## CHAPTER – VI : SUMMARY AND SUGGESTIONS

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6.1. Introduction

The research work carried out by the investigator, and the findings arrived at are summed up in this chapter under appropriate headings along with limitations, implications of the study and suggestions made for further research.

National development of any country is decisively determined by the degree of human resource development achieved. Effective utilization of all other resources available in a country also largely depends on the extent of human resource development attained. But human resource development is more easily said than done. It is a Herculean task with problem and challenges in every stage. Though all are equal, all are not same. Students who come to school are almost same in age but they differ from one another in so many respects, A classroom is a place where there is homogenous group with heterogenic characteristics.

In our educational system a wide variety of students can be found at all levels. Some of them are proficient, some of them are deficient and some are struggling. Government is earmarking a colossal investment for promoting human resource development. This is a task, which cannot be achieved without catering to the diverse group, which includes gifted students, bright students, special children etc. A teacher should be
knowledgeable about this diversity and he should devise his instruction in such a way that it should cater to both the endowed and ignored. If either of the group is neglected, optimum human resource development can not be achieved. In Indian setting there are a large number of under achievers, low achievers, and problem students who outnumber the endowed or the gifted students. All these students generally come under special needs children.

Problem Students: Concept, Meaning and Definition

In every classroom there are some who display very difficult combinations of attributes and behaviour pattern. These students are called problem students. They are the students who require more teacher effort in terms of teaching time, energy, and patience than most other classmates. These students are marked for poor adjustment or maladjustments, resistant to classroom routines. They are found disrupting off and on. They evince chronic or serious problem, which need early intervention and effective remediation. A little effort on the part of the teacher can put them on the regular track and they can be made useful citizens of the society in the long run. Hence in larger interest of the nation in general and in society in particular, dedicated effort should be taken to identify these students so that remedial programme can be evolved and implemented for circumventing their academic problems and social deficiencies at the earliest possible. To accomplish this task with a considerable success a teacher should have an indepth insight into the characteristics of the problem students and the causes of their behaviour problems.

The present study is an earnest attempt to develop certain remedial programmes to overcome the academic and social deficiencies of the problem students.

6.2. Title of the Problem

‘Effectiveness of Certain Remedial Programmes in Overcoming Academic and Social Deficiencies of Problem Students’
6.3. Operational Definition of the Terms Used in the Study

Effectiveness

According to Oxford Dictionary (1975) 'Effectiveness is being able to bring about the result intended'. The 21st Century Dictionary (1999) defines effectiveness 'as having the power to produce or providing a desired result'. Likewise, Cambridge International Dictionary of English (1996) defines effectiveness as a 'method of achieving something or something that produces the result intended to'. It is also defined as the 'difference between the treated and control group in the proportion of the events of complete or almost complete overall recovery' (Tang, 1999).

In this study, effectiveness refers to 'impressive result in the learning by the VIII standard students consequent to the operation of multimedia based modular instruction and impressive attainment in the social skill achievement through the social skill strategy. It refers to the realization of academic and social objectives and also the degree of realization of higher-level attainment'.

Remedial programme

Banjamin B. Wolman in his dictionary of behavioural sciences (1964) defines remedial programme as 'providing remedy for disease or deficiency' (teaching or learning) page 698. Likewise, Quay (1983) defines remedial programme as 'the application of both the basic principles of learning theory and interaction of selected techniques, plan of activities to be done with behavioural characteristics of the child'.

In this study, remedial programme means "a planned series of actions intended for overcoming the academic deficiency using multimedia based modular instructional strategy and providing social skill strategy to overcome social deficiencies found in problem students".

Academic Deficiency and Social Deficiency

Benjamin B. Wolman (1964) defines 'academic deficiency' as 'relating to formal education particularly involving the study of books or pertaining to
the theoretical, rather than practical one, with shortage or lack in quality or amount'.

According to Chambers 21st Century Dictionary (2001) 'social deficiency' refers to 'the organization and behaviour of the people in societies or communities, with shortage or lack in quality or amount.

As for as this study is concerned, academic deficiency refers to 'the poor performance of the students in the classroom test or examination and other related study skills', and social deficiency refers to 'the inadequacy of students in social behaviour, social interaction and social transactions'.

**Problem Students**

Encyclopedia of Education (1969) defines Problem student as 'a student slow speaking, dirty, friendless and prone to do little work'. Likewise, Jery Brophy (1996) defines problem student as 'those who are unable to pay attention to lesson, apply themselves to their work and respond to teacher's initiations'. According to Dictionary of Social Sciences (1965) problem student means 'a student whose behaviour deviates so widely from acceptable social norms that special methods are required for dealing with him'.

In this study, problem students refer to the identified problem students in VIII standard who were found deficient in academic and social skills and who received the remedial programmes to develop their academic and social skills.

**6.4. Objectives of the Study**

**General Objectives**

1. To develop a checklist to identify the problem students in VIII standard.
2. To develop tools to identify the academic and social deficiencies of problem students.
3. To findout the background characteristics (Gender, Age, Community, Educational qualification of parents, Income of
parents, Parental control) of problem students with academic and social deficiencies.

4. To develop remedial programmes incorporating multimedia based modules and social skill strategy to overcome academic and social skills deficiencies of problem students.

5. To find out the effectiveness of remedial programmes in overcoming the academic and social deficiencies of problem students.

Specific Objectives

1. To find out whether there is any significant difference in the academic deficiency and social deficiency of problem students due to variation in their nature of problem behaviour, before adopting the remedial programme.

2. To find out the significant difference, if any, in the social deficiency of problem students in the classroom environment, school environment, social environment due to variation in their nature of problem behaviour, before adopting the remedial programme.

3. To find out whether there is any significant difference in the academic deficiency and social deficiency of problem students due to variations in their gender, age, community, educational qualification of parents, income of parents and parental control, before adopting the remedial programme.

4. To find out whether there is any significant difference in the academic achievement and social skill achievement of problem students due to variation in their problem behaviour, after adopting the remedial programme.

5. To find out the significant difference, if any, in the social skill achievement of problem students in the classroom environment, school environment, and social environment due to variation in their nature of problem behaviour, after adopting the remedial programme.

6. To find out whether there is any significant difference in the academic achievement and social skill achievement of problem students due to variations in their gender, age, community,
educational qualification of parents, income of parents and parental control, after adopting the remedial programme.

7. To find out whether there is any significant difference in the academic achievement of each category of problem students and problem students as a whole before and after adopting the remedial programme.

8. To find out whether there is any significant difference in the social skill achievement of each category of problem students and problem students as a whole before and after adopting the remedial programme.

9. To find out whether there is any significant difference in the social skill achievement of each category of problem students and problem students as a whole in the classroom environment, school environment and social environment due to variation in their nature of problem behaviour, before and after adopting the remedial programme.

Assumptions of the Study

1. A checklist can be developed to identify the problem students in VIII standard based on the underlying characteristic problems.

2. A scale can be developed to assess the social skill deficiency of the problem students in VIII standard with regard to classroom environment, school environment and social environment.

3. Multimedia based modules can be developed and applied to overcome the academic deficiency of problem students.

4. Modular instructional strategy will enhance the achievement of problem students.

5. A comprehensive social skill strategy can be devised incorporating a ten-action programme to develop social skills in problem students.

6.5. Hypotheses of the Study

1. There is significant difference in the academic deficiency and social deficiency of problem students due to variation in their problem behaviour, before adopting the remedial programme.
2. There exists significant difference in the social deficiency of problem students in the classroom environment, school environment, and social environment due to variation in their nature of problem behaviour, before adopting the remedial programme.

3. There exists significant difference in the academic deficiency and social deficiency of problem students due to variations in their gender, age, community, educational qualification of parents, income of parents and parental control, before adopting the remedial programme.

4. There is no significant difference in the academic achievement and social skill achievement of problem students due to variation in their problem behaviour, after adopting the remedial programme.

5. There is no significant difference in the social skill achievement of problem students in the classroom environment, school environment and social environment due to variation in their nature of problem behaviour, after adopting the remedial programme.

6. There is no significant difference in the academic achievement and social skill achievement of problem students due to variations in their gender, age, community, educational qualification of parents, Income of parents and parental control, after adopting the remedial programme.

7. There is significant difference in the academic achievement of each category of problem students and problem students as a whole before and after adopting the remedial programme.

8. There is significant difference in the social skill achievement of each category of problem students and problem students as a whole before and after adopting the remedial programme.

9. There is significant difference in the social skill achievement of each category of problem students and problem students as a whole in the classroom environment, school environment and social environment due to variation in their nature of problem behaviour, before and after adopting the remedial programme.
6.6. Scope of the Study

The intervention strategy in this study to overcome the academic and social deficiencies of problem students includes multimedia based modular instructional strategy to circumvent academic deficiency and a comprehensive social skill strategy to overcome social deficiency. Multimedia is the composite of auditory and visual presentation. It can reach an audience of unlimited size. It can transmit programme content without delay from point of origin to the point of reception. Keeping this view in mind, the primary focus of the study is to develop multimedia packages for certain units in science of standard VIII. Modules are self-learning packages. They have programme content with supporting multimedia packages. The main objective of modular instruction is promoting mastery learning by means of auto learning or learning at their own pace. Three to four modules were developed for each unit and for each module supporting multimedia packages like audio cassettes and video cassettes and other HTIM and LTIM were also provided.

Audio cassettes and video cassettes procured from the International Educational Research Centre, New Delhi; ACE Educational System Private Ltd Madras; and District Science Centre Tirunelveli, which cover most of the units, are used in this study. Likewise, the videocassettes procured from the above sources are also used to provide multimedia base to the module relevant to the particular concept. For those units for which ready-made cassettes were not available, multimedia packages were developed by researcher himself.

Apart from the audio and video cassettes procured from different sources and developed by the investigator, other HTIM like microscope, microslides etc and LTIM such as charts and models, (both working and non-working) are also used as an integral part of the module. For some of the selected units readymade CAI software available in the market are used for the purpose of experimentation. For the units not covered by the commercial CAI software, the investigator developed his own CAI with the
help of a computer expert to make his instructional presentation effective to the problem students.

Modules of all the units were given to the problem students in the form of a handbook so as to facilitate auto learning by the problem students at their own pace. Teacher support system was restricted to an extent of operating the multimedia packages, clarifying doubts and guiding the project works.

Two units were selected for each subject for the purpose of developing modules and measuring the effectiveness of modules on the academic achievement of the problem students. Each selected unit was divided into two to four conceptual sub units. For Physics sound and electricity were included for the study. For Chemistry, chemical equations, Acids, Bases and salts were included in the study, for Botany and Zoology organisation of plants, Ecology – Ecological factors, cellular organisation, nutrition and hygiene were chosen respectively for the present investigation and for the preparation of modules. Problem students from 8th standard of Government Higher secondary school, Amathur were identified for the study.

To develop social competence, a Social Skill Strategy was devised by the investigator. The Social Skill Strategy, which contains a Ten-action Remedial programme, was implemented to circumvent the social deficiency found in the problem students. The treatment was extended for a period of six months, since that much of minimum time is required to bring about a desirable change in the behaviour of the problem students. To undo and to modify a problem behaviour evinced by the students for years together a period of six months is necessary. Then the modified behaviour can be expected to last long without any reversion to the problem behaviour again. The experimental period is bound to provide adequate opportunity to the investigator to observe and assess whether the ten activities included in the social skill strategy nullify the problem behaviour, modify existing behaviour and influence the right behaviour.
For the academic part, the treatment includes administering pre-test providing intervention programme and finally administering post-test to measure the resultant academic achievement. For the social skill part, the treatment includes administering social skills assessment scale, providing remedial programme in the form of ten-action programme and finally administering the scale once again to assess the degree of social skills achieved. This part of the treatment was extended for 6 months since that much of time was required to develop social skills in problem students. Since modification of existing problem and development of right behaviour require much time, the experimental treatment was given for a period of six months.

6.7. Need and Importance of the Study

Teaching effectively is the most important of all skills required of a successful teacher. Effective teaching deals with the needs, interest and abilities of students as individuals. It requires the knowledge of environment in which the students live, the development problem they face and their mental abilities. It is more true so when the teacher is dealing with the problem students. It also calls for an understanding of learning process essential for creating an environment where learning can take place and for making instruction so stimulating that every pupil will be motivated to learn. Stimulating pupil to think critically, independently and creatively is essential for effective teaching.

Effective teaching in any subject depends largely upon the introduction of newer methods of instruction. There is a growing need for trying out newer methods of instruction and establishing their effectiveness in teaching. Now a days, teacher can not depend on any single method of teaching. The teacher has to try out several innovative methods to present the content to the student. When they are taught by innovative methods, the students are able to understand the concept, principles and content in an effective manner.
Above all, human resource development should be at the focus of any research effort for a developing country like India, which has abundant human resources. In Indian system of education, it is observed that the human resource i.e. teachers and learners are under developed and perform lower than their capabilities. The learners are under developed in the sense that they are not achieving in tune with their capabilities. Even some of the most efficient teachers are not adequately equipped to identify and guide the problem students to reach their optimum levels. As a result, the instructors in turn are not able to send their products into the society as fully developed learners. To ensure this we need a different strategy, which can cater to individual differences. Multimedia based modular approach is such a strategy.

Much has been achieved in the field of education. Still there are many opportunities for experiment and innovation. It is very relevant to problem students, who are normally not given adequate importance. The learning, thinking and adjustment of the problem students are certain areas which need a thorough investigation, so that, an effective instructional strategy as well as an intervention strategy can be devised to suit their needs. Now, the current trend is propagating auto learning i.e. learning by learner himself at his own pace. This paved the way for CAI, CAL etc.; here the teacher is merely a facilitator of learning. He need not suffocate the students with all the information at a time. In auto learning, the learner can take his own time and he can proceed at his own pace till he completes the lesson. It is not the time but mastery learning, which is the governing criterion here. This is where modular approach exactly fits in.

Multimedia based modular learning experiences represent a natural way for learning to take place. Involving maximum number of senses can accelerate learning. Sensory experience forms the foundation of intellectual activity in any formal school situation and learners differ in the effectiveness of their sense reception. Modular learning experiences have the advantage of appealing to the individual learner’s pace, interest and readiness.
Modules help to stimulate interest in learning. It economises time and effort, reduces verbalism in teaching and imparts broad education to pupils. Not only children but also adults remember facts better when multimedia aids are used to explain the concepts. Further, Multimedia Based Modular Approach supports Pavlov's (1975) dual code theory of memory which suggests that information coded both visually and verbally is remembered better than information coded in only one of those two ways.

Instructors sometimes consider it difficult or impossible to individualize learning while carrying on group instruction. But opportunities do exist to individualise learning with group of nearly any size (James Brown et al., 1985). To do so requires systematic planning and creative uses of media sources as in modularisation.


Similarly, a high degree of social deficiency is found in problem students. Unless these problems behaviours are modified and right type of behaviours are cultivated, the students cannot be made good citizens. They may end up as learned criminals. Taking this situation into consideration, the investigator developed a comprehensive Social Skill Strategy incorporating a ten-action programme.
The devised ten-action programme ensures participation, cooperation and coordination of problem students. These recurrent and conditioned actions enable them to come out of their shell, to break ice, to express their view/idea and to accommodate the views of others. It ultimately develops in problem students skills in interpersonal relationship, social adjustment, social perception, social interaction and social transaction. Thus this ten action programme will ensure modification of problem behaviour of the problem students, development of right type of behaviours and adequate social skills which all will find an expression in application to real social situation in their later life.

Systematic researches are therefore, necessary to develop modules so as to assess their effectiveness to problem students. Also we cannot afford to ignore the problem students who constitute a sizable portion of student population. Also there is a great need to develop their social competence so that they will be useful members of the society in the later years. An intervention strategy like this can go a long way in achieving this ultimate goal. We cannot aim at optimum human resource development without circumventing the specific deficiencies of the problem students who are found in each and every classroom. The present study is an attempt to develop Modules for the use of problem students in VIII standard so as to circumvent their academic deficiency and also to develop a Social Skill Strategy incorporating ten-action programme to overcome the social deficiency of the problem students. This study also aims at assessing the effectiveness of Social Skill Strategy incorporating ten action programme in circumventing the social deficiency in addition to assessing the effectiveness of Multimedia based modular instructional strategy in circumventing the academic deficiency.

6.8. Methodology Used in the Study

6.8.1. Procedure for Identifying Problem Students

Identifying problem students is very essential for the investigator to know about the specific behavioural problem, to classify them into
appropriate category, to make correct assessment and placement and to
decide upon the appropriate instruction. In this study, the following
procedures were used to identify the problem students. 1) Observation 2)
Curriculum based assessment 3) problem checklist developed by the
investigator. Teachers' observation is the best tool to adjudge a student.
Teachers are the people who observe overt manifestations of student
behaviour. By virtue of their position, they are able to make an ongoing
observation, which facilitates an accurate assessment of the students. In
initial phase by observation procedure, about 41 students were classified as
problem students based on overt problem behaviour manifested by them. In
addition to teachers' observation technique, the investigator made use of
curriculum based assessment.

By making a curriculum-based assessment of the target population by
observation techniques as well as by scrutiny of records, which gave a subtle
insight into the students' capacity and achievement, about 53 problem
students were identified. Some of the students with achievement problem did
not manifest adequate overt problem behaviour. But the curriculum-based
assessment could expose their achievement problem. So in the second phase
the number of problem students came to 53. This countercheck phase was
followed by scientific confirmatory phase. In addition to the above two
techniques, the investigator developed a checklist and applied the same to
make the identification and selection more scientific. To make a concrete as
well as valid confirmation, the checklist developed by the investigator, with
seventy test items, each covering a specific behavioural problem was
administrated to the students. This checklist was validitated before
administration to the teachers; the half test reliability (0.99) and the whole test
reliability (0.99) were obtained. It shows that the problem checklist used in the
study is a reliable one. A panel of experts testified to the construct and content
validity of the checklist. Their agreement was taken as the index validity. The
served checklist is given in appendix-I.
Classification of Problem Students Identified

On the basis of the responses obtained from the teachers, investigator and parents, 63 problem students were identified by scientific confirmatory phase and these students were classified into four distinct categories as per categories made by the experts.

6.8.2. Construction of Tools

An achievement test was constructed with 100 test items of equal weightage to assess the effectiveness of applied instructional strategy i.e. multimedia based modular instructional strategy to circumvent the academic deficiency of the problem students. In similar manner, a comprehensive social skill assessment scale was constructed with 60 items consisting of 20 each under three categories such as classroom environment, school environment, and social environment. The construction process is briefly presented below.

Construction of an Achievement Test for Assessing Academic Deficiency in Problem Students

To evaluate the effectiveness of the multimedia based modules and to compare the achievement of the problem students, taught through multimedia based modular approach, an achievement test was framed. The test was framed covering all the science subjects chosen for this study. Equal weightage was given to each subject. For each subject only two units were selected.

Questions of objective type nature were framed without omitting any unit. Multiple choice, fill in the blanks, true or false and match the following were the types of questions used in this achievement test. The questions were framed so as to suit the level of VIII standard students. Utmost care was taken to avoid ambiguity and ambivalences. The items included in the final form of achievement test were selected on the basis of item analysis.

Initially, 120 questions of objective type in nature were framed for tryouts. Thirtyfive percent multiple choice test items, 35 percent fill in the blanks or
Supply test items, 5 percent of true or false test items and 25 percent match test items were framed for the achievement test. Multiple choice test items were composed of a stem followed by a series of possible responses or options. The stem was a direct question or an incomplete statement with four options of which only one was the correct response. Due importance and weightage the investigator had given to multiple choice test items because its level of difficulty would be varied with relative ease, and it was capable of reflecting simple student behavioural patterns such as recall of information as well as complex student behavioural pattern such as the ability to analyse and synthesise.

Supply test item or fill in the blanks test items constituted 35% test items. These test items were questions or incomplete statements, which required highly short and specific answers. The answer is usually a significant word or expression. Matching test items constituted 25% of test items. Matching test items consist of two lists of items and a set of instructions for matching one of the items in the first list with one of the items in the second list and True or false test items accounted for 5% of the test items. The item analysis of the initial form of achievement test was calculated and it is given in appendix – II. The final form of Tamil version achievement test is given in appendix – III. The English version of final form of achievement test is given in appendix – IV.

The obtained reliability value 0.88 shows that the achievement test is highly reliable. The estimated intrinsic validity value 0.93 is high and so the achievement test can be said to possess intrinsic validity.

Development of Social Skill Assessment Scale for Assessing Social Skill Deficiency of Problem Students

The procedure applied for the construction of achievement test were followed in the development of social skill assessment scale. The skill areas were divided into three broad categories as classroom environment, school environment, and social environment. First, the investigator developed a pool of 75 items. Panel experts in that field subjected the framed
assessment scale items to careful scrutiny and critical judgments. Each item was critically examined for what might be termed ‘formal defects’. The final form of social skill assessment scale contained 60 items, covering 20 items each for classroom environment, school environment, and social environment. All the items under each category were related to social deficiencies of problem students. Against each item, three grades are given namely frequently, sometimes, and rarely having scores 3, 2, and 1 respectively. The problem students identified were asked to answer each of the 60 items given in the social skill assessment scale keeping the above stated grades in mind. Further, the social skill assessment scale consists of part-A, in which the problem students are required to provide their personal details. The obtained reliability value (0.97) and internal consistency (0.98) shows that the social skill assessment scale is highly reliable.

The validity of the social skill assessment scale was obtained from a panel of experts who have done research in the field of special education. They testified to the content and construct validity of the social skill assessment scale. Their agreement was taken as the index of validity. The intrinsic validity of the social skill assessment was found to be 0.99 and hence the scale possesses intrinsic validity. The served social skill assessment scale in English and Tamil is given in appendices – V and VI.

6.8.3. Development of Instructional Strategy to Overcome Academic Deficiency of the Problem Students

Instructional strategy can be defined as an application of appropriate psychological principle or definite methods and techniques in the instructional process. Instructional strategy plays an instrumental role in achieving the instructional objectives in the best possible manner at the lower possible cost. An appropriate instructional strategy is a must for circumventing the specific deficiencies. An instructional strategy, which makes use of educational technology in an effective manner can produce
optimum desirable result. The multimedia based modular instructional strategy is such a strategy.

Development of Modules

The primary objective of the study is to develop modules for the science subjects of standard eighth. The investigator followed the principles laid down by NCERT and also followed the models of Subramania pillai of Madurai Kamaraj University. To develop modules for the chosen units of eighth standard science subjects, the investigator selected two units each for Physics, Chemistry, Botany, and Zoology. Each unit was divided into three or four conceptual sub units according to the conceptual treatment. Each module was developed in self-contained and auto instructional manner. Each module was enriched with follow-up work, project work, experiments etc to facilitate mastery learning. The development of modules is elaborately explained in the fourth chapter. Both the tryouts brought about better refinement and perfection of modules. The developed modules were submitted to the critical scrutiny of experts and agreement of their views was taken as the index of validity of the modules. One specimen module for each subject is given in appendix – VII.

Development of Multimedia Packages

To provide the multimedia package for the developed modules, the investigator developed LTIM in addition to the HTIM he procured from the scientific suppliers. Readymade video cassettes were purchased from research centres and commercial centres. For the units not covered by video cassettes and for difficult portions, the investigator developed his own video cassettes and audio cassettes. The list of LTIM and HTIM used in the study are given in the appendix – VIII.

Multimedia Based Modular Plan to Overcome the Academic Deficiencies in Problem Students

As the start, an entry test is given to the students to determine their own entering level of competence or achievement: If a student fails to obtain
the prescribed minimum level of competence or achievement, he may not understand the module. So he should go for remedial mini course to strengthen his level of competence. Others can proceed with the module. Those who do not make it should get their entering level of competence strengthened by way of remedial mini course and then they can proceed to the pre-test. Pre-test helps to self evaluate the student's status when he proceeds with the module. Then, they peruse the learning material for general objectives. Media as well as teacher support accentuate their learning. Next their learning is assessed by means of a formative evaluation in the form of embedded test. After this, the students study the learning materials presented for specific objectives, they are adequately provided with media and teacher support to facilitate better learning. Then a formative evaluation of specific objectives is done. It is followed by practicum and project activities related to the concept dealt with. These provide for experimentation and work experience, which in turn, facilitate learning by doing. Lastly, a summative evaluation is done in the form of a post-test or modular test. Those who fail to obtain the specified mastery level in the post-test should again go for remedial courses till they feel confident and competent. Thus in the modular plan every student will be able to attain the specified mastery level, through the time taken may vary from student to student.

6.8.4. Development of a Comprehensive Social Skill Strategy to Overcome Social Skill Deficiency of the Problem Students

To assess the social deficiency of the problem students and to circumvent the same, the investigator developed a comprehensive social skill strategy incorporating ten action programme to develop desirable prosocial skills in problem students. The ten action programme includes activities like brain storming, role playing, mockdebate, dramatisation, group discussion, simulation, joint work, group responsibility, peer group interaction, participation in curricular, co-curricular, club activities. Application of these comprehensive social skill strategies will bring about desirable change in the social behaviour of problem students. Though each
of the above activities has its own merit, their cumulative effect on problem students can bring about some tangible results, which can modify their behaviour leading to social skill development.

These remedial programmes will provide training to develop the following adequate skills in the problem students.

1. Social cognition, perception, social learning, interpersonal relationship social interaction and transaction
2. It enables the problem students to come out of their shell
3. It provides training ground for co-operation and co-ordination
4. It ensures compulsory participation in the beginning and voluntary active participation at the end of training
5. It is a tool that tackles adjustment of problem students effectively

6.8.5. Sample of the Study

The problem students were selected from the school where the investigator is working as Headmaster. The students of this school are from far flung villages. Almost all the students are from SC and BC communities only. The district, especially the area of the school, is known for communal problem. Most of the SC students in this school are problematic in some way or others. So are the students from the BC communities. These communities are warlike communities. These two communities i.e: SC and BC are at logger head often in this area. This is so because they lack social skills and they are very poor in interpersonal relationship, social interaction and social transaction. This state of affair prompted the researcher to select sample from this school. Problem students were selected on the basis of teachers observation, curriculum based measurement as well as on the basis of the observation made by the investigator and the parents themselves. In addition, the investigator had wide ranging discussions with the teacher as well as the parents to know more about the problem behaviours of the students. The agreement of the teacher, researcher and the parents was taken as an index of confirmation of problem behaviour in the student. Thus
63 students were identified as problem students for the purpose of this study. The identification made in the initial phase was counterchecked on the basis of curriculum-based assessment and then scientifically confirmed on the basis of the response made to the checklist by the teacher and the parents. The sample i.e. fifty problem students was selected in terms of sampling technique.

**Description of the Sample and Sampling Techniques**

From the total population of 200 students, 63 problem students were identified following the procedure mentioned under the sub head 'procedure for identifying the problem students'. All the identified problem students could not be included for the study. Some students were from far off villages and so they could not be kept in the school for long time in the evening hours. Some of them were quite irregular. Such students were excluded for the purpose of experimentation. Excluding such students, finally the identified problem students were 50 in number. These students were categorized by the checklist in four sub heads. Fifteen students in the first category i.e. the students with achievement problem, 10 students in second category i.e. students with hostility problem and 10 students in third category i.e. students with social relationship problem and 15 students in the fourth category i.e. the students with social relationship problem were finally identified for the study. These 50 problem students were selected for the purpose of assessing the effectiveness of the intervention strategy in circumventing their academic and social deficiencies. For these students experimental treatment was provided.

**6.8.6. Providing Remedial Programmes (Multimedia Based Modular Instruction and Social Skill Strategy) to Overcome Academic and Social Deficiency of the Problem Students**

**Modular Instructional Strategy to Overcome Academic Deficiency**

The problem students were taught through the multimedia based modular approach for a period of three months at the rate of one and half hours per day especially in the evening after the class hours. The students, were taught by low technology instructional media (LTIM) and high
technology instructional media (HTIM). Audio, video cassettes were played to the problem students as and when required. The CAI software was also used on turn basis since we could not provide sufficient number of computers. Eight units were covered inclusive of four specified subjects (Physics, Chemistry, Botany and Zoology) during the period of investigation. For eight units, 25 modules were developed.

The problem students were encouraged to make self study with the help of the multimedia based modules. They were also advised to use the modules strictly as per the instructions given in the modules. All the modules were arranged in sequential order and they were supplied to problem students in the form of handbook. The problem students were not allowed to take the handbook (modules) to their home.

For conducting the experiment the laboratory was chosen. Everyday the audio and the video cassettes were played to the students covering the module they studied on the particular day. CAI software was also used for the benefits of the problem students. They had some problem initially with the code number and with the keyboard, since they did not know how to handle the keyboard but they picked up the modus operandi in a week or so.

Since CAI software had a motivating quality of its own, due to the provisions for interaction by students, the problem students were very much attracted to it. The provision for knowledge of result, immediate feedback and reinforcement found in the CAI programme made their learning exciting and pleasant. As in the text, there was no need for the problem students to scan the text to find out the correct response, which was furnished by the computer itself in the CAI programme. The diagram and the sketches which were incorporated in the CAI software through the scanning procedure, made good visual impact which, in turn contributed for better understanding and longer retention.

Besides using audio, video and CAI, the problem students were encouraged to do simple experiments specified in the practicum and project work. Everyday all possible equipments and apparatus were provided to the
experimental group problem students to try their hands in doing simple experiments. Watching the experiments done by the teacher on the screen, they were able to do the same by themselves. This video programme was found to have imbibed a sense of self-confidence in them. When enough apparatus and tools were not available for all problem students, they were advised to do the experiment as a group. For complex experiments also, the same procedure was adapted.

The teacher support system was restricted to the extent of aiding the students in the operation of HTIM equipments, clarifying doubts, and guiding the problem students in experiments and project works. After a period of three months, a post-test was conducted for assessing the achievement made.

**Social Skill Strategy to Overcome Social Deficiency in Problem Students**

Developing social skills is more difficult, more complex and more time consuming. Therefore, this part of the treatment was extended for a period of six months. Man by nature is resistive to change. So it is not possible to bring about modification of behaviour in a short while. The undesirable behaviours that were with in the students from their childhood cannot be easily modified in a few weeks. That is why the devised ten action programme was implemented for a period of six months since that much of time was certainly needed for modification of undesirable behaviour and for development of right type of behaviour which all play a key role in the development of social skills in problem students.

Out of ten items, everyday the problem students had a variety of two or three items. They had to act according to the programme. All the ten programmes demand participation on the part of the problem students. It provides them with opportunities to come out of their shell, to talk to others, to share their view with others, to accommodate other’s views to cooperate with others, to coordinate their effort with others, to share the responsibilities and so on. Thereby they are enabled to share the feelings and emotions which are all very essential for development of adequate social skills in the problem students. Everyday the problem students were engaged in two or
three of the ten-action programme for a period of one hour. Then after the experimental period, the scale was administered once again to assess how far they have developed their interpersonal relationship, social perception, social interaction and social transaction, which cumulatively enhance the development of social skills in problem students.

6.8.7. Data Collection

At the end of the experimental period, a post-test was conducted to the problem students. The responses given by the problem students in the pre-test and post-test formed the vital data required for the analysis. The scores of the experiment in the pre-test and post-test are given in Appendix - IX.

6.8.8. Scoring Procedure

The achievement test consisted of 100 objective type questions and the total score of the test is 100. For correct answer, the score is one and for each wrong answer the score is zero. The key to the achievement test is given in Appendix - X. English version of the key to the achievement test is given in Appendix - XI.

6.8.9. Statistical Techniques Used in the Study

The data thus obtained were analysed by using appropriate statistical techniques such as mean, standard deviation and F / t-test.

6.9. Findings and Conclusions

i) There is no significant difference in the academic deficiency and social deficiency of problem students due to variations in their problem behaviour before adopting the remedial programme. It points out that before adoption of the remedial programme, nature of problems has not influenced the problem students' academic and social deficiency. In other words, the problem students of all the four groups are alike in their academic and social deficiency irrespective of their nature of problem.
ii) There is no significant difference in social deficiency of problem students in the classroom environment, school environment and social environment due to variation in their nature of problem behaviour before adopting the remedial programme. It establishes that the variations in the nature of problem students do not influence their social deficiencies. Hence they are found alike in social deficiencies in different environment irrespective of their nature of problem.

iii) There is no significant difference in the academic deficiency and social deficiency of problem students due to variations in their gender, age, educational qualifications of parents, income of parents, and parental control. In part-I, descriptive analysis indicates that there seems to exist difference due to variation in independent variables. On the other hand in part-II, where it is analysed scientifically by applying t / F-test, it is observed that there exists no significant difference in the academic deficiency and social deficiency of problem students due to variations in their gender, age, educational qualifications of parents, income of parents, and parental control. It establishes that the problem students are alike in academic deficiency and social deficiency irrespective of variations in their gender, age, educational qualifications of parents, income of parents, and parental control.

iv) There is no significant difference with reference to academic achievement but there is significant difference with reference to social skill achievement of the problem students due to variation in their nature of problem behaviour, after adopting the remedial programme. It reveals that all the four groups irrespective of their variations in the nature of their problem, have shown striking similarity in the enhancement of academic achievement. It is interesting to note that variations in the nature of their problem, have shown variation in development of social skill achievement. It conforms to the findings of Jayalakshmi (1985), Thalaimalai (1996), Russell, and James et al. (1981) for academic deficiency and this is very much akin to the findings of Cheema (1991), Pyari (1980), and Davis, Carol Ann and others (1994) for social deficiency.
v) There is no significant difference in social skill achievement of problem student in the classroom environment, school environment whereas significant difference is there in the social skill achievement of the problem student in the social environment due to variation in their nature of problem behaviour, after adopting the remedial programme. It means that social skill achievement is influenced by their nature of problem behaviour after adopting the social skill strategy more in social environment than in classroom environment and school environment. This brings to light how far the strategy has been effective in developing appropriate social skills required for classroom environment, school environment and social environment during the 6 month period of the remedial treatment. This is in accordance with the findings of Larson and James (1990), Zaragosa Nina Lopez (1990), Hamid (1972), and Sumbali (1981).

vi) Eventhough there seems to exist individual difference in the face value, there exist no significant difference in the academic achievement and social skill achievement of problem students due to variations in independent variables such as: gender, educational qualifications of parents, income of parents, and parental control and significant difference is found due to variation in their age, when the data are subjected to scientific analysis by applying t / F-test. It means that in the independent variables age alone has influenced the social skill achievement of problem student after adopting the remedial programme. It establishes that the problem students were alike in academic achievement irrespective of variations in their independent variables of the study.

vii) There is significant difference in the academic achievement of each category of problem students and problem students as a whole between before and after adopting the remedial programme. Their achievement in the post-test after adopting the remedial programme is higher than their achievement in the pre-test i.e. before adopting the remedial programme, which they wrote after the coverage of syllabus through traditional lecture method. Moreover, the rate of progress made by each of the four groups and all the problem students as a whole is much impressive. It gives a clear picture of progress made by all the categories of
problem students. This performance par excellence of the four categories of problem students signifies the effectiveness of multimedia based modular instructional strategy in teaching science to the problem students of VIII standard and also testifies to the advantage of modular instructional strategy over the traditional lecture method in teaching science to the problem students of VIII standard. It supports the findings of Damija (1985), Hopper (1982), Thalaimalai (1996), Ramar (1994 & 1996), Reddy and Ramar (1994, 1995, 1996 & 1997), Goldschmid and Goldschmid (1973), James W. Brown et al. (1985) who have verified that the multimedia based modular instructional strategy significantly improved the achievement of the students with achievement problems in various subjects including science after adopting the remedial programme.

viii) There is significant difference in the social skill achievement of each category of problem students and problem students as a whole between before and after adopting the remedial programme. Besides, the rate of progress made by each group is very impressive since the applied comprehensive social skill strategy brought about modification of behaviour, which was in them for years together. The progress made by the problem students after adopting the remedial programme is a sufficient indication to substantiate the effectiveness of the comprehensive social skill strategy in developing appropriate social skill in problem students. It conforms to the findings of Ascroft, Richard (1993), Larson and James (1990), Strauss, Fremouth and Cynthia (1992), Singh (1976), Mishra (1979) and Bhadani (1975) who have studied the social skills of problem students.

ix) The independent variables have a considerable impact on the social skill achievement of each category of problem students and problem students as a whole in classroom environment, school environment and social environment. The relative effectiveness of applied comprehensive social skill strategy differs from group to group in all the three environments. The relative effectiveness of applied comprehensive social skill strategy differs from group to group in all the environment. This testifies to the effectiveness of and feasibility of comprehensive social skill strategy applied to the
problem students during the period of experimental treatment in developing appropriate social skills required for the various environments. The results further indicate that the applied comprehensive social skill strategy has been more effective to problem students as a whole with regard to school environment, and social environment. These findings are in tune with the findings of Hamid (1972), Shanmugam (1980), Vashishita (1981), Singh (1976), Bhadani (1975), Schaefer and Millman (1981), Erwin (1993), Karlin and Berger (1972), and Mc Intyre (1989).

6.10. Implications of the Study

i) The results of the study have established that the multimedia based modular approach is more effective than traditional lecture method in teaching science subjects of VIII standard to problem students. When it is very effective to problem students, it has to be equally effective, if not more effective, to other backward students like under achievers, low achievers, aggressive students, shy / withdrawn students, and students rejected by peers etc.

ii) Identifying problem students at primary level itself will enable the teacher to devise required remedial instruction to facilitate their learning. The teachers trained in this regard will be able to identify and tackle problem students at early stage itself.

iii) Expertise of resource persons can be utilised for development of modules for various subjects and various standards and then their expertise can be made available to a wide range of student population.

iv) Teachers of middle schools and high schools can be given orientation as to how to prepare modules and how to develop multimedia packages especially Low technology instructional media (LTIM) materials making use of the resources locally available. This will give them a better preparedness to ensure optimum human resource development.

v) Keeping the result of the study in mind, the National Council of Educational Research and Training (NCERT) and State Council of Educational Research and Training (SCERT) may take up the onerous task of developing modules for each subject as they prepare teachers handbook and these can be supplied to all the schools, so that teachers can effectively make use of these modules if not for the benefit of the entire class, at
least for the benefit of the problem students like low achiever, under achiever, over perfectionist, defiant, shy / withdrawn etc; Since the modules are self contained and auto instructional they will cater to individual differences.

vi) The instructional video programme based on the subject unit may be developed by the NCERT and SCERT making use of the expertise of talented teachers at national level and at state level respectively. These video cassettes may be supplied to all the schools. If it is not possible due to scarcity of fund to supply to all the schools, a central literary may be setup at district headquarters to lend the cassette to the aspiring schools. Since almost all the schools have television (T.V.) of their own, it will be very much possible for them to play a cassette and the students can view the instructional programme based on their subject units. In this way the expertise of the talented teachers can be made available even to the schools in the remote far flung areas.

vii) Video cassettes and audio cassette based on subject unit can be developed even by commercial agencies and the schools can procures them from science or from audio visual fund available in the special fees account.

viii) The students can take these cassettes home and they can learn according to their convenience at their own rate without any sort of inhibition.

ix) Computer assisted instruction (CAI) and Computer assisted learning (CAL) software also can be developed by the NCERT and the SCERT and even by commercial agencies since they all seem to be more effective to problem students, low achievers under actives etc. So the teachers should be adequately prepared by means of orientation programmes to play a supportive role in order to lead the students towards optimum level of achievement. Since computer finds a place in the syllabus of high schools right from standard IX onwards, the use of CAI and CAL can be widely popularised without much effort.

x) It is not necessary that a school should buy all these multimedia packages if they don’t have adequate fund. One school may buy audio cassettes, another school may purchase video cassettes and
yet another school may procure CAI software and the schools can exchange these various multimedia packages among themselves.

xi) Since multimedia based modular approach has a far reaching consequence for the backward students, it can be effectively made use of in distance education in which about 50% of the total enrolled students are average and below average. Appropriate and optimum use of media sources will yield better result in distance education. Setting up of a separate channel for education will be a landmark in human resource development and ultimately national development. The huge amount spent in this regard should be taken in the right spirit as investment made on education or human capital.

xii) With a view to ensure optimum human resource development, special remedial classes should be arranged for problems students in the evening hours as we have special coaching classes for the SC/ST students in the evening hours. In the case of SC/ST special coaching classes, four teachers for teaching students of standards from VIII to X and six teachers handling students of standard XI & XII are paid by the State for this special task. In similar manner, the teachers entrusted with the task of remedial teaching for problem students can also be paid by the state for this special task with a view to optimise human resource development.

xiii) Since the use of multimedia based modular approach enhances the achievement of problem students, it will diminish wastage and stagnation in our schools. So the teachers should be adequately prepared by means of orientation programme and such orientation may be given at District Institute of Education and Training (DIET) level also, so that awareness about multimedia based modular approach can be developed among the primary school teachers also.

xiv) The comprehensive social skill strategy is so simple that the primary school teachers as well as the secondary school teachers can be easily trained up in such a way that they will be able to develop appropriate social skills in problem students at early stage. As a result, the problem students will bloom into better citizens. This training can be provided to these teachers by SCERT or by DIET by means of inservice training programme or refresher courses. This will mark a milestone in human resource development.
6.11. Delimitations of the Study

i) This study is confined to the problem students studying in VIII standard of K.S.G. Government Higher Secondary School, Amathur.

ii) The sample consists of 50 problems students identified on the basis of teachers' observations, curriculum based assessment and on the basis of their response to the checklist.

iii) The problem students identified on the basis of teachers' observation and interaction were not subjected to any intelligence test. They were administered only checklist which was found to be adequate to identify the problem students.

iv) For all the selected subjects only two units each were included for the study.

v) The experiment was conducted for a period of 90 working days at 1½ hours per day for academic deficiency and for social deficiency remedial programme was implemented for 6 months.

vi) Multimedia packages were developed based on the video shooting done in the classroom where the experiment was actually conducted by making use of the technical expertise available in the District Headquarters. It is to be noted that the experiment was conducted in a school located at rural area far from the madding crowd.

vii) The CAI software used in the study was also developed by making use of the technical expertise available at district level. As for CAI, each student could not be provided with separate computer and they had to use the available six computers on turn basis.

viii) The achievement test used in the study is a teacher made one with item difficulty and discriminating power.

6.12. Suggestions for Further Research

i) In the study multimedia based modular approach has been found very effective to teach science subject of standard VIII to the problem students. To ensure more dependable conclusions, the experiment may be conducted on wide range of schools.
ii) A parallel study can be made to find out the effectiveness of multimedia based modular approach at primary and at higher secondary levels.

iii) A similar study can be carried out in teaching other units of VIII standard subjects.

iv) A parallel study can be undertaken to assess the effectiveness of multimedia based modular approach with reference to defiant, over perfectionist students rejected by peers, shy / withdrawn, average and above average students.

v) Four components (audio, video, CAI, LTIM and HTIM) have been made use of in this study. A separate study may be attempted to assess the relative effectiveness of each component medium.

vi) A correlation study can be done to assess whether there is any significant relationship between the nature of the subject and media effectiveness.

vii) A separate study can be undertaken to assess the effectiveness of multimedia based modular approach with teacher support system (TSS) and without teacher support system.

viii) A survey study can be undertaken to assess the availability of video equipments and training needs of humanities and science teachers for developing multimedia packages, especially video lesson for the units of different subjects at middle school and high school levels.

ix) The developed comprehensive social skill strategy can be applied to each of the 12 types of problem students and an indepth analysis can be made in the experimental study.

x) A parallel experimental study can be attempted devising a similar intervention strategy to circumvent the social deficiency of problem students and the effectiveness of such developed strategy can be assessed with special reference to various categories of problem students.