Lecture one

Introduction to Television Production

Introduction to Visualization-First Visualization means it is a way a communicating with people through audio-visuals.Visualization is the process of conveying messages effectively but it requires a lot of observation, creativity, technical knowledge and experience.

In visualization where one person says something and the other totally misunderstands it differently because of understanding of language, way of perception because each have different way of perception because the point is that perception is based only on our experience.

Principles of Visual Grammar- There are few principles which we must follow during a shooting process like edges of the frame as they play an important role in composing a visual. These are the following principles in a visual grammar:-

- Headroom- The space above the object or character within a frame.
- Nose room/Lead room- The space within the frame that connects to an outside space of interest.
- 180-degree rule- It is a basic guideline regarding the on-screen spatial relationship between a character and another character or object within a scene. An imaginary line called the axis connects the characters and by keeping the camera on one side of this axis for every shot in the scene, the first character will always be frame right of the second character, who is then always frame left of the first. If the camera passes over the axis, it is called jumping the line or crossing the line.
- Shot, reverse-shot sequence-This is the basic sequence in a classical narrative construction. For example, shot of two characters engaged in a dialogue will favor one and another.

Different approaches to Visualization

- TV (Television)-An electronic apparatus that receives such signals, reproducing the images on a screen, and typically reproducing accompanying sound signals on speakers.
- Films-A sequence of images of moving objects is been photographed by a camera and providing the optical illusion of continuous movement when projected onto a screen. It is a form of entertainment, information, etc., composed of such a sequence of images and shown in a cinema, etc.
- AD films- Is a form of marketing communication used to encourage, persuade, or manipulate an audience (viewers, readers or listeners; sometimes a specific group) to take or continue to take some action. Most commonly, the desired result is to drive consumer behavior with respect to a commercial offering, although political and ideological advertising is also common.

Lecture one

Different stages of production

There are 3 different stages of production

- Pre-Production
- Production
- Post Production

1. Pre-Production- The planning stage.

There are various steps to be processed in a Pre-production stage like

- Generating Ideas- In a production an idea is the basic unit or they bring out new ideas.
- Scripting-It is the backbone of the story .Writing down the theme or the topic on which the shooting is going to be processed. It is the basic our ability to convey the story using right words and imagination.
- Writing the treatment- Treatment itself is not the total script it is just the synopsis or indicator of the whole story.
- Storyboarding- Pictorial representation of shots in a sequential order. It is very handy during shooting shorter videos like commercial or public service messages.
- Planning- They plan about the following

- Location Hunting- Searching for a good or perfect location for the script.
- Budgeting- It is the producer's responsibility he/she should have the knowledge of the amount of equipments, production, personnel and transportation.
- Requisitioning Facilities & Equipments- We clearly need to specify the kind of equipment we need for production purpose. Even a small missing cable will lead to rising of cost in production.
- Procuring Permits- The production manager must get permit from the shooting location before the crew lands up.
- Shooting Schedule- It is like a class time table in which it shows what we will be shooting on a given say. It must be given to all the personnel (Director, Production Assistant, Video Editor, Sound Editor, Graphics Artist, Special effects engineer, Video tape log assistant, Dubbing Editor, Dubbing artist)
- Briefing the Crew- They brief the crew member before the shoot is crucial. It is done because they must know their role and responsibilities during the shoot.

2. Production- The shooting stage.

   - Managing Video Equipments while travelling.
     - Video tapes.
     - Batteries
     - Managing the Camera
     - Camera Movements
     - Zoom
     - Focus
     - Composition
     - Managing the Light & Audio Equipments.
   - Blocking, Rehearing & shooting-Rehearsing helps out in bringing out good output. Blocking means viewing the shots with the actor to know the camera movements without recording and it helps to avoid mistakes.
   - Planning & Executing Shoots-In which we execute the pre-planned work on the shooting spot with the characters.

- Handling the Master Shot- First Master shot means Entire scene shot in one long shot, Next it is broken down into various shots like Mid Long Shot, Close-Up shot, Over-shoulder shot etc...
- Dealing with Visualising Problems- To avoid spiritual and philosophy problems.

3. Post Production- The completion stage
    - Logging-Helps to rewind and forward the tapes again and again. It helps to locate the scene in correct position.
    - Editing- The process of selecting and re-recording the footage and eliminating the bad.
    - Promotion & Distribution of the movie.

Personnel for Video Production

- Executive Producer- He is the boss of the production team & supervises. As the administrative head of the team, the Executive Producer is appointed normally for a series of programmes.
- Director/ Producer- He is the one who approves the script. In smaller productions, the producer and director may be same. As the creative head of the production, the producer is in charge of the technical aspects of a production.
- Scriptwriter- He writes the script for the production and he is responsible for coming up with creative ideas and translating them into words that will be used in the making of video. In the case if fiction, based on the storyboard and synopsis, the scriptwriter pens the script.
- Production Assistance- He is responsible to make sure the script, talent, the production, the production crew before the shoot proceeds. Other responsibilities include holding rehearsals, organizing on location and co-operating.
- Production Manager-He is responsible to take care of production and production within budget. He ensures that equipment, transport, talent, crew are in place for the shoot. Managing the crew production team and also hiring equipments and personnel for the post production.
- Cameraperson- He works with lighting director and set designer to get the right mood and picture for the video. A cameraperson composes and reflects the mood that the director desires for a shot.
- Set Designer- He is responsible for all the sets and looks at the location. He has number of people working with him for designing the set. He takes charge for procuring the right material to erect sets, decides on the place and size of the sets.
- Lighting Director- He is responsible for in charge of rigging up and controlling all lighting equipments working with a number of assistance (also called gaffers) and electricians. He makes sure that the set is well lit up as per the technical and aesthetic requirements of a shot.
- Make-Up Artist- He designs and applies make-up to all artistes. The make-up artist is helped, in the case of bigger production, by assistant make-up artist and hairstylists.
- Costume Designer- He designs costume for the talent in a production. The CD makes notes on the brief of every character in the video and what costumes and accessories suit a character.

- Choreographer- He is in charge of all composing dance sequence in a production. Often working with a number of assistants and working in close co-ordination with the director, the music composer, set designer, cameraperson, and lighting director.
- Properties Manager- He is responsible for all the properties needed on a set are ready. Properties required for the particular shoot.
- Audio Engineer- He is in responsible for overall sound levels, balance and quality of sound. He is in charge for overall sound levels, balance, and quality of sound. He is also involved in post-production during dubbing, mixing tracks, etc
- Electrical Engineer-He is responsible for all power requirements for production. Manages all equipment, right from a power generator to cables and connectors.
- Music Director- He is in charge of music requirements for a production and composes original tracks or use available music with permissions.
- Graphic Engineer- He is responsible for graphics used on the video.
- Video Editor- He is responsible who operates production equipment-the linear & non-linear editing machines. He works in close association with director in making creative decisions in shaping the production. In smaller production, the VE also creates graphics. In large productions involving complex graphic work.
- Talent- Actors who are playing a role or those who appear in front of the camera as themselves-newscasters, anchorpersons, interviewers, personalities, contestants. They are non technical workers like directors/producers, scriptwriters, set designers etc...

Personnel for News

- News Editor- He is the captain of TV news as he is responsible for all news appearing on the channel. The NE sets the policies, hires and fires other personnel, and works with other department in the channel. The NE provides direction to the channel.
- News Producer-He is the one who collates & packages stories from various sources for a bulletin. She also ensures that all videos/audios/graphics required for a story are in place.
- Chief reporter/assignments editor- He instructs reporters and camerapersons to cover specific events. The CR depends on press notes or engagements or personal contacts to assign a story.
- Reporter/Correspondent- He ensures that the visuals required for a story reach the station. The reporter also does interviews, vox-populi (voice of people), piece of camera (stand ups) & writes story for a newscast.
- Cameraperson- He operates the camera to cover an event. He is responsible to provide good visuals and cutaways as also good audio required for a story.
- Video Editor- He edits the video inputs from the reporter in accordance to latter's story script. He also transmits the edited story to the station through VSAT (Very Small Aperture Terminal).
- Voice-Over Artist- He provides the commentary. He provides background commentary for the news story.

- Anchor/ Newscaster- He reads out in Lead-in to a news story. They also interviews experts on the panel on live shows.
- Weathercasters/Sportscasters-He present weather or sports report.
- Multimedia Producer-He ensures that all stories are written for the channel websites and update it on regular basis. He ensures images, graphics and illustrations and all other content on the websites.

Video and Broadcast Technology

Analogue & Digital Technology

Definition-Almost everything in the audio-video world is either analogue or digital. 'Analogue' is similar to the word 'analogues', which means similar or equivalent. The word 'digital' is similar to the word 'digit', which is used to describe whole numbers, from 0 to 9.

- Digital watches are called so because they display time without touching all the intermediate values. On the other hand, the old grandmother's clocks are analogue, because the hands move continuously moves around the clock face.
- Today all computers are digital. Digital describes any system based on discontinuous data & events. Computers are digital machines because at their most basic level they distinguish between just two values 0 & 1 or off & on.
- When we play a CD, the CD player reads the digital data, translates it back into its original analogue forms, and sends it to the amplifier and eventually the speakers.
- We have seen old radios with those huge volume controls. We operate the volume control; it operates in an analogous fashion, that is the volume increases smoothly from anywhere between volume level 1 to 2.
- Now let's see the volume control in television with the help of remote control. It increases volume level 5 to 6.
- While the volume control on old radio can be termed as analogue, in analogous mode we can move in parts and the volume control of television set can be termed as digital, in digital mode we can only move in wholes.

How does a Television Set Work?

- At the heart of television monitor is a Cathode Ray Tube (CRT). The CRT consists of the screen and cone combined into a unit, and within this is positioned the electron gun and the shadow mask.
- The electron gun produces beams in red, blue and green colours that continuously hit the screen. The inside of the screen is coated with light sensitive red, green, blue crystals called phosphors, in 480 lines.

- A magnetic deflection coil is placed outside the neck of the cone. It scans the screen. Moving left to right and up and down.

- The pictures is first created by all odd lines (1, 3, 5...480) which is scanned from left to right and from top to bottom. This is then followed by the scanning all the even lines (2, 4, 6... 480). The result is that a single scan creates half an image.
- One scan takes 1/50 sec. This means that every second 25 complete images are formed.
- The horizontal lines of two fields on a receiver or monitor screen are produced by a scanning electron beam that strikes on the picture tube and cause phosphor to glow.
- The density of the beam and the resultant brightness of the screen is controlled by the voltage level of a video signal applied between the controlling aperture and the cathode in the electron gun.
- All the colours that we see on TV are the combination of 3 primary colours red, green, and blue. A proper combination of certain intensity of each colour will result in white.

Videotapes Format

- There are four levels of quality in videotape formats: consumer, prosumer, industrial and broadcast professional. Tape generation loss is an important aspect to consider when dealing with analogue video tape format.
- During the linear editing process, there is loss of video quality as the image goes through various editing and dubbing phases.
- During non-linear the more compression is added to video, the lower the quality of the image.
- Analogue Tape- Videotape that records a representation of a continuous electronic signal.
- Composite Video- All colour, luminance, and synchronising information are carried together as a part of the same signal. Composite video was the norm until the early 1990s.
- Component Video- With component video, the luminance (black & white levels) and chrominance are transmitted as separate signals. The picture quality is superior to composite video.
- Compression- A term for the process of reducing the size of a digital file, to help with shortage or transmission, through a codec (Compression/ Decompression formula).
- Digital Tape- Videotape that records a numerical representation of how an electronic signal changes over time. A digital recording is produced from a digital file that may be compressed or decomposed as part of the recording/duplicating process.

There are few popular videotape formats

- Name –VHS & S-VHS, System–Analogue and Purpose- Mainly for home/ consumer use.
- Name –3/4" U-matic and 3/4" U-matic SP, System–Analogue and Purpose- Mainly for industrial/ broadcast purposes.
- Name – Betacam and Betacam SP, System–Analogue and Purpose- for industrial/ broadcast purposes.
- Name – Video8 and Hi8, System–Analogue and Purpose- for amateur use.
- Name – Mini DV, System–Digital and Purpose- for both prosumer and amateur use; mostly used in educational institutions for training purposes; occasionally used for broadcast purposes.

- Name – DVCPro (also known as D7), System–Digital and Purpose- for broadcast use.
- Name – DVCAM, System–Digital and Purpose- for broadcast use.
- Name – Betamax, System–Analogue, and Purpose- for industrial/ broadcast purposes.

Broadcasting Formats

- The meaning of Analogue and Digital technology, move on to understand different broadcast standards in the world. Different parts of the world have different broadcast standards.
- Television sets require a source of reference signals that tell the TV receiver to be ready to receive the next picture in the stream of images.
- National Television Systems Committee- This standard was introduced in the US in 1940 as first set of standard protocols for television. It was used throughout the US, Canada, and Japan and has been adopted in other countries as well. NTSC has 525 lines displayed at 30 frames per second. It has lower resolution than PAL or SECAM but a faster frame rate, which reduces the flicker. The first broadcasts were made in1939, transmitting 340 lines at 30 frames/sec., The composite video signal with a refresh rate of rate of 60 half frames (interlaced) per second. Each frame contains 525 lines and can contain 16 million different colours.
- Phase Alternating Line or PAL- This broadcast standard was developed by Walter Bruch at Telefunken (German State Television). PAL was introduced in Germany in 1967. It has higher resolution than NTSC with 625 lines, but uses only 25 frames per second. After several minutes of viewing a PAL video, our eyes get used to it, and the flicker becomes unnoticeable. Each of the 25 frames in a second consists of two fields (half a frame). Fields are transmitted & displayed successively. There are 50 fields per second.
- Sequential Colour with Memory- Sequential colour with memory is so named because it uses memory to store lines of colour information in order to eliminate the colour artefacts found on NTSC systems. Video information is transmitted in alternate lines, and a video line store is used to combine the signals together. SECAM uses the same resolution and frame rate as PAL, but its processing of the colour information makes it incompatible with PAL. SECAM was introduced in France in 1967, where it is still used and adopted in many former French colonies, as well as parts of Eastern Europe and the former Soviet Union. Since NTSC is recorded at 60 frames/sec as compared to the 50 frames/sec of PAL and SECAM, its recording consumes more tape per given amount of recording time.

Transmission Technologies

- Television involves production, transmission and reception technologies. When television was launched, the transmissions were on terrestrial (land-based) systems.
- Satellites used for television signals are generally in the geo-stationary orbit 37,000km (approx 23,000miles) above the earth's equator.
- Satellite television, like other communications relayed by satellite, starts with a transmitting antenna located at an uplink facility.
- Uplink satellite dishes are very large, as much as 9 to 12 meters (approx 30" to 40") in diameter. The uplink dish is pointed towards a specific satellite and the uplinked signals

are transmitted within a specific frequency range, so as to be received by one of the transponder tuned to that frequency range aboard that satellite.

- The transponder retransmits the signals back to the earth but at a different frequency band (to avoid interference with the uplink signal). The leg of the signal path from the satellite to the receiving earth station is called downlink.
- Terrestrial Television- It is also known as Over-The-Air or OTA. It is the traditional method of television broadcast signal delivery. Terrestrial television broadcasting dates back to the very beginning of television as medium itself with the first long distance public television broadcast from Washington DC in 1927. Television channels are transmitted via ultra-high frequency (UHF).
- Antennae- It receives signals from the transmitter and sends the same to the TV set through a cable. Television waves travel in straight lines rather like light rays.
- Masthead Pre-Amplifiers- They are mounted close to aerial and fed power via download, can help to improve picture quality if signals are weak or long down lead is required. Pre-Amplifiers may also give disappointing results.
- Reflections or Ghosting- Ghosting on a TV picture is caused by reflected signals from hills, tall buildings, etc arriving at the aerial a tiny fraction of a second after the direct signal from the transmitter.
- Co-Channel interference- To overcome such problems in analogue terrestrial broadcasting, broadcaster have switch over to digital terrestrial broadcasting by changing the transmission format analogue to digital.
- Satellite & Cable Broadcasting-A broadcast system in which signals that come from the satellite to the cable operator are distributed via co-axial cables to individuals subscribers.
- Conditional Access System- A TV signal receiving system wherein the subscriber can choose which channels to watch and pay for; an extension of the cable system, involving a set top box.
- Direct to Home- A TV signal receiving system in which the subscriber receives signals directly from a satellite to a small dish, involves a set-top box.
- Internet Protocol Television- A method of receiving video as a stream and viewing it on television through the internet protocol.