiencies, if any, in him or her.

A slow learner- like any other human being - wants to live; wants to love and be loved; wants to be with people and, finally wants to excel. This is his or her natural right that we - teachers and parents in particular, and the society at large, owe to him or her. A child while finding his feet repeatedly stumbles and tumbles which evoke ecstasy in the parents. There is, therefore, no reason for the parents not to rally round their child if he occasionally falters in his initiation into the mystic world of learning.

A slow learner, having got settled in life is likely to marry and have children. There is an impression that a handicapped person as a slow learner may reproduce handicapped children. Although heredity is a major factor in intellectual capacity of a child to start with, proper environmental conditions and planned parental efforts play much greater role and bring about favourable results. Many studies have shown that a slow learner adapts well to his work and gets children with normal range of ability.

FACTORS AFFECTING MATHEMATICS ACHIEVEMENT

Achievement in Mathematics has been studied in relation to a number of variables, both cognitive and affective. Studies in the past two decades have confirmed that intelligence and socio-economic background are major contributors to mathematics achievement (Singh, 1986; Nilimakumari, 1984; Rajput 1984; Gakhar, 1981; Jabbal, 1981).

Factors responsible for poor achievement or failure have also caught the attention of researchers. Mainka (1983) found language mastery was an important factor in the acquisition of concepts in mathematics. Nilima Kumari (1984) studied the conservation of number and substance in relation to intelligence as SES, revealing significant positive relationship, reasoning power, space visualizations, attitude towards mathematics were found significantly related to mathematics achievement (Patel, 1984).

In Rajput's (1984) study, achievement motivation was found to have no bearing upon achievement.

Gokhar (1981) identified variables of educational environment as responsible for acquisition of mathematical concepts.

Katiyar's (1979) study revealed that boys and girls did not differ in mathematics achievement.

Causes of under and low achievement in mathematics vary from defective textbooks to some personality needs. Imparting of limited knowledge, blind use of rules, defective textbooks, insufficient drill work, absence of methodical approach were some of the causes of low achievement in schools of Assam (Sharma, 1978).

Curriculum development considered in its widest sense has recognised as the main generating force not only for quality in education but also for fostering the ability to assimilate changes, especially those due to the rapid scientific and technological evolution now in progress. With the advancement of science and technology, new content and techniques of instruction are being increasingly incorporated into two related subject fields of science and mathematics. In our country also, schools are gradually going to introduce new mathematics, and science course is being entirely revitalised.

ABOUT THE RESEARCH

STATEMENT OF THE PROBLEM

A CRITICAL STUDY OF THE PROBLEMS OF SLOW-LEARNERS IN MATHEMATICS OF STANDARDS VIII AND IX IN KOLHAPUR CITY.

DEFINITION OF TERMS

Critical Study

For the purpose of this study 'Critical' means a minute, careful identification and analysis of the problems of slow learner.

Slow Learner

Dictionary Meaning

A term often used rather loosely of any child whose attainments have always fallen noticeably behind those of other children of the same age, without any implication as to what might be thought to be the cause (e.g. deprived background, brain-damage, slow-maturation, lack of motivation, etc.) or whether the child might be enabled to speed up or catch up.

Sometimes however, the term is used to indicate children who are not only expected to remain slow learners but also to be unable ever to learn as much as others. Some people would even restrict the term to pupils who are Educationally Subnormal.

- A Dictionary of Education (1981)
- Derek Rowntree
- Harper and Row Publishers, London

Operational Definition

For the purpose of this study :

A slow learning child is one who score below the normal or average on a standard group intelligent test, but who, on the basis of I.Q. and other established criteria is not retarded to the degree that he is a candidate for separate schooling.

Further, from among the above type of students, those who have scored less than the average in the class in the previous annual examination in Mathematics.

Mathematics***Dictionary Meaning***

An approach to training through the systematic analysis of skills using REINFORCEMENT theory. Pioneered by US psychologist, Tom Gilbert, it made a considerable contribution to the methodology of programmed learning and educational technology during the 1960s.

Operational Definition

The Mathematics content in the Text-book of VIII standard prescribed by Maharashtra State Bureau of Text Book Production and Curriculum Research, Pune and State Text Book of IX standard prescribed by Board of Secondary and Higher Secondary Education, Pune.

Standards VIII and IX

Operational Definition

Standard VIII and IX of Marathi medium schools following the syllabus prescribed by Maharashtra State Bureau of Text Book Production and Curriculum Research, Pune and State Text Book of IX standard prescribed by Board of Secondary and Higher Secondary Education, Pune.

Students of the standards VIII and IX fall in the age group of 12+ and 13+ years respectively and according to Piaget's theory of cognitive development, they are expected to be in the formal operational stage of cognitive development.

Kolhapur City :

One of the 35 Districts, Kolhapur is a city from Maharashtra State. It is situated in West Maharashtra on the bank of 'Panchganga' river. Its geometrical location is $15^{\circ}42'$ - north latitude and $74^{\circ}14'$ - east longitude. Its height from sea level is 650 meters and its total geographic area is 66.82 square kilometer. The borders of the city are as follows :

1. East-Shahu Naka
2. West - Phulewadi
3. South : Kandalgaon and Kalamba
4. North : Shivaji Pool

SIGNIFICANCE OF THE STUDY

1. This study scope covers Educational Psychology and Mathematics. No research of such nature has been undertaken earlier anywhere including India as far as the knowledge of the investigator goes and there is an urgent need to conduct such research to upgrade the achievement of student in Mathematics so that they will be prepared to perform better in Standard X later on.
2. Slow learners are very much inseparable for classroom instructions. However their special needs have to be catered to which cannot be easily done in the regular classrooms in schools.
3. Mathematics subject is a compulsory component of the school education which every child has to master and the programmes suggested as a result of the study will help the slow learners for bettering their achievement. It will act as a motivator for better and faster learning which is the need of the day.
4. This study will help to draw the attention of teachers and school authorities to the needs of the slow learners and assist the school to help their students to perform better in Mathematics.
5. Slow learners are a vulnerable section in the school educational system and this study will help such students of society.

OBJECTIVES OF THE STUDY

1. To identify slow learners.
2. To find out the problems of slow learners in Mathematics. - which?
3. To analyse the Mathematics text book of standards VIII and IX to suggest appropriate programmes to eliminate the problems of slow-learners in learning Mathematics.
4. To make appropriate suggestions to schools, teachers, parents and students based on the results of the study.

Delimitations of the Study

1. The sample will be drawn from Marathi medium schools in Kolhapur city.
2. Study will be limited to the schools following the Mathematics text books prescribed by Maharashtra State Government.

ABOUT THE DISSERTATION

The report of this study is presented in five chapters.

The **Chapter I** deals with the Introduction, Characteristics of Slow Learners, Classification of Difficulties of Slow Learners, Inferiority Complex and a Slow Learner, Factors Affecting Mathematics Achievement and About the Research.

The **Chapter II** deals with the Review of Related Literature. The review is about the research studies done by various persons in different fields about the mathematics learning and slow learners.

The **Chapter III** deals with Plan and Procedure of the Study, Research Design, Sampling Design, Sample, Nature of the Sample, Tools of the Study, Procedure for the Data Collection and Data Analysis.

The **Chapter IV** presents Analysis of data in pursuance of the objectives started earlier.

The **Chapter V** presents the Summary and Conclusions and Recommendations for the School Teachers and Parents and Recommendations for Further Research.