



# EFFECTIVENESS OF MODULAR APPROACH IN TEACHING SCIENCE

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## ABSTRACT

Module is a form of self-instructional package and thus regarded as relatively recent phenomena. It enables the learner to have a control over his learning and accepts greater responsibility for learning. Since strategy demands greater maturity on the part of learner, the modules are more appropriate for more mature students. In recent years, the consent of modular curriculum in science has been under discussion in secondary schools. In modular approach, all the capabilities required to perform are closely inter-related. Modules can be developed separately for each of inter-related tasks.

**Keywords: Modular approach, Teaching, Learning, Science**

## INTRODUCTION:

Modular approach is a self contained package dealing with one specific subject in convenient form, so that the learner can complete it at his own pace independently or small groups. It is so structured that the learner can identify the objectives, select material and method and evaluate his own accomplishment. Instructional modules are learning materials designed primarily for independent or self-study.

Modular teaching is one of the most widespread and recognizes teaching learning techniques in United States, Australia and many other Western countries including Asian region. Modular is used in almost all subjects like natural science, especially in biology and medical education and even in social sciences as well as in computers education. All kinds of subjects are being taught through modules. It is a recent development based on programmed learning; a well established and universally recognized phenomenon. It considering the individual differences among the learners which necessitate the planning for adoption of the most appropriate teaching techniques in order to help the individual grow and develop at her/his own pace.

## MODULAR APPROACH MEANING AND DEFINITION:

Module is a unit of work in a course of instruction that is virtually self-contained and a method of teaching that is based on the building up skills and knowledge in discrete units.

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

According to the chambers 20<sup>th</sup> century dictionary (1983) “Module is defined as a set of course forming unit in an educational scheme”.

## CHARACTERISTICS OF MODULE

- It should be independent.
- Self-contained.
- Self instructional.
- Well defined.
- Clearly defined objectives.
- Concern individual differences.
- Association, structure sequence of knowledge.
- Systematically organized learning opportunities.
- Utilization of a variety of media.
- Active participation by learner.
- Immediate reinforcement of responses.
- Mastery of evaluation strategy.
- Evaluation of the work.

## ESSENTIAL COMPONENTS

### 1. Rationale

An overview of the content of module and explanation of why the learner should study it.

### 2. Objectives

What is expected outcome of module? This is stated in behavioral/performance terms.

### 3. Entry Test

To determine if the learner has prerequisite skills needed to enter the module and check whether the learner already has mastered the skills to be taught.

### 4. Multi Media Materials

A wide variety of media is used so learners can involve actively and utilize their senses.

### 5. Learning Activities

Presentation, demonstration, drill, simulation, discovery problem solving etc. may be useful. A wide variety of learning activities increase student interest and cater student needs.

### 6. Self-Test:

This provides a chance to review and check one's own progress.

## 7. Post Test:

An examination to test whether the objectives of the module have been mastered.

## STRUCTURE OF MODULE

- The title
- The Introduction
- The overview
- The instruction to the users
- The pre-test evaluation and feedback
- The objectives
- The learning activities
- The formative test, evaluation and feedback
- The summative evaluation and feedback

## PRINCIPLES UNDERLINE IN PLANNING LEARNING ACTIVITIES

- Plan learning activities on the basis of entry behavior of the learners.
- Base learning activities on the terminal behavior.
- Base learning activities on the needs of learner.
- Make careful gradation.
- Provide adequate for individual differences.
- Provide adequate with his progress.

## ADVANTAGES

- Learning became more effective.
- It establishes a system of assessment other than marks or grade.
- Users study the modules in their own working environment.
- Users can study without disturbing the normal duties and responsibilities
- Modules can be administered to single use, small group or large group.
- Modules are flexible so that implementation can be made by a variety of patterns.
- It is more appropriate to mature students.
- It enables the learner to have a control over his learning.
- Accept greater responsibility for learning.
- It already got wider accessibility in the present educational scenario.

## DISADVANTAGES

- Modules are economical in their use.
- Appropriate only for matured students.
- This methods demands smart classrooms.

## IMPORTANCE OF GENERAL SCIENCE

The modern civilization is a scientific civilization. In this age the modern society is completely drawn into the scientific environment. Today science has become an integral part of our life & living. Now we cannot think of a world without science. The importance of general science in day to day life may be summarized as under.

1. Agricultural Advancement
2. Health
3. Trade and Industry
4. Education
5. Transportation
6. Banking
7. Communication
8. Entertainment
9. Digitalization and Media

### PLACE IN SCHOOL CURRICULUM:-

Science is an important subject in school curriculum because man's future depends to a large extent on scientific advances and development of productive activity. Hence there is a great need to teach science in school curriculum.

Kothari Commission strongly emphasized that, "We lay great emphasis on making science an important element in school curriculum. We, therefore, recommend that science and mathematics should be taught on compulsory basis to all pupils as a part of general education during first ten years of schooling. In addition there should be provision of special course in these subjects at the secondary stage, for students of more than average ability."

Science has now become a compulsory subject in the school curriculum because of its multifarious value to the individual as well as the society.

### 1. Intellectual Value:-

The Science has introduced us to new ways of thinking and reasoning. Scientific knowledge helps to sharpen our intellect and promotes intellectual honesty. The science education can develop the positive attitudes like open mindedness such positive is helpful to an individual to understand, evaluate and solve many problems faced in life.

### 2. Vocational Value:-

In present age all the vocation need the knowledge of science more ever there are large no of vocations for which study of science is compulsory requirement examples: Medicine, Engineering, Computers, Para medicines, agriculture etc. The study of science at a school level is the basis of many vocations & other productive activities in the latter life of students.

**3. Aesthetic Value:-**

Knowledge of science develops in man a passion for truth and thus he has a passion for beauty. The English Poet Keats has said, "Truth is Beauty." Science is basically unfolding of the mysteries of nature and nature is a store house of all the beautiful things. Thus teaching of science is necessary for developing aesthetic sense in an individual.

**4. Utilitarian Value:-**

Scientific principles and laws find a large number of applications in our everyday life. For proper utility of such applications knowledge of science is necessary Electronics, Electricity, Communication, transport etc all integral part of our life is strongly influenced and advanced due to advancement in science. Thus teaching of science is necessary from utilitarian point of view.

**5. Cultural Value:-**

Science has played an important role in determining the culture and civilization of a country from time to time. It has affected our way of thinking and way of living. Science has a direct influence in dispelling many traditional beliefs. Science has made us more aware of the universe we live. The scientists take an equal responsible part in the vital issue of our country so as to bring about consideration and integration of scientific developments and our cultural heritage.

**6. Moral Value:-**

Knowledge of science develops in us truthfulness and reasoning. These qualities are desirable in all human beings. These qualities make the life worth living. This could be possible with the teaching of science.

**7. Psychological Value:-**

Teaching of science is essential for developing scientific attitudes and scientific temper. The principle of learning by doing is the main basis of the teaching of science and satisfies the instincts of curiosity, creativeness, self assertion and self expression etc. of the pupils.

**8. Adjustment Value:-**

Science develops in us a scientific attitude. It also develops in an individual a problem solving attitude. These attitudes help to solve any problems in life successfully. A person having scientific attitude lives a peaceful & successful life.

**9. Leisure Time Value:-**

Science has helped us to overcome the problem of passing our leisure time & to make best use of it. Science has provided us with a large number of devices such as television, radio, cinema etc. which are the source of entertainment to all of us. They also serve as source of knowledge & are used for spread of mass education & making the community aware of dangers of various ills. Science has also provided a large number of hobbies which we can pursue in our leisure time.

**CONCLUSION**

When we analyzing the modular method of teaching, we can understand that this is more effective, recent and more technology based teaching method in the present educational field. In recent years, the consent

of modular curriculum has been under discussion in secondary schools. Modular approach provides more flexibility to distance teaching mode as well to learners.

We can't live happy life without Science. There is no definition of general science or science which is universally accepted. In general we can define science as an accumulated and systematized learning in general usage restricted to natural phenomenon. Science is the activity where truthfulness is obviously an essential condition for success. Its success is measured by its truthfulness. Today each and every occasion of life is influenced by science has become an integral part of our school education system.

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