Chapter II
THEORETICAL OVERVIEW

EDUCATIONAL TECHNOLOGY

The classroom instruction has been revolutionized because of the influence of technological developments. The application of technological devices in teaching and learning lead to the evolution of a special branch named ‘Educational Technology’. Educational technology is the science of techniques and methods by which educational goals could be realized (Shiv K. Mitra, 1968). In other words it refers to the use of techniques and methodologies in teaching learning process. Educational technology combined with the psychological principles have paved the way for the emergence of various innovative instructional practices.

Teaching technology is a sub system of educational technology. It is concerned only with the theory and practice for the teachers to improve their teaching performance. Here comes the importance of individualized instruction. The present era has given us a new outlook on the basic building blocks of instructions. The term ‘instructional module’ become a synonym for the free-standing instructional units.

MODULAR APPROACH

A module is a subsystem of an instructional programme. It is complete in itself by providing desirable learning experiences to the learners. A module represents a way of planning in which the whole curriculum is
divided into meaningful units. The sub parts of the modular units depend on the class, size and length of the period.

An instructional module is a self contained self sufficient unit of instruction for the learner to work for achieving a set of pre-determined objectives. A module has three related basic element of instruction which are objective, activities and evaluation. The principle behind instructional module is that, each learner is individual in his experience, potentialities, habits and learning style. Each person should be allowed to grow and develop in tune with his fullest potential.

Modular approach of instruction is an instructional programme in which modules are being used for instruction. This approach is an effective and economic way of developing specific items of knowledge and a skill with minimum of teacher’s authoritative direction. Modules can be prepared in different forms. They can be in written or in the form of slides, tapes or pictures.

**Definition of Module**

Buch and et al. (1978) – ‘Module is a self-contained and self sufficient instructional unit.’ International Encyclopedia of Education (1994, p.3886) “A module is a unit of curricular material, complete in itself, to which further units may be added for the achievement of larger tasks for more long term goals.”
Meyer (1975) “Module is a self-contained semi-programmed and self-paced unit of work designed to achieve highly specified objectives in a short span of time usually a few days or less.”

Murray (1971) - Module is a self contained and of instruction with a primary focus on a few well-defined objectives.

Russel (1974) – “Module is a short unit of instruction dealing with a single conceptual unit of subject matter.”

Components of a Module

The book “Developing Instructional Modules for Teacher’s Directions” by UNESCO specified the components of a module. It is given below:

1. Title

The module needs a title and it must be clear and concise.

2. Introduction

A proper introduction is essential. It should give the back ground and rationale of the module along with the target population for whom the module has been developed.

3. Overview

The overview introduces the theme of the module. It also gives an idea of the purpose, structure, organisation and uses of the module.
4. **Instructions**

Proper instructions are given to the learner. It gives an idea about how he should proceed and what the learner has to do at each stage. These instructions help for self-learning.

5. **Pre-test**

A pre-test is given to the learner at the learning. This helps to find out the level of knowledge and skill that the learner already has.

6. **Objectives**

The instructional objectives of the modules should be clearly stated. They specify the expected learning outcomes in terms of behavioral changes.

7. **Learning activities**

A lot of learning activities are provided in a planned and sequentially arranged manner. These activities enable the learner to develop behaviour in a pre-determined direction.

8. **Formative tests**

At the end of each learning unit, formative tests are given. This helps the learner to know whether he has achieved the expected behaviour outcomes.

9. **Summative evaluation**
With the help of pre-test, the summative evaluation is done. The final test helps the learner in knowing how well the learner has attained the expected learning outcomes.

**Development of Modules**

Module is an innovation of educational technology and it captured the attention of the educationists at the beginning of the present decade. Module development needs expertise and thorough practice. A large number of modules have been prepared at USA and Asian countries. The utilization of these modules in real classroom situation is very limited. This is because the prepared modules were fragmentary in nature. Attempts were not done to cover the whole syllabus. In India, UGC has completed the work of presenting the curriculum in modular form at the undergraduate and postgraduate levels in education (1991).

**The Stages for the development of modules**

These are three different stages for the development of modules. They are:

1. Planning stage
2. Drafting stage
3. Revising stage
1. **Planning stage:** At this stage, the target group is fixed and the manner of administration is also identified. All the prerequisites of the target population are also assessed in this phase.

2. **Drafting stage:** The objectives of the module is formulated at this stage. Proper learning experiences according to the objectives are also formulated. Modules are prepared for the learners to learn at their own pace.

3. **Revising stage:** At this stage, modifications are done. This modification deals with reducing or adding of objectives, arranging and organization of content, correction of language and assessment of items. These modules are then used in an initial try out for further modification.

   Though the tryout, the efficacy of the modules in terms of readability, difficulty level and content organization can be made. The adequacy of the test items also can be checked and learning activities and sequences of instructions can again be revised. Thus the modules are ready for experimentation.

   The module thus prepared has the following components.

1. **Title**
2. **Introduction**
3. **Overview**
4. **Instruction to learners**
5. **The pre-test evaluation**
6. Objectives

7. Learning activities

8. Formative evaluation

9. Summative evaluation

**Diagrammatic Representation of the Learning Process of a Module**

```
Introduction
  ↓
Overview
  ↓
Instructions
  ↓
Pre-test
  ↓
Objectives
  ↓
Learning Activities
  ↓
[Unit]
  ↓
Evaluations
  ↓
Formative
  ↓
Summative
```

**Merits of Modular Approach**

Modular approach helps the learners to develop self study habits with
the minimum of teacher’s supervision
Advantages to the teachers

1. Modules can be used as models for the teachers to develop their own materials.
2. Can update materials without major revisions
3. Materials can be exchanged between institutions
4. Teachers can find out the deficiencies of the pupils
5. Provides a way to assess students’ progress in learning.

Advantages to the students

1. Students can assess themselves
2. They can progress at their own pace, because they have full control over the study material
3. Students must be involved completely in the learning process
4. This helps to develop a sense of responsibility for one’s own learning
5. Students can take the modules to their home
6. The consequences of failure are reduced.

Each student can master each module completely before proceeding to the next.

Limitations

Though modules are very useful, they have so many limitations too. Some of them are mentioned below:
1. If the prepared module is not simple, it will not be effective to the learners.

2. Both teachers and students should be fully motivated.

3. An adequate system for monitoring the progress and recording the achievement is necessary for ensuring effectiveness.

4. Module development is very expensive.

5. Co-operative learning and co-operation among learners will not take place in modular scheduling.

**Conclusion**

From the discussion, it is seen that Modular Approach in Teaching is beneficial to the teachers for developing motivation among students. This method can be adopted in almost all subjects and hence accepted tool for effective and systematic instruction.

Based upon the discussions, the investigator proposed to collect the certain empirical studies connected with Modular Approach in Teaching, Academic Achievement, Intelligence and Socio Economic Status, the details of which is presented in the next chapter.