Active Learning Method

The crux of Rabindranath Tagore's educational philosophy was learning from nature and life. Tagore was critical of the way in which education designed to be clerical. The Tagore's visionary in solved the problem of today as far back as fifty years. The problems of modern education are attendance, copying or use of other unfair means and discipline. Freedom in the class solved the problem of attendance, absence of invigilator solved the copying or use of unfair means. Thus Tagore's educational system is a great feat. It is regretted that we did not try to apply the formulas suggested by him. In order to achieve the Tagore's educational objectives the Active Learning Method can be implemented.

Are you creating that strange atmosphere where actual learning takes place?  J.Krishnamurti, Letters to schools

The recommendations of NCF 2000 and 2005 also suggests students has to achieve the objectives of learning activities such as understanding the learning objectives and concepts, formulation of objectives, feedback and evaluation through learning by doing and experimentation etc., Such objectives also considered and effectively acquired in the methods of active learning strategies.

What is Active Learning?

The term "active learning" has been more understood intuitively than defined in commonly accepted terms. As a result many educators say that all learning is active. Further, students must be engaged in such higher-order thinking tasks as analysis, synthesis, and evaluation, to be actively involved. Thus strategies promoting activities that involve students in doing things and thinking about what they are doing may be called active learning.
Active Learning suggests that students must do more than just listen and they must **read, write, discuss, or be engaged in solving problems.**

Active learning refers to techniques where students do more than simply listen to a lecture. Students are doing something including discovering, processing, and applying information. Active learning "derives from two basic assumptions:

(1) that learning is by nature an active endeavour and
(2) that different people learn in different ways" (Meyers and Jones, 1993).

**Difference between Traditional Learning & Active Learning**

- Active learning is, student centric learning, It’s not teacher centric
- No comparison
- No grading
- It’s learning and sharing
- It’s only analysis
- developing the creativity

**Why do we need Active Learning Method in Schools?**

We have many problem areas in our present education system. We respect learning issues. Unfortunately, there is . . .

- too much emphasis on examination,
- ranking system, on theory
- and less emphasis on understanding
- Project work and demonstrations.

This method suggests and encourages children to understand and develop motivation and interest in the subject rather than just learning like a parrot. In Active Learning method all the issues related to passive learning in traditional teaching are avoided.
Traditional teaching method and Behavior Problems of a Child

Sometimes the child develops behavior problems because he is embarrassed and humiliated due to his learning difficulties. When a student commits a mistake, the teacher punishes him or her. Actually it’s the job of the teacher to help the child to clear the mistake. This can be avoided in Active Learning Method. Even a behavior problem can be a sign of learning problem.

Concept

Active Learning Methodology is primarily based on ‘SQ4R’ concept, which lays importance on aspects such as

- survey,
- question,
- read,
- recite,
- review and
- reflect.

Students would be encouraged to undertake self-learning and peer-group learning methods. In addition to this, the child would be motivated to use the mind power mapping technique to draw the lesson in pictorial form. The method will help children become more creative. While teaching a lesson, the teacher will adopt the role of facilitator. Each student will be asked to prepare a mind power map of the content based on their understanding. The teacher will review the maps, identify the areas where students lack understanding and help them learn better.
Objectives of Active Learning:

By this Active Learning method student should acquire

- acquire the skills in capability in learning
- acquire the interests naturally
- to formulate the learning methods
- motivate himself / herself for learning
- learn by experiences
- have the attitude of analyzing
- understand the concepts
- develops the experimentation skills
- have the problem solving skills
- understands through learning by doing
- acquire the skills in data collection and learning material collection
- have the imaginative skills
- develops questioning skills
- Consolidate and summing up the results
- Utilizes the new environment
- make self evaluation
Active Learning Method

- This method does not require more space as such traditional class rooms. Even this can be performed in small as well as large class rooms.
- It does not depend with the number of students.
- This method can be applied to any class rooms of the strength of 20 to 60.
- It is not subject centred. The aim of ALM is empowerment of the learner in such a way that he or she is confident and able to function in many contexts.
- The student learning depends primarily on what he does rather than what the teacher does.
- The ALM can be administered any where in the school premises. Either within the class room or outside of the class room it can be done in the ground and the places where minimum amenities available.
- Allow the child to check her/his work against the teacher's and thus save the teacher endless corrections while ensuring accuracy in child’s learning.
- The teacher can devote some time to children who need special help
- The child is not subjected to endless passivity.

The Active Learning Methodology for academic text based learning is built on abilities that every child has. These abilities have been accessed to lesser or greater extent by each child in the primary classes. By the time the child reaches the upper primary, grade 6, the child is already using reading and writing to an extent. In Tamil Nadu, the Activity Based Learning is followed in Primary classes. In the upper primary classes this Active Learning Method is under use.
The student acquires the following when he completes the VIII std.

- to write
- to read
- to classify the information
- to convert the information into learning experiences
- to draw various mind maps using the learning experiences
- to compile or consolidate the facts or information using various techniques
- to act independently and in groups either smaller or bigger in nature.
- to teach fellow students the topics learned
- to understand the various complex information.

**Activities / methods adopted in the Active Learning Method**

- Mind mapping
- Summarizing
- Discussion
- Participation
- Observation
- Delivery of subject contents
- Undertake training
- Undertake projects
- Retention activities
- Performing the individual, small group and large group activities
Lecture notes on Active Learning Method

Salient features of ALM

- The importance of students’ efforts and skills in learning are emphasized.
- The learning among the students occurs with proper understanding.
- The students learn in a proper way effectively to learn.
- The students’ individuality is ensured within the class room environment itself.
- Students learn with their own learning styles.
- The learning becomes enriched.
- Various skills are expressed by the students during mind mapping, group discussion and experimentation activities.
- Revision and feed back are made possible for the learned concepts also.
- The complete learning is possible and reinforced through the multiple senses.

Skills in Active Learning Method

The brain basically functions through association. Billions of neurons and circuits of association form in different parts of the brain. These are complex. In the growing years, the associations form for the basic processes of life- feeding, language (associating the object tree with the word tree), walking, performing coordinated movements etc. In the later growing years, the associations include that of abstraction, complex problem solving etc.
The five basic skills that the student needs to use are:

i. **Reading**

ii. **Drawing a mind map**

iii. **Discussion**

iv. **Summarizing and**

v. **Writing**

These can be expanded to include:

- Browsing
- Reading
- Questioning
- Drawing a Mind Map of the key perspectives
  - Identifying key perspectives (main ideas/themes) in a unit of learning
  - Summarizing in various ways the key facts

- Participating in and Anchoring Discussions
  - Writing
  - Making Presentations
  - Memorising
  - Self Assessment
  - Summarizing and writing textual answers can follow, if required

**Reading:**

![Image of a student reading]
Reading Comprehension, Understanding; In the stage of the learning process, the new information is processed in the light of prior knowledge and experience. Domains of association in the brain are expanded, modified, new associations and circuits are formed. The primary requirement in this process is adequate comprehension of the language or medium of transaction. If the medium of transaction is the written word, then the reading comprehension is basic to the understanding. This is why the student’s engagement with the reading material is very important.

Underlining key words, finding out the meaning of new words using a dictionary are mandatory. It is important at this stage that the teacher facilitates such a movement by holding fast to the process. An engaged student, using his / her resources, gains confidence. For students to read instructions and exercise their capacities for comprehension is an excellent way of teaching comprehension. A set of guided questions such as those used above accomplish this objective most admirably.

Mind Mapping
Mind mapping - attempting to make connections pictorially, externalizing connections that may be happening in the brain. Mind mapping – a technique researcher and author Tony Buzan offers the learning process, has some unique advantages.

Research studies show that the impact on learning is positive. Visual images, interconnected with lines, as an alternative to note taking is a salient feature of this technique.

Drawing the visuals allows the student an opportunity of an interesting activity all the while chewing on the content. They help them arrange the content in a hierarchy - the main themes and sub themes.
They allow the student an opportunity to add their responses as an important component of the learning.
They can make links and associations and their own thinking is visible to them.
It provides an easy platform of sharing with other students and the teacher.
It provides an overview and an organization of information.
It is felt that a mind map is an important tool in the learning process for many reasons:
✔ it is visual and stirs the non linear faculties we all possess
✔ allows each individual to organize according to their understanding
✔ colours can be part of each mind map as also line drawings, line connections that are straight or arcs
✔ it reveals the interconnectedness visually and not only through verbal expression
✔ it can form a good starting point for organizing the information, for writing an answer, for preparing an oral presentation etc.
Discussion - an exchange of views formed, an opportunity to examine why, an exercise in listening, thinking, speaking. Discussion is seen as an essential part of the process of approaching information in a social context. It has been said that knowledge is socially constructed. The discussion space of the classroom can be the hearth of such a process. It is the space of sharing and dialogue – where the basic norms of talking together are learnt and where feelings and ideas are shared. Discussion helps clarify, it builds an ability to listen and appreciate different points of view, an ability to speak boldly, to appreciate nuances. Placing discussion as one of the core processes in the classroom also ensures that the flavour of peer relationships includes listening to each other carefully and respectfully, raising questions, speaking to each other.
**Summarising, Presentations, Written Work**

Once the mind map is drawn, the main themes or the key organizing ideas of any essay are visible. These can then be fleshed out with supporting facts, they can be summarized in various ways presentations can be made and different kinds of written exercises can be set as well.

The student tool kit for ALM comprises

- Browsing
- Questioning
- Reading
- Identifying key perspectives (main ideas/themes) in a unit of learning
- Drawing a Mind Map of the key perspectives
- Summarizing in various ways the key facts
- Participating in and Anchoring Discussions
- Writing
- Making Presentations
- Memorising
- Self Assessment
Writing:

Writing is the last but not least activity. It involves each and every stage of learning process and portfolios. One of the best ways of assessment is the portfolio method. Gathering together all the various materials and writings produced by the student during the term or year would create a portfolio.

All work including mind maps, drawings, projects etc must be included. This will give an adult or another student a good sense of the work the student has done. Not only it shows the width of the experience of the student, but also reveals the areas of excellence and the area of struggle.

Steps / stages in Active Learning Method

There are four types learning methods followed in this active learning method.

1. Self study
2. Pair study
3. SQ4R method
4. Explaining with diagram / demonstrating an experiment.
Steps / stages in Active Learning Method

1. **Self study**
   - Activity 1: Introduction
   - Activity 2: Group Reading
   - Activity 3: Drawing mind maps
   - Activity 4: Summarising – students consolidates the mind maps
   - Activity 5: Students achievement is assessed through the small questions
   - Activity 6: Discussion in small groups
   - Activity 7: Discussion with teacher as large groups
   - Activity 8: Answering for the questions in the textbooks
   - Activity 9: Assessment / Evaluation
   - Activity 10: Remedial learning
From the above mentioned activities, Examples are illustrated below for the activity-3 drawing mind maps and the activity-4 summarizing.

Mind map : Example -1.
Mindmap - Example-2:

The facts and features of the virus are summarized below:

Summary:
1. The Phylum Monera includes the virus and bacteria
2. The term virus means ‘Poison’
3. Discoveries related to virus
   - Edward Jenner discovered vaccine for Small pox in 1796
   - The initial discovery of tobacco mosaic virus by Martinus Beijerinck in 1892
   - The tobacco mosaic virus identified by Dmitry Ivanovsky in 1892
   - In 1935 W. M. Stanley crystallizes the TMV.
   - Robert Calo discovered the AIDS (HIV).
4. Virus structure:
   - The term virion is also used to refer to a single infective viral particle.
A complete virus particle, known as a virion, consists of nucleic acid surrounded by a protective coat of protein called a capsid. The geneic material is known as nucleoid. The RNA formed as genetic material in Plant viruses. The DNA is the genetic material in Animal viruses.

6. Size

The size of virus is measured in units as Micron or Nanometer

(1 micron = 0.0001mm)

7. Shape

- Spherical shaped – Ex. HIV virus, Influenza virus
- Rod shaped – Ex. Tobacco Mosaic Virus
- Tadpole shaped – T4 bacteriophage
- Brick shaped – Pox virus

7. Classification

1. Plant virus: The viruses that infect the plants are known as plant viruses: ex. TMV. Potato Leaf blot, etc.,
2. Animal viruses: The viruses that infect the Animals are known as Animal viruses: Ex. Polio, Smallpox, Polio. Rabies, Jaundice, Influenza etc.,

R.H. Whittaker’s classification of organisms:

- Monera: Prokaryotes, having no clear nucleus. Ex. Virus and bacteria
- Protista: Eukaryotes, having a clear nucleus. Ex. Amoeba, chlamydomonas
- Fungi: Lacks Chlorophyll. Ex. Agaricus,
- Plantae: Have chlorophyll. Algae to trees
- Animalia: Multicellular animals: Sponge to Mammals
3. Pair study

After the introduction of the lesson, teacher instructs a group of two students to read, draw the mind maps, compile and summarize the concepts. Such learning activities are termed as Pair study. In this pair study, students summarize the lesson contents and answer the teachers’ question and teacher’s evaluation was taken place.

3. The SQ4R Method of Study

What is SQ4R?

- **SQ4R** is a versatile study strategy because it engages the reader during each phase of the reading process.

- Readers preview / **Survey (S)** the text material to develop predictions and set the purpose for the reading by generating **Questions (Q)** about the topic.

- They **Read (1R)** actively, searching for answers to those questions.

- They monitor their comprehension as they summarize **wRite (2R) & Recite (3R)**.

- They evaluate their comprehension through **Review (4R)** activities.
What is READING?

- There are many meanings for reading, but the simplest is to construct meaning from text.
- First and foremost you read for meaning and understanding.
- The correct reading speed is the one that gets you that meaning and understanding.
- Reading is an art form and good readers do certain things that get them the meaning that the process is designed to extract.
- Learning anything involves putting yourself in the proper mode that will help insure that meaning can be gotten from the text.

What you need to know to enhance your comprehension:

1. I begin with what I already know (activating prior knowledge).
2. I always try to make sense of what I am reading (context).
3. I ask myself questions; before, during and after reading.
4. I predict and think about what will happen next in the text, or
5. How my questions will be answered.
6. I read with purpose. I know why I am reading and what I am reading to find out.
7. I know that as a good reader I often reread parts of, or even, the whole text two or more times in order to make sense of what I am reading.
Two general learning components must be addressed as you begin the reading process and the SQ4R method will activate them.

- First, place the reading in context. What is the reading about and do I have any prior knowledge about this subject to help me extract the meaning that I'm after?
- The survey and systematic reading puts this process into motion. You get an overview that will "jog your memory" as you search for prior knowledge on the subject.
- Ask questions about what you don't know.

Make the questions simple and general if you don't have much prior knowledge and more specific if this is an area of study that is familiar to you.

- Using these questions will guide your speed and comprehension as you attempt to answer them.
- The student who is engaged in reading is motivated, strategic, knowledgeable, and socially interactive.

Reading is a process that must include thinking before, during, and after reading.

1. **Survey what you are about to read Systematic Reading**
   - Think about the title: What do you know about this subject?
   - What do I want to know?
   - Glance over headings and/skim the first sentences of paragraphs.
   - Look at illustrations and graphic aids.
   - Read the first paragraph.
   - Read the last paragraph or summary.
2. **Question**
   - Turn the title into a question. This becomes the major purpose for your reading.
   - Write down any questions that come to mind during the survey.
   - Turn headings into questions.
   - Turn subheadings, illustrations, and graphic aids into questions.
   - Write down unfamiliar vocabulary and determine the meaning.

3. **Read Actively**
   - Read to search for answers to questions.
   - Respond to questions and use context clues for unfamiliar words.
   - React to unclear passages, confusing terms, and questionable statements by generating additional questions.

4. **Recite**
   - Look away from the answers and the book to recall what was read.
   - Recite answers to questions aloud or in writing.
   - Reread text for unanswered questions.

5. **Write**
   - Make "maps" for yourself.
   - Reduce the information
   - Reread or skim to locate and prove your points.
   - Write down the key terms and ideas in outline form or using the Cornell Note Taking System.
   - Always read/question/recite before marking or taking down notes.
   - Check yourself against the text. Correct and add to your answer.
6. **Review**

- Answer the major purpose questions.
- Look over answers and all parts of the chapter to organize the information.
- Summarize the information learned by creating a graphic organizer (concept map) that depicts the main ideas, by drawing a flow chart, by writing a summary, by participating in a group discussion, or by writing an explanation of how this material has changed your perceptions or applies to your life.

**Study Strategies -- SQ4R**

1. **Survey**: Psych yourself up.
   - Intend to remember.
   - Anticipate test questions.

2. **Question**: Use previous knowledge.
   - Intend to remember.
   - Anticipate test questions.

3. **Read**: Be selective.
   - Create meaningful organization.

4. **Recite**: Put ideas in your own words.

5. **Write**: Make "maps" for yourself.
   - Reduce the information

6. **Review**: Further reduce the information.
   - Find personal applications.
Survey: Systematic Reading Technique

1. First Steps
   - Read title, topic sentence in each paragraph, and introductory paragraph(s).
   - Read headings, subheadings, and italicized words.
   - Read Summary at the end of the chapter.

2. Question: Use previous knowledge.
   - Intend to remember.
   - Anticipate test questions.
   - Turn each heading and subtitle into a question.
   - Restate the questions from headings to help fix them in your mind.

4Rs Techniques
3. Read: Elementary and In-depth-Be selective.
   - Create meaningful organization.
   - Read only the material covered under one heading or subheading at a time.
   - Read ideas, not just words.
   - Read aggressively, with the intent of getting answers, of noting supporting details, and of remembering.

4. Recite: Put ideas in your own words.
   - Look away from the book and then "recite" (out loud) the major concepts of the section.
   - Check your answers referring to the book.
   - Answer the questions that you raised before you began to read.
5. **Write: Make "maps" for yourself.**

- Reduce the information
- Reread or skim to locate and prove your points.
- Write down the key terms and ideas in outline form or using the Cornell System.
- Always read/question/recite before marking or taking down notes.
- Check yourself against the text. Correct and add to your answer.

6. **Review: Further reduce the information.**

- Find personal applications.
- Look over your notes and headings and subheadings in the text. Get an overall view of the main points.
- Recall sub-points under each main point.
- Aim to do an immediate review and later review. Studies show that with immediate review you can retain 80% of what you covered.
- Go back periodically and test yourself to see how much you remember. Don't put off review until the night before the test.
SQ4R method – steps.

1. Introduction - Motivation
2. Understanding the central theme
3. Convert the concepts understood
4. Reread completely
5. Drawing mind maps
6. Summarizing concepts under given headings
7. Presenting concepts drawn
8. Learning effectively with no errors

Logic: another thing that penguins aren’t very good at.
3. Illustration with diagrams / experiment demonstration.

Assignment:

Write the illustration for the structure of dicotyledon plants' stem, leaf and root with mind map.

end.