CHAPTER – III
EDUCATIONAL BROADCASTING

INTRODUCTION

In many Asian countries, information technology and telecommunications have assumed an ever-increasing role in the creation of wealth at all levels. Asia includes some of the world's most advanced economies and some of its poorest. Some of the Asian countries have sustained their growth, through the adoption of an information-based economy. “There is a vast disparity in the Asian countries regarding the information and communication technologies. Some of the Asian countries have strong technological bases and well-developed human resources, while others are at the early stages of adopting information and communication technologies (ICTs).” ¹

“The digital divide is perceived by some as a key cause of growing inequality between rich and poor countries. Certain scholars state that technological innovations are the key drivers of economic growth.”¹ The innovations are based on scientific knowledge. Scientific knowledge and its comprehension are essential in our daily activities as this enables a person to reason out. Besides having the capability of understanding and reasoning, one should be scientifically literate, thereby acting as a catalyst of change. Scientific and technological developments have improved the quality of life and it is here that education plays a vital role in making the population at large aware of science, its utilization and benefits in daily life.
Biotechnology has great possibilities and can be used for the welfare of society and creation of wealth for socio-economic development. Education based on science is essential in today's technologically and economically advanced/advancing societies. All education is scientifically based and it is imperative to educate all sections of the society so that they could reap the benefits of the scientific, technological and economic innovations. The world being a global village, it is here that broadcasting plays a vital role and one finds nations giving great importance to broadcasting and thereby to education. Broadcasting has emerged to a new height, absorbing the advancements in technology, to educate, enlighten and entertain the masses.

The development of an entire country depends on education. The question arises whether these powerful media should be left to the wisdom of the State or we educationists should play our role in regulating and directing it. The state always tries to exploit these media to perpetuate themselves in power. This involves all kinds of falsification of facts. Different states have different political systems and different political ideologies. It is from this point of view that I am studying the functioning of the electronic media in various countries especially in the developing countries of Asia which have emerged from similar political, social and economic background with special focus on India. Before elaborating on the broadcasting systems of each country, I would like to point out the different approaches to the organization of the broadcast media which differ from country to country.
The three forms of organization are:

a. A market oriented model which is the unregulated broadcast system with the main aim of making profit by increasing advertising revenue. The American Broadcast media is an example of this.

b. The Regulated model in which there is a legislative framework within which the broadcasters operate. The United Kingdom is an example of this model.

c. The State Controlled Model in which the state exercises control on broadcasting by putting widespread restrictions. Example of this is North Korea, China, Pakistan, Bangladesh, Iraq and Saudi Arabia.

In view of the above it would be interesting to have an insight into the Broadcasting system of India in the light of the Broadcasting scenario in today’s world, with emerging new technologies leading to new innovations in Broadcasting.

**BROADCASTING SCENARIO IN EURASIA AND USA**

The media scene in Europe, USA and Asia differs from nation to nation. Each nation’s broadcast system is governed by its political, social and economic demands. “The advent of commercial satellite television has changed the media landscape in many Asian countries that primarily had state-run broadcasting systems. As a result, long-established broadcasters have been forced to reassess their role in a newly competitive market.”2
In the Asian region countries like China, Pakistan, Bangladesh exercise control on broadcasting by putting restrictions on freedom of the media. In the Middle East government media ownership means that the people have less of a voice and lesser opportunity to voice their opinions. In Sri-Lanka freedom of expression is provided in the constitution but political uncertainty led to a worsening condition of the media. Despite this, in Asian countries one finds that besides government control over broadcast reception, there is global expansion of satellite broadcasting and a trend towards broadcast expansion to other countries.

Thus one finds that the broadcast systems are being utilized for state run propaganda as well as for educating the masses via “teacher in the sky”.

Essential components in the broadcasting systems of the world are cable, satellite and digital technologies. India’s media is the freest in South Asia and Japan too has a free media and lays emphasis on education through the University of Air. Broadcasting in India is used to inform, educate and entertain via the electronic media. Broadcasting in the European Union aims to establish a single European market in Television called ‘Television without frontiers’. Thus promoting European integration. In UK, the media are free and independent from government interference. Emphasis is also laid on distance education via the Open University which contracts with the BBC for the production of educative programs. Broadcasting in USA is generally free though the US Federal Communications commission is for regulating the broadcasting. In Canada each broadcaster is
responsible for its own programs and a high standard of programming is expected.

Almost each country of the world is laying emphasis on education through its broadcasting via the different satellites used by them.

The broadcasting industry is changing dramatically due to new technologies such as:

a. Digital radio
b. Direct to home satellite (DTH) services
c. and multipoint distribution systems (MDS)

Thus each country is evolving and improving its broadcast system leading to a changed broadcasting scenario. The developed and developing countries have witnessed revolutionary changes in their broadcasting systems during the last two decades. Satellite, cable and digital technologies have played an important role in these changes, but further change has been brought by Deregulation and Commercialization of the airwaves. A new competitive and commercial environment has come into existence.

Broadcasting has added a totally new dimension to modern communication by bringing the outside world into the individual home. The potential of Broadcast Technology can be harnessed for:

a. Entertainment
b. Poverty alleviation programs
c. Education
d. Socio-economic development and building a strong democracy.
The broadcast and mobile communications have experienced an explosive growth leading to the expansion of the global satellite communication industry. Each country is making use of communication satellite for broadcasting nationally and internationally. “World broadcasting has entered a period of unprecedented change. A global fleet of satellites and access to a worldwide network of earth stations provides the flexibility to uplink and downlink anywhere in the world.”

One now witnesses the spread of 24 hour broadcasting. “Thousands of earth stations around the world are an essential element in the global connectivity. These earth stations include antennas, amplifiers, receivers, modems and test equipment.”

“The development of a Global satellite communication system and the development of new satellite technologies was the responsibility of COMSAT (Communication Satellite Corporation created in 1962). In 1964 INTELSAT- (the International Telecommunications satellite organization) was created and it exists till today and is a global satellite network that provides developing nations with access to communications satellites for domestic communications. The US owns more than 50% of Intelsat and Comsat has managed the organization since 1964. In 1965 Comsat launched Early Bird – The first commercial communication satellite. Today Comsat operates as the US signatory to Intelsat and INMARSAT (International maritime satellite organization). The company still sells satellite circuits to private companies and governments around the world for national and international communication.”

In Asian countries one finds
a. Global expansion of satellite broadcasting.
b. Government control over broadcast reception.
c. There is a trend towards broadcast expansion to other countries.
d. A global trend towards the digitization of broadcasting.

Essential components in the broadcasting systems of the world are:

a. Cable
b. Satellite and digital technologies

“Different cultures require different types of programming around the world. Shows like CNN have made the formats of programs uniform around the world. Countries like the US, Canada, and England have sophisticated broadcast systems, while some of the developing countries do not have this type of broadcast systems. Some countries have private broadcasters, and others have government broadcasters. Some countries have a mix of both private and government ownership. The variety of control, from complete government control of broadcasting systems to total privatization of ownership, depends on the form of government in each country. The US has private ownership, but the Federal Communications Commission (FCC) regulates broadcasting. Canada has government broadcasting by the Canadian Broadcasting Company (CBC), but they also have private ownership because they want diversity in programming. In Cuba the government has control over all stations.”

The Fusion of broadcasting and Tele-communications, has brought about the borderless-ness of broadcasting. Consequently many countries of the world are searching for a broadcasting system that can handle these changes in the broadcasting environment, and
to monitor the changes, it is necessary to understand the status of each country's broadcasting system.

Therefore it would be interesting to note the characteristics of the broadcasting systems in the Asian region, Europe and United States of America.

**BROADCASTING SYSTEMS**

**JAPAN’S BROADCAST SYSTEM**

“Press freedom is constitutionally guaranteed and generally respected in practice. Japan has a vigorous and free media. Television news content, once dominated by the public station NHK, has diversified considerably with the rising popularity of Asahi, Fuji, TBS, and satellite television.” The development and expansion of broadcasting in Japan has centered on terrestrial television and radio broadcasting services supplied by both public and commercial broadcasting stations. The Japan Broadcasting Corporation [NHK], the nation’s public broadcasting system, currently provides:

a. Satellite broadcasting
b. Terrestrial broadcasting through two television channels [NHK General and NHK Educational] and three radio channels [Radio 1 and 2 and NHK FM].

The University of the Air Foundation makes university-level education available via television and radio broadcasts. Broadcasting Bureau ensures the balanced development of broadcasting in Japan.

The Broadcasting Bureau is responsible for:
a. Planning and implementing broadcasting policies
b. For licensing and supervising broadcast stations.

Early digitalization of satellite broadcasting, cable TV and terrestrial broadcasting, in a well-balanced manner, is an important policy matter in Japan.

An important policy objective for the Broadcasting Bureau is
   a. To remove disparities in regional availability of information.
   b. To make more commercial channels available in areas with limited access
   c. To promote improved reception in mountainous regions and in urban areas where reception is obstructed by buildings.

To achieve these ends, the Bureau utilizes public investment funds to construct relay stations and joint-reception facilities and work to promote other effective measures.

Broadcasting Bureau provides assistance to the Japan Media Communication Center to make outstanding television programs available to the rest of the world and to promote the international exchange of broadcast programs.

Broadcasting in Japan is operated by NHK (Nippon Hoso Kyokai) and commercial broadcasters, based on advertising revenue. (NHK: since 1950) (commercial broadcasters: AM broadcasting since 1951, TV broadcasting since 1953) The University of the Air
Foundation broadcasts for education. (since 1981). NHK was established in 1950 to provide an abundant and high quality broadcast programs to be received all over Japan.

The University of the Air Foundation was established in 1981 to provide university-level education through broadcasting. Number of channels: 2 channels of terrestrial broadcasting [TV, radio (FM)]; 2 channels of communications satellite (CS) broadcasting (TV, radio) [started broadcasting January 21, 1998]

Commercial broadcasting includes Terrestrial broadcasting and satellite broadcasting.

a. Terrestrial Broadcasting

Terrestrial broadcasting service is provided nationwide both by TV broadcasting and by radio broadcasting.

Television Data Multiplex Broadcasting: Interactive television data multiplex broadcasting stations provide Interactive TV services connected with TV programs, news data to viewer's personal computers and other terminals, with 33 stations in operation.

b. Satellite Broadcasting:

broadcasting satellite (BS) communications satellite (CS)


Satellites used for broadcasting

BSAT-2a, JCSAT-4a, JCSAT-3, SUPERBIRD-c.

Space communication services in Japan, are provided by domestically developed satellites such as the Communications Satellite 3 [CS-3] and the Broadcasting Satellite 3 [BS-3] and also by internationally procured communications satellites. Satellite
broadcasting, covers the entire nation and is an effective solution to the problems of poor reception and provides high-quality video services, such as HDTV. Advances in satellite technologies have facilitated international television broadcasting. Japan's NHK initiated international television broadcasting in North America and Europe in April 1995. The Broadcasting Bureau provides assistance to the Japan Media Communication Center for promoting the international exchange of broadcast programs. Thus providing Japan's television programming to the rest of the world.

**CHINA’S BROADCAST SYSTEM**

China continues to place widespread restrictions on freedom of the press. The constitution, affords little protection for members of the media and ensures that the Communist Party (CP) is at the apex of political power. Media reforms have allowed the commercialization of media operations without the privatization of media ownership. All Chinese media are owned by the state. Majority of them no longer receive state subsidies and now rely on income from advertisement revenue. The CPD (Central propaganda dept) disseminates directives to media nationwide concerning mandatory use of state propaganda and indicating topics to be barred from reports.

The Chinese government regularly blocks or shuts down websites it considers politically threatening, such as those that report on incidents of rural unrest. In September 2005, new regulations were issued that increased the ability of the government to restrict internet news sites, web logs, and cell phone text messaging, which is also subject to monitoring by the government. The same content
restrictions applied to print and broadcast media also apply to internet content. Foreign internet companies have largely cooperated with the Chinese government on censorship enforcement.

“A satellite TV broadcasting system covering the whole world and a satellite TV education system covering the whole country have been established, according to the policy paper. China started to use satellites for TV broadcasting in 1985, and has formed a satellite transmission network with 33 telecommunications satellite transponders responsible for transmitting 47 TV programs and educational TV programs of CCTV (China Central Television) and local TV stations throughout the country, 32 programs of the Central Broadcasting Station domestically and abroad, and about 40 local broadcasting programs.” 7

“The white paper says that ever since the opening of satellite educational TV broadcasting programs, more than 30 million people have got college or technical secondary school education and training through it. China has also set up a satellite direct broadcasting experimental platform to transmit CCTV and local satellite TV programs by digital compression to the vast rural areas, which wireless TV broadcasting, cannot cover. In this way, China's TV broadcasting coverage has been greatly increased. China has about 189,000 satellite TV broadcasting receiving stations.”7 These satellites have been used in all aspects of economy, science and technology culture and national defense and yielded remarkable social and economic returns.
PAKISTAN’S BROADCAST SYSTEM

Pakistan’s media has grown more diverse, they continue to face a range of pressures and harassment from both the government and other sources. The constitution and other laws authorize the government to curb freedom of speech on subjects including the constitution, the armed forces, the judiciary, and religion, and harsh laws have also been used in past years to suppress the media.

Over the past several years, military authorities have used increasingly aggressive tactics to silence critical or investigative voices in the media. A number of journalists have been pressured to resign from prominent publications. Most locally-based electronic media are state owned and follow the government line, and private radio stations are prohibited from broadcasting news programming. However, a growing number of new private cable or satellite television channels and radio channels, all of which broadcast from outside the country, provide live news coverage and a much wider variety of viewpoints than was previously available.

Authorities wield some economic influence over the media through the selective allocation of advertising, and both official and private interests reportedly pay for favorable press coverage.

Pakistan Television Network, also referred to as PTV, is Pakistan's state owned television network which operates on both terrestrial & satellite.

Pakistan's Allama Iqbal Open University has dominated distance education within the country since its foundation in 1974. It runs print-centered courses, and radio and TV broadcasts. The
Allama Iqbal Open University was established under an Act of Parliament (Act XXXIX) and has the same legal and academic status as other Universities in Pakistan.

It aims to provide education to those who cannot leave their homes or jobs. The University aims to provide equality of educational opportunities to as large a section of the population as possible, including those in employment, housewives, and others who wish to upgrade their education or acquire knowledge for professional advancement. The University also provides facilities for the training of teachers. The major contact with students is through the mass media.

**BANGLADESH’S BROADCAST SYSTEM**

Although the constitution provides for freedom of expression subject to "reasonable restrictions," the press is constrained by national security legislation as well as sedition and criminal libel laws. The state owns or influences a number of broadcast media outlets, whose coverage sometimes favors the ruling party.

Private broadcast outlets are required to air government-produced news segments as a condition of their operation. The new broadcast licenses that were issued in 2005 were allegedly given to those with close political connections, according to the U.S. State Department. Political considerations influence the distribution of government advertising revenue and subsidized newsprint, upon which many publications are dependent. Access to the internet is generally unrestricted; however, some journalists’ e-mail is reportedly monitored by police.
SRILANKA’s BROADCAST SYSTEM

Freedom of expression is provided for in the constitution. The condition of Sri Lankan Media worsened due to political uncertainty and tensions among the main political parties. The state-run broadcast media have been used by the ruling party for political ends, including pressure on editors and biased election coverage. Access to the internet and to foreign broadcasts is not restricted.

Sri Lanka Rupavahini(TV) Corporation covers the whole country on VHF and the signal used to reach as far as the South Indian State of Tamil Nadu. Currently it has three main studios and an Outside Broadcast Unit. Rupavahini is the Sinhalese word for TV. It caters for all nationals of Sri Lanka, broadcasting programs in all three languages, Sinhala, Tamil and English. ). ITN (Independent television network) became a Government Owned Business Undertaking on June 5, 1979. ITN is managed by a Competent Authority assisted by a General manager and two directors, one for Engineering and one for Administration and three heads of sections for finance, commercial operations and program presentation.

The Open University of Sri-Lanka, aims to increase the Internet access for students and academics. To offer various Open University courses online to students throughout Sri-Lanka. The Open University of Sri Lanka (OUSL) was set up for the purpose of broadening higher educational opportunities to all. The Media House is a state of the art production facility for audio and video available for sponsorship of educational program production under specially trained competent man power. The Media House undertakes
1. Sponsored production in the areas of Educational documentaries
2. AV packages for repetitive training
3. Community education
4. Development education,
5. Cultural, sociological, and Environmental education.

INDIA’S BROADCAST SYSTEM

India’s media is the freest in South Asia. The constitution provides for freedom of expression and of the press, and although there are some legal limitations, these rights are generally upheld. Broadcast media are Government as well as privately owned. Broadcasting in India is used to inform, educate and entertain via the electronic media.

INSAT has brought about the expansion of TV coverage in India. Broadcasting services in operation are the National service and the Regional service. Satellite news gathering using INSAT system enables on the spot real time news coverage.

EDUSAT program aims:
a. To provide distance education service using advanced space technology.
b. The program is for school, college and higher level of education. Networks for IGNOU, CEC, UGC, NCERT, AICTE and Department of science and Technology have been setup using the National beam.

Doordarshan, the National Television service of India, devoted to public service broadcasting is one of the largest terrestrial
networks in the world. The flagship of Doordarshan, DD1 operates through a network of 1308 terrestrial transmitters of varying power reaching over 89% of the population. There are 107 additional transmitters giving terrestrial support to other channels.

Doordarshan uses a large number of transponders on the INSAT and other Satellites to network its terrestrial transmitters and also to provide additional satellite channels. Doordarshan has established program production facilities in 56 cities across the country. Doordarshan programs are watched in India by 362 million viewers in their homes.

Satellites and transponders in use by Doordarshan are INSAT 2E, INSAT-2DT, INSAT-2B,2C, PAS 10, Thai com.

The Prasar Bharti Act, 1990 was passed to provide for the establishment of a Broadcasting Corporation for India, to be known as Prasar Bharti. It says that it shall be the primary duty of the Corporation to organize and conduct public broadcasting services to inform, educate and entertain the public and to ensure a balanced development of broadcasting on radio and television. It was in 1997 that the Broadcast Bill was introduced to regularize the growing globalized Indian television and cable industry and deal with monopoly issues.

This bill aimed to

1. Establish an autonomous broadcasting authority for facilitating and regulating broadcasting services in India
2. Put a 20 percent limit on media cross-holding.
3. To allow direct-to-home (DTH) services.
Broadcasting in India is to be used for poverty alleviation programs, education and socio economic development.

**RUSSIA’S BROADCAST SYSTEM**

Although the Russian constitution provides for freedom of speech and of the press, authorities use the judicial system to harass and prosecute journalists for independent reporting. Press freedom was further constricted in 2005 as President Putin's government obstructed journalists from reporting on sensitive topics and tightened control over news sources. The state owns or controls the country's three main national television networks—Channel One, RTR, and NTV. Authorities continued to exert direct influence on media outlets and determine news content. Private owners of print and electronic media outlets are generally large business companies having shares in newspapers and uses them to advance personal and political interests. The law requires little transparency in media ownership.

*Russia Today,* an English-language satellite news channel funded by the Kremlin, was launched in late 2005. The number of independent voices in media decreased for financial reasons in 2005. The private media were at a disadvantage since the government allocated subsidies to state-controlled outlets and controlled the means of production and distribution. Online media, an area not yet regulated by the government, are also developing. Although the constitution provides for freedom of speech, the government continues to put pressure on the dwindling number of media outlets still critical of the Kremlin. Since June 2003, when the last independent national television network, TVS, was seized by the
government, allegedly to settle the company's debts, all Russian national television networks have been controlled by the government or by economic interests that support the government and uniformly praise the president.

MIDDLE EAST’S BROADCAST SYSTEM

“The link between civil society and satellite broadcasting in the Middle East is becoming significant with two simultaneous and related developments: The importance of satellite broadcasting in the region and the awareness of the peoples of the Middle East of civil society issues.” It enhances the flow of information, provides service to people in isolated and rural areas and gives people access to more channels, more opinions, and more information and ideas.

“One year after the introduction of the Egyptian Satellite Channel, Saudi Arabia launched the Middle East Broadcasting Center (MBC), which is a privately owned network. Saudi Arabia is the center of the Islamic world, and therefore religious programming has a special importance in official Saudi television programming, and dominates a good part of the broadcast schedule of the national television channels. In 1995, Qatar made initiatives to introduce the first Arab all-news and public affairs satellite channel. The Al-Jazeera Satellite Channel showed free-ranging political debates, including interactive debates with live phone-ins, which formed a new forum of freedom of expression in the region. Al-Jazeera is still leading the region in this direction and is gaining popularity every day.” Al-Jazeera is the largest Arabic News Channel in the Middle East
offering news coverage 24 hours a day from around the world with focus on the hottest regions of conflict.

Founded in 1996, and based in Qatar, the Al-Jazeera news network is the fastest growing network among Arab communities and Arabic speaking people around the world. Programming focuses on news coverage and analysis, so the station has earned the loyalty of a large audience. Criticism from various governments has helped the channel increase its credibility with an audience that is used to censorship and biased coverage from official government outlets. Al-Jazeera's programs are available worldwide through various satellite and cable systems.

In the US, it is available through satellite, the fastest growing satellite network in the country. Programs in Al-Jazeera are devoted to various topics with an emphasis on pan-Arabic issues such as the Palestinian / Israeli conflict, the war in Iraq. Political programs tend to be the most popular. Other shows covering news about Business, Culture, Sports, Health also get their share of the audience. Interactive programming that involves audience participation is also highly popular.

“The Middle East has four competing digital television platforms: ART/1st Net, Orbit, Star Select and Gulf DTH/Showtime. ART(The Arab Radio and Television Network)developed from a single free-to- air DTH channel to a full service of many popular channels. In addition to transmission to the Middle East on Arabsat 3A and Nilesat 101, the company also broadcast to Europe, North America, South America, Asia, and Australia.
ART network is the leading producer of Arabic Family Programming and entertainment worldwide. ART has a key role to source, produce, complete entertainment solutions for the AMC groups. (Arab Media Corporation which is the largest single Arab Media holding company globally.) ART recently launched the first Arab Islamic satellite channel, Iqra. Orbit was founded by the Saudi al-Mawared Group and includes both Arab and Western programming.”

Kuwait found it essential to start its own network after the Gulf War, and the Kuwaiti Space Network began on December 8, 1991. Star TV from Hong Kong started on Asiasat in October 1991, reaching audiences in Kuwait and other Gulf countries.

One of the network’s new digital pay-TV platforms comes from Gulf DTH, which trades as Showtime, and is backed with English-language programming by Viacom Inc. The new offering is co-financed by Kuwait Investment Projects Co. (KIPCO) and is now operating on Nilesat. The Jordanian Radio and Television Corporation started broadcasting the Jordanian Arab Space Channel on February 1, 1993, utilizing channel 24 on Arabsat 1-C, which blankets most of the Arab world and Europe and has recently expanded to include transmission of the service to Canada and the United States.

The Gulf states were among the first nations that utilized satellite broadcasting since they did not have problems related to financing these projects. Bahrain and Qatar placed their main channels on Arabsat for direct broadcast transmission to the Arab world. Dubai’s satellite channel was first to reach the United States,
via Galaxy. At present there are many projects that play an important role in promoting telematics and informatics in the region such as the development of new specialized channels, such as the Dubai Business Channel and the Dubai Sports Channel, as well as Dubai's Internet City.

At the forefront of the information society in the region are two technologies that stand above the rest Compressed digital satellite services and Internet. There are serious moves toward Internet distribution via Nilesat; Showtime is working hard to introduce Internet services, as is Orbit. This will allow for a world where multicultural exchange is imaginable.

The communications revolution has fully arrived in the Middle East, causing dramatic changes in Arab society in economic, social, and political domains. It is the first time in the history of broadcasting in the region that audiences have the luxury of selecting news from a menu of news networks such as CNN, MBC, Nile News, ANN, BBC and Al-Jazeera. The new platform of satellite broadcasting being formed, attracts the middle class of the Middle East audiences numbering in the millions. The management of satellite channels cannot ignore the competition for ratings and competition for channels. This is excellent for access, besides providing quality programs and programming for all audiences in the region. Satellite broadcasting in the Middle East is very promising.

EUROPEAN UNION’S BROADCAST SYSTEM

“The European Broadcasting Union (EBU) is a confederation of 75 broadcasting organizations from 56 countries, and 43 associate
broadcasters from a further 25. Members are radio and television companies, most of which are government-owned public service broadcasters or privately owned stations with public missions. Full active Members are based in countries from Algeria to the Vatican State, including almost all European countries. Associate members are not limited to those from European countries and the Mediterranean but include broadcasters from Canada, Japan, Mexico, India and Hong Kong, as well as many others. Associate Members from the United States include ABC, CBS, NBC, the Corporation for Public Broadcasting, and Time Warner. Active members are those whose states fall within the European Broadcasting Area, or otherwise those who are members of the Council of Europe.”

European Union’s most important initiative in TV policy is the establishment of a single EU market in Television called ‘Television without frontiers’ (TWF). The TWF directive had the purpose of securing access for viewers and listeners in all member states to Broadcasting signals emanating from any other member state.

The European Broadcasting Union operates a news exchange service, the Eurovision news exchange, which allows sharing of news items between all participating television stations and television news agencies. It pursues the economic objective of creating a single market in broadcasting.
UK’S BROADCAST SYSTEM

The United Kingdom has a strong tradition of public broadcasting, and the British Broadcasting Corporation, although funded by the government, is editorially independent.

British media are free and largely independent from government interference. Ownership of independent media outlets is concentrated in the hands of a few large companies, including those headed by Rupert Murdoch. British TV’s purpose is to enrich its viewers and to serve the society. In Britain broadcasting being a social pillar, affects institutions like Parliament and the church, sports, education, theatre, arts and film.

Television in the UK has been a highly regulated public service system. Three of its four core terrestrial channels have public service remits (bbc1, bbc2 and channel 4). BBC2 and Channel 4 have catered for minority and specialist tastes. BBC1 and ITV’s Channel 3 cater to a larger audience. BBC1 reflects the current ways of life. All news programs aim to reflect the BBC’s core values of truthfulness, accuracy and impartiality. Human interest stories are covered where they have national relevance.

British Television invests heavily in News and current affairs including election campaigns, Children’s TV including entertainment, information, drama and animation. Soap operas dealing with significant social issues and moral dilemmas are telecast. There is programming in natural history, popular science and technology. Investment is done in a wide range of educational television for schools and adult education, the Open university and primetime
public awareness campaigns, social action programs, public access programs and programs for immigrant communities.

British Television is governed by three organizations:

1. Government responsibility for broadcasting is lodged with the department of National Heritage. This appoints the members of all regulatory bodies, overseas policy development and initiates legislation and debates in parliament.

2. A board of 12 Governors is required to direct the BBC in the public interest. The BBC’s bulk of annual income comes from a license fee that is levied on each household with a TV set. This fee is fixed by the BBC and the Government. The Governors appoint the BBC Director General and in consultation with him other members of the board of management. This management decides most matters of BBC policy and programming.

3. All advertising financed television is under the jurisdiction of the independent television commission. The ITC will be responsible for any channels of digital terrestrial television that may be introduced.

ITC has drawn four codes on program sponsorship, advertising standards and practices and the program code. BBC has developed a booklet of producer’s guidelines. A broadcasting standard council was established in 1988 which issued a code of practice that all broadcasters must take into account and in light of which viewers may submit complaints.
British Sky Broadcasting is a large commercial network available to viewers in the British Isles but capable of reception anywhere within the European Astra satellite system footprint. It has a sports channel. Later inclusions were sky sports, Sky travels and sky Soaps. The multichannel package included Discovery. Children’s channel, Nicklolodeon which pay Bskyb a premium for the use of its patented videocrypt.

Britain’s Open university is a innovative and highly successful distance learning program. The Open university contracts with the BBC for the production of programs. The Open university pays for the production costs. It includes Radio and Television Broadcasters.

**CANADA’S BROADCAST SYSTEM**

The Canadian broadcasting system is owned and controlled by Canadians. The Canadian broadcasting system, operates primarily in the English and French languages and comprises public, private and community elements, makes use of radio frequencies that are public property and provides, through its programming, a public service essential to the maintenance and enhancement of national identity and cultural sovereignty. The English and French language broadcasting, while sharing common aspects, operate under different conditions and have different requirements.

CBC Television provides a complete 24-hour network schedule of news, sports, entertainment and children's programming, in most cases feeding the same programming at the same local times nationwide. CBC has also a separate channel devoted exclusively for education.
Until the mid-1990s, the network carried a variety of American programs in addition to its core Canadian programming, directly competing with private Canadian broadcasters such as CTV and Global. Since then, it has restricted itself to Canadian programs, a handful of British programs, and a few American movies and off-network repeats. In 2002, CBC Television and CBC Newsworld became the first broadcasters in Canada to provide captioning for 100% of their programming. All shows, bumpers, billboards, promos, and other internal programming are captioned.

Most CBC television stations, including those in the major cities, are owned and operated by the CBC itself. Some stations that broadcast from smaller cities are private affiliates of the CBC, that is, stations which are owned by commercial broadcasters but air a predominantly CBC schedule. Such stations follow the CBC schedule, although they may opt out of some CBC programming in order to air locally-produced programs, syndicated series or programs purchased from other broadcasters.

USA’S BROADCAST SYSTEM

Television news networks both cable and satellite, like CNN, Fox News, NBC and CBS are the primary form of news dissemination within the country. Satellite technology enables TV networks in the United States, especially cable networks, to reach audiences all across the world. Interactive media, with the advancement of digital technology and the combination of the computer, telephone and cable television, shows the trend during the late 20th and early 21st centuries.
The print and electronic media in the United States, provide news and entertainment programs, and are an important element in American society. According to a recent survey by Mediamark Research, 98% of Americans have a television; 82% of those watch "prime time" and 71% cable programming in an average week. 84% percent of Americans listen to radio regularly. 79% percent are newspaper readers. 45% percent of the whole American population has access to the Internet, while for certain demographic groups that percentage reaches a high of more than 70%.

Economics plays a major role in U.S. media. Broadcast and cable networks are in business to make money. The Media and communications, with revenues of over $242 billion, are one of America's largest business groups. The media are a great engine in American society, providing jobs and shaping attitudes and beliefs.

The US Federal communication’s commission was created by the congress for regulating broadcasting and wired communication. Broadcast ownership limits on TV stations have been lifted. Group owners can purchase TV stations with a maximum service area of 35% of the US population. Stations may choose affiliation with more than one network. Broadcasting networks are barred from buying other networks. Broadcasters will be allowed to own cable television systems. FCC states that the industry has to develop a rating system to identify objectionable programming.

CNN.com is among the world's leaders in online news and information delivery. Staffed 24 hours, seven days a week by a dedicated staff in CNN's world video headquarters in Atlanta, Georgia, and in bureaus worldwide, CNN.com relies heavily on
CNN’s global newsgathering team of almost 4,000 news professionals. The international edition of CNN.com broadcasts the top news stories from around the world. It is produced by dedicated staff in London and Hong Kong, working with colleagues at CNN’s world headquarters in Atlanta, Georgia, and with bureaus worldwide. CNN.com/International has the latest multimedia technologies, from live video streaming to audio packages to searchable archives of news features and background information. The site is updated continuously throughout the day.

Emphasis is on broadcasting by the different countries, developed as well as developing, as they have realized the immense possibilities it provides for the enhancement of the society and in reinforcing attitudes and beliefs. It is a potent tool for the transformation of the society via the educational packages offered through entertainment.

**BROADCASTING IN DEVELOPING COUNTRIES**

“Communication and communication media are important components, as well as indicators, of the development process. These are essential supports to development programs: a means of teaching, sensitizing, carrying development messages, channeling reactions between audiences and development workers.”¹²

Revolutionary advances in technology reinforce social and economic changes that are transforming business and society. It is here that Broadcasters in a developing country play a vital role in transforming the society and thereby building the nation. This can be
achieved via poverty alleviation, socio-economic development and preservation of cultural heritage. It is in this context that the role of education is vital and broadcasters through their innovative programs can achieve this task of socio-economic development.

“Developing nations like India are faced with the enormous task of carrying development oriented education to the masses at the lower strata of their societies. These sections of society have low literacy, low income, low life expectancy, high birth rate, high infant mortality and very low access to media. The task of providing development education to these sections involves providing access to sources/media of information and presenting the information in an understandable, acceptable and credible manner.” 12

An informed electorate is essential to a thriving democracy, and broadcasting is an essential link between government and the governed. The ultimate aim is to ‘empower’ masses through education and broadcasting is the most affordable and accessible solution for mass education. The world becoming a global village and with new technology and economy, each nation is competing in terms of knowledge, investment and information. Nations cannot risk being excluded from the global economy. So it is here that broadcasting plays a vital role. Educative programs on health, commerce, trade, agriculture, science, investment and business can be produced keeping in mind each nation’s requirement.

Satellite Communications technology provides the capability of being able to simultaneously reach out to large audiences spread
over large distances of a country. It has proved to be a strong tool to support development education.

SATELLITE DISTANCE EDUCATION IN DEVELOPING AND DEVELOPED COUNTRIES

Science and Technology are key factors in promoting the development of agriculture, health, economy, education and overall human development, as proved throughout the centuries. Agricultural education via the electronic media is a valuable asset of education aimed at rural areas of China. The Central Agricultural Broadcast and Television School (CABTS) has trained numerous people with practical skills for rural China. Similarly nations like India, Japan, Sri-Lanka and Pakistan lay emphasis on Agriculture, health and education. The progress of science and technology depends on competent manpower who need education for becoming skillful and knowledgeable. Thus nations are laying emphasis on education which is one of the key factors of overall human development. With the development of different technologies, distance education developed into interactive systems. Nowadays with the video conferencing technologies, distance education is able to have two way communications which enables the audience to interact with the instructors.

“Distance education is an innovation that allows educational content to be transmitted from area to area and provides students in rural areas to get education as well. In distance education the use of national broadcasting networks has also been for a mass education
program. Narrowcasting of instructional TV programs to registered students, through private access cable, satellite channels, or instructional television fixed service (ITFS), is used in some countries, notably the United States. The onset of digital broadcasting networks using satellite systems will increase the number of channels for narrowcasting, and some of these could be used in distance education programs.”

Nations have realized the importance of learning without boundary, for the upliftment of the society through emphasis and training on health, hygiene, agriculture, science, economy and technology. In view of the above the study also proposes to give an insight into the educational channels of various nations which are beaming their programs 24 hours a day.

**CHINA**

“The establishment of China Education Television (CETV) station in July 1986, the broadcast of the first special TV channel for satellite education and the opening of the second special channel are regarded as three milestones in the early stage of satellite distance education in China. They were responsible for transmitting educational programs. Satellite distance education in China has been developing with the rapid growth of the Chinese economy, the nation’s attaching greater importance to education and the enlarging of society’s need for education.”
“Channel 1 broadcasts educational news and comprehensive educational programs. Channel 2 focuses on the courses of CRTVU. The programs of Channel 3 mainly for spreading the nine-year compulsory education are jointly run by the Ministry of Education and the government of Shandong Province. Beijing Educational Channel (channel 35) that covers the whole area was established by CETV in October, 1996.” 15

“The contents include degree education of radio and television universities, continuing education after graduation, training and continuing education for teachers and principals, secondary specialties and vocational education, practical-skill training courses for peasants. Over 940 television stations, and reception and relay stations, 10,000 satellite stations and 66,000 video stations had been established in the Chinese educational system by the end of 1997. The three CETV channels broadcast 47 hours per day covering 80% of regional cities and towns.” 15

“China Education Television (CETV), attached to the Ministry of Education was set up in 1986 and is a nation-oriented professional TV station, producing and broadcasting all sorts of educational or teaching TV programs. Since 2007, it has 5 channels:

- CETV-1 is a comprehensive education channel, providing educational and teaching programs such as instructional information and services via Asia-Pacifica 1A satellite.
- CETV-2 is a teaching channel, mainly providing the courses of China Central Radio and TV University and, at the same time,
providing the TV curricula of China Liaoyuan Radio and TV School as well as other training programs. All programs are transmitted via Sino NO.1 satellite covering China and southeast areas of Asia;

- CETV-3 services Beijing, covering Beijing and its surrounding area via cabled-TV networks, mainly providing programs concerning children and community services;
- CETV-Air classroom is a teaching channel, mainly providing programs of training and continuing education for teachers and principals;
- CETV-Early-period education channel provides professional and individualized programs for the infants and children 0-8 years old.

CETV1’s footprint covers more than 85 percent of the provinces and county cable-TV networks throughout China. At the same time, CEBSat (China Education Broadband Satellite Network), run by CETV, has become the most important satellite distance education system of China. CEBSat, put into operation in 2000, is the infrastructure by which the MoE carries out its projects of modern distance education and information.

CCRTVU (China Central Radio and Television University) consists of 44 provincial Radio and TV Universities (PRTVUs). These institutions make up a nationwide open and distance educational system that is managed at different levels. Radio and TV Universities of China (RTVUs) has become the largest system of open distance education and teaching.”
“China is a large country with imbalanced economy and education. To make high quality educational resources flow to non-developed areas, satellite distance education is needed to play an important role in modernization.”

JAPAN

“The Japan Broadcasting Corporation, better known as NHK (Nippon Hoso Kyokai), is Japan’s national public broadcasting network. NHK airs a variety of educational, cultural, entertainment, and news programs, through programming that is similar to that of the United States’s Public Broadcasting System.” NHK operates two DBS stations, Satellite Television Channel One and Channel Two.

“NHK operates two terrestrial television services (NHK General TV and NHK Educational TV), three satellite services (NHK BS-1, NHK BS-2, and NHK Hi-Vision – High-definition TV), and three radio networks (NHK Radio 1, NHK Radio 2, and NHK FM). For audiences overseas it provides services called NHK World. "NHK World" is composed of NHK World TV, NHK World Premium, shortwave and internet radio NHK World Radio Japan, and the Internet.”
“The Open University of Japan, formerly The University of the Air is a distance learning university with students all over Japan. The administration based in Chiba City has offices and learning centers in each of Japan’s 47 prefectures. The University offers accredited undergraduate and graduate degrees. It is one the largest academic institutions in the nation.”  

The University of the Air began to broadcast programs nationwide on January 21, 1998, by Sky PerfecTV! (a PerfecTV! service), in addition to broadcasts by the university's land-based television and radio stations. Programs are broadcast to the whole country from JCSAT-3 by CS digital broadcast (Sky PerfecTV!).

“The open university of Japan owns terrestrial television and radio broadcasting stations at the headquarters in Chiba City. All programs are recorded and edited at the headquarters and transmitted from the Tokyo Tower via UHF television and FM radio, and relayed at Maebashi, Gumna to reach Kanto region as well as hired Communications Satellite(CS) broadcasting channels to reach the whole nation. The broadcasts are in Japanese language. The Broadcasting Act prohibits the Open University of Japan from broadcasting commercial messages and the cost of broadcasting system is subsidized by the national budget.”

INDIA

In India, satellite TV for educational purposes started after the huge success of the Satellite Instructional Television Experiment (SITE). In India the growth in the use of satellites for education has been enormous. “In the beginning in 1970’s was the SITE project ( 
Satellite Instructional Television Experiment). In the 1980’s having INSAT satellite for educational TV and then in the 1990’s having a full fledged educational channel on national TV and lastly at the beginning of the 21st century having a potential of 72 educational channels on EDUSAT. This reveals India’s long term commitment to education via satellites and thereby to socio-economic development.”

“India has a long experience in the use of satellite for education. Its first satellite service for education was launched in 1975 within the framework of the Satellite Instructional Television Experiment. The programs achieved considerable progress in the areas of awareness, information, and knowledge of hygiene, health, family planning, political processes. In addition 50,000 rural teachers were enrolled during the experiment in a multimedia program, training them in the teaching of mathematics and general science.”

“In 1993, the Indira Gandhi National Open University (IGNOU) and the Indian Space Research Organization (ISRO) initiated collaboration for the development of a satellite network for education by delivering IGNOU distance education programs. In 2000, Gyan Darshan launched from IGNOU a bouquet of TV channels as a common channel for the Indian education system. Today, IGNOU has 775 nationally distributed interactive terminals.

“In September 2004, ISRO launched EDUSAT in a Geo-Stationary Orbit. EDUSAT is the first Indian satellite designed and developed exclusively for serving the educational sector. It is mainly intended to meet the demand for an interactive satellite-based
distance education system for the country. EDUSAT is a collaborative project between the Ministry of Human Resources Development (MHRD) and ISRO. MHRD proposed to use the ICT capabilities of the EDUSAT satellite for Elementary Education, Literacy, Vocational Training and Teacher's Training and includes agriculture, health and community development programs.” 21

This reflects India’s commitment to use space technology for national development, especially for the development of the population in remote and rural locations. The education strategy is based on linking centers like IGNOU, NCERT, SIET to share expertise and experience, and participation of teachers and experts at the State and national levels for recording their lectures and their interactions with students.

INSAT is being used for educational TV broadcasting. INSAT satellites have been used to provide long distance education information along-with their broadcasting, Tele-communications and weather forecasting functions. The world’s first educational satellite EDUSAT, exclusively devoted to education uses “the virtual classroom concept to provide education to children in remote villages, adult literacy programs and training modules for teachers and quality higher education to students in areas without access to good technical institutes.” 22 EDUSAT is intended to meet the demand for an interactive satellite based distance education system for India and reflects India’s commitment to use space technology for national development, especially for the development of the population in remote and rural locations. A joint venture of the Ministry of Human
Resource development and Indian Space Research Organization, EDUSAT is implemented through IGNOU, AICTE, ICAR, NCERT and UGC.

Science education programs were conceived by scientists of Space Application Center Ahmedabad and Indian Space Research Organization for creating awareness amongst the rural children about their surroundings and comprehending it.

“Science education programs were conceived with the following aims:

- To make children realize that science is everywhere; that their immediate environment can be questioned, understood, explained and manipulated by them, using the scientific method.
- To emphasize the learning of the scientific method, more than mere transfer of information.

An important feature of the science educational program was the inclusion of a behavioral scientist/developmental scientist in the production team to do formative research.”

PAKISTAN

Pakistan’s Allama Iqbal Open University has dominated distance education within the country since its foundation in 1974. It runs print-centered courses, and radio and TV broadcasts. While much of its work is for regular university programs, it has also carried out a number of experimental projects, using distance-teaching
methods for basic education, and also runs teacher-upgrading programs for primary-school teachers.

The Allama Iqbal Open University was established under an Act of Parliament (Act XXXIX) and has the same legal and academic status as other Universities in Pakistan. It is designed to provide education to those who cannot leave their homes or jobs. The University aims to provide equality of educational opportunities to as large a section of the population as possible, including those in employment, housewives, and others who wish to upgrade their education or acquire knowledge for professional advancement or love of learning. The University provides facilities for the training of teachers. The major contact with students is through the mass media.

Urdu is usually the language of instruction but English is also used as a medium of instruction and expression in certain courses, particularly at BA, Postgraduate and MPhil levels.

“In Pakistan, the communication satellite used for communication is PAKSAT-1. The launch of the first geostationary communication satellite, Paksat-1, in 1996, enables Pakistan to fulfill its communication, educational and strategic requirements, thereby entering into a new era of socio-economic development.” 24 “A significant portion of this satellite is used for educational purposes for which Higher Education Commission (HEC) has launched a national project. Under this program, Pakistan Educational and Research Network (PERN) has been established under which 57 public and private sector universities are being linked together through fiber. This new initiative of the HEC will also allow live lectures from top national and international institutions, to be linked through Paksat-I
and be accessible to students and faculty members in various universities of the country. The Virtual University has been given the task to initiate this series of lectures. A project for starting four new digital TV channels exclusively for educational purposes has also been approved. The programs beamed through Paksat-I can be broadcast throughout Pakistan”. 25

“The Allama Iqbal Open University was established under an Act of Parliament 1974 to provide part-time educational facilities through correspondence courses, tutorials, seminars, workshops, television and other mass communication media to a large section of the population who cannot leave their homes or jobs and who wish to upgrade their education or acquire knowledge for professional advancement. According to the Vice Chancellor’s Annual Report (2005-06) The University Faculty of Education, Faculty of Social Sciences and Humanities, Faculty of Arabic and Islamic Studies, Faculty of Sciences and the Institute of Mass Education offer over 1000 courses in 98 programs ranging from basic to doctorate and research level.” 26

“Pakistan’s National Communications Satellite PAKSAT-1 has a coverage in over 75 countries across Europe, Africa, Middle East, South and Central Asia. PAKSAT-1 currently serves a number of regional customers including, TV broadcasters, telecom companies, data and broadband internet service providers as well as government organizations.”27

The Paksat-1R satellite will replace Paksat-1 in 2010. With this Pakistan hopes to achieve the goals of economic progress and thereby making Pakistan highly developed.
SRI LANKA

The Open University of Sri Lanka (OUSL) through distance education enables the students to secure further knowledge at their homes. The Educational Programs have been designed to meet national educational and training needs and offer many opportunities to the students.

The Open University of Sri Lanka (OUSL) was set up for the purpose of providing higher educational facilities to persons above 18 years of age with relevant basic qualifications. Established under the Universities Act No. 16 of 1978, incorporating with its system the External Services Agency (ESA) and the Sri Lanka Institute of Distance Education (SEIDE) the OUSL commenced its operation in 1980. It has the same legal and academic status as any other national university in Sri Lanka. It is the only recognized university in Sri Lanka where students are able to pursue further education by distance education techniques in keeping with the philosophy of Open and Distance Learning.

The Media House was established under a grant aid project from the Government of Japan in 1993. The Media House undertakes sponsored production in the areas of Educational documentaries, AV packages for repetitive training Community education, Development education, Cultural and sociological education, Environmental education.

The OUSL offers its own programs of study leading to Certificates, Diplomas, Degrees and Post Graduate Diplomas and Degrees. In addition to these regular academic programs there are
continuing education programs, beginner’s courses and awareness programs. The OUSL is fully equipped to support post-graduate research studies. It’s goal is also to increase the Internet access for students and academics and plans to offer various Open University courses online to students throughout Sri Lanka. The Open University like other distance education institutions overseas, adopts a multimedia study system with modifications to suit local conditions. Teaching is through specially designed printed lesson material, audio-visual aid including audio and video cassettes, face to face discussion classes popularly known as 'day schools' , seminars, workshops, and field work, depending on the needs of each program of study.

A network of Regional Centres located in Colombo, Jaffna, Kandy, and Matara and study centres located in Ambalangoda, Ampara, Anuradhapura, Badulla, Bandarawela, Batticaloa, Buttala, Galle, Kalutara, Kegalle, Kuliyaapitiya, Kurunegala, Polonnaruwa, Ratnapura, Trincomalee and Vavniya provide educational facilities to students all over the country. Almost all centers provide library reference facilities as well.

The open university of Sri Lanka has the same legal and academic status as any other national university in Sri Lanka. It is the only recognized university in Sri Lanka where students are able to pursue further education by distance education techniques in keeping with the philosophy of Open and Distance Learning.

Sri Lanka’s first Educational Channel Nenasa launched in 2008 by the Ministry of Education is completely dedicated to education and caters to the needs of the students in all three languages. Dialog TV
provides free satellite technology to this project. The National Institute of Education is the advisor for this channel and most programs are produced by in house technicians at the institute. In addition, some programs are expected to be outsourced whenever required.

**MIDDLE EAST**

“Effects of satellite broadcasting in the Middle East became more apparent as developments in computers, telecommunication systems and satellites took place. The immense changes in these fields have had a dramatic impact on Middle East economics, society, and politics and have also raised many issues. Accordingly, there have been cultural, religious and political concerns over satellite broadcasting in the region.”

“Nilesat is providing educational, entertainment and cultural channels. It enhances the flow of information, including bringing service to people in isolated and rural areas. Initiatives like Nilesat give people access to more channels, more opinions, and more information and ideas.”

“Nilesat, affects all walks of public life in the Middle East, and also affects the individual citizen in his different roles in a wide variety of ways. With satellite broadcasting there is an element of "social engineering," which includes its role as a forum for the exchange of thoughts and ideas between citizens or the different social groups of a democratic community; its function as an integrating influence upon children and young people and its importance as a platform and agent for all kinds of cultural forms and expressions; and its function
to advance communities, speed progress and enhance development.”  

In the Middle East, individuals and groups have begun to address the needs that go unmet by their media. The formation of groups including professional associations, religious and tribal groups, cultural and sports clubs, non-governmental organizations and charitable societies, cooperatives and private foundations, service and business clubs, academic and research centers, women’s and youth groups, and many others is a significant step toward civil society in the region. These groups, however, face major challenges in communicating their aims and the importance of their contributions to civil society.

Nilesat presents an opportunity for these groups to address issues of concern to the region. Civil society advocates hope that groups in the region will capitalize on the opportunity of Nilesat, and regional media will use satellite, internet, and other technologies to help reform from within.

“Science programs on television are presented unimaginatively and often have no local relevance; most are either based on interviews with specialist academics, or on a presenter describing scenes from documentaries that have been purchased from abroad. Shot inside studios with fixed cameras, the shows unsurprisingly fail to grab the attention of the Egyptian public.”

The status of science journalism in a country often reflects the value that its society, and particularly its political leaders, attach to science itself. Proper networking between Arab science journalists could solve some of these problems. "Networking would create a
constructive atmosphere of competition between science journalists, in addition to exchanging ideas and experiences," says Mostafa Anbar, science journalist with the daily Al-Gomoriyah. "Coalitions are a source of strength for participants, and enable other organizations and parties to properly communicate with them."

One example of a move in this direction is the Arab Media Forum for Environment and Development (AMFED), which brings together Arab media professionals working in the field of environmental journalism. With members coming from nine Arab countries — Egypt, Syria, Lebanon, Jordan, Tunis, Morocco, Yemen, the United Arab Emirates and Palestine — AMFED was established as a result of "extensive efforts on behalf of the Regional Support Office of the Urban Management Program for the Arab States."

Among its various activities, AMFED links up media organizations in these countries that focus on environmental and development issues in the region. Yet the forum's efforts are yet to be felt by many science journalists in Egypt. Without an Internet website or an email discussion group, getting most Arab environmental journalists involved in it remains a challenge.

Another way in which modern communications technology can open up opportunities for improved science communication is the recent development of Arab satellite channels. These are already having a positive impact on the public communication of science in the region.

Egypt's satellite broadcasting company Nilesat, for example, currently broadcasts two channels focusing on medicine and health. Horus is aimed at physicians, and seeks to "provide continuous
training and education to doctors after graduation”, according to television director Muhammad Abulfotouh, one of the channel's founders and its former president. Egypt's Ministry of Health is responsible for the funding and management of both Horus and the Nefertiti Satellite Channel for the Family and Child, which provides health information to a more general audience.

**EUROPEAN UNION**

Europe along with the rest of the world is involved in education and is moving to an era of lifelong learning. This raises the issue of finding the most effective way of reaching the target audiences. Interactivity enables a passive viewer to become an active learner - thus increasing the potential for more in-depth learning to take place. “The European Union is more diverse in terms of the technologies used for digital TV than the United States. However, Japan is following a similar pattern to the EU. The interactive digital TV market in the EU appears to be slightly more developed than the US, but is likely to be overtaken by the US over the next few years. With the exception of Poland Central and Eastern Europe is lagging behind the EU. Poland appears to have approximately 6% of households subscribing to digital TV services.

Currently, the EU may just have the edge on the United States by leading developments towards interactive digital TV learning services. But, strategies in the US will lead to continent-wide developments and could enable the US to take the lead if digital TV uptake is rapid.” 30
In some parts of Europe there is a strong affinity for a regional or national identity linked closely with culture and education. If these areas have access to their own digital TV channel there could be opportunities for developing interactive TV learning services closely with local traditional educational and training providers. Most of these interactive TV learning services are in an informal or "edutainment" format. Early developers of interactive TV learning services are public service educational broadcasters and commercial operators. There is a demand for language learning, which encourages the uptake of interactive digital TV.

Interactive TV offers some innovative approaches for tackling the problems of basic skills in an informal and entertaining way. Separate "TV channel independent" interactive services have emerged in the form of:

- learning resources related to the national curriculum for school children and
- Online encyclopedias involving new alliances with traditional publishers.

Until a critical mass of households are "interactive TV enabled", Traditional education and training providers will be reluctant to offer interactive learning services until many houses are interactive TV enabled. Broadcasters will continue to be the prime gatekeepers of interactive TV services to the home. As they have done with television, they will control what the user has access to as well as the quality of the services on offer and the development of these services.
“The European Broadcasting Union operates a news exchange service, the Eurovision news exchange, which allows sharing of news items between all participating television stations and television news agencies.” "The EBU offers a window of communication through which news from Arab countries is made available to European broadcasters, while news from Europe is made available to Arab countries." “In addition, since many members of EBU are Arab states, they can also access coverage not only of European events but also of Asian and African events.

The EBU is the largest professional association of national broadcasters in the world. The EBU negotiates broadcasting rights for major events such as sports, it operates the Eurovision and Euroradio networks, organizes program exchanges, coordinates co-productions, and provides other operational, commercial, technical, and legal and strategic services.” 31

“The Eurovision Network operated by EBU--a mixed terrestrial and satellite network which covers the whole of the European broadcasting area and the Asian continent--provides not only worldwide coverage of major news events but also sports and cultural events. The Eurovision permanent network (up to 30 digital channels on a Eutelsat satellite) carries constant exchanges of news and programs.” 32

UNITED KINGDOM

“BBC Education spans a wide range of activities - from programs and resources for Schools and the Open University to campaigns like Web Wise, helping people to become confident web
users. BBC Education aims to make learning fun, with high quality learning resources on television, radio and online. Education is one of the first areas to fully embrace the digital age, and has developed interactive multimedia learning packages for the new platforms as they become available. With BBC Knowledge, the UK's first public service digital learning channel, BBC Education is dedicated to bringing the best of the new technologies to learning.” 33

Schools in Britain were quick to use broadcasting via the BBC. Television broadcasting for schools takes place on a large scale, with much of the morning output of BBC and Channel 4 devoted to it. “The Open University in the UK was a world revolution regarding education. With the approval of the BBC’s Board of Governors in 1988 Stevenson, Education secretary set up the Educational Broadcasting Services Trust - to cross the boundaries between broadcasting companies and to develop collaborative ventures to benefit education. The focus was on science, mathematics and professional training and he initiated a range of innovative programming, relishing the opportunities offered by digital media for creative interaction. As Education secretary BBC, Stevenson provided a crucial interface between the BBC’s production departments and the world of education.” 34

“BBC Knowledge shows the best of the BBC’s award-winning factual and documentary programming. One can explore and experience the world with in-depth storytelling and state-of-the-art production. Available in Asia, this is the channel where facts from the past, present and future come together to broaden viewer's horizons. BBC Knowledge programming strands includes new cultures and allows
viewers to view them and the world around them with entertaining adventurers and explorers. Science & Technology programs invite viewers to explore new frontiers, from space to motoring. One can explore the fascinating aspects of the human body and the mind and can also view the Past and can witness historical events. The programs on Business invite viewers to find out what it takes to stay on top in today's challenging business world.”

BBC Knowledge is an international television channel that provides documentaries to an international audience. It is operated by BBC Worldwide, the commercial arm of the BBC. It is currently only shown in Asia and Europe, (on mio TV in Singapore and now TV in Hong Kong) but is soon to be launched in Africa. The channel is also shown in Poland on the Polsat platform, lectored in Polish. BBC Knowledge will be soon launched in Romania.

CANADA

“Television has a powerful role in shaping the attitudes of society to contemporary issues, and in affecting the behaviour of those who watch television programs. The CBC, as the nation’s public broadcaster, accepts as its role both the reflection of society as it exists, and has existed; the depiction of the higher aspirations, standards and values of humankind.”

Canada's only national educational television service provides a blend of enlightening and entertaining programming designed to challenge and inform, enrich and educate. Many Canadian Learning
Television (CLT) programs are connected to credit courses at universities across Canada.

Some of the best programming TV offers are in the areas of Careers, Film and Media Studies, War and History, Science and Nature and more.

“Canada continued it’s efforts in satellite technology for effective satellite Tele-education services to rural and remote areas in the late 1960’s and 1970’s. These efforts included the Applications Technology Satellite series 1 through 6 that showed many different new satellite applications including satellite tele-education.” 37

“The ATS-6 demonstrated rural satellite video education services in the Appalachia region of the U.S. as well as in Brazil and India. The Communications Technology Satellite (with the Hermes satellite designed and built in Canada and with NASA providing the launch) also showed how very high powered satellites could broadcast educational video to rural areas using only very small aperture terminals.” 37

In Canada and the United States over 100 different satellite Tele-education systems are in operation. They include state and province owned and operated networks, commercial networks that range from primary schooling to graduate level programming. Some projects such as the Mind-Extension University of the Jones Intercable reaches into over 20 million homes via cable television. Others such as the National Technological University (NTU) combines
college course produced by over 40 different universities and also provides short courses and corporate training. CBC Learning covers a wide variety of subjects ranging from business and economics to education, health, science and technology etc.

Project LEARN was initiated to stimulate new directions and experiments in satellite Tele-education. This stands for Local Education and Resource Network and its objective was to stimulate a wide range of Tele-education projects in diverse subjects, in a number of countries and with alternative technical and operations approaches. The objective was to see the effectiveness of Tele-education at various age levels, ability to combine rural communications systems with Tele-education systems and the effectiveness of combined Tele-education and Tele-medicine projects.

“CBC Learning brings the best in Canadian Programming to Classrooms. CBC Learning allows teachers, post-secondary professors, school boards and corporate training departments to review lesson plans, watch excerpts and purchase Canadian educational video and audio content online. With these resources at their fingertips, educators can easily bring The Greatest Canadian to their students, or show them the wonders of the Arctic, or the horrors of war. Another benefit of CBC Learning is the tremendous amount of free educational material found throughout the site. These resources include lesson plans, video clips and project ideas designed to teach students about interesting historical events, current affairs, literature, and more.
The new website at www.cbclearning.ca offers more than 600 CBC programs, both video and audio content, exploring curriculum-relevant topics such as Canadian history, bullying and the environment.”

**UNITED STATES**

The primary form of news dissemination in the country is through television news networks both cable and satellite, like CNN, Fox News, NBC and CBS.

National Educational Television was an American educational television network in the United States from May 16, 1954, to October 4, 1970 and was replaced by PBS. “PBS took over many of the functions of the National Educational Television (NET). Unlike the model of America’s commercial television networks, in which affiliates give up portions of their local advertising airtime in exchange for network programming, PBS member stations pay substantial fees for the shows acquired and distributed by the national organization.”

“PBS, offers all Americans the opportunity to explore new ideas and new worlds through television and online content. Each month, PBS reaches more than 110 million people through their local stations and nearly 19 million people online, inviting them to experience the worlds of science, history, nature and public affairs; to hear diverse viewpoints on world-class drama and performances. PBS’ premier children’s TV programming and Web site, pbskids.org, are parents’ and teachers’ most trusted partners in inspiring and
nurturing children’s curiosity and love of learning. Teachers of children from pre-K through 12th grade turn to PBS for digital content and services that help bring classroom lessons to life.” 40

PBS programming includes the National Programming Service (NPS) which provides the highest-quality documentaries, arts, children’s and news and public affairs programming. The NPS distributes the **PBS Ready to Learn Service**, which provides hours of award-winning children’s programming every day. PBS offers two fulltime channels: the **PBS National Satellite Service for C-Band** and the **PBS National Satellite Service for DBS**, which is broadcast on DirecTV and DISH Network.” 40

US public broadcasting provides programming that includes cultural and educational programs, documentaries, public affairs and political affairs shows. In the United States, public broadcasting is decentralized and is not government operated, but does receive some government support. The majority of funding comes from community support to a number of public radio and public television stations, each of which is an individual entity.

“Satellite Communications technology has tremendous potential to address the developmental needs of nations especially those of developing countries. Apart from being able to serve as a communications and broadcasting system, satellites can also play an important role in delivery of Tele-health and Tele-education services to a large community of users.” It is in this context that educational broadcasting plays an important role. “Excellent progress has been
made by Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP). An educational and research institution CSSTEAP, caters to the propagation of knowledge in the field of space, science and technology. It has now reached out, through its educational programs, to almost 45 countries and 557 scholars have benefited from the activities of the Centre. The Centre is recognized world-over as a model institution that the UN has established.”

“Regional Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP) is affiliated with the United Nations. The main advantage of educational broadcasting via satellite and two-way interactive e-learning or e-health is the system's distributive power or the ability to reach a large number of potential students and health workers or beneficiaries wherever they may be living or working. For many developing countries, satellite-based distance education health services are the only alternative for providing these services to geographically disperse populations. This is only a small portion of the broad range of applications where one can apply one’s knowledge in one’s own country.”

Thus one finds that educational broadcasting assumes a significant role in the development of a nation.

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