CHAPTER-1

INTRODUCTION

Need and Significance of the Study

Statement of the Problem

Explanation of Important Terms

Hypotheses

Objectives of the Study

Methodology in Brief

Scope and Limitations of the Study
CHAPTER I

Introduction

Teachers in the new millennium have an unprecedented responsibility of enriching the students with ever exploding information. In India, being a developing country, which had been under foreign rule until August 1947, the role of the teachers is to make the country economically independent. It is by undertaking the stupendous task of making students competent on a par with their counterparts in the developed countries so as to enable them to contribute to the nation with their innovations and inventions as well as decision making and problem solving with independent and logical thinking. The new generation of the youth during schooling must acquire all the skills and ingredients essentially required for hewing out for themselves a career with the dual purpose of earning a livelihood and doing a gratuitous service to the nation.

The Educational Scenario in India

Today, the educational scenario in India is meretricious. We speak of education for all; but in reality majority of the students remain academically backward. Their number is alarmingly high at all stages of education. In higher education, especially in professional courses, where there is much competition, the low performing students are pushed out. Again education is thus the monopoly of a handful of able students. And the low performing students labelled as the learning disadvantaged become ossified.
The surveys conducted in this large group of students show that majority of them hail from the families that come under the poverty line. Most of such students belong to the Scheduled Caste and Scheduled Tribe (SC/ST), too (Rao, 1984). A considerable body of literature is accumulating on the education of the socially and economically disadvantaged. If the low socio-economic status of parents is the cause for the poor performance of the students, it is not possible to raise their status as long as casteism and poverty exist in the society. Despite all the efforts made by the government and the social workers, the casteism is still prevalent as the worst social evil. The World Economic Outlook of the International Monetary Fund (IMF) tracing the history of economic growth, policies and its impact in India since independence states that despite the impressive gains registered by India in the realm of economic growth, the poverty rates remain high. It reveals that more than a third of the population is still living below the poverty line (Hindu, April 13, 2000). This indicates that the low performing students belong to the low socio-economic group. They are either culturally deprived or socially backward, too. Can these students overcome the learning difficulties? Is it a permanent handicap in them?

The teachers as well as the public have a notion that their academic backwardness is due to their low socio-economic status (SES), if not their cultural deprivation and social backwardness and it can therefore hardly be minimised. But the studies conducted in grade twelve level show that the learning difficulties experienced by science students are mainly due to lack of a series of skills required for higher learning (Sebastian, 1985; Mathew, 1985; Uzhavath, 1985).
The skills required for high performance have direct or indirect relation with the theories of Gagne’s eight types of learning, Ausubel’s principle of subsumption and the stages of cognitive development by Piaget and Bruner. They further reveal that the students irrespective of the SES and caste have learning difficulties, but its extent is significantly higher among low SES and SC/ST students. If the students in grade 12 have the learning difficulties, it is obvious that they must have experienced the same in lower grades, too. A study on how the learning difficulties of students in lower grades could be minimised is, in this context, not only relevant but significant, as well.

**Need for the Study**

Since no national census of the learning disabled has been taken in India, it is difficult to assess their actual number. Neither the National Council of Educational Research and Training (NCERT) in New Delhi nor the State Council of Educational Research and Training (SCERT) of Kerala has data regarding the learning disabled students. The researchers generally depend for their work on the figures available mainly in the U.S.A. In India the learning disabled students are not identified using reliable tests; nor are they given special support and services, while in the U.S.A. special education teachers are appointed to assist the content teachers to develop special programmes for the learning disabled students.

In the absence of reliable data in India there is a growing concern over how to meet the needs of the learning disabled students. Mainstreaming which is the regular class placement of individuals with mild learning disabilities is necessary in the Indian conditions, while the severe cases are referred to the special schools.
A functional system that will focus on teaching and learning disorders common to several categories of handicap is found beneficial. A proposal known as the regular education initiative encourages more integration of learning disabled and other low achieving children in the regular class and less in special class. (Lerner, 1989, p.21) Mere physical placement in a regular classroom is not enough to ensure academic achievement. If the intervention for the learning disabled students is to succeed, careful planning in all aspects of education especially in preparing instructional strategies is essential. To improve higher level cognitive skills “student-initiated approaches appear to be more effective than those that are entirely teacher directed and controlled.”(Lerner, 1989, p.116)

The models already available are not feasible in our classroom, because of the limited facilities. Some such models are Content Enhancement Model (Lenz, Bulgren and Hudson, 1990), Teaching and Learning Model (Bos and Anders, 1990) and Strategies Intervention Model (Lenz, 1992). Unlike in many countries, the special education teachers are not appointed in our schools for co-teaching, collaboration and consultation rather than for direct teaching. Our teacher-training programme does not contain provision for practice in teaching the students with learning disabilities. Today the regular classroom teachers are not supposed to teach the students with learning disabilities with careful thought, planning and supervision. In all schools we come across a considerable number of children with either mild or moderate learning disabilities at all stages of education, pre-primary to higher education. It is in this context that there is an urgent need to study an
alternative to improve the academic achievement of children with learning disabilities.

Several alternatives are proposed. Among them the most important are inclusion of special education training programme in the teachers’ training courses and in-service training to all regular teachers. All these are long term training programmes. A new programme, which can be immediately implemented, is the need of the time.

The cognitive theories of learning disabilities imply that learning disabled children have deficits in cognitive processing abilities that impede their ability to learn. The LD students' poor performance is related to (1) deficiencies in several areas of cognitive function (2) difficulties in co-ordinating and integrating cognitive function and (3) the integration of various control strategies to make maximum use of the system. (Swanson, 1987). Wong (1985) has pointed out the importance of promoting content learning for individuals with learning disabilities. Over the past twenty years the research had been concentrating on developing instructional models for teaching within the content domains. (Bos & Anders, 1990a; Mastropieri & Scruggs, 1988; Bulgren, Schumaker & Deshler, 1988; Deshler & Schumaker, 1988 and Lenz, Bulgren & Hudson, 1990)

In India most of the teachers feel comfortable in the lecture method of explaining the facts that are presented in the prescribed textbook. This kind of teaching could hardly provoke the students to learn actively. So the students confine their learning to the memory level only. Both the groups of the learning disabled and non-disabled students embark on passive learning. In the long run,
the academic achievement of the learning disabled children becomes very low. The teacher is unable to consider the needs of the individuals with learning disabilities. Few teachers are experienced in methods of adapting the curriculum or adopting methods embedded with the cognitive theories of learning. They face several challenges related to selecting good models of instruction that can be most effectively and efficiently applied to instructing children with learning disabilities. Morsink, Soar, & Thomas (1986) suggested several methods that are suitable for working with students with learning disabilities. “Yet there is need for more research or effective teaching methods with applications for learning disabled students.” (Lerner, 1989, p.115). The investigator presumes that selecting some instructional devices based on self-study approach can enhance academic achievements of students with learning disabilities. It is assumed that if teachers select such methods that would spur their thinking and activate the thinking process, the LD students would then be able to perform satisfactorily in the school subjects. There are modern instructional devices that are based on self-study approach and thinking process. The researches cited above encourage the investigator to undertake a study on the effectiveness of self-instructional materials and modern instructional strategies in ameliorating the problem of enhancing the academic achievement of LD students by remediating cognitive deficits.

**Statement of the Problem**

The problem that the teachers confront with is how they could enhance the performance of students whether they are learning disabled or non-disabled. The major handicap with the teachers in the regular schools in India is that they were
not trained in tackling the problem of children with learning disabilities. So it is not feasible to introduce the innovative models of teaching specially developed for teaching students with learning disabilities. The investigator therefore attempts to test the effectiveness of some methods that would keep the students active and improve higher level cognitive skills. The problem therefore is stated as:

**Effectiveness of Self-Instructional Materials and Modern Instructional Strategies in Minimising Learning Disabilities of Students in Secondary Schools**

**Explanation of Important Terms**

Certain terms in the statement of the problem need either explanation or elaboration of their meanings.

**Self-Instructional Materials**

The term refers to teaching materials that can be used by the students without the assistance of the teacher. These materials keep the students active and help to improve their cognitive skills. Programmed Learning Materials, and Learning Modules are such materials that follow self-study approach.

**Modern Instructional Strategies**

Instructional Strategies determine the approach a teacher may take to achieve learning objectives. Modern Instructional Strategies emphasise problem solving and scientific thinking. They are based on investigatory approach.

**Learning Disabilities**

Defining learning disabilities is a debatable issue. Each definition has been judged to have certain shortcomings. Nevertheless, an operational definition is
necessary for the present study. Smith (1989) describes learning disability as a breakdown in the sequence of taking in information (input), making sense of the information that is taken in (process) and using the information (output). Students with learning disabilities may experience a breakdown at any point in the sequence. The various definitions of learning disabilities have several common elements: (1) Neurological dysfunction, (2) uneven growth pattern, (3) difficulty in academic and learning tasks, (4) discrepancy between achievement and potential, and (5) exclusion of other causes (Lerner, 1989, p.9). The common element, difficulty in academic and learning tasks is accepted in the present study to mainly identify the children with learning disabilities in the regular classrooms of secondary schools.

**Hypotheses**

The children with learning disabilities show deficiencies in various areas of cognitive function. If these deficiencies are minimised they will be able to perform in a better way. The self-instructional materials and the modern instructional strategies are focussed on developing students’ thinking ability through their activities. The investigator therefore assumes that if these strategies were adopted for teaching, children with learning disabilities would also achieve in school subjects considerably. The following hypothesis is formulated in this direction.
Hypothesis I

There is significant difference in the initial and final achievements of the secondary school students with learning disabilities when self-study approach and modern instructional strategy are adopted for their learning.

Three instructional strategies are selected to test Hypothesis I. Teachers have the right to know the extent of effectiveness of the selected strategies compared to the conventional lecture demonstration method. Hence the following hypothesis:-

Hypothesis II

The self-study approach and the modern instructional strategy are more effective than the conventional lecture demonstration method for the achievement in biology of learning disabled (LD) students of secondary schools.

Hypothesis III

The self-study approach and the modern instructional strategy are more effective than the conventional lecture demonstration method for the achievement in biology of non-disabled (ND) students of secondary schools.

The third assumption is that gain in performance will be more when LD students and ND students use self-study approach and modern instructional strategy in the learning of biology than the lecture demonstration method. So the hypothesis is stated as:-

Hypothesis IV

The progress of the learning disabled (LD) students of self-study approach and modern instructional strategy groups is considerably high when their
achievements are compared with those of the LD students and ND students of the lecture demonstration method groups.

There might be several variables that influence student achievement. It is therefore necessary to find out the influence of important extraneous variables. The following hypothesis is formulated to this effect:

**Hypothesis V**

The effectiveness of self-study approach and modern instructional strategy in the achievement of LD (learning disabled) and ND (non-disabled) students is dependent on certain extraneous variables.

**Objectives**

The following are the objectives formulated to carry out the study:

1. To find out the effect of programmed learning, supervised learning module and the guided inductive inquiry model on the achievement of biology of secondary school students with learning disabilities.

2. To find out the effect of programmed learning, supervised learning module and the guided inductive inquiry model in comparison with that of the conventional lecture demonstration method in minimizing the learning disabilities of secondary school students in learning biology.

3. To compare the achievement of LD students and ND students when they are taught biology using programmed learning material, supervised learning module and guided inductive inquiry model.
4. To compare the progress in the achievement of LD students and ND students when programmed learning material, learning module and guided inductive inquiry model are adopted for teaching.

5. To compare the objective-wise achievement of LD students and ND students when they are taught biology using programmed learning material, supervised learning module and guided inductive inquiry model.

6. To find out the relationship of achievement motivation, study habits, home learning facility and socio-economic status of parents with the learning of LD and ND students, when they are taught biology using self-instructional materials and modern instructional strategies.

**Methodology in Brief**

The experimental method is found to be the most appropriate design for the present study. The pretest-posttest non-equivalent design will be used for the experiment. The subjects for the experiment are the students learning in grade IX of the schools in Kottayam District. Sufficient number of students will be identified as the learning disabled (LD) and the non-disabled (ND) by administering appropriate tools. The tools for the collection of data pertaining to the extraneous variables will be administered. The experimental variable and the dependent variable are the instructional strategy and the achievement of students in Biology respectively. The experiment will be conducted by teaching three experimental groups of students using programmed learning lessons, supervised learning modules and guided inductive inquiry lessons. In the control group, the
students will be taught in the conventional method of lecture-demonstration which is confined to explaining the textual factors with demonstration of experiments by the teacher or investigator. In the beginning of the experiment, the pretest using the standardised achievement test in biology will be administered to the students in all groups and at the end of the experiment, the same test will be conducted towards the posttest.

**Tools To Be Used for Collection of Data**

Lessons in programmed learning, guided inductive inquiry, supervised learning module and conventional lecture-demonstration method will be prepared. An achievement test in Biology will be constructed and standardised. In addition, scales and inventories for measuring achievement motivation, socio-economic status, study habits and home learning facility will also be prepared or borrowed.

**Tools To be Used for Identification of LD students**

1. Raven's Progressive Matrices A B C D & E
2. Diagnostic Test of Learning Disability
3. Pupil Behaviour Rating Scale
4. Learning Problem Checklist
5. Terminal Test in Biology

The data collected will be analysed using the statistical techniques of paired t-test, ANCOVA and multiple regression analysis. The hypotheses formulated for the study will be tested for their tenability. Suggestions based on the findings and conclusions for improvement of the present system of teaching the
disabled students will be included in the study. Specific areas and topics necessitated for the study of the learning disabled students in a developing country like India will also be suggested.

**Scope and Limitations of the Study**

Among the common elements of learning disabilities such as (1) neurological dysfunction (2) uneven growth pattern (3) difficulty in academic and learning task (4) discrepancy between achievement and potential and (5) exclusion of other causes, the third element is dealt with in the present study. The investigator assumes that the conventional method of teaching dominated by teacher talk and verbal learning is not suitable for learning disabled students. Contrariwise, self-study and modern instructional strategies would be appropriate in the learning of children with learning disabilities as well as non-disabled learners. There are several methods of teaching for the learning disabled, but they are not selected because we do not have facilities to apply them in our schools. So the study is limited to test the strategies that can be easily adopted in our limited facilities. The scope of the study therefore is to determine whether or not self-study approach and modern instructional strategies could be adopted for the instruction of LD students. For this, two self-instructional strategies namely Programmed Learning and Supervised Learning Module and one modern instructional strategy namely Guided Inductive Inquiry will be selected. Even though all these methods are widely accepted to be effective they must be tested for their effectiveness in the learning of LD students in the school climate of Kerala State.
The study will be confined to determine the effectiveness of only two self-instructional strategies and one modern instructional strategy. Only one topic in biology is selected to prepare the materials. Instead of equated groups, only intact classroom groups will be selected. Since the groups are not equated, pretest and post-tests will be conducted and the statistical technique of ANCOVA was employed to analyze test scores. To find out the effectiveness of the instructional strategies paired ‘t’ test will be used. Multiple Regression will be employed to determine the effect of certain extraneous variables on the achievement of biology by LD and ND students.


References


