

History of Communications Media

Class 7

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What We Will Cover Today

- Television
 - Origins
 - Early History
 - Color
 - From Kinescopes to Video
 - Cable & Satellite
 - Notes about the TV medium
 - The Impact of TV

Television

- Definition
 - an electronic system of transmitting transient images of fixed or moving objects together with sound over a wire or through space by an apparatus that converts light and sound into electrical waves and reconverts them into visible light rays and audible sound

Scientific Basis of Television

- Television is based on the discovery of photosensitivity in 1873
 - When certain metals (like selenium) are exposed to bright light, they emit an electrical current
 - Led to the concept of converting an optical image to an electric current and then converting the current back to an image
 - Eventually led to television, the wire photo, and the fax machine

Early History of Television

- 1875 - George R. Carey of Boston proposed a system that would transmit and receive moving visual images electrically.
- 1878 – Constantin Senlecq, suggested physically moving a selenium element over an image area to create a facsimile for image transmission
- 1884 – Dr Paul Nipkow patented a scanner that rotated a disc bearing a spiral of small apertures over the image to be scanned

Early History of Television - 2

- Two crucial discoveries
 - Cathode rays or beams of electrons – discovered by Sir William Crookes in 1878
 - Thermionic emission (the Edison Effect) was identified as the cause of the blackening of incandescent light bulbs in 1883
- 1892 – Elster and Geitel devise the photoelectric cell

Early History of Television - 3

- 1897 – Karl F. Braun creates a tube that focused and deflected Crookes' cathode rays.
- 1906 – Lee De Forest invents the 3-element audion tube
 - This permits amplification not only of voice signals but also of the weak signals obtainable from image scanning systems

Early History of Television - 4

- December 29, 1923 – Vladimir Zworykin filed for a patent for an all-electronic television system employing an electronically scanned camera pickup tube and a cathode ray display tube
- 1925 – John Logie Baird and C. Francis Jenkins succeeded in transmitting silhouette still picture images via radio
- January 13, 1926 – Baird succeeds in transmitting moving images in which the gradations in tone scale make it possible to recognize facial features and expressions

Early History of Television - 5

- 1927 – Dr Ernst Alexanderson at GE begins experimental television transmissions over W2XAD in Schenectady, NY
- 1934 – NBC began transmitting electronically scanned 343-line 30 frame/sec interlaced TV
- September 10, 1938 – The RMA Standards Committee submits its proposed standards to the FCC

Early History of Television - 6

- The FCC, however, delayed approval of the proposed RMA standards
 - Dumont & Philco did not agree with them
 - CBS was working on a mechanical-electrical color TV system (which was incompatible with the RMA system) and wanted color taken into account
 - FCC felt that premature approval of standards would discourage R & D and thereby forestall the development of higher technical standards

Early History of Television - 7

- 1938 – To force FCC action, RCA announced that it would start regular TV broadcasts using the 441-line scanning standard
- April 30, 1939 – RCA begins daily broadcasting
 - The initial broadcast featured the speech of President Franklin D. Roosevelt as he opened the 1939 New York World's Fair
- May 1940 – An FCC report stated that when the radio-television engineers agreed on a standard, the FCC would authorize full commercial broadcasts
 - This led the RMA to establish the National Technical Standards Committee (NTSC) on July 31, 1940

Early of Television - 8

- March 8, 1941 – The NTSC and the television industry approve of set of 22 standards that cover all technical phases of black & white television
 - This included increasing the number of scan lines from 441 to 525
- May 1941 – The FCC approves and adopts the NTSC standards and authorized the transmission of commercial television programs, starting on and after July 1, 1941

Impact of World War II

- Shut down television broadcasting and production of television sets
- Diverted engineering talent and resources into radar, VHF-UHF-microwave band transmissions, ordnance direction, and scanning technology
 - Out of this came the image orthicon camera which produced a much sharper TV image with greater depth of field than the iconoscope

Television – Homes with Sets

Year	1948	1950	1952	1955	1956	1960	1965
% Homes with sets	3%	10%	34%	67%	81%	87%	94%

Network TV Production

- Demand for programming led the networks into TV production
 - All three networks set up television production studios first in New York City and then in Hollywood
 - 1949 – ABC purchased the old Vitagraph studio property in Hollywood and converted it to TV production
 - 1952 – CBS inaugurated program service from CBS Television City in Hollywood
 - 1952 – NBC started operations at NBC Television Center in Burbank CA

Independent Producers

- As noted in the discussion of the movies, the Studios initially saw television as a mortal threat, but independent movie producers saw TV as an opportunity
- The independents began making films – mostly crime dramas, westerns, and comedies – for television
- Among the most successful was Desilu Productions
 - The success of Disneyland with the theme park, TV programs, and movies mutually promoting each other led studios to see television as a potential ally

Color Television

- In the late 1940s, CBS developed a 405 scan line 24 fps color system that could be transmitted in the established 6-MHz television channel
- In 1949, CBS petitioned the FCC to establish standards for color television
 - At this time, there were 3 competing systems
 - CBS – Field sequential system
 - RCA – Dot sequential system
 - Color Television, Inc – Line sequential system

Color Television - 2

- October 10, 1950 – the FCC found in favor of the CBS system
 - This led to a long court fight with RCA, but the Supreme Court in May 1951 decided in favor of CBS
- June 25, 1951 – CBS began color TV broadcasting
- October 22, 1951 - manufacture of TV sets capable of receiving CBS color broadcasts was halted at the request of the Office of Defense Mobilization.

Color Television - 3

- 1950 - A second NTSC formed to devise a color TV system that would be compatible with the existing black & white NTSC system and acceptable to the industry
- July 21, 1953 – The NTSC presented its proposals to the FCC
- December 17, 1953 – The FCC approved the NTSC proposals, reversed its previous approval of the CBS system, and authorized color service to the public under the NTSC standards

Color Television - 4

- January 1, 1954 – NBC began color broadcasting with the Tournament of Roses parade in Pasadena CA
- 1954 – Networks open color TV studios, which include telecine facilities for broadcasting color movies using a 3-tube vidicon camera for scanning the film
- 1955 – First color broadcast of the World Series

Color Television

Year	% of TV Homes with Color TV
1964	3.1%
1968	9.6%
1968	24.2%
1970	39.3%
1971	45.2%
1972	52.6%
1973	60.1%

Year	% of TV Homes with Color TV
1974	67.3%
1975	70.8%
1980	83.0%
1985	91.0%
1990	98.0%
1995	99.0%

Film, Videotape, and Television

- Prior to 1948, almost all TV programming was either live or programs produced from motion picture film
 - Kinescopes (35mm film recordings of TV broadcasts from the face of the picture tube) were a common way of distributing and preserving programs
- By 1956, AMPEX had developed a 2" quad videotape recorder which it exhibited to CBS executives

Film, Videotape, and Television - 2

- April 14, 1956 – The AMPEX videotape recorder was unveiled at the National Association of Radio and Television Broadcasters convention in Chicago
 - It was a big hit and the backlog of orders exceeded a year of production
 - Videotape was used initially for time zone delay broadcasts and then later for pre-recording of complete television programs, recording of taped inserts for programs, and production recording of commercials

Film, Videotape, and Television - 3

- As time went on, helical scan formats were introduced – these permitted easier editing, still frame, slow motion, and reverse play. They also allowed tape size and videocamera size to decline, making the videocamera easily portable
- Given the cost of videotape, many TV stations normally reused videotape, so that early TV programming, unless it was filmed or kinescoped, was not preserved.

Cable Television

- Began in 1949 in Astoria OR
- Had its origin in the fact that many communities could not receive TV signals because they were outside the reception area
- Cable operators soon found that they could put their own or other locally-originated programs on unused cable channels
 - This made cable and the channels they carried (like TNT and CNN) competitors to the broadcast channels

Cable Television - 2

- Cable operators also found that they could sell their cable services in cities by supplying ghost-free images and providing additional channels and programs
 - This led to the use of pay channels who provided closed-circuit programming of either sporting events or first-run motion pictures
 - These pay channels were either cable channels (such as HBO or Cinemax) or special event theater showings (as in the case of Heavyweight championship fights)

Cable Television

Year	No. Subscribers (millions)	% of TV houses
1960	0.65	1.4%
1965	1.275	2.4%
1970	2.49	7.6%
1975	3.45	15.5%
1977	12.168	16.6%
1979	14.814	19.4%
1980	17.671	22.6%
1981	23.219	28.3%
1982	29.340	35.0%

Year	No. Subscribers	% of TV houses
1983	34.113	40.5%
1984	37.290	43.7%
1985	39.872	46.2%
1987	44.970	50.5%
1988	48.636	53.8%
1989	52.564	57.1%
1990	54.871	59.0%
1995	62.956	65.7%
1999	67.592	68.0%

Satellite Television

- Enabled cable companies to create national (such as TBS) or even international (such as CNN) networks
 - Beamed programs from one location to cable systems all over the world
 - Permitted transmission from hundreds of cable channels since cable TV and satellites were not limited to the 12 VHF or 70 UHF channels
 - Radically cut the cost of transmission, making special interest channels carrying niche programming financially feasible.

Impact of Cable & Satellite TV

- The multiplicity of channels changed TV from a broadcasting medium to a narrowcasting medium
 - Instead of three major networks offering similar-type programming, there were dozens of specialized channels that focus on topics that appeal to small audiences
- All-news channels (like CNN, MSNBC, Fox News) did to network news departments what TV did to newspapers and news magazines
 - It ended their reign as news sources and led the networks to focus on entertaining features, news analysis, and news commentary

Notes about Television

- Early conceptions of television linked two concepts
 - Visual motion imagery of spatially distant scenes
 - Simultaneity - what people saw was seen live in real-time

Notes about Television - 2

- TV has several genres
 - Many originated with radio or the movies -- news, sports, adventure program, mystery-detective program, situation comedy, Western, soap opera, variety show, talk show, and game show
 - One genre originated by TV was the media event
 - Unlike other events, it is live, out-of-the-ordinary, pre-planned, organized by some public body, usually attracts a large audience, and is often ceremonial
 - The real event is the one experienced by the TV audience, not by those physically present at the event

Notes about Television - 3

- The TV screen occupies about 15% of the viewer's visual field; the movie screen in a theater occupies about 70%.
 - The size of the movie screen and the darkness of the theater make the actor and his every action 'larger than life.'
 - The television screen, however, is smaller than life. It is not set in a darkened theater, but in the viewer's own home.

Notes about Television - 4

- Television does not communicate a sense of either the past or the future.
 - It is a present-centered, speed-of-light medium.
 - Everything we see on television is experienced as happening *now*.
- The visual & audio world of TV makes an emotional appeal rather than a logical appeal
 - TV stresses emotion-generating pictorial images over logical and abstract argument.

Notes about Television - 5

- TV has been a mutating medium, changing in both its capabilities and its relations to viewers over time. i.e. There were distinct TV eras
 - TV has had 4 distinct media eras
 - Over-the-air broadcast TV
 - Satellite- and Cable- TV
 - The VCR-DVD era of TV
 - High Definition Digital TV

Notes about Television - 6

- Over-the-air broadcast TV era
 - Limited number of channels due to limited spectrum
 - Dominance of the major networks
 - Broadcasters seek a mass audience
- Satellite- and Cable-TV era
 - Potentially hundreds of available channels
 - Narrowcasting and niche broadcasting
 - Fragmented audiences

Notes about Television - 7

- VCR- and DVD-era
 - Timeshifting
 - Permit watching of user-chosen content over broadcast content
 - Users can now see rental movies, music videos, documentary productions, or their own recorded video along with or instead of broadcast programs
- High Definition Digital TV era
 - Has more in common with the traditional movie than NTSC television
 - Permits merger of the computer and the TV

Impact of Television - 1

- Created a 'global village' in which boundaries that formerly isolated cultures had been broken down
 - Hollywood films and American television programs were now viewed throughout the world.
 - Led to the large-scale Americanization of World Popular Culture
- Decreased cultural diversity between societies and increased cultural diversity within societies.

Impact of Television - 2

- Changed radio from a broadcasting medium to a narrowcasting medium
 - Radio survived because it could target specific demographic groups (Blacks, teenagers, farmers, and ethnic minorities) that Network television tended to ignore
- Caused the most popular radio programs and stars to migrate to TV
- Changed the prime listening hours of radio from the evening to the commuting hours
 - This turned radio from an entertainment medium into an information medium

Impact of Television - 3

- Like radio in its initial phases, it created a top-down uniform mass popular culture
 - In some respects, this led to high-quality programming, especially news programming
- People's social environment expanded from people they met face-to-face to also include a whole host of media celebrities
 - Communications researchers have discovered that, for most people, these celebrities are socially real
- TV assumed many of the socializing-values inculcating functions formerly performed by the family, church, and school

Impact of Television - 4

- Changed our conception of what is a fact
 - Facts reach us, not in the form of personal perception, not as something we ourselves have seen or heard, but in the form of communications, as something we have only heard or seen on TV
- Altered the significance of physical presence at events
 - Experiencing an event no longer required physical presence

Impact of Television - 5

- There is evidence to suggest that TV has decreased our attention spans and contributed to Attention Deficit Disorder
- Television has become ubiquitous in a whole host of public spaces
 - Large screens broadcasting any number of images and advertisements can be found in most sports arenas, restaurants, airports, and shopping malls, even concert halls

Impact of Television - 6

- Television glued us to our homes, isolating us from other human beings.
 - Except for teenagers and college students, people no longer went out at night to patronize the cafes, bars, theaters, amusement parks, concerts, or dance halls that pre-TV generations patronized
 - Depending on the methodology, the average American family watches 4 to 5 hours of TV a day.

Impact of Television - 7

- Fame and Celebrity
 - Changed the concept of celebrity
 - Celebrities are persons who are both well-known and visible via the mass media
 - Prior to the 20th century, people were celebrities because they were famous – they either occupied high office or had excelled in some field that made them known to the public – e.g. business, performing arts, sports, or writing

Impact of Television - 8

- Fame and Celebrity
 - Changed the concept of celebrity – 2
 - With the invention of public relations and television, people become celebrities because they are visible in the media
 - Celebrities are known for their well-knownness
 - Because celebrity status reflects media (especially television) attention, celebrity status no longer is necessarily a result of fame or accomplishment
 - People now become celebrities simply by either media exposure or through some sort of link to a celebrity or celebrities

Television & News

- Merged entertainment with news
 - The economics of TV production required a mass audience – this means they must be entertaining
 - TV was a visual medium with an affinity for action and suspense entertainment that had many hours to fill
 - News coverage increasingly focused on the dramatic as opposed to the intrinsically important
- Created the “pseudo-event”
 - An event concocted for the purpose of gaining media attention

Television & Politics - 1

- Changed the nature of political campaigns -1
 - TV enabled candidates to reach the voters directly without the need to use intermediaries
 - Before television (and radio), candidates had to resort to mediators such as political parties and newspapers to reach the electorate
 - TV reduced political campaigns to rival television commercials, often in the form of attack ads

Television & Politics - 2

- Changed the nature of political campaigns – 2
 - TV changed political conventions from decision-making entities that actually chose the presidential nominees to coronations of a nominee chosen long beforehand
 - TV made debates a key element in the political campaign
 - TV led the media to portray campaigns as horse races

Television & Politics - 3

- Brought celebrity culture into the political realm
 - Led entertainment and sports celebrities to go into politics and embrace political causes
 - Treated politicians in the same way they treated entertainment celebrities – “tabloid politics”
 - Focused policy discussions less on how a proposed policy or policy change would affect the public and more on its effect on poll numbers or re-election chances

Television & Sports - 1

- Increased the audience for sports by enabling those not present in the stadium or sports arena to see the sport and develop an interest in it
- Created interest in previously unknown or little-known sports
 - Popularized many little-known Olympic sports

Television & Sports - 2

- Greatly popularized football
 - Television made football easier to watch
 - With its close-ups and slow-motion replay, it enabled the audience to more closely view the action
 - At stadiums with jumbotron screens, people characteristically watch the jumbotron rather than the field
 - The once a week frequency of football synchronized very easily with the once a week frequency of most TV programming.
 - This made football both a weekly habit and a special event – enough so that each game was important and an event to look forward to

Television & Sports - 3

- Contributed to the decline in the popularity of baseball
 - Baseball is a one-thing-at-a-time game with the focus on the duel between pitcher and batter.
 - Thus, baseball was well adapted to radio, where the announcer's verbal account and the listener's imagination could convey what was happening
 - Baseball did not come across as well on TV since its relative lack of action made the game seem boring and tedious
 - Baseball is a statistician's game & television is not a medium that conveys statistics very well

Television & Advertising - 1

- Continued and intensified the revolution in advertising that radio began
 - Like Radio, TV enabled the advertiser to reach into the home
 - Like Radio, TV used celebrity product endorsers
 - Even more than radio. TV enabled sponsors to identify their products with certain lifestyles and demographic groups

Television & Advertising - 2

- Substituted images of products for claims about products
 - Imagery of handsome people happily or ecstatically buying or using the product largely replace claims about what the product can do or why it is better than a competitor's product
 - Imagery that focuses on the fears, dreams, and hopes of those who buy the product largely replace factual information about what the product does

Television & Advertising - 3

- Turned sex into a form of advertising
 - Use of young, attractive, (and often scantily-clad) women in commercials
 - Use of suggestive commercials
 - E.g. the Noxzema shaving cream ad, the Swedish bikini team, & the Paris Hilton Carl's Hamburger Ad
 - Commercials that strongly imply that use of the product will get you the girl
 - E.g. the Just for Men commercial

Television & Childhood - 1

- Just as printing brought about the emergence of childhood as a separate social category, TV erased the distinction between childhood and adulthood
 - TV requires no instruction on how to watch it and it communicates the same information to everyone watching
 - TV erodes the idea that there are certain things that are not considered suitable for children to know until they reach a suitable level of maturity

Television & Childhood - 2

- The result is that we are reverting to the medieval notion of seeing children as simply young adults
 - Dress distinctions that used to differentiate children from adults have largely vanished
 - There is an increasing tendency to try juvenile offenders in adult courts
 - The use of four-letter words in front of and by children is increasingly common