II Year I Semsester

EECM-211

INTRODUCTION TO INFORMATION TECHNOLOGY

## 1. INFORMATION TECHNOLOGY

INTRODUCTION:

Information technology (IT) is the use of computers to store, retrieve, transmit, and manipulate data or information. IT is typically used within the context of business operations as opposed to personal or entertainment technologies. IT is considered to be a subset of information and communications technology (ICT).

Information System

An information system is a set of interrelated components that collect, manipulate, store data and disseminate information and provide a feedback mechanism to monitor performance. An Information system (IS) is a formal, sociotechnical, organizational system designed to collect, process, store, and distribute information. In a sociotechnical perspective, information systems are composed by four components: task, people, structure (or roles), and technology.

Computer and System

A computer system is a set of integrated devices that input, output, process, and store data and information. Computer systems are currently built around at least one digital processing device. There are five main hardware components in a computer system: Input, Processing, Storage, Output and Communication devices.
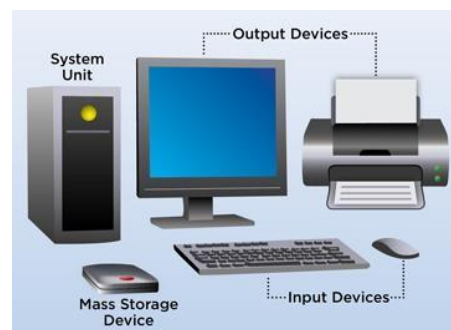
Software and DataSoftware

Software is a set of instructions, data or programs used to operate computers and execute specific tasks. Opposite of hardware, which describes the physical aspects of a computer, software is a generic term used to refer to applications, scripts and programs that run on a device.

Data

Data is a set of values of subjects with respect to qualitative or quantitative variables. Data is raw, unorganized facts that need to be processed. When data is processed, organized, structured or presented in a given context so as to make it useful, it is called information.

IT IN BUSINESS & INDUSTRY

Information technology fosters innovation in business. Innovation results in smarter apps, improved data storage, faster processing, and wider information distribution. Innovation makes businesses run more efficiently. And innovation increases value, enhances quality, and boosts productivity.

IT in banking

Information technology in banking sector refers to the use of sophisticated information and communication technologies together with computer science to enable banks to offer better services to its customers in a secure, reliable and affordable manner and sustain competitive advantage over other banks.

Banking without computers can't be imagined. A lot of work is done in the computers from transactions to maintaining records. Recurring deposits (e-RD), Fixed deposits (e-FD), money transfer from one account to another (NEFT, RTGS), online transactions are done using the Internet.

IT in insurance

Insurance companies use a computer to store data of their clients. It manages their data and gives them timely notifications for their premium. It allows the user to get a good knowledge over their policy.

IT in marketing

The computer is very much needed in marketing. The computer is used to create sell advertisements. It is used to monitor the performance of the product in the market. different illustrationscan be made to present the product in an effective and decorative way.

➢ Advertising - With computers, advertising professionals create art and graphics, write and revise copy, and print anddisseminate ads with the goal of selling more products.

➢ Home Shopping - Home shopping has been made possible through use of computerized catalogues that provide access to product information and permit direct entry of orders to be filled by the customers.

IT in BPO services

Business Process Outsourcing (BPO) services mean those business operations which are performed by an outside service provider. In other words, you can say that some industries take help from other service providers to facilitate their work. They heir some outsourcing companies for that work and those outsourcing companies is called BPO (Business Process Outsourcing).

Some of the BPO services are as follows:

(a) Financial and Accounting Services

(b) Taxation and Insurance Services

(c) E-Publishing and Web Promotion

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(d) Legal Services and Content Writing

(e) Multimedia and Design Services

(f) Document Management Services

(g) Software Testing Services

(h) Health Care Services

IT IN HOME & AT PLAY:

Information technologies aid us in doing chores at home in three principal ways: (1) by controlling the appliances we use for housework, (2) by establishing local networks for home communications and control, and (3) by directly providing electronic information and transaction services from the home.

Using the right kind of technology/games/activities can support the development of your child's learning and skills, including fine motor skills, letter/ number/ shape/ colour recognition, eye-hand co-ordination, reading, writing, planning, problem solvingetc.

IT in home computing:

We use a PC (personal computer) at our home. The computer is used in our homes for surfing the internet, making presentations, video, games, etc.

IT in everyday life:

In our daily life, most of the equipment we are using is embedded with software. Microwave has its own software to maintain the temperature and also washing machines, the set-top boxhas software to interact with us and give us a good experience.

IT IN EDUCATION, WORKPLACE AND TRAINING:

Using information technology in education has made it possible for students to keep on learning, irrespective of where they are. Teachers and professors can send assignments to students and they can complete and submit them even without physically stepping into the classrooms and so learning never has to stop.

IT in library

Nowadays managing books in the library is not such tough work. Libraries are now computerised. To manage a lot of books barcodes can be associated with books which make the process easyto keep track of the list of available books and many more.

IT in education

Information technology IT is very much used in education for teaching-learning processes. The software and Hardware made the process of learning very easy. We can see a lot of animations in educational videos which made studying very interesting. Various methods of illustrations are now brought to visualize what we are reading in the real world.

a) IT in the classroom

IT can be used in various ways in schools to handle online classes.

• e-learning classrooms;
• smart-board presentations;
• videos on experiments;
• creation of images and video;
• desktop publishing of magazines, letters and documents;

 (b) Education — anywhere anytime

A lot of books and educational content are now digitalized. We can get the content whenever we want. Our government is also providing websites to access NCERT books online.

(c) Teaching aids and media

IT is used mostly as a teaching aid in schools to use pictures, animations and audio-visuals to explain subjects that are difficult to explain, make the lessons interesting using presentations and

organize lessons using the computer.

(d) Learning Management System (LMS)

A Learning Management System (LMS) is being used by many schools to manage their school system. This system is very useful for managing attendance and result. Is well designed to recordstudents' data in an effective way.

IT at workplace

All the offices are equipped with computers for office automation using various softwares like Microsoft word, Excel and Powerpoint. Most of the work is now done on computers. in offices computers and software makes their work very easy and fast. IT play an important role in e-governance. Some major fields in this category are:

> Budgets
> Sales tax department
> Income tax department Male/Female ratio
> Computerization of voters lists
> Computerization of driving licensing system
> Computerization of PAN card
> Weather forecasting

IT IN ENTERTAINMENT & ARTS:

Entertainment technology helps us relax and enjoy some free time. The latest technology has been revolutionized daily entertainment. Old ways such as recording on records, tapes, and

CDs, have made music across the world. Movies are brought into living rooms through photography, film, and video.

IT has substantially changed the field of Graphics Arts. IT provides a variety of new media for many different artists. Digital still photography and video are now becoming commonplace. Computers provide powerful tools for editing such photographs andvideo.

IT in Entertainment

One can now download movies, play games, chat, video calls using mobiles and computers. Digital broadcasting has opened a door to the world. It changed the television experience. digital programs are now more interactive and use very much graphics designing.

IT in Communication

In communication, IT has a significant role. One can easily chat through various platforms. Video calling has now become easier. IT has really changed the way of communication.

IT IN SCIENCE, ENGINEERING AND MATHEMATICS

To use the technology correlatively, for example, data processing, simulation techniques, mathematical model and database etc. Through the process of establishing the mechanism model, using a computer data analysis process in materials science, the model predicts the optimal design to achieve. One of major areas is CAD Computer aided design. That

provides creation and modification of images

To do complex scientific calculations, Computer-Aided Design (CAD) or Computer-Aided Manufacturing (CAM) Scientists and engineers use software applications. It made their work easy. drawing and calculation became very easy. Some fields of engineering and mathematics are:

- Structural Engineering - Requires stress and strain analysis for design of Ships, Buildings, Budgets, Airplanes etc.
- Industrial Engineering - Computers deal with design, implementation and improvement of integrated systems of people, materials and equipment.
- Architectural Engineering - Computers help in planning towns, designing buildings, determining a range of buildingson a site using both 2D and 3D drawings
- Discrete mathematics provides an important foundation for all areas of computer science. Discrete math is used in various areas including computer architecture, algorithms, computer systems, databases, functional programming, distributed systems, machine learning, operating systems, computer security, and networks. There are also many mathematical and statistical software are used to solve the problems.

IT in health care

Our hospitals are now computerised a lot of healthcare activities are now monitored by computers. Some of the high-level gadgets are made to serve in hospitals.

(i) Computerised Axial Tomography Machine (CAT):

Using this machine three-dimensional (3D) images of different parts of the body can be made. These images are helpful inthe diagnosis of diseases.

(ii) MRI (Magnetic Resonance Imaging Machine):

MRI machines are used to provide an image of the internal organs of the body by using strong magnetic fields and radio waves. The digital images are very helpful in the detection of the disease.

(iii) Electrocardiogram (ECG) Machine:

This machine is used to monitor the heartbeat of a person.

This machine records the electrical impulse.

(iv) Cardiac Screening Machine:

   This machine is used to detect the problems related to the heart.
It monitors the internal working of the heart.

(v) EEG (Electro encephalography) Machine:

   The Electro encephalography machine is used to record the activities of the brain. This machine works both in the patient is sleeping of awake.

   Blood Sugar Testing Machine is used to check the sugar level in blood and Blood Pressure can be checked digitally by the blood pressure measuring machine.

IT tools- Concept & importance, radio, tv, teleconferencing, internet, e-mail, telephone and fax

Classification of ICT Tools

- ICT could be classified in three categories:

   1. Physical ICT hardware or Gadgets- include audio-visuals, telephone and computers

     - Television

     - Cell phones

     - Modems: A modem is a device that translates signals to and from between twocomputer devices in a network.

     - Computers- There is numerous things that computers can do as far as device connectivity, task processing, data management and storage is concerned. The computer connects us to the internet and helps us share information in a network. Other physical communication technologies (ICT gadgets or hardware) in digital devices include remote controls, keyless entry devices, walkie-talkies, Bluetooth earpieces, GPS Satellites, CD's DVD's, flash drives, tape, compact memory chips.

2. Non-Physical ICT Software (Virtual Communication Technology): Software and Wireless Network representICT Software

Software: Software is a program that direct smooth running of a computer system. It can be
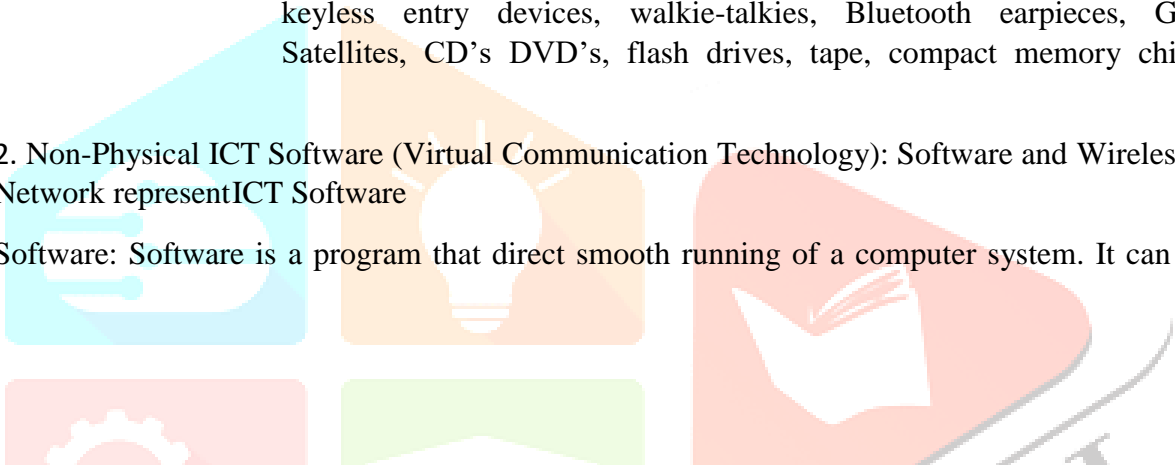
system software (such as Microsoft operating system) or application software (such as MS Internet Explorer, MS Word, MS Exceletc.).

3. Communication Technology Services (ICT Services): Internet and Email services are examples of ICT services.

ICT Equipment for Every Classroom:

Ideally, following 10 ICT items, should be features of every classrooms in our educational institutions. Whilemajority of university colleges do possess majority of them but some of them are still just pipedream for many!

1. A social media output channel to connect with students, parents and fellow classrooms

2. A desktop computer to access online resources

3. USB or Wifi access for document sharing and device connectivity

4. A projector with interactive whiteboard functionality or television screen connectivity.

5. A presentation clicker for classroom mobility. The best one I've found is Logitech which I use forkeynotes.

6. A visualiser or document camera for displaying student work, or presenting live feedback.

7. Tablet devices for teacher and student e.g. iPad

Communication- concept, importance & elements, models of communication and Barriers in communication

Concept of communication: According to Leagans (1961), Communication is the process by which two or more people exchange ideas, facts, feelings or impressions in ways that each gains a common understanding of the meaning, intent and use of messages. The term 'communication' stems from the Latin word 'communis'-meaning' 'common'. Communication, then, is a conscious attempt to share information, ideas, attitudes and the like with others.

Importance of Communication
1. Communication establishes a favorable climate in which development can take place.
2. Communication has multiplier effect
3. Communication varies the aspirations of the people
4. Communication is essential for all human activities
5. Communication is essential for good leadership

Elements of Communication

1. The Communicator

This is the person who starts the process of communication in operation. He is the source or originator of messages. He is the sender of messages. He is the first to give expression to message intended to reach an audience in a manner that results in correct interpretation and desirable response. When a communicator does not hold the confidence of his audience, communication as conceived will not take place.

2. Message or content

A message is the information communicator wishes his audience to receive, understand, accept and act upon. Messages, for example, may consist of statements of scientific facts about agriculture, sanitation or nutrition; description of action being taken by individuals, groups or committees; reasons why certain kinds of action should be taken ; or steps necessary in taking given kinds of action.

3. Channels of Communication

The sender and the receiver of messages must be connected or 'tuned' with each other. For this purpose, channels of communication are necessary. They are the physical bridges between the sender and the receiver of messages-the avenues between a communicator and an audience on which messages travel to and fro. They are the transmission lines used for carrying messages to their destination. Thus, the channels serve as essential tools of the communicator.

A channel may be anything used by a sender of messages to connect him with intended receivers. The crucial point is that he must get in contact with his audience. The message must get through.

4. Treatment of Messages

Treatment has to do with the way a message is handled to get the information across to an audience. It relates to the technique, or details of procedure, or manner of performance, essential to expertness in presenting messages. Hence, treatment deals with the design of methods for presenting messages. Designing the methods for treating messages does not relate to formulation of the message or to the selection of channels, but to the technique employed for presentation within the situation provided by a message and a channel.

The purpose of treatment is to make the message clear, understandable and realistic to the audience. Designing treatment usually requires original thinking, deep insight into the principles of human behaviour and skill in creating and using refined techniques of message presentation.

5.The Audience

An audience is the intended receiver of message. It is the consumer of messages. It is the intended respondent in message sending, and is assumed to be in a position to gain economically, socially or in other ways by responding to the message in particular ways. In good communication the communicator already identifies the audience aims.

The importance of clearly identifying an audience cannot be over-stressed. The more homogeneous an audience, the greater the chances of successful communication. Likewise, the

more a communicator knows about his audience and can pin-point its characteristics the more likely he is to make an impact.

The following are some of the issues to clarify the nature of audience:

- Communication channels established by the social organisation.
- The system of values held by the audience-what they think is important.
- Forces influencing group conformity-custom, tradition etc.
- Individual personality factors-susceptibility to change etc.
- Native and acquired abilities.
- Educational, economic and social levels.
- Pressure of occupational responsibility-how busy or concerned they are.
- People's needs as they see them, and as the professional communicator sees them.
- Why the audience is in need of changed ways of thinking, feeling and doing.
- How the audience views the situation.

It is useful to a communicator to understand these and other traits of an audience in making his plan for communication.

6.Audience Response

This is the terminating element in communication applied to rural development programmes. Response by an audience to messages received is in the form of some kind of action of some degree, mentally or physically. Action, therefore, should be viewed as a product, not as a process; it should be dealt with as an end, not as a means. Consequently, the five elements hither to analysed *viz.,* communicator, message, channel, treatment and audience are intended to be viewed as an organised scheme (means) for attaining the desired action (end) on the part of an intended audience.

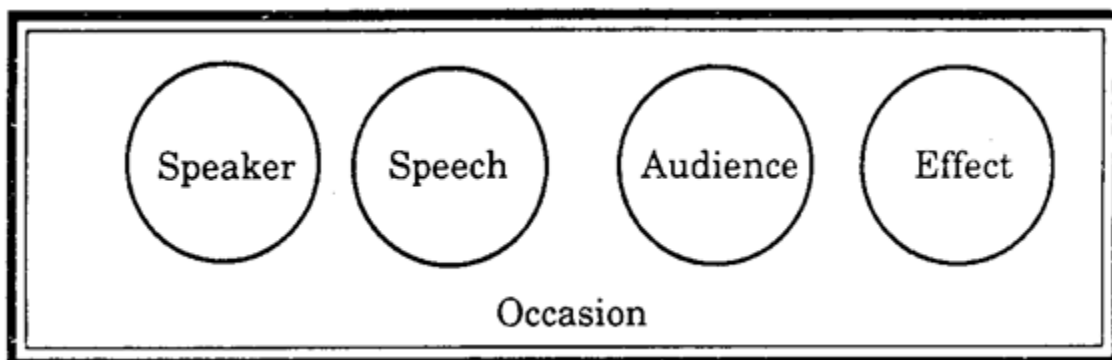## COMMUNICATION MODELS

Fig.1. Aristotle's Model of Communication

Fig.1. Aristotle Model

**Aristotle's Model of Communication (Devito, 1978)**
The earliest model of communication was the symmetrical and simple model developed by the great Greek philosopher Aristotle some 2000 years before. Aristotle in his model includes the five essential elements of communication, i.e., the speaker, the speech or message, the audience, the occasion, and the effect. In his rhetoric, Aristotle advises the speaker on

constructing a speech for different audiences on different occasions for different effects. This model is most applicable to public speaking.

2.Lasswell's Model(1948)

Lasswell has given us another simple model. His model belongs specifically to the area of mass communication. He argued that to understand the process of mass communication one needs to study each of the stages in his mode. "Who says what, in which channel, to whom, and, with what effect."

Fig.2. Lasswell's Model

| Who (Speaker) | → | What (Message) | → | Channel for medium | → | Whom (Audience) | = | Effect |
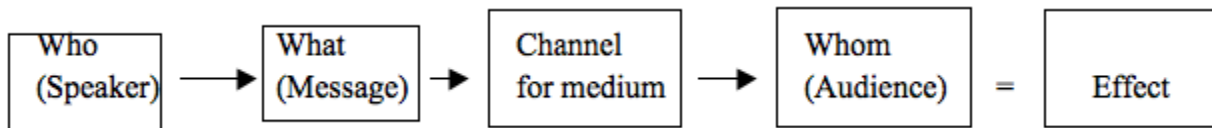
3.Shannon   and   Weaver   Model   (1949)

The preconceptions of the academic field of mass communication were heavily influenced by the engineering model of Shannon and Weaver (1949) Communication was conceived as a linear act of transmission of a message from a source to a receiver via a signal producing transmitter. A component called 'noise' acknowledged the presence of context in the electrical engineering model.

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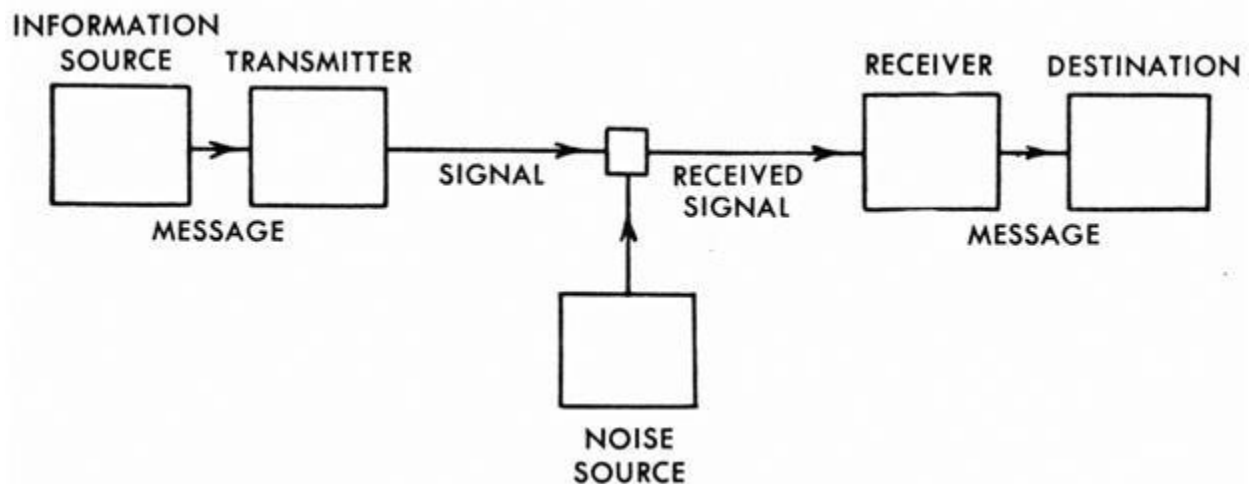
Fig.5. Shannon and Weaver Communication Model

Claude Shannon and Warren Weaver gave this model. As the diagram above indicates, this communication model comprises four elements. A source of information, with a greater or lesser number of messages to communicate; a transmitter or sender with the capacity to transform a message into a signal; a receiver which decodes the signal in order to retrieve the initial message, and finally, the destination, a person or thing for whom the message is intended. Communication, according to this model, follows a simple left to right process. The information source (say

speaker), selects a desired message from all the possible messages. The message is sent through a transmitter (microphone) and is changed into signals. A receiver (say earphone), changed back into a message and given to the destination, a listener, receives the signals. In the process of transmission, certain distortions are added to the signal which are not part of the message and these   will   be   called   noise.

4.C.E. Osgood - Schramm Model (1975)

To the circular model, we have added boxes and arrows showing the influence of noise and personality are a helix used as a model by Frank E.X. Dance. He felt that circular models were better than straight - lines ones like Shannon- Weaver, but that they had a built in error since they showed communication ending up where it started off. In fact as an act of communication goes on, the noise gets less (because the communicators get more used to handling the channel / model) and personality becomes more helpful (because, as communicators get to know each other and the subject, they adjust to each other and fill gaps in their knowledge).
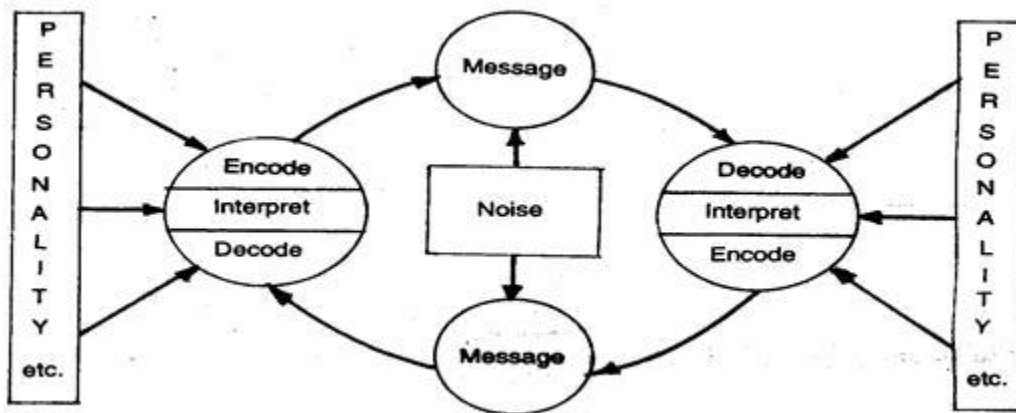

Fig .6.C.E. Osgood-Schramm Communication model

6. David Berlo's Model (1960)

In the last twenty-five years, a number of models of communication have been developed by communicologists, each one expanding the earlier presentation. David Berlo's model is one among them, which has been profusely quoted and frequently mentioned in discussions. In his book, "The Process of Communication" written in 1960, he presented this model which has a close similarity to the earlier Aristotelian model, including the traditional elements of source, message, channel and receiver. Berlo's model attempts to explain the various components in the communication process. For each of these basic components, controlling factors were listed.

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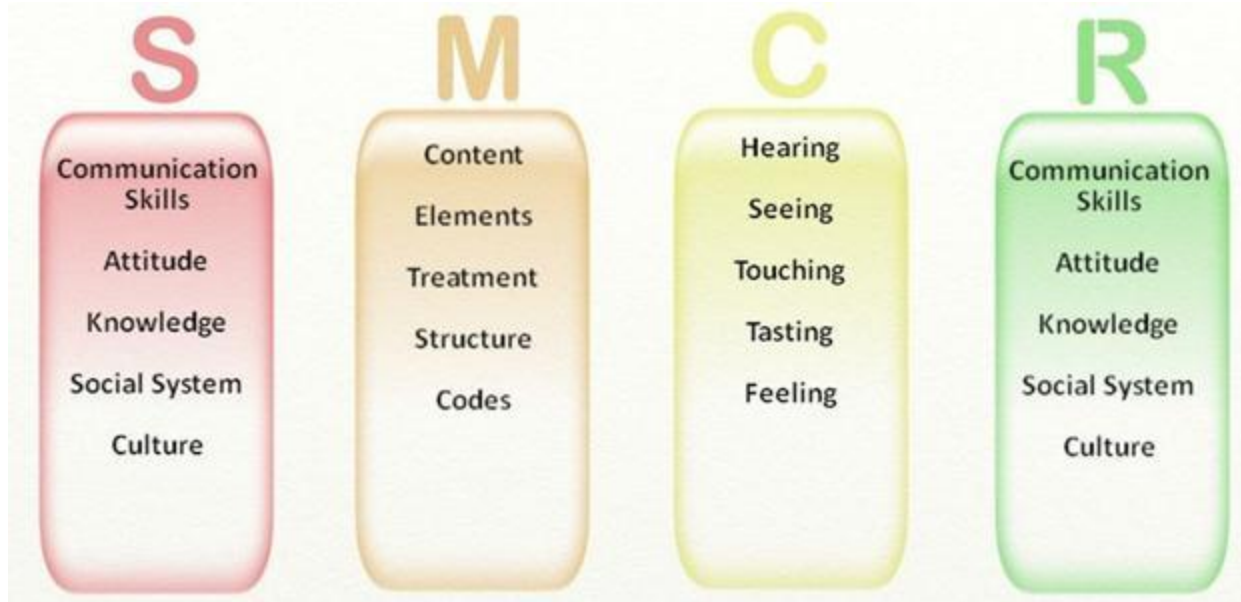
His model reinforced a shift away from views of communication that emphasized the transmission of information to perspectives that focused on the interpretation of information. Berlo writes, "People can have similar meanings only to the extent that they have had similar experiences". Berlo also felt that human communication always had a purpose "our basic purpose in communication is to become an affecting agent, to affect others, our physical environment, and ourselves. We communicate to influence to affect with intent".

Feed Back in Communication

Feedback as a concept was developed in the 1940s and 1950's, when scientists began looking at the world in terms of systems model. They were interested in the nature of the systems, the applicability of system model to both the physical and social world.

Feedback is thus defined as information regarding actual performance or the result of the activities of a system. Not all information is feedback; only information which is used to control the future functioning of the system is considered feedback.

A system is a mechanism which obtains inputs from a larger environment, subjects the input to a transformation process, and then produces output. In this model, feedback is controlling information channel which connects the system's output with its input.

Importance of feedback
1. Feedback is a basic component of self regulating system
2. Feedback is information about the output of a system which controls the system input or transformation processes
3. Feedback is any information about the system functioning which has the potential of being used to change the operation of the system.
4. Viewing organizations as open systems, feedback is a necessary component, enabling the correction of errors, the adaptation to environmental change and learning.

5. Since in social systems such as work organizations, feedback does not automatically create change in the system operation, the process of obtaining, interpreting and using feedback information is important.
6. Since organizations often ignore feedback or do not make an effort to use feedback effectively, organizational development activities serve an important function of facilitating feedback processes, thus helping organizations to correct errors, adapt, learn and grow.

Barriers in communication:

During communication we often hear people say that there was some misunderstanding, which mean the receiver has not understood properly what the sender wants to communicate. Such misunderstanding or misinterpretation happens because of some obstacle or barriers in communication. In technical terms anything that obstructs free flow of communication is called as noise. As the process of communication involves sender channels and receiver, the problems of communication could be with either one or more of them.

The barriers of communication may be classified according to

1. Phases of communication
2. Type of problems and
3. Nature of problems

According to phases of communication

Every communication process has at least three phases. Common problems being faced at each phase of communication are as follows

1. Relating to communicator

2. Relating to the transmission of message

3. Relating to receiver

1.Relating to communicator

1. *Ineffective environment*: The environment created by the communicator influences his effectiveness. The physical facilities, air of friendliness, respect for other's view, recognition of accomplishments of others, permissiveness and rapport in general are all important ingredients of climate conductive to effective communication.

2. *Unorganised efforts to communicate*: To make sense, the communication efforts must be organized according to some specific form or pattern. Unorganised efforts will distort the message and it will not reach its destination as intended.

3. *Standard of correctness*: This involves the proper selection of the message and its level of accuracy. The message must have correct contents or facts. Communicator must be very careful in selecting and testing the local applicability of this message.

4. ***Standard of social reponsibility***: This refers to that when one communicates; one assumes responsibility for the effect of one's communication on the respondents and the society. Awareness of this fact will force the communicator to be more careful, serious and honest.

5. ***Cultural values and social organizations***: Cultural values and the social organizations are determinants of communication. Communicator must have the knowledge of the cultural and social values of these listeners for an effective communication.

6. ***Inaccurate symbols***: The systems of symbols used to represent ideas, objects or concepts must be accurate and used skillfully. The crucial point in the use of the symbols to convey idea is to select those that accurately represent the idea to be conveyed and are understood by the audience. Symbols are meaningful to a person only when he understands what they stand for.

7. ***Wrong concept of communication process***: A common mistake committed by the communicator is the identification of the part with the whole or the 'part fallacy'. Successful communication in programme of rural development is not a single unit. It requires a series of unit acts. The way one thinks about communication will influence its quality.

2.Relating to the transmission of message

Many obstructions can occur at the interpretation level. These are often referred to as 'noise' that is some obstruction that prevents the message from being heard by or carried over clearly to the audience.

Noise emerges from a wide range of sources and causes which affect the interpretation of the message.

1. ***Wrong handling of the channels***: If a meeting, tour, radio programme or other channels are not used according to good procedure and technique, their potential for carrying a message is dissipated.

2. ***Wrong selection of channels***: All channels are not equally useful in attaining a specific objective. Failure to select channels appropriate to the objective of a Communicator will interrupt the interpretation of the message in a desired way to the intended audience.

3. ***Physical distraction:*** Failure to avoid physical distractions often obstructs successful message sending, because they create physical barriers between the communicator and the audience.

4. ***Use of inadequate channels in parallel***: The more channels a communicator uses in parallel or at about the same time the more chances has he for the message getting through and being properly received.

3. **Relating to receiver**

1. *Attention of the listeners:* An unfortunate tendency of the people is not to give undivided attention to the communicator. This is a powerful obstruction for the communicator, which prevents the message from reaching their desired destination.

2. *Problem of cooperation, participation and involvement*: Both the communicator and the receiver must be brought into act. Hence, the listener must work a little; learning is an active process on the part of the listeners. Unless the listener is on the same wave-length, the character 0; what is sent out hardly governs the communication process. So, it takes both the communicator and the listener to make communication.

3. *Problem of homogeneity*: The more homogeneous the audience is the greater are the chances of successful communication. Likewise, the more a communicator knows about his audience and pinpoints its characteristics, the more likely is he to make an impact.

4. *Attitude of the audience towards the communicator*: An important but little studied factor in the effectiveness of communication is the attitude of the audience towards the communicator. Indirect data on this problem come from studies of 'prestige' in which subjects are asked to indicate their agreement with statements which are attributed to the different individuals.

Audio visual aids- meaning, importance and classification

Meaning of Audio-Visual Aids: Audio- visual aids are instructional devices which are used to communicate messages more effectively through sound and visuals.

Audio-visual aids help in stimulating the sensory organs like ears and eyes and facilitate quick comprehension of the message by the audience. These may be used for literate as well as for illiterate people.

What is audio?

Audio means what we hear. The five senses audio, visual, touch, smell and taste plays an important role in communicating message. Hearing plays an important role in receiving and sending a message effectively. The most basic form of communication is oral and face to face contact. Hearing plays an important role in oral-face to face communication. In recent days due to the invention of modern gadgets like radio, tape recorder, public address system telephones and mobile phones the type of communication is more of an indirect type as the individuals do not face each other. People in such situations communicate without coming into close proximity.

What are audio aids?

Audio Aids are the instructional devices through which the message can only be heard.

Or

An audio aid is an instructional device in which the message can be heard but not seen.

What is visual?

A visual is what can be seen.

Visual helps one to communicate more effectively. Out of the five physical senses through which we learn, the eye is the **most helpful** in learning. Words are not enough for communicating an idea. The same word may even mean different things to different people. We speak different languages and so, many times communication becomes difficult.

What are visual aids?

Visual Aids are the instructional devices which help to visualize the message.

Or

A visual aid is an instructional or communicating device in which the message can be seen but not heard.

What is audio-visual?

Audio-visual means the things which we hear as well see.

What are Audio-visual aids?

Audio-visual aids or devices or technological media or learning devices are added devices that help the teacher to clarify, establish, co-relate and co-ordinate accurate concepts, interpretations and appreciations and enable the learner to make learning more concrete, effective, interesting, inspirational, meaningful and vivid.

Or in other words

Audio-visual aids are used to improve teaching, i.e. to increase the concreteness, clarity and effectiveness of the ideas and skills being transferred. They enable the audience to LOOK, LISTEN and LEARN (*by doing*); to learn faster, to learn more, to learn thoroughly and to remember longer.

According to an old Chinese proverb the importance of audio-visual aids is indicated by the saying that ***"if I hear I forget, if I see I remember, if I do I know."***

The audio-visual aids help in completing the triangular process of **learning, motivation, clarification-stimulation.**

The aim of teaching with technological media is clearing the channel between the learner and the things that are worth learning. The basic assumption underlying Audio-Visual Aids is that learning and clear understanding-stems from sense of experience. The teacher must 'show' as well as 'tell'.

Audio –Visual aids provide significant gains in informational learning, retention, recall, thinking, reasoning, activity, interest, imagination, better assimilation, personal growth and

development. The aids are the stimuli for learning '**why', 'how', 'when' and 'where'.** The 'hard to understand principles are usually made clear by the intelligent use of skillfully designed instructional aids.

It must be remembered that Audio-visual aids can only **supplement** the teacher but can never **supplant** the teacher.

Definitions of Audio-Visual aids:

According to Audio-Visual Aids: The instructional devices through which the message can be heard and seen simultaneously are known as Audio-Visual Aids

According to Burton: Audio-Visual aids are those aids which help in completing the triangular process of learning i.e., motivation, classification and stimulation

According to Edgar Dale: Audio-Visual are those devices by the use of which communication of ideas between persons and groups in various teaching and training situations is helped. These are also termed as multi-sensory materials

Good's Dictionary of Education: Audio-Visual aids are anything by means of which learning process may be encouraged or carried on through the sense of hearing or sense of sight

According to Kinder; S. James: Audio-Visual aids are any device which can be used to make the learning experience more concrete, more realistic and more dynamic

According to Mcknown and Roberts: Audio-Visual aids are supplementary devices by which the teacher; through the utilization of more than one sensory channels is able to clarify, establish and correlate concepts, interpretations and appreciations.

Audio-visual aids are also known as Teaching aids, Educational Communication Technology, Audio—Visual Media, Learning Resources and Instructional or Educational Media.

Importance of Audio-Visual Aids

Instructional tools like books and black –board were thought to be sufficient in the beginning and apparently they served the purpose till human knowledge grew out of all proportions to be acquired by single person in his life. Educators came face to face with the problem of speeding up the process of imparting maximum amount of knowledge in shortest possible time. This speeding up process is essential for various reasons. Two most important reasons among others are

1. In scientific investigation and research, it is necessary for a single individual to know more about several other branches of knowledge which help to promote the investigation of or for research in a particular specific problem.
2. In time of emergency like war, a great many people must be trained in technical aspects of war in shortest possible time.

Now it has been established beyond doubt that use of Audio visual aids contribute directly in improving the effectiveness of learning, in teaching and training situations.

Though the communication media are obvious potent forces in our society today, we are yet to use them seriously for making the teaching and learning process more interesting, more effective and more permanent.

Audio visual materials can bring the world into the class room. The most abstract concepts can be presented in vivid concrete forms that are easily grasped by the learners. They provide the learner with a good substitute for first -hand experience.

The task before the teacher, trainer and extension worker today is so broad in scope and so complicated in character that every tested and approved method of teaching must be utilized in order to equip learners with certain skills, concepts and attitudes besides the ability to think critically.

Motivation is a power full force in the learning process. Since audio visual materials motivate and help learning, they are important in any scheme of educational activity, either formal or informal type.

Classification of Audio-visual aids:

Audio-visual aids are classified into three categories:

Audio aids	Visual aids	Audio- visual aids
1. Tape recorder 2. Public address system 3. Telephone 4. Radio	**Non-Projected** 1. Chalk board 2. Bulletin board 3. Picture board and photograph and Illustrations 4. Flannel graph, flash card, flip chart 5. Poster 6. Diagram, map, chart and graph 7. Specimen, model, diorama 8. Translide **Projected** 1. Slides 2. Filmstrip 3. Opaque projection 4. Overhead projection	**Non- Projected** 1. Drama, puppet show, talking doll **Projected** 1. Motion picture(cinema) 2. Video

Cone of experience

Cone of experience

It is devised by Edgar Dale in explaining the inter relationships of various types of audio-visual materials. As well as their individual position in the learning process.

In this cone each division represents a stage between the two extremes direct experience at the base, and pure abstraction at the apex. It may be stated that the 'cone' classifies the audio-visual aids according to their effectiveness in communication.

1. **Direct, purposeful experience:** It is the unabridged version of life itself, with three elements directness, purposefulness and responsibility for the outcome. The experiences gained through the senses are direct and purposeful. It has been amply observed, ''An ounce of experience is better than a tone of theory, simply because it is only as an experience that any theory has vital and verifiable significance.'' This direct experience is gained through the aids mentioned at the base of the cone.
2. **Contrived Experiences:** when the real thing cannot be perceived directly, its simplification becomes necessary. Contrived experience is like a working model which is an editing of reality and differs from the original either in size or in complexity. The real object may be too small or too big, may be confused or concealed. In such a situation, imitation is preferred for better and easier understanding Eg: models of animals and mock-ups of machinery.
3. **Dramatized Experiences:** Means participating in a reconstructed experience
   eg: dramas, puppet shows

4. Demonstrations
5. Field trips
6. Exhibits
7. a. Television
   b. Motion picture or Films
8. a. Radio
   b. Recordings
9. Still pictures
   a. Non- projected
   b. Projected
10. Visual symbols
11. Verbal symbols

Criteria for selection of audio visual aids

Factors influencing in selection of Audio-Visual Aids

Audio-visual aids are used singly or in combination, taking the following factors into consideration

1. **The teaching objective: i.e**. the type of behaviour change you want to bring about like gaining information or changing attitude or learning some skill.

2. **The nature of the subject matter** being taught

3. **The nature of audience:** like age level, educational level, interest, experience, knowledge of the subject, intelligence

4. **The nature of audience:** eg., Flash card can be used for a small audience only but, motion picture can be used for a large audience

5. **Relative cost of the various aids:** Effective aids need not necessarily be expensive

   - **Relative cost of the various aids** The teacher's familiarity with and skill in using the several aids
   - Teacher originality and skill in selection, preparation and use of aids

6. **The availability:** the teacher should make use of indigenous materials, when the teaching aid she/he would like to use is not available

Criteria and principles of preparing following aids: charts & posters, flip book, leaflet, folder, pamphlet

Chart: Diagrammatic representation of facts or ideas, visual symbols for summarizing comparing, contrasting and performing other services in explaining subject matter can help to communicate difficult, dull subject in interesting way.

Purpose of charts

1. To show relationships by means of facts, figures or statistics
2. To present materials symbolically
3. To summarize information
4. To show continuity in process
5. To present abstract ideas in visual form
6. To show the development of structures
7. To create problems and to stimulate thinking
8. To encourage utilization of other media of communication
9. To motivate the students

Types of charts

1. Line charts (or Line graphs)
2. Bar charts (or Bar graphs)

3. Flow charts
4. Tree chart or stream charts
5. Strip tease chart or Suspense chart
6. Pictorial graphs (or picot graphs)

Flip chart

Consists of series of individual charts which are tacked or bound together and hung on a supporting stand. These individual charts carry a series of related messages in sequence. The teacher flips them one after another, as the lesson or story progresses. To be effective, a flip chart should deal with only one broad theme and give only this salient point without too much data or details.

Suggestions for making effective charts are

7. Keep them simple, develop only one idea
8. Make as few comparisons as possible
9. Allow plenty of space
10. Maintain logical order in presenting
11. Prepare charts pleasing to view
12. Use symbols, words or colours to explain the chart
13. Use lines and bars in only one dimension
14. Compare like units and avoid comparing unrelated units

Poster

Poster is a placard displayed in a public place with the purpose of creating awareness amongst the people.

A poster is generally seen from a distance and person glancing at it seldom has the time or inclination to stop and read. The job of the poster is to stop the hurriedly passing persons, thrust the message upon them quickly and lead them to action immediately or eventually.

The standard sizes of posters are 26X38 cm, 38X51cm, 46X56 cm, 51X77 cm.

A good poster should have the following properties

1. It must be able to attract attention
2. It must convey the message quickly
3. It must lead to action

The A B C's of poster making are,
make it:
Attractive
Brief
Clear

Components in a poster

1. **Picture or Illustration:**
   It should be such as to bring out the message clearly at a glance. If it is a drawing, the actual thing be shown should be brought out in bold relief. Avoid unnecessary details so that the viewer's attention is not confused. If you use a photograph, avoid unwanted surroundings and bring out the point prominently. While preparing illustrations keep in mind the experience of the audience and use objects familiar to them.

2. **Caption in words:**

   The caption should be as small as possible. A five word caption is the best. Never write the caption vertically as it creates difficulty in reading. Do not break the caption.

3. **Colour:**
   Use bright attractive colours. The centre core can be highlighted with a more prominent colour. Even in the caption some prominent word can be given a different colour. Do not use more than three colours, otherwise it may be confusing. Do not use odd combinations of colours.

4. **Space:**
   If a poster is loaded with pictures and words the viewer gets lost. So provide adequate space.

5. **Layout:**
   It should be well balanced so that the viewer's eyes can travel smoothly and quickly through the caption and illustration. It should hold his attention and clearly bring out the message to the viewer.

6. **Check:**
   After the rough layout is complete show it to some people of the level of your audience. If there is any misconception or ambiguity, remove it.

   The poster should recommend action. It should be placed where people pass or gather. It should give only one idea and details should be given through other media.

In general a poster should contain three main divisions. The first part usually announces the purpose of a project or programme. The second sets out conditions. The third recommends actions.

Boy or Girl-
Equal for Nation's Development
- Do not discriminate us !

Points to be considered when making a poster:

1. Support local demonstration, exhibits or activities contain dramatic pictures that will cause people to stop and look
2. Tell the story at a glance, use
3. One idea
4. Few words
5. Plain, bold lettering and lines
6. Simple colours – not more than three
7. Plenty of everyday living
8. Must be timely
9. Must be large enough to be easily seen -22''*28'', 28''*44'' etc.
10. Place posters where people pass or where people gather. Follow it with other device such as meetings, demonstrations, films, etc.

Some extra hints

Decide exactly who your audience is

- Put down on a sheet of paper words and rough pictures that express your message simple and clearly
- Try to put your message into viewer's words, a concise striking slogan
- Rough out your poster in small scale-1/8 or ¼ actual size- so that final picture may be made by an artist

Leaflet

Leaflet is usually a single sheet of printed matter, sometimes folded. It gives accurate or specific information on a particular topic. It is intended to

1. Provide precise and reliable information told in simple language about a single practice or items of interest.
2. Serve immediate needs of the respondents.

Procedure:

1. Decide on your message select topics related to the urgent needs of the community have one simple practice of the idea at a time.
2. Select the most important one from the essential points this forms the central theme.
3. Jot down all appropriate points, declare the essential points, finally arrive at the desirable points.
4. List the remaining essential points in logical order and group the desirable points under the appropriate essential points.
5. Write your script, with all essential points in sequence.
6. Make the most important points to catch the readers interest.

7. Write in simple short sentences. Use easy language which can be understood easily by everybody.
8. Use familiar words and be clear in your writings.
9. Be accurate in your information.
10. Use illustrations and pictures in the appropriate place.
11. Give your letter "sales appeal " with a pleasing appearance.
12. Tie your closing with an action note.
13. Wide and even margin in a letter contribute to the ease of reading.

Advantages:

- Economical, relatively easy and quickly prepared and can be preserved and used by the readers
- Supplement other information and media
- Can be used in schools and training programmes and as a basis for discussion in meetings
- Commercial organizations and theaters commonly distribute leaf letters for publicity
- This can be used in field days, college days.
- Attractiveness of leaf letters can be increased by using different colours of papers or inks or by illustrations or photographs.

Folder

Folder is a single sheet of paper folded once or twice and open material is presented in sequence and make sure this sequence appeared in finished folder.

1. Folders are normally printed on paper heavier than flyer.
2. Paper usually prepared on offset or heavier paper
3. They may be made more attractive by using photographs, line drawings, various colors of ink and line graphs.
4. Folder size 4'*8' is more attractive
5. Width to length ration of 1:1.5 is more suitable and paper size permits without waste, but there is not a set rule on size.

Advantages:

- Economical
- Used for more sophisticated audience

Pamphlets are an important way of getting information to the community. You can use them:

1. To mobilize people to support your cause
2. To advertise a meeting or specific event
3. To popularize your slogans and messages.

Pamphlets

Pamphlets are very useful especially in areas where there is no easy access to newspapers and radio. It is a direct way of communicating with your constituency, but it can also be very expensive. Organizations can easily produce pamphlets but it is essential that you are clear about the aim of the media, who you are targeting, and what you want to achieve by doing it before spending lots of money.

Pamphlets should be used when you want to give people more information than you can put on a poster, for example to:

1. explain an issue to the community
2. inform people of their rights
3. win support for a campaign you are running
4. win support for your organization's point of view

Pamphlets are much cheaper to produce than posters and you can usually produce small pamphlets in A5 size (half the size of a normal A4 page) for less than 10 cents each. You can produce pamphlets by photocopying them yourselves or printing them on a duplicator or by taking them to a professional printer. It is important to produce pamphlets that attract attention and make people want to read them. You can also waste a lot of money if you print pamphlets and then do not distribute them properly.

Communication approaches- individuals, Group and mass

A method is a procedure or process for attaining an objective. The method of communication or choice of a channel is also known as extension teaching method. This generally depends on the number and location of the target audience and the time available for communication. The communication methods or extension teaching methods are categorized as *Individual methods*, *Group methods* and *Mass methods.* Each of the methods has both advantages and limitations. The extension agent has to choose a particular method or combination of methods according to the needs of the situation.

Individual method

In this method, the extension agent communicates with the people individually, maintaining separate identity of each person.

Method applicability

This method is followed when the numbers of people to be contacted are few, conveniently located close to the communicator and sufficient time is available for communication.

Examples: Farm and home visit, farmer's call etc.

Advantages

1. Help the extension agent in building rapport
2. Facilitates gaining firsthand knowledge of farm and home
3. Helps in selecting demonstrators and local leaders
4. Helps in changing attitude of the people
5. Helps in teaching complex practices
6. Facilitates transfer of technology
7. Enhances effectiveness of group and mass methods
8. Facilitates getting feedback information

Limitations

- This method is time consuming and relatively expensive
- Has low coverage of audience
- Extension agent may develop favoritism or bias towards some persons

Group method

Definition of group: A group may be defined as an aggregate of small number of people in reciprocal communication and interaction around some common interest.

In this method, the extension agent communicates with the people in groups and not as individual persons.

Method applicability

This method is adopted when it is necessary to communicate with a number of people simultaneously, who are located not far off from the communicator.

Examples: Method demonstration, group meeting, small group training. Field day or farmer's day and study tour.

Advantages:

1. Enables the extension agent to have face- to-face contact with a number of people at a time
2. Can reach a select part of the target group
3. Facilitates sharing of knowledge and experience and thereby strengthen learning of the group members
4. Reach fewer people, but offer more opportunities for interaction and feedback
5. Satisfies the basic urge of people for social contacts
6. Motivate people to accept change due to group influence
7. More effective than mass method in stimulating action
8. Less expensive than individual method due to more coverage

Limitations:

- Wide diversity in the interest of group members may create a difficult learning situation
- Holding the meeting may be regarded as an objective in itself
- Vested interests, caste groups and village factions may hinder free interaction and decision making by the group members

MASS METHOD: In this method, the extension agent communicates with a vast and heterogeneous mass of people, without taking into consideration of their individual or group identity.

Method applicability

This method is adopted where a large and widely dispersed audience is to be communicated within a short time.

Examples: Campaign, Exhibition, Newspaper, Radio and Television

Advantages:

- Suitable for creating general awareness amongst the people
- Helps in transferring knowledge and forming and changing opinions
- Large number of people may be communicated within a short time
- Facilitates quick communication in times of emergency
- Reinforces previous learning
- Less expensive due to more coverage

Limitations:

1. Less intensive method
2. Little scope for personal contact with the audience
3. Little opportunity for interaction with and amongst the audience

4. Generalized recommendations hinder application by individuals
5. Little control over the response of the audience
6. Difficulty in getting feedback information and evaluation of results

Concept and principles of teaching & learning in Extension

Teaching

Meaning and Definition

Teaching is the process of arranging situations that stimulate and guide the learning activity towards the goal that specify desired changes in the behaviour of people. Teaching consists of providing situations in which the important things to be learned are called to the attention of the learners, their interest developed, desired aroused and action promoted.

It is defined as the process of providing situations in which learning takes place.

It is a purposeful process where communication takes place with sympathetic sharing and clearly explaining subject matter to the student.

Criteria for effective Extension Teaching:

1. Extension teaching requires specific and clearly defined teaching objectives. Teaching must be clearly conceived and specifically defined. There must be clear –cut concept about the end product, i.e. what is going to be achieved.

   Factors to be considered for deciding on the teaching objectives

   - People to be taught
   - Behavioral changes to be developed in people
   - Content or subject matter to bring the desired change in behaviour
   - The real life situation in which the action is going to take place
2. Extension teaching requires a suitable **learning situation**
3. Extension teaching requires effective communication
4. Extension teaching requires both content and method
5. Extension teaching must be looked upon as an intentional process
6. Extension teaching must accomplish certain kinds of educational changes in relation to the subject matter taught
7. Extension teaching requires careful evaluation of results

Learning

Meaning and Definition

1. Learning is the process by which an individual, through his/her own activity, changes his/her behaviour.
2. Self activity is influenced by the student's abilities and efforts to bring about the change in behaviour.

3. A process of progressive behaviour adaptation. It takes place within the learner when one feels the need and strives for fulfilling the needs.
4. Learning is the goal of teaching

Process: Means a course of procedures, something that occurs in a series of actions or events conducting to the desired end.

Principles of Extension Teaching

Keeping in view the field extension agencies' problems and responsibilities following thirteen principles have been suggested which may be practiced for educating adults in informal settings.

1. **Principle of cultural difference:** The first important principle is the principle of cultural difference. For teaching to be effective the approaches and procedures must be suited to the culture of the people who are taught. The extension work is not same in all the parts. An important reason is that the cultural background of the people is different. It is different from area to area.
   When a new extension agent goes into a community she learns about:

   - Its history and cultural background,
   - What values the people hold dear,
   - How they proceed to reach their values,
   - What organizations exist, and
   - Who are the leaders in the community?
   - The gender discrimination
   - Social issues and problems of the women, adolescent girls and children.
   - Technological interventions both at home & farm.
   - How women are augmenting their income both at farm and home.

   An extension agent must be alert to these differences if her work is to be effective.

2. **Principles of cultural change:** Change is the essence of growth and progress. With its growth and development extension has changed to meet cultural changes among the people.
   The confidence of the people had to be won at the beginning or start of extension work. During the early days personal service was a key feature of the work. Rural people had to be convinced that extension agents had something of value to them, that science has practical value to rural people in the things they were mostly concerned with. The agent does this largely through personal help to an individual farmer or rural women who has the respect of his/her neighbors. When the farmer/farm women or rural women found through actual trial that the recommended ideas and practices brought desired results, he/she gained confidence in the extension agent. The farmer agreed to use his farm for a demonstration of a recommended practice. The malnourished children's condition has improved with the intervention of the home science. Neighbors came and saw for themselves and told other. The word got around. The extension agent was worth something to them. They took ideas and practices based on the best scientific research

and applied themselves. They had confidence in him/her. They could discuss their problems with him/her.

The educational structure of extension work grew. From these little beginning points it spread over the community slowly in some places and more rapidly in others. In the early days of extension work, emphasis was on improved practices in good production. Today there is increasing emphasis on improved marketing practices. Today rural women through their Self Help Groups (SHG's) entered into marketing their produces unlike previously by men. As needs of rural people change, extension work has changed. The emphasis in extension work years ago were quite different from those of today. Likewise those of today are quite different from the emphasis year ago. Extension work changes as conditions change.

3. **Grass-roots principles of organization:** Group of rural people in local communities sponsor extension work. Country extension workers enlist the interest of these local groups in farm and home practices and programmes originating and fed the programmes to the local conditions. In many communities the initiation of extension work was fostered by the agricultural college, but the work was not introduced until there was a local group sufficiently interested in sponsoring it. The aim of the local group was to demonstrate the value of the new practices or programmes so that more and more families would participate.

4. **Principles of cooperation**: Extension work is cooperative. The basis for its operation is cooperative agreements made between department of agriculture, agricultural colleges, and the rural people themselves. The extension service cooperate on national programme, so that rural people may understand the provision and decide whether the programmes will contribute to their welfare.

5. **Principle of interests and needs:** Extension work is a system of voluntary education.
To be effective it must begin with the interests of families. It must meet those . interests, and use them as a spring board for developing further interests. Many times the interests of the rural people are not the interests of extension worker. Even though he see the needs of the people better than they do themselves.

6. **Participation principle - learning by doing**: Growth results from participation in the solution of problems. Good extension effort is directed toward assisting rural families to work out their own problems rather than giving them readymade answers. People who study their own problems and work out solutions are more likely to assume responsibility for their own programmes and develop leadership in their work. Experience in these things creates self confidence. They learn by doing.
In developing responsibility for leadership, a local farmer is frequently called upon to preside at a meeting. The extension agent usually sits in the audience and is called upon for scientific information relating to the discussion. At times he may act as secretary of the meeting.

It takes patience and time in getting people accustomed to participate in group work, to reach the point where they assume initiative and responsibility. They learn through encouragement and by doing. Education is often a slow process.

7. **Adoptability principle in the use of teaching methods**: People differ from one another. Groups differ from other groups. Conditions differ. No one teaching method is effective under all situations. Reading materials are useful and effective for those who can read; radio programmes for those who have radios; meeting for those who can attend; demonstrations of recommended practices are for those who can see the farm on which the demonstration takes place. Farm and home visits are the most valuable method, but take considerable time.
Extension agents have found that they need an inventory of teaching methods from which to select to suite local conditions. They think of their set of methods as a kit of tools to draw upon in getting a teaching job done, much as a scientist in his laboratory has equipment to draw upon in getting a research job done. At times new methods must be devised to meet new situations and changing conditions. The use of teaching methods must have flexibility.

8. **Leadership principle:** It is not possible for village extension worker to reach to thousands of families personally. But he/she can do so if he/she is able to identifying voluntary workers from the communities. Such leaders are not to be imported from outside, but they are there. It is merely a question of identifying, encouraging and training them. These leaders are local people. They are unpaid, in the training and visit programme this approach was used very much by local leaders to multiply the educational efforts of extension agents manifold.

9. **Principle of trained specialists**: For continuously keeping the extension agencies informed of latest technology development, the directorate of agriculture/Home Science specialist, and governments work as connecting link between research and practice.

10. **Satisfaction principle:** As rural families observe satisfactory results of extension work they look to it for more help. The principle needs little elaboration. It is the key to the success of the work. It is the key to develop local volunteer leaders, who receive no salary. Extension agents are quick to see that volunteer leaders must obtain more than money satisfaction if the leader agent, for the work well done, encourages continuing volunteer leadership.

11. **Whole family principle:** Extension work is of the whole family or of both the sex of family, boys and girls; men and women. There is work in agriculture for the men and home extension for the women. Projects in agriculture and home making are designed to develop leadership and to create favourable attitudes towards the use of scientific information. Discussion programmes are held timely and important questions are encouraged.

The boys and girls who have participated in the activities have greater confidence than other   boys   and   girls.

Although extension work among farmers, farm women and youth appears to be separate at first glance, there is much overlapping and integration in the family approach of extension work.

12. **Evaluation principle:** Extension work is based on a belief of scientific method. Careful studies are made to determine how well the work is progressing, the degree to which extension is reaching, where and what can be done to improve it. The effectiveness of the work is measured, so far as it is possible to measure the people resulting from the teaching process.

13. **Principle of applied science and demoncracy:** The methods of science are an essential part of the democratic process. Extension work seeks to accomplish this in agriculture and rural living. Extension work translates scientific findings developed in the laboratories and on experimental farms in such a way that farm families can voluntarily adopt them to fulfill their own needs.

The results of research give a factual basis for the correction of common superstitions and unfounded beliefs that arose in the past from inaccurate observations and were passed along from generation to generation in the folk ways of the people.

Principles of Learning and their Implications for Teaching:

1. **Principle of Association:** Learning is a growth like and continuous .The kind of learning that takes place is the results of the kind of experiences we have. Experiences that occur together tend to recur together. Previous learning always sets the stage for subsequent learning.
Implications For Teaching

   - Begin at the level of the learner.
   - New must be related to the old.
   - Adjust the pace to the learner's capacity, one idea at a time.
   - Bring the idea to the attention of the learner repeatedly (in a variety of ways) and over a period of time.

2. **Principle of Clarity:** Learning is purposeful. Learning varies directly with the meaningfulness of the material presented. Learning is increased when the learner sees the end sought by the practice.
Implications For Teaching

   - Learning must make sense to the learner.
   - Progress must be constantly appraised and redirected.
   - Purpose must be kept in sharp focus; (objectives must be clear to the learner and teacher).

3. **Principle of Self-activity:** Learning results through self-activity. It is an active process on the part of the learner. Teachers can only set up the learning situation and stimulate a person to learn. The door to learning is "locked on the inside" and unless the learner opens the door himself, learning cannot take self.
   Learning involves appropriate activities that engage a maximum number of senses.

   Implications For Teaching

   - Activities appropriate to the specific learning situation must be used.
   - Learning activities should engage a maximum number of senses, by using audio-visual aids. Senses are the gate-ways to learning.

4. **Principle of Readiness (Motivation) and Principle of Rewards (Satisfaction):** Learning must be challenging and satisfying. Readiness does not connote mere desire to learn; it includes social and intellectual maturity as well. The more fully a person is in readiness to act in a certain way, the more satisfying it will be for him, and the more annoying if he is prevented from it. When not ready to act, he is annoyed if made to act. A favorable attitude accelerates learning; a bad attitude retards learning.
   Without drive or interest a person does not learn. Consequently, learning depends primarily upon satisfaction of wants or needs, in other words, upon success. Rewards maintain and strengthen the learning process.

   Implications For Teaching

   - Teacher motivation of the student is essential in making learning more challenging.
   - Standards demanded of the learners should be suitable to their ability or capacity.
   - Appropriate and timely recognition should be given to the student achievement.

5. **Principle of Practice** (or Law of Exercise): Learning must result in functional understanding. Memorization alone is temporary unless reviewed or put to use in a practical situation. The oftener a situation evokes or leads to a certain response, the stronger becomes the tendency for it to do so in future. Practice leads to perfection; (not mere countless repetitions).
   Implications For Teaching

   - Course content should be organized into meaningful units.
   - Theory should be related to practice.
   - Provide activities that stimulate actual use situations.

6. **Principle of Disassociation**: Learning is affected by emotions. The intensity of emotional feeling affects learning differently in different individuals. The most effective way of eliminating an undesirable response is to set up a desirable substitute, which must he made more satisfying than the original (undesirable) reaction.

Implications For Teaching

- Strive to increase pleasant emotions and decrease unpleasant emotions of students in connection with the learning process.
- Train the expression of emotions in the right direction.

7. **Principle of Timing:** Learning takes place more readily when the facts or skills are given at the time or just before the time they are to be used in a serviceable way.
Implication For Teaching

- Select the appropriate time, depending on the learning activity: (neither too early, nor too late).

8. **Principle of Environment:** Learning is affected by the physical and social environment.
Implications For Teaching

- The general physical environment includes physical facilities should be suitable to the kind of learning taking place.
- Specific physical factors of the meeting place should be suitable to the activities selected for use in the learning situation.
- The teacher should recognize and utilize the effects of the social environment on learning.

Summarizing the major points, Optimum learning takes place :

- When the learner is in a state of physiological and psychological readiness.
- When he repeats at intervals, the learning series which is to be mastered and
- When that series is accompanied by an emotionally satisfying experience. The major task of the teacher is to arrange the learning situation so that these conditions prevail.

9. **Principle of transfer:** Application of perceived relationship to another situation in which it is applicable. Unless knowledge or learning can be applied in a new situation, it remains very much restricted.

10. **Principle of set or attitude:** An unfavourable attitude or set retards learning and a favorable attitude accelerates it. Unless attitude becomes favourable, adoption will not take place.

11. **Principle of clarity of objectives:** The objective of learning should be clear. The ease of learning seems to vary directly with the meaningfulness of the material presented. Meaningful learning is interesting and easier than senseless learning.
In addition to understanding the principles underlying how adults learn, training must also plan experiences and activities that maximize the learning of trainees. Edgar Dale's

'Cone of Experience', as modified by Sheal (1989), provides a linkage between learning, activity and participant involvement.

Teaching- Learning Process

Teaching-learning has four aspects:

1. Teacher
2. Learner /Student
3. Learning process
4. Learning situation

The teacher creates the learning situation for the student. The process is the interaction between the student and the teacher. Teaching and learning relationship or interaction may be explained with the help of a diagram.

Teaching – Learning process and teacher-taught interaction

Teaching-learning process is a means through which the teacher, the learner, the curriculum and other variables are organized in a systematic manner to attain pre-determined goals and objectives.

Teaching-learning process implies that all the various elements of the teaching-learning situation have to be brought into an intelligible whole. The teaching-learning activities are varied and complex to be harmonized. These elements and activities include learners and their individual differences, the methods of teaching, the material to be taught, classroom conditions, teaching devices and aids, questioning, answering, assignments, thinking, enjoying, creating, practical skills, discussions and many other things. Thus teaching –learning process is influenced by the totality of the situation.

Important characteristics of the Teaching-Learning Process

Teaching and learning are interlinked. We cannot think of teaching without learning. The teacher teaches and the students learn. It is therefore important to make teaching-learning sound more effective, and for this we should look into various aspects critically so that the teaching-learning will be inspirational and relevant.

1. **Command, planning and organization of the subject matter or content and activities**
   The soul of effective teaching –learning is good command of the subject matter, organizing the subject matter and using dynamic and progressive methods of teaching and learning by the teacher so that the students can grasp the subject matter easily and at the same time the class will be in control and discipline.

2. **Appropriate class control and discipline is one of the most important characteristic s of a successful teacher**
   A good teacher is one who can control his/her class not through fear or high handedness but by virtue of his/her interest in the learner, good command on the subject-matter and

the ability to present it interestingly and effectively. The learners also appropriate good teaching and co-operate the teacher in the teaching-learning process.

3. **Psychology of learners**
Teaching-learning will be more effective only when the teacher consider the interests, abilities, aptitudes and limitations of the learners. The teacher must learn to understand his/her learners and encourage them and has to practice tolerance and patience in dealing with the learners. The participation of the learners is very important and necessary if the teaching-learner has to have a broader and meaningful process.

4. **Evaluation**
Evaluation has an important place in the teaching-learning process. A teacher should carefully evaluate his students to find out how they can make more progress. Self-evaluation by both the teacher and student is very important.

Steps in Extension Teaching

To bring the desired changes in the behaviour of people, the extension teacher should organize activities so that there will be repetition of the desired behaviour, each successive repetition building on the one before it. This conscious attention to organization of teaching activities in a sequence greatly increases the efficiency of learning. This is the advantage of an educational programme over incidental and occasional exposure to learning.

Extension teaching is a planned and deliberate act on the part of the extension agent. The extension agent has to move step by step in a scientific and logical way to impart training to the clients who are farmers, farm women and rural youth. The role of the extension agent is that of a facilitator and motivator. These are some steps which are basis to extension teaching.

The extension teacher therefore plans and arranges situations and activities whereby the thing to be learned is called to the *attention* **of the prospective learner, his** *interest* **developed,** *desire* **aroused,** *conviction* **created,** *action* **promoted and** *satisfaction* **ensured.**

1. **Attention:** The first step in extension teaching is to make the people aware of new ideas and practices. The people must first know that a new idea, practice or object exists. This is the starting point for change. Until the individual's attention have been focused on the change that is considered desirable, there is no recognition of a problem to be solved or a want to be satisfied.
Mass methods like radio, television, exhibition etc., and personal contact by the extension agent, contact through local leaders is important at this stage.

2. **Interest:** Once the people have come to know of the new idea, the next step is to stimulate their interest. This may be done by furnishing them more information about the topic in a way they will be able to understand and use.
It is necessary to present one idea at a time relevant to their needs. Personal contact by the extension agent, contact through local leaders, farm publications, radio, television etc., are important at this stage.

3. **Desire:** It means un-freezing the existing behaviour and motivating the people for change. At this stage it is necessary to emphasize on the advantages of the new idea or practice.
   Visit to demonstrations, farm publications, personal contact by the extension agent, group discussion etc. are important at this stage.

4. **Conviction:** It is a stage of strong persuasion so as to convince the people about the applicability of the new idea or practice in their own situation and that it would e beneficial for them. The people are furnished with adequate information about the idea and how it works.
   Field day or farmer's day, slide show, personal contact by the extension agent and training are important at this stage.

5. **Action:** This is the stage of putting the idea or practice into operation. Small scale demonstration with supply of critical inputs may be set up in real life situation of the individual who come forward. This provides the opportunity of direct experience on the part of the learners. At this stage it is necessary to collect evidence of change such as change in yield, income, employment, behaviour etc.,
   Demonstration, personal contact by the extension agent, supply of critical inputs and ensuring essential services are important at the stage.

6. **Satisfaction:** To produce lasting change, the extension efforts should produce satisfying results. Satisfaction may come from high yield, more income, and better health etc., Satisfaction reinforces learning and develops confidence, which generates motivation for further change.
   To sustain the changed behaviour, it is necessary to furnish new and relevant information about the practice on a continued basis, till change in the practice itself is felt necessary.

   Use of mass media, local leaders and persons contact by the extension agent are important at this stage. Availability of critical inputs and essential services are also to be ensured.

Concept, importance and use of following extension teaching methods- farm & home visit, discussion & meetings, field trip, exhibition, demonstration and role play

Farm and Home Visit

Farm and Home Visit is a direct, face –to – face contact by the extension agent with the farmer or homemaker at their farm or home for extension work

Objectives Farm and Home Visit

1. To get acquainted with and gain confidence of farmers and homemakers
2. To obtain and or give firsthand information on matters relating to farm and home

3. To advise and assist in solving specific problems, and teach skills
4. To sustain interest

Principles or Procedure to be followed:

1. **Decide upon the place** of the farm and home visit in the teaching plan outlined to advance a particular phase of the extension programme

   - Consider alternative methods which might be employed
   - Decide whether the visits are primarily for direct teaching or are needed to increase the effectiveness of group methods and mass media

2. **Clarify the purpose of the visit** – which are the purposes mentioned above are expected to be achieved by the visit

3. **Plan the visit:**

   - Review previous contacts with members of family
   - Check subject matter information likely to be needed- leaflets or bulletins etc.
   - Workout schedule of visits in the community to save time
   - Remote and unfrequented homes should always be kept in view
   - Consider best approach in view of individual family situation
   - Be accurate in your statements
   - Do not prolong arguments
   - Leave clear impression as to object of visit
   - If possible, hand over a folder or bulletin etc. pertaining to the topic discussed
   - Leave the farm or home as a friend

4. **Make the visit:**

   - Punctuality and consideration for the time of the farm women should always be borne in mind. Contact the farm women preferable when she is on the job
   - Be friendly, sympathetic and complimentary
   - Gain and deserve interviewee's confidence
   - Let the farm women do most of the talking
   - Speak only when she is willing to hear
   - Talk in term of her interest
   - Use natural and easy language, speak slowly and cheerfully

5. **Record the visit:**

   - Date, purpose of visit, what was accomplished and follow up commitments made
   - Make sure through appropriate office device that follow-up at appropriate time is not overlooked

6. **Follow up the visit:**

   - Send applicable literature or other things by post or other-wise

- Extend invitation to attend a meeting, if any on the concerned topic
- Make subsequent visits if and when required

Advantages Farm and Home Visit:

1. Provides extension worker with first-hand knowledge of farm and home conditions, and the view points of farm people
2. If made on request, the farmer or home –maker is likely to be ready to learn
3. The ratio of ''takes (acceptance) to ''exposures'' (efforts) is high
4. Builds confidence between the extension worker and the farmer
5. May increase greatly the effectiveness of group methods and mass media
6. Contributes to selection of better local leaders, and mass media
7. Contributes to selection of better local leaders, demonstrators and co-operators
8. Develops good public relations
9. Useful in contacting those who do not participate in extension activities and who are not reached by mass media

Limitations Farm and Home Visit

- Only limited number of contacts may be made
- Time consuming and costly method
- Attention may be concentrated on a few big and progressive persons; neglecting the large number of small, marginal, tribal farmers; landless labour and backward people which may prejudice them

Demonstration

Among the communicational and educational techniques, 'demonstrations' are the oldest, best, and simplest tools for transmitting sophisticated technology in a simple and understandable form.

Objectives of the demonstrations

1. It provides the advantages of improved practices.
2. It brings the research to the doors of users.
3. It shows the worth, value and potentialities of techniques.
4. It dramatizes by arousing interest, creating desire motivating one to action, and finally to satisfaction.
5. It fires the imagination and provides convincing results.
6. It builds confidence in; i) scientific facts ii) extension workers and iii) cooperating farmers
7. It persuades neighbourers to adopt recommended practices by demonstrating proofs.
8. It is used as a vital media for communication, dissemination and diffusion of information.
9. It upholds the principles of 'seeing is believing' and 'learning by doing'.
10. It develops local leadership.
11. It provides scientists with a 'field laboratory' and problem solving platform.
12. It accelerates and provides subject matter for training in the forms and use of extension methods.

In summary the demonstration is said to be successful if it changes the knowledge, skill, understanding and attitude of the clientele and can bring desirable changes in their total behaviour pertaining to the use of new practices or adoption of technology.

Demonstration may be;
(A) i) method demonstration ii) result demonstration
(B) i) Simple and ii) composite demonstration

Group meeting

Group meeting is a method of democratically arriving at certain, decisions by a group of people, by taking into consideration the member's points of view.

Objectives

- To prepare a favorable climate for discussion and help in better understanding of the problem by pooling the knowledge and experience of a number of persons
- To facilitate in – depth discussion by involving a small number of participants
- To generate new ideas and methods, and select the rational ones through group interaction. To help formation of opinion about a specific issue
- To develop a favorable attitude and commitment for action through group involvement
- To act as a safety valve for reducing tension

Advantages:

- Reaches a large number of people
- Adopted to practically all lines of subject matter
- Recognizes basic urge of individuals for social contacts
- Promote personal acquaintance between extension worker and village people
- Supplements many other extension methods
- Has great news possibilities and public value
- Influences changes in practice at low cost

Limitations

- Requires understanding of group dynamics and skill of the extension agent
- Village factions may hinder successful use of this method
- Group members must have some self-discipline
- A slow process and may not be suitable in crises and emergency situation

Stages in a meeting

1. **planning:**

    1. selection of topic
    2. timing
    3. selection of place
    4. selection of speaker and chairman
    5. advertisement and publicity and
    6. physical arrangements

2. **conducting the meeting:**

    1. programme procedure and
    2. audience participation

Follow-up of meeting:(1) summaries (2) press reports (3) displays (4) other methods and (5) evaluation.

Field trips

Field trips are an excellent means of providing opportunities to participants to observe and experience things/ objects/activities in natural settings. When the participants are exposed to real world, they get firsthand experience and can relate their practical experience with theory. The learners also experience sensory impressions which could never occur in class rooms but are characteristic of the environment in which the new behaviour must occur. Field trips, tours or excursions may or may not be participative learning experiences but the success depends on how well the trips are organized and executed to meet the learning objectives. Field trip should be pertinent to the need of the learner and as much appropriate as possible to real situations.

Objectives

1. To expose the visitors to a new and different situation this shall help in changing their outlook and extend their mental horizon.
2. To understand the gap in technology adoption
3. To explore the feasibility of adopting new practices in visitor's own situations
4. To induce a spirit of competition amongst the participants by showing what others have been able to achieve

The steps required for planning effective field trips are as follows

- Design experiences that meet specific objectives and needs of the participants
- Select most appropriate site for the expected learning to occur
- Plan logistics like lodging, boarding, transportation etc.
- Select individual to accompany participants during the field trips. It is extremely useful for the trainer to accompany the participants during the field trip to enhance group process of observing and studying the field situation
- Follow-up the field visit through reports and discussions
- The field trip as a training method has the advantage of giving an opportunity to the participants to observe and get first hand information in natural settings; relate their practical experience to theoretical knowledge covered in a course; discover and supplement those realities that can't be brought to the classroom situation, and break the monotony of learning. The natural setting facilities in developing interdependency when participants work in small groups of individuals and there by develop team spirit .The report writing after field trip is an essential component helps the participants to systematically collect analyze and present information.

Disadvantages:

1. It is a time consuming and cost effective process.
2. Field trip requires high coordination ability on the part of the trainer.
3. If field trips are not planned carefully then the effectiveness of this method may get lost.
4. Sometimes when participants consider field trips as a pleasure trip and sources of entertainment then the purpose of fieldtrip get diluted.
5. If the follow up of field trip is not done then it becomes difficult to analyze the success of the field trips.

Group discussions

This is an organized activity which involves free exchange of ideas to explore the causes and possible solutions of a common problem of a number of people. Thus, the group makes a co-operative effort to solve problems. It is imperative that the discussion must result in arriving at consensus at the end. During the discussion process, learners are given the opportunity to express their opinions, ideas and experiences freely and thereby, the participants learn to appreciate the viewpoint of others. Some of the problems which may be thrashed out through group discussion are environmental pollution, poverty, child labour etc.

Purposes:

- To solve a problem (decision-making)
- To exchange information
- To motivate
- To plan a programme of action
- To elect or select a person for a position
- To entertain
- To hear and discuss a report
- To form attitudes
- To release tensions
- To train individuals

Procedure:

1. Understand and adopt the proper technique. The technique of a problem-solving group discussion consists of the following six steps based on the ''reflective thinking pattern''.

   - Recognition of the problem as such by the group
   - Definition of the problem, its situation and diagnosis
   - Listing of as many solutions as possible
   - Critical thinking and testing of these hypotheses to find the most appropriate and feasible solution or solutions.
   - Acceptance or rejection of the solution or solutions by the group
   - Lastly considering how to put the accepted solution into practice.

2. See that one of the group members takes up the role of the discussion leader. Extension worker should avoid this role as far as possible, because inn such a case, a situation is likely to develop where the group listens and the chairman does all the talking.

   1. The size of group should never exceed 30 persons
   2. The role of the chairman:
   - Make physical arrangement for the meeting, so that all members feel comfortable. Seating arrangement should be such that everyone can see the faces of all other members. Circular seating is preferable.
   - Introduce members, if they are new to one another
   - Announce the topic and purpose of discussion
   - Follow a plan

- Hear all the contributions made and from time to time give short summaries of the discussion up to that particular moment, especially when the group moves from one step to another
- Build a permissive climate
- Keep the group moving at the rate at which their thinking progresses
- Give or get clarification of vague statement
- Promote evaluation of all generations
- Protect minority opinion
- Try to get balanced participation
- Promote group cohesion
- Remain personally neutral
- Give a final summary of discussion

Some Don'ts for chairman:

1. Never ask questions that suggest answers or can be answered with a yes or no
2. Don't favour one view against another when there is a conflict or difference of opinion among members
3. Never become emotional about the discussion
4. Do not become impatient with the group
5. Do not dominate the discussion or answer questions raised by the members

The role of members:

1. Talk one at a time. No private conversation with neighbours. No speech making
2. Supply as much pertinent information as possible
3. Answer questions directly, specifically and briefly
4. Test all thinking by critical analysis
5. Listen attentively
6. Stay on the subject
7. Exhibit willingness to change his opinion when change is justified
8. Support the needed leadership
9. Promote group harmony even while criticizing or disagreeing

The role of the expert (Extension worker or specialist)

There may be occasion when a group confronted with a problem does not have sufficient information to enable them to discuss intelligently. In such cases, the role of the expert is not to dominate the meeting, nor to suggest his own solution. He should only supply information, the group does not have furnish technical information, present ways other groups have met similar situations and present the immediate problem in its larger setting, with implications for integrating the solution of the problem with other group policies and action programmes.

To attain maximum advantages of Group discussion technique the following points should be considered:

- The seating arrangement of the participants should be such that they face each other and can maintain eye contact throughout.
- The whole group may be divided into smaller groups. From each group a leader or recorder may be chosen who could ensure co-operation within the group but may not influence the group decision. Sometimes, an encourager is also needed in the group.

- Group members should work out a logical plan to analyze the problem such as recognition of the problem, analysis of the problem, brainstorming solutions, analysis of consequences to the proposed solutions, finding the most appropriate solution by verifying consequences.
- The teacher /facilitator should prominently display the main topic of discussion which should be clearly visible for the duration of the discussion.
- The instructor /teacher must ensure that all the relevant facts have been considered.
- Sufficient time must be allowed for through discussion and analysis of problem
- Recorders should be instructed to record all points without bias.
- Incase of indiscipline i.e. discussion turning hostile due to exchange of heated arguments amongst the members, the teacher must intervene and bring the participants to order.
- Once individual groups are ready, the instructor/teacher should record all points/possible solutions from all groups on the chalkboard/whiteboard etc.
- Only one solution based on consensus be selected.

Advantages:

1. It is a democratic method, giving equal opportunity for every participant to have his say
2. It appeals to the practical type of individuals
3. The strength of group discussion lies in the fact that the discussants approach the problem with an open mind and suspended judgment in a spirit of enquiry
4. It is a co-operative effort and not combative or persuasive in nature
5. Combined and co-operative thinking of several persons is likely to be superior to that of isolated individuals
6. Develops group morale
7. Participants need to be good speakers or debaters'
8. It is a scientific method

Limitations:

- Factions in village may hinder the successful use of this method
- The ideal discussants with self-discipline are difficult to find
- It is not suitable for dealing with topics to which discussants are new
- In large groups especially, and even in small groups to some extent, it is difficult to achieve group homogeneity or cohesion
- The size of the group has to be limited, because the success of the method is perhaps inversely proportional to the size of group other factors being constant
- It is not a good method for problems of fact
- It is not suitable for taking decisions in times of crisis or emergency, as it is a slow process
- Due to its informal conversational style, the scope for orderly or coherent arrangement of ideas is limited

Exhibition

Exhibition is a systematic display of models, specimens, charts, photographs, pictures, posters, information etc. in a sequence around a theme to create awareness and interest in community. This method is suitable for reaching all types of people. Exhibitions may be held at the village, block, sub-division, district, state, national and international level. Though an exhibition is organized around a major theme, other related themes and some unrelated items like entertainment may also be included. Farmer's fairs and krishi melas held by the agricultural universities, institutes and various other organizations in which field visit, training programmes

are combined with exhibition are effective and popular. Exhibitions may also be organized by taking advantage of local fairs and festivals. In fixing dates for exhibition, the weather condition and the schedule of farm operations may be kept in view.

An exhibition covers three stages of extension education which are:

- *Arousing interest.*
- *Creating desire to learn.*
- *Providing a chance to take a decision.*

Objectives:

1. To inform or introduce the people with better standards about the practices.
2. To impress people to adopt better practices.
3. To develop interest in a wide range of activities.
4. To promote understanding and create goodwill towards extension service.

Technique

Planning and preparation

1. Form a steering committee and suitable sub-committees with the specialists, local leaders and administrators.
2. Decide on the theme and procure funds.
3. Decide on the venue, time and duration.
4. Prepare a written programme and communicate to all concerned in time. Keep some cultural and recreational programmes in the evening.
5. Get the site ready for display of exhibits to be brought by the farmers.
6. Arrange a well ventilated, spacious, **covered or open** area for holding meeting, training and entertainment programmes.
7. Display posters at important places. Publicize about the exhibition through mass media.
8. Decorate the stalls simply and tastefully. Make adequate arrangements for lighting. Use special – effect lights where necessary.
9. Prepare good quality and colorful exhibits which shall convey the desired message to the visitors. Use local materials as far as possible. Label the exhibits in local language with bold letters.
10. Display exhibits about 50 to 60 cm. above the floor of the stall, up to a height of about 2 meters. Maintain proper sequence. Avoid overcrowding of exhibits. Take precaution against display of insignificant and unrelated exhibits.
11. If possible, arrange action and live exhibits.
12. Train up interpreters and allot specific duties. For a long duration exhibition, arrange rotation and replacement of personnel.

Implementation:

1. Organize formal opening of the exhibition by a local leader or a prominent person.
2. Arrange smooth flow of visitors.
3. Let the interpreters briefly explain the exhibits to the visitors so that the intended message is clearly communicated. Distribute publications during visit.
4. Organize a panel of experts to be present nearby, so that the visitors who would like to know more or discuss some problems could get the desired information.

5. Conduct meetings, training programmes etc. as per schedule during the day time. Use the **pandal** at night for entertainment programmes.
6. Arrange judging of exhibits brought by the farmers and give away prizes and certificates.
7. Keep the exhibits and the premises clean. Replace exhibits as and when necessary.
8. If desired, judge the stalls on the basis of their quality of display, ability to draw visitors and effectiveness in communicating message and award certificates.
9. Conclude the exhibition as scheduled by thanking the participants and those who have helped.

Follow-up:

- Meet some visitors personally and maintain a visitor's book for comments during the exhibition to get feedback information.
- Talk to the local leaders and assess success of the exhibition.
- Ensure availability of critical inputs and facilities emphasized during the exhibition.
- Look for changes in practice in the community in the coming years.

Lay out of agricultural exhibitions on large-scale:

In such exhibitions a gate, which depicts village life, may be prepared with material available in the village. The exhibits may be grouped in sections like – agricultural information, agricultural implements, soil conservation, crops, dairy, horticultural, flower show, entomology, plant pathology, agricultural economics, extension, etc. some agencies like firms dealing with insecticides, machines and bodies like I.C.A.R., etc. may be invited to display their material. Space should be provided for film-shows, meetings, shops for tea etc.

Display:

Exhibits should be displayed and planned so as to be easily seen. Photographs, charts and posters should be prominently placed at eye-level. Material for stands, etc.as far as possible, use material available in the villages. Stands of bamboo or wood, woven with newar, kana, chatai, etc. may be prepared even charpais arranged in a U-shape can serve this purpose.

Framing:

For framing we can paste pictures on cardboard and put bamboo or wooden frames. Frames which are replaceable with catches at the back can be made. The pictures or diagrams may be framed in glass and put in wooden crates so that they are not damaged in transport.

Exhibits, specimen and models:

Good exhibits tell a story without the need of an attendant. While planning to prepare an exhibit, limit it to one idea and make it simple and large. It should be timely, durable and attractive having bold letters and few items. All parts which need explanation should be labeled.

Advantages:

1. For reaching illiterates, it is one of the best media.
2. It can help to raise the standard of certain products, its type and quality.
3. It helps the member to compare his work to others when used for that purpose.
4. It promotes or develops creative abilities to some extent.
5. At the occasions of festival, it can serve recreational requirements.

6. Where the extension work is beginning, it has a great publicity value.
7. It has an imaginative appeal.
8. It advertizes products which are available.
9. It is a learning experience.

Limitations:

- Requires lots of funds and preparation.
- Cannot be held frequently.
- It cannot be used widely.
- It cannot be repeated at the same place without making substantial changes.
- It is unable to represent all the phases of work.