

## TEACHING AIDS: PROJECTED AIDS

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### ABSTRACT:

An outstanding development in modern education is the increased use of supplementary devices by which the teacher through the use of more than one sensory channels helps to clarify, establish and correlate accuracy, concepts, interpretations and appreciations; increased knowledge, rouses interest and even evokes worthy emotions and enriches the imagination of children. Our senses are the gateways to acquire knowledge. The natural way of learning by children is principally through the employment of senses. These senses are the receptive mechanisms which feed us the necessary data, the sensory impressions. There is an old saying which reads: "I hear, I forget, I see, I remember, I do, I understand".

On such basis the author is passionate in gathering more information about Teaching Aids and its different types.

**Keywords:** Teaching Aids: Projected Aids – Types of Teaching Aids.

### INTRODUCTION:

The idea of visual education is not new. It appears that over long centuries outstanding teachers have tried to devise ways to make concepts clearer to their pupils through the use of various devices. It is said that 2500 years ago the Greek mathematician Pythagoras drew geometric figures in the sand when making his demonstrations. History suggests that the basic condition which strongly encourages study and experimentation in visual aids was one which was the danger of what William James called it "Empty Verbalism" concepts; to have meaning for the learners must be grounded in his personal experience. Many students of Educational method are convinced that the most serious problem of all formal teaching from Kindergarten through college is the avoidance of meaningless verbalisation. The avoidance of excessive verbalism was a basic consideration in the pedagogical theories of Johann Amos Comenius (1592-1670). Comenius was greatly disturbed by the prevailing methods and materials of instruction in use in his day. He was convinced that improvement in Teaching and learning would necessitate more emphasis on sense experience, in order that the formal teaching would be grounded in the experience of children and would thus be meaningful to them. This conviction led him to prepare one of the most famous text book ever written for children, ORBIS PICTUS (meaning the world in pictures). This book contained numerous pictures of scenes from everyday life of the times accompanied by textual material for children to read. In his book Comenius gave the following directions to the teachers and parents who were to use the materials with children.

"And let the thing name them to be shewed, not in the picture, but also in themselves; for example, the parts of the body, clothes, books, the house, utensils, etc,.... Things rare and not

easy to be met at home might be kept ready in every great school, that they may be shewed also, as often as any words are to be made of them to the scholars.....Thus at last this school would indeed become a school of things obvious to the senses and an entrance to the school intellectual”

Nearly two centuries, Pestalozzi was struggling with ways to remedy the undue emphasis on mere verbalism and to ground the instruction of children in sense experience. The Pestalozzian “Object Lesson” become very famous throughout Europe. This technique of Teaching involved the use of many pictures, drawings, concrete objects and manipulative materials. Pestalozzi was convinced that basing formal teaching on sense experience was not only important from the stand point of teaching methodology, but also was necessary for the progress of society.

According to Dr. Marshall McLuhan, whose books – The Gutenberg Galaxy and Understanding Media throw some light on the subject of media of communications; it is the medium which is the message. This means that the medium by which a piece of information or knowledge is communicated to us, has a profound influence on us. The medium is of greater importance, because the same piece of information when conveyed on a printed page, or over the telephone, by radio, slides or television will appear different and have entirely different effect on us. Hence, the effectiveness of a piece of information depends upon the medium through which it is imparted. Electronics, according to Dr. McLuhan, affect the sensibility greatly because they tend to massage the senses. Thus, the medium is not only the message but the MASSAGE, because it massages the sensory organs and stimulates them to respond actively. Hence, it is important that these media be utilised in classroom teaching, rather than be ignored so that the pupils may obtain sensory stimulation as part of the process of instruction, the same kind of stimulation that is provided by movies, radio and song-hits outside.

The Greeks and the Romans used to convey thought and information through words, pictures, symbols etc. Which were used for decoration purpose only. It was not till 17<sup>th</sup> century that stress was given to Illustrative Books and Models. Rousseau, a Great educator, discouraged the use of more words in education. He advocated the nature of body and mind of child and his surroundings should be taken into account. Froeble was another exponent who pleaded that children should learn from things around them.

### **BASES OF TEACHING AIDS:**

Education whatever be its goals and objectives involves learning. Learning is modification of behaviour as a result of past experience or prior activity. Behavioural modification arises out of learning may be cognitive, affective, conative or an amalgation of all these in different proportion. Human learning may occur at different levels of complexity. Robert M. Gagne speaks of Signal Learning at the base and problem solving at the apex of the hierarchy.

In order to achieve the purpose, the Teacher like other craftsmen has to use certain Tricks of Trades commonly styled as “Devices or Aids of Teaching”. These devices are the external modes or forms which teaching may take from time to time.

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It is a truism that learning becomes effective when students are actively involved in the process. Thus, the following figures are generally valid because the learning process uses the senses as avenues to reach our minds; they are

#### 1. We Learn

- a. 1.0 % through **Taste**
- b. 1.5 % through **Touch**
- c. 3.5% through **Smell**
- d. 11.0 % through **Hearing**
- e. 83.0 % through **Sight.**

#### 2. We Remember

- i. 20 % of what we Hear
- ii. 30% of what we See
- iii. 50 % of what we See and Hear
- iv. 80% of what we Say
- v. 90 % of what we Say and Do.

#### MEANING:

Teaching Aids are devices which present units of knowledge through auditory or visual stimuli or both with a view to help learning. They concretise the knowledge to be presented and thus help in making a learning experience appear real, living and vital. They supplement teachers' verbal explanation from the textbook.

**DEFINITIONS:**

An instructional aid in any device that assists an instructor to transmit to a learner facts, skills, attitudes, knowledge, understanding and appreciation – *S.K. Kochchar*

Teaching Aids are those sensory objects or images which initiate or stimulate and reinforce learning – *Burton*.

They are those aids which help in completing the triangular process of learning – i.e. motivation, classification and stimulation as audio- visual aids – *Carter V. Good*

The teaching aids are also known as the audio-visual aids. The Audio- Visual means all those sources which make the Audio and Visual sense organs of the pupils activated and they understand minute and difficult ideas of the lesson very conveniently, which makes the pupils interested in the lesson and the learning objectives are achieved very easily – *Yogendra K. Sharma*.

**IMPORTANCE OF TEACHING AIDS:**

1. It is the most natural and easiest way of learning. Images is the greatest instruments of instruction. When a child sees an object, he forms an image of that object.
2. They are best attention compellers. They stimulate physical and mental activity.
3. It reduces verbalism or the meaningless use of words and phrases and contributes towards the clearness of perception and accuracy in learning.
4. It helps in bringing vivid reality into the classroom and reduces the chalk and talk method.
5. It appeals to students of various abilities
6. It facilitates quick comprehension and retention of concepts
7. It makes learning permanent
8. It provides first- hand experience which is the most educative type of experience
9. In many cases actual materials is not accessible and expensive. So at such occasion it becomes essential to provide representation of the real source.

**EDGAR DALE'S CONE OF EXPERIENCE:**

Edgar Dale's Cone of experience is a model that includes several theories related to teaching-learning design and processes. During the 1960's Edgar Dale theorised that learners retain more information by what they 'do' as opposed to what is 'heard', 'read' or 'observed'. His research led to the development of the "Cone of Experience". Today, this 'Learning by doing' has become known as 'action learning'.

Edgar Dale based his classification upon the kinds of experience presented through the aids. He calls it the cone of experience. All the learning experiences which can be utilised for

classroom teaching are shown in a pictorial device – “Pinnacle Form” (Cone of Experience). If we travel up the pinnacle from its base, everything has been arranged in the order of increasing abstractness or decreasing directness. The experiences included in the cone are indicated below.

1. **Direct Purposeful experience:** that is seen, handled, tasted, felt, touch and smelt, i.e. the experience that is gained through the senses. These experiences are not only direct but are also purposeful. Purposeful means that the experiences are active with a purpose. “An ounce of experience is better than a tonne of theory, simply because it is only as an experience that any theory has vital and verifiable significance”. Objects are the reality. Hence, they are preferred in teaching as they provide the means to establish correct initial concepts in the minds of pupils. Specimens are excellent visual aids but they cannot be a substitute for the real object.
2. **Contrived experience:** It is like a working model, which is an editing of reality and differs from the original either in size or complexity. The simplification of the real object becomes necessary when the real thing cannot be perceived directly. The real object may be too big or too minute or may be obscured or confused or concealed. In such circumstances, the limitation is preferred for better and easier understanding.
3. **Dramatic participation:** is one in which certain real events of the past are represented so that we can get as close as possible. Dramatisation are available in a variety of forms, such as full length play, puppet shows, pageants, pantomimes, tableaux, dialogues, spontaneous acting and mock conventions. The experience is more meaningful when one actively participates in it.

The cone of experience is a pictorial device that is used to explain the interrelationships of the various types of audio-visual media, as well as their individual positions in the learning. The cone’s utility in selecting instructional resources and activities is as practical today as when Dale created it. According to Dale’s Research, the least effective method at the top involves learning from information presented through verbal symbols, i.e listening to spoken words. The most effective methods at the bottom, involves direct, purposeful learning experiences, such as hands-on or field experience.

#### **INTERPRETATION OF EDGAR DALE’S CONE OF EXPERIENCE:**

- i. Lower levels of the cone involve the student as a participant and encourage active learning.
- ii. Lower levels include more stimuli and are richer with regard to natural feedback – the consequences of the action.
- iii. Higher levels compress information and provide data faster for those who are able to process it.
- iv. Pictures aid in recalling information that has been associated with them

- v. Pictures are remembered (recalled) better than verbal propositions.
- vi. Upper levels of the cone need more instructional support than lower levels.
- vii. As we go up the cone, abstractness increases and is highest at the pinnacle i.e. verbal symbols.
- viii. As we go down the cone, concreteness increases and is maximum at the base i.e. direct purposeful experiences.

### CLASSIFICATION OF TEACHING AIDS:

#### 1. Classification of Teaching aids according to Traditional Type

The Traditional type of classification of Teaching Aids is:

- i. **Audio Aids:** Audio Aids are materials that are used to convey meaning without complete dependence on verbal symbols or language. They are aids or devices that employ the sense of hearing only.
  - ii. **Visual Aids:** Visual instruction means the presentation of knowledge to be gained through the “seeing experience”. According to A.B. Roberts, “visual education is a method of imparting information which is based upon the psychological principle that one has a better conception of the thing sees than of the thing he reads about or hears discussed”. E.C. Dent defines visual sensory aids as “All materials used in the classroom or in other teaching situation to facilitate the understanding of the written or spoken word”. They are aids or devices that employ the sense of sight only.
  - iii. **Audio - Visual Aids:** They are aids or devices that employ both the sense of hearing and seeing.
2. According to the NCERT classification of Teaching Aids, it consists of
1. Projected Aids:
  2. Non – Projected Aids:

#### A. Projected Aids:

Over time, technology has changed to allow people to communicate efficiently and has gone from a means to make difficult tasks easier. Technology has always been present force acting in the world. It started out as simple tools created by the most primitive humans and evolved into other tools that made life easier for the people and the inventor himself. In the mid 20th century, the technological advances began to boom. Engineers and educators began to look for new ways to make computers do tasks as media that would help them during the class. ***Projected Aids and electronic materials are forms of media which could be visual, audio and audio-visual in nature that requires projection and electricity in their using process for teaching and learning situation.*** Hence, Visuals are defined as **media** formats in which text and still images are displayed on an illuminated screen. In other words, projected visual aids

are pictures shown upon a screen by the use of a certain type of machine. In this category the teaching aids included are those which employ the senses of hearing and seeing, and they are known as Audio-Visual Aids. They consists of the following.

1. **Slide Projector (Magic Lantern):** is a simple device used to project pictures from a glass slide on a screen or wall. This device is used when the teacher is intended to show small figures or illustration.
2. **Epidiascope:** Epidiascope is a combination of episcopes and diascope. It is an optical aid. The name epidiascope is given due to the fact that it works as an episcopes when it is used to throw the image of an opaque object. This machine can be used to project slide. When it is used to project a slide then it serves as a diascope. Epidiascope can be used to project any picture, maps, diagrams or photograph.
3. **Television:** Television has been said to be the black board dramatized, or picture brought to life. Television has its own psychological and emotional appeal, which can transcend the barriers of space and time. Television widens the outlook of students and promotes understanding by presenting living and interesting scenes. It tends to reinforce ideas possessed by the viewers by means of exhibition of actual objects or real scenes.
4. **Filmstrip:** It is a related sequence of transparent still pictures and may contain anything in the form of pictures or frames. These pictures may constitute a connected series of drawings, pictures etc. Some filmstrips are accompanied by commentary recorded on records or tape. Such filmstrip is called a sound filmstrip. The record or the tape usually carries the narration and may also include appropriate music and sound effects.
5. **Films:** No other scientific invention can claim to have rendered more service to education than cinematograph. Films make the concept clear, durable and realistic. Films are directly concerned with the classroom teaching. There are films which are not directly concerned with the curriculum but which form the basis for an integrated and correlated study.
6. **Radio:** It is an instructional aid which is in the lime light. The existence of electromagnetic waves was predicted by Maxwell in 1865. Radio broadcast and audio recording are the sources of providing audio learning experiences to the students. In order to provide learning experience beyond school syllabus and to relate it to social life outside classroom, school broadcast programmes are the best substitute. There are various types of programmes like discussion forum, debate, quiz, speech etc., which are either live programmes or are pre-recorded that could be suitably used for classroom instruction. It is a means of supplementing, vitalising, correlating and modernising the material of textbooks. It can create historic events through dramatic re-enactments of important past events.
7. **Tape – Recorder:** This is another aid which can also be profitably used by the teacher, especially, for introducing a lesson. The main advantage of this is that the speech of a person can be tape-recorded at any time and the same spool can be used for number of

times. But as with broadcast, the visual stimuli are missing. Its possibilities in the teaching of sound are considerable. For example, even the voice of different birds and animals can be recorded and reproduced in the class while teaching a lesson.

8. **Multi-Media:** The multimedia concept involves using multiple media for a given instructional purpose. It involves integrating different media into a structured, systematic presentation. Each medium in a multimedia system is designed to complement the others so that, ideally, the whole multimedia system becomes greater than the sum of its parts. Multimedia systems are multisensory and stimulate learning. It is used in making learning enjoyable as they are multisensory. Multimedia kits are versatile in their content, range of media and variety of applications and thus contribute to learning for a wide variety of learners in many subject areas; in addition, multimedia kits provide scope for individualised instruction. One commonly used media is the computer. Computers have extensive capacity to store and manipulate information which we called it as Computer-Based Instruction. There are two types of Computer-Based Instruction.
  - a) **Computer - Assisted Instruction (CAI):** In CAI the students interacts directly with the computer which stores the instructional material and controls its sequence. Computer systems can deliver instruction directly to students by allowing them to interact with lessons programmed into the system; this is referred to as computer – assisted instruction. Computer facilitates most effectively the methods such as drill and practice, tutorial, gaming, simulation, discovery and problem solving.
  - b) **Computer – Management Instruction (CMI):** CMI refers to the use of a computer system to manage information about students’ performance and learning resource options in order to prescribe and control individualised learning. It is a known fact that each student has different learning patterns. With the help of computer one can solve this management problem by administering diagnostic tests, scoring it, prescribing appropriate next steps, monitoring the progress of student all the way along the learning steps, and maintaining records about students’ progress. In CMI the computer helps instructors administer and guide the instructional process.
  - c) **Programmed Instructions:** It is an innovative method of presenting instructional material printed in small bits or frames, each of which included an item of information(prompt), an incomplete statement to be completed or question to be answered(response), and provision of the correct answer(reinforcement). A mechanical device which later was referred as a teaching machine was used to control the logistics of the process. It provided a mechanism for adapting lessons to an individual’s pace, thereby circumventing the large group barrier. Further, it is assured that students would be kept actively at work making frequent (and nearly always correct) responses gaining frequent reinforcement. Thus, programmed instruction appeared to be a feasible method for putting reinforcement theory into practice in all sorts of real life classroom situations.
  - d) **Personalised System of Instruction:** The personalised system of Instruction (PSI) could be described as a technology for managing instruction. It puts reinforcement theory into



action. In PSI students work individually at their own pace using a variety of instructional materials – a chapter in a book, computer- assisted instruction, a video cassette, a sound filmstrip, a programmed booklet etc. The materials are arranged in sequential order, and the student must show mastery of each unit before being allowed to move on to the next.

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