A STUDY OF SATELLITE EDUCATIONAL COMMUNICATION- A COMPARATIVE STUDY ON THE WORLD BROADCAST SYSTEMS WITH SPECIFIC REFERENCE TO INDIA

Summary
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INTRODUCTION

This is a study on the Satellite Educational Communication with emphasis on understanding and comparing the World Broadcast Systems with specific reference to India. The aim of the study is to obtain information about the broadcast systems in Europe, Asia and the United States with the purpose of studying the status of their educational broadcasting. To compare and analyze them and come to a conclusion regarding the framework of a broadcast policy. The study, being descriptive research covers issues that need attention, in view of the developments taking place in the broadcast systems of Europe, USA and Asia due to communication satellites. Therefore the most developed nations and developing nations in the Asian region are selected and surveyed.

The study discusses the broadcast systems in view of the significant developments which have taken place in the world Broadcast systems. These developments have influenced the policies and status of the individual Nations, whether on entertainment, educational, instructional or informative aspects. Educators have seen television’s potential as an instructional tool. Satellite communication technology has proved to be a strong tool to support development education. Countries are taking steps to harness the power of satellites and the new communication technologies with the purpose of education and national development.

The present thesis consists of seven chapters with Introduction as Chapter one. The Second Chapter is on Methodology and the Third Chapter deals with Educational Broadcasting. Chapter four provides an overview on Satellite Educational Broadcasting
Coverage. Chapter five is on the Role of Educational Broadcasting in Development and Chapter six is on Recommendations. Chapter seven is on Conclusion.

COMMUNICATION SATELLITES

The study covers issues that need to be addressed in view of the developments taking place due to communication satellites. The advent of communication satellites have brought about a change in the broadcasting scenario in many of the Asian countries. Consequently broadcasters are forced to reassess their role in a new environment. Satellite communication technologies have exhibited their capabilities for providing services related to education, Tele-medicine, Tele-education, healthcare besides information on planning and development. Education is essential as it is the key to equipping the workforce with the skills needed to develop national economies. “Higher education and life-long learning are today more important to development than ever before, due to the role knowledge plays in development – “knowledge is power”.”1 The social and economic development of a nation depends on the information and education level.

The development of any nation is closely linked to the level of higher education in the country specially that of Science and Technology. The social and economic development of a nation depends on the information and education level. There is no country in the world which is economically powerful but educationally backward. Russia, USA and Japan are educationally powerful and having powerful economies. These countries have realized that “knowledge is a key factor contributing to economic development and
human resource development through education and training which is essential.”  

**EDUCATIONAL BROADCASTING**

As we all know Electronic Media are a powerful medium in educating the masses. So nations are making use of communication satellites for broadcasting and through them for distance education programmes. It is in this context that the study assumes great significance with emphasis on educational broadcasting.

Educational broadcasting assumes an important role in developed and developing countries. Education is viewed as an instrument of social transformation. The term "educational" is referred to television programming or radio programming on specific subjects besides also being applied to other programs which are informative, enlightening, and intellectually stimulating. Educational broadcasting can be received in an educational institution and also at home. Learning by yourself in the home is called "distance education." Each country is making use of communication satellite for broadcasting nationally and internationally. Broadcasting is being used for social and economic improvements specially in the developing countries, which have realized that educational broadcasting plays an important role in the socio-economic development of the people and thereby upliftment of the society.

**SATELLITES FOR EDUCATION**

There are nations using satellites for Education. Thus the concept of “Teacher in the Sky” came into existence. EduSat an Indian Satellite is exclusively devoted to the field of Education. Besides the programs for School, College and Higher education
networks for IGNOU, CEC, UGC, NCERT, AICTE and DST have been set up using the national beam. Similarly countries like Britain, Japan and Sri-Lanka have come up with the “University of the Air”. “Besides supporting formal education satellite systems can facilitate dissemination of knowledge to the rural and remote population.” All this is due to the broadcasting systems of the various nations. The success of the Satellite Instructional Experiment (SITE) conducted in India followed by similar experiments conducted in Canada, China, Indonesia etc clearly established the tremendous potential of using satellite TV for educational purposes. Successful use of PALAPA satellite in Indonesia, INSAT in India and AUSSAT in Australia prompted other countries like China, Brazil etc to develop their own satellite based educational system.

**BROADCASTING AND SOCIO-ECONOMIC DEVELOPMENT**

Developments in communication technology have made the world into a global village. The information boundaries between areas and regions are being eliminated. Communication and information exchange is the priority among the people of various nations. The convenience of communication brought by technology is applied to education. Broadcasting is giving support to socio-economic development activities of nations. Programs for rural development, adult education, science and technology and public awareness are important programs for socio-economic development. Broadcasting is being utilized for bringing about social and economic improvements in the developing countries.
Education, an important aspect of human life has affected the development of humans to a great extent. Throughout the ages education has been the most powerful agent of change. Communication technologies are being harnessed for the development of society. Satellite communication technology has the capability of reaching out to a large population spread across huge distances and in the remotest corners of any country. It is a strong tool to support development education.

Developing nations, for the upliftment of their society have the huge task of carrying development oriented education to the masses at the lower strata of their societies. It is here that educational broadcasting has an essential role to play. This has been realised by the developed as well as the developing countries and their focus is on improving their broadcasting systems in today’s present technological scenario. This has led to their emphasizing programmes on science and technology, education, social welfare, health and hygiene, agriculture etc.

Emphasis is on biotechnological revolutions since they are capable of revolutionizing the entire human society. It is essential that the population of any country is publicly aware of the inventions and discoveries taking place which in turn would change their lifestyle. An attempt has been made to incorporate the Broadcast media of the developed and developing nations. 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 factors.

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 the study provides an overview on 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. There are countries where the broadcast system is controlled by the state as in China and Pakistan, and others where it is comparatively free.

The economic impact of the present communication is much too obvious for anyone to see. The birth of e-commerce is a direct consequence of globalization which in turn is the result of fast communication. Lowering of tariff barriers has created a global bazaar and aroused the spirit of competitiveness. The very survival of a nation depends on its technological strength and capacity to meet global challenges.

The cultural or economic impact cannot be seen in isolation but are a part of a total system which includes political, social and educational impact. The only way one can meet the challenges posed by scientific and technological developments is by revamping our educational system. New and newer revolutionary developments are taking place in the field of science and technology. Our educational system must meet these challenges and educate the manpower which will generate participative economy.
Scientific and technological developments can take place only in a society which promotes and sustains scientific environment. The development of Science and Technology in the 20th century is the most important development for the survival of a nation. Bio-Technology, genetic engineering have appeared as Sun-rising Technology and these Biological revolutions have tremendous potential to transform society. Many countries, scientifically and technologically advanced have been promoting science and technology education in these areas and in order to make education strong are utilizing electronic media for education and implementation. In view of the above an in-depth study was undertaken. The need was felt to have an insight into the Broadcasting systems of developed and developing countries with specific focus on India, in the light of the Broadcasting scenario in today’s world, with emerging new technologies leading to new innovations in Broadcasting.

The study was taken up to gather information regarding the broadcasting systems and educational broadcasting as reflected in their telecast. Since there are a large number of countries in the world it was difficult to make a very correct choice and selection of countries for the study. However major countries of the developed and developing nations were selected. The broadcast systems in Europe, Asia and the United States were selected and the status of their educational broadcasting was studied. The developed nations have the technological expertise to overcome specific communication barriers. The developing nations with priority for socio-economic development make use of the technology thereby removing hurdles.
of illiteracy, superstition and poverty. Broadcasting is an important component of the technology and is instrumental in educating the masses and creating public awareness.

Recent years have seen the emergence and increased application of new technologies for instruction. The broadcasting systems have also taken up the mantle of educating and enlightening the publics through their programs. Electronic media have had an impact in a number of areas, especially in technologically-based distance education programs. Technology has raised the quality of individualized distance instruction. The study is limited to the developed and developing countries in the hope that maximum emphasis is on education including science and technology and that public awareness is created.

An attempt has been made to incorporate the Broadcast media of the developed and developing nations. 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 factors.

The Asian countries have realized the significance of education and educational broadcasting since they have been confronted with the challenge of national reconstruction and modernization. This being their goal, education is seen as a means to attain technology and the benefits thereby achieved. Education is seen as an instrument of modernization. The most powerful tool to achieve modernization is education based on science and technology. This education has to be dispersed amongst the masses, to create awareness and proper implementation of the educational projects. It
is here that educational broadcasting plays a vital role. This has been realized by various countries globally and each country has evolved its own comprehensive broadcast policy pertaining to their own individual needs.

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 less of 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. Inspite of all 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. Broadcasting networks are barred from buying other networks. 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 Concept of broadcasting is changing continuously and Countries are constantly on the lookout for improving their broadcast systems. Nations with their broadcasting are transcending boundaries giving rise to the concept of the Global village and are having a great impact in their own countries as well as other nations. With the advent of new technologies changes are taking place in the broadcasting industry thereby leading to numerous changes and innovation within the broadcast systems of the world.

The broadcasting industry is changing dramatically due to new distribution technologies such as Direct to home satellite (DTH) services. Thus each country is evolving and improving its broadcast system leading to a changed broadcasting scenario. Consequently the need for each country to have its own comprehensive Broadcast Policy.

COMMUNICATION SATELLITE FOR BROADCASTING

The developed and the developing countries have witnessed revolutionary changes in their broadcasting systems during the last two decades. Satellite, cable and digital technologies have played a important role in these changes, but the main force for bringing about change has been Deregulation and Commercialization of the
airwaves. A new competitive and commercial environment has come into existence. The study discusses the satellites and broadcast systems used for education and the policies adopted.

“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 Entertainment, Poverty alleviation programs, Education, 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 changed tremendously. Global satellites and access to a network of earth stations worldwide provides the facility to uplink and downlink anywhere in the world. Thus leading to the spread of 24 hour broadcasting. These earth stations around the world are an essential element in the global connectivity. The earth stations comprise amplifiers, antennas, modems, receivers 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 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 global expansion of satellite broadcasting and government control over broadcast reception. There is a trend towards broadcast expansion to other countries and a global trend towards the digitization of broadcasting.

Essential components in the broadcasting systems of the world are cable, satellite and digital technologies. “The Fusion of broadcasting and Tele-communications, has brought about the borderless-ness of broadcasting. The development of communication technology has given rise to the concept of global village thereby eliminating the information boundaries between areas and regions.

Consequently many countries of the world are searching for a broadcasting system that can handle these changes in the broadcasting environment, and to follow such moves, it is necessary to understand the status of each country’s broadcasting system. “The electronic communication encompasses telecommunication, broadcasting and information technology, leading to a global information infrastructure which is capable of carrying any type of information like text data, video or voice”.

“The transmission system can be delivery media like satellite and cable. Thus the broadcaster has become an information provider.”
In view of the above it would be interesting to note the characteristics of the broadcasting systems in the Asian region, Europe and United States of America.

**BROADCASTING SYSTEMS AND POLICIES**

In Japan, “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 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.

Broadcasting in Japan is operated by NHK (Nippon Hoso Kyokai) and commercial broadcasters based on advertising revenue. 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.

**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. But the majority no longer
receives state subsidies and now rely on income from advertisement revenue.

The Chinese government regularly blocks or shuts down websites it deems politically threatening. 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. With the opening of satellite education 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. These satellites have been used in all aspects of economy, science and technology culture and national defence and yielded remarkable social and economic returns.”

Pakistan’s “media have grown more diverse, they continue to face a range of pressures and harassment from both the government and other sources. Most locally-based electronic media are state owned and follow the government line, and private radio stations are prohibited from broadcasting news programming.”

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.

In Bangladesh, “the constitution provides for freedom of expression subject to "reasonable restrictions," still 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.”

In **Srilanka** “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’s Rupavahini(TV) Corporation caters to all nationals of Sri Lanka, broadcasting programs in all three languages, Sinhala, Tamil and English. The Open University of Sri Lanka (OUSL) was set up for the purpose of broadening higher educational opportunities to all.

**India’s** media is the freest in South Asia. The constitution provides for freedom of expression and of the press. Broadcast media are Government as well as privately owned. INSAT has brought about the expansion of TV coverage in India. EDUSAT program aims to provide distance education service using advanced space technology. 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. Broadcasting in India is to be used for poverty alleviation programs, education and socio economic development”.

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In Russia 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. 

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.

In the Middle-East “the link between civil society and satellite broadcasting is becoming significant due to the importance of satellite broadcasting in the region and awareness of the peoples of the Middle East of civil society issues.

The immense changes in the fields of satellites have had a dramatic impact on Middle East economics, society, and politics. Accordingly, there have been cultural, religious and political concerns over satellite broadcasting in the region. Government media ownership means that people have less of a voice and less of an opportunity to express diverse opinions”.

The Egyptian satellite Nilesat is providing educational content. “After the introduction of the Egyptian Satellite Channel, Saudi Arabia launched the Middle East Broadcasting Center (MBC), which is a privately owned network”.10

“In 1995, Qatar made initiatives to introduce the first Arab all-news and public affairs satellite channel. 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. Al-Jazeera is still leading the region in this direction and is gaining popularity every day”.10
The European Union “Television policy aims at promoting European Integration and abolishing National barriers and is for the free movement of goods and services within the common market. European Union’s TV policy’s important initiative is the establishment of a single EU market in Television called ‘Television without frontiers’.

The TWF directive’s aim was to secure access for viewers and listeners in all member states to Broadcasting signals emanating from any other member state”.11

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 and protection of existing National and Sub-National broadcasting markets and institutions.

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

Ownership of independent media outlets is concentrated in the hands of a few large companies, including those headed by Rupert Murdoch. British TV aims to enrich viewers and serve society. In Britain broadcasting is a social pillar affecting institutions like Parliament and the church besides covering sports, education, theatre, arts and film.

TV in the UK has been throughout a regulated public service system. Three of it’s 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. British Television invests heavily in news and current affairs including election campaigns, children’s TV including entertainment, information, drama and animation and 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 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 multi-channel package included Discovery. Children’s channel, Nickloisodeon 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.

In Canada “the Broadcasting Act aims to maintain Canada’s cultural fabric — thereby strengthening its economic, political and
social structures. It includes provisions regarding Canadian content in programming and production and emphasis is on reflecting Canada’s cultural diversity. It encourages the development of Canadian expression, and the use of Canadian talent and creative resources. The act covers three main sections that is a broadcasting policy for Canada, regulatory powers of the Canadian Radio-television and Telecommunications Commission (CRTC) and the operating procedures and policies for the Canadian Broadcasting Corporation”.13

“The Broadcasting Act emphasizes that each broadcaster is responsible for its own programs, and that a high standard of programming is expected. There is no specific reference, however, to address violent programming or hate propaganda”.13

In the U.S. “the telecommunications act relies on increased competition for development of new services in Broadcasting and cable, telecommunications information and video services and prohibits the transmission of indecent material. The act further requires broadcasters to formulate a rating scheme for programmers.”14

“The US Federal communication’s commission was created by the congress for regulating broadcasting and wired communication. The commission’s areas of concern are television violence and issues related to children’s television”.14

“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.

In view of the changing broadcasting environment each country has evolved its own policy for broadcasting.

**EDUCATIONAL BROADCASTING- AN OVERVIEW**

In **Japan** Educational TV, news content had a coverage of 2.4% and education 81.8% and culture 15.8%. These programs were of an informative and educational nature. In General TV education had 11%, news 45%, culture 23.9% and entertainment 20.1%.

**General TV (168 hrs 00m)**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>PERCENTAGE</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>News</td>
<td>45.0%</td>
<td>75hrs 39m</td>
</tr>
<tr>
<td>Education</td>
<td>11%</td>
<td>18hrs 30m</td>
</tr>
<tr>
<td>Culture</td>
<td>23.9%</td>
<td>40hrs 11m</td>
</tr>
<tr>
<td>Entertainment</td>
<td>20.1%</td>
<td>33hrs 40m</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>168hrs 00m</strong></td>
</tr>
</tbody>
</table>

**Educational TV (150hrs 10m)**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>PERCENTAGE</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>News</td>
<td>2.4%</td>
<td>3hrs 38m</td>
</tr>
<tr>
<td>Education</td>
<td>81.8%</td>
<td>122hrs 50m</td>
</tr>
<tr>
<td>Culture</td>
<td>15.8%</td>
<td>23hrs 42m</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>150hrs 10m</strong></td>
</tr>
</tbody>
</table>
BS-Hi Vision channel that aims to educate and inform present and future generations had news as 15%, education 14.3%, culture 44.2% and entertainment 26.5%. Japan’s satellite-BS-1 too has education 13.7%, news 54%, culture 23.7% and entertainment 8.6%. Japan’s satellite-2, BS-2 has education 31.2%, news 17.3%, culture 20.2% and entertainment 31.3%. Japan stresses the importance of education. It considers educational programming to span all areas of education including education at home, formal school education and life long learning.

China has satellite TV channels CETV1, 2 and 3 designated to broadcast educational programs only. In 2000 they broadcast 17864 hours of programs, more than 50 hours of programs daily. 45% of China’s Central Broadcasting and TV University’s programming is devoted to college courses. Programming covers news 10%, Documentary and magazine show 10%, Educational 2%, Entertainment 60% and Service oriented advertising 18%.

**Program Mix 2004**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Courses</td>
<td>45%</td>
</tr>
<tr>
<td>Education related newscast</td>
<td>4%</td>
</tr>
<tr>
<td>Social public education program</td>
<td>11%</td>
</tr>
<tr>
<td>General education &amp; Science education</td>
<td>24%</td>
</tr>
<tr>
<td>Service program &amp; Advertising</td>
<td>16%</td>
</tr>
</tbody>
</table>

(Source: Encyclopedia of TV by Horace Newcomb)
In 2004 program mix was college courses 45%, education related newscast 4%, Social public education program 11%, General education and science education 24% and Service program and advertising 16%.

Pakistan also emphasizes on education and with its communication satellite, Paksat 1, Pakistan entered into a new era of socio-economic development. A major portion of this satellite is used for educational purposes, by linking the various universities. The satellite is also being used in projects related to Tele-medicine and Tele-education. ATV, (Shalimar Television Network Channel) is a popular channel due to its entertainment and educative programs.

**ATV’s Program Mix - 2008**

<table>
<thead>
<tr>
<th>Program Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entertainment</td>
<td>40%</td>
</tr>
<tr>
<td>Information</td>
<td>37%</td>
</tr>
<tr>
<td>Education</td>
<td>23%</td>
</tr>
</tbody>
</table>

(http://www.srbc.com.pk/srbc_in_brief.asp#stn)

The channel devotes 23% to education, 37% to information and 40% to entertainment. SAMAA TV, private satellite channel of Pakistan also airs programs on social development.

In India Doordarshan with more than fifty channels, through it’s three tier program service- National, Regional and Local, caters to education in it’s telecast.
Program composition of Doordarshan Channels - 2008

**DD National**

<table>
<thead>
<tr>
<th>Program Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parliament</td>
<td>1.20</td>
</tr>
<tr>
<td>Sports</td>
<td>4.70</td>
</tr>
<tr>
<td>Entertainment (including public service)</td>
<td>54.60</td>
</tr>
<tr>
<td>Educational</td>
<td>9.80</td>
</tr>
<tr>
<td>News &amp; Current Affairs</td>
<td>8.50</td>
</tr>
<tr>
<td>Environment</td>
<td>2.10</td>
</tr>
<tr>
<td>Children’s programs</td>
<td>0.60</td>
</tr>
<tr>
<td>Others</td>
<td>18.50</td>
</tr>
</tbody>
</table>

DD National has a coverage of 9.80% for educational category whereas entertainment including public service is 54.60%.

**DD Regional**

<table>
<thead>
<tr>
<th>Program Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parliament, Assembly</td>
<td>0.10</td>
</tr>
<tr>
<td>Sports</td>
<td>0.8</td>
</tr>
<tr>
<td>Public service</td>
<td>14.2</td>
</tr>
<tr>
<td>Entertainment</td>
<td>55.4</td>
</tr>
<tr>
<td>Educational</td>
<td>11.2</td>
</tr>
<tr>
<td>News &amp; Current Affairs</td>
<td>13</td>
</tr>
<tr>
<td>Environment</td>
<td>0.1</td>
</tr>
<tr>
<td>Children’s programs</td>
<td>1.1</td>
</tr>
<tr>
<td>Others</td>
<td>4.1</td>
</tr>
</tbody>
</table>

DD Regional’s educational coverage is 11.2% with public service at 14.2% and entertainment at 55.4%. The rest are informative programs. DD news has informative programs at 24.79% while DD
Bharti’s informative programs are at 37% and educational at 30%. DD-Gyan Darshan, the 24 hour educational TV channel of India is a joint venture of Doordarshan and IGNOU. Indira Gandhi National open university, IGNOU transmits programs from its Electronic Media Production Centre at New Delhi. India’s educational satellite EDUSAT is entirely dedicated to the nation’s need for education. Tele-education has been taken up with the launch of EDUSAT.

Sri-Lanka’s Rupavahini Corporation (SLRC) provides informative, educational and entertainment programs. Sri-Lanka too realizes the importance of education as a means of socio-economic development. Among its many programs are music, religion, education, sports, environment, travel, business, culture, history and entertainment.

In the Middle East, Al Jazeera Children’s Channel (JCC) is a Pan-Arab edutainment channel with the mission to encourage the love of learning and discovery. JCC is dedicated to create & provide quality programs that enlighten the child’s mind. JCC productions cover different educational subjects such as Science, Technology and sports.
NILESAT TV CHANNELS

<table>
<thead>
<tr>
<th>Freq./Pol slot</th>
<th>IRD slot</th>
<th>SCR Name</th>
<th>TV Channel</th>
<th>Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.74666 GHz Vertical</td>
<td>101</td>
<td>EDUC-1</td>
<td>Primary Education</td>
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<td></td>
<td>102</td>
<td>EDUC-2</td>
<td>Preparatory Education</td>
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<td></td>
<td>103</td>
<td>EDUC-3</td>
<td>Secondary Education</td>
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<td>104</td>
<td>EDUC-4</td>
<td>Technical Education</td>
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<td>105</td>
<td>EDUC-5</td>
<td>Language Education</td>
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<td>106</td>
<td>EDUC-6</td>
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<td>107</td>
<td>UNIV 1</td>
<td>High Education Ch</td>
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<td>108</td>
<td>MNR</td>
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<td>109</td>
<td>Al Fajr</td>
<td>Al Fajr Space Ch.</td>
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<td></td>
<td>110</td>
<td>EDUC-7</td>
<td>Illiterate Education</td>
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http://www.nilesat.com.eg/chanchannels.htm

Nilesat is currently providing educational, entertainment and cultural channels. It enhances the flow of information, including bringing service to people in isolated and rural areas.

A key feature of broadcasting in BBC is to promote knowledge and learning. BBC One contributes to the BBC's knowledge-building strategy through investment in high-quality factual programming for a broad audience across a number of subject areas. Most of the channels are totally devoted to education. The open university of BBC had 5000 hours worth of material available by 2008 not only for learners but for educators to adapt and use for their own purposes. News stories cover besides factual, health, science, environment and technology. BBC One’s content covered 2,021 hours of factual
programming. Six hours were devoted to education formal whereas BBC Two which promotes education and learning devoted 785 hours to education formal in 2007-08. 1374 hours were devoted to education in 2006-07. BBC Two is the BBC’s main knowledge-building television channel. BBC Three, UK’s leading digital channel for new comedy ideas and talent, did not have any programs in education in 2006-07 and 2007-08. BBC Four continues to contribute towards the delivery of the BBC’s public purposes such as promotion of education and learning. It devoted 2 hours to education in 2007-08 and 10 hours in 2006-07.

In Canada the CBC, throughout, since it’s inception has been active in producing and broadcasting educational television programs. Informative programs news analysis and interpretation was 22.6% of total hours in 2004-2005 and 20.6% in 2005-06. In 2006-2007 it was 20.4%. Documentary was 4.8% of total hours in 2004-05, 4.6% in 2005-06 and 5% in 2006-07. In Canadian private conventional services, informative programs news analysis and interpretation was 22.2% in 2004-05 and 22.4% in 2005-06. In 2006-07 it was 22.5%. Documentary was 1.2% of total hours in 2004-05, 1.2% in 2005-06 and 1.4% in 2006-07. Canada has a 24 hour educational channel broadcasting round the clock.

In the United states of America ION broadcasts 24 hours a day, 7 days a week, making the ION network totally responsible for its affiliates, although it mostly airs infomercials outside its prime time. My Network TV broadcasts 12 hours a week, Monday through Saturday. The CW broadcasts 13 hours a week in prime time, 10
hours in daytime. Percentage of local TV news broadcast time devoted to advertising: 30% Percentage devoted to stories about crime, disaster and war: 53.8% Percentage devoted to public service announcements: 0.7%

Television often plays an important role in introducing American children to new ideas and developing common worldviews, and has generally been through the mass media that most Americans develop a national and global awareness.

Many shows are broadcast over the entire U.S., delivered to the home via the air or by cable and thus have an influence on a very large set of the population, as 98 percent of all American households have at least one television and the majority of households have more than one.

In PBS programming current public affairs documentaries -- constitute 8 percent of evening programming offered by PBS stations. The bulk of evening programming (59 percent) is devoted to dramas and comedies, music and dance programs and non-public affairs documentaries such as travel programs. The mix of programming varied between cities. For example, the percentage of airtime allotted to public affairs programming varied from a high of 42 percent in Houston to a low of 22 percent in New York. Boston (15 percent) devotes twice as much airtime to news as does New York (6 percent) or Los Angeles (7 percent). For a system that is intended to reflect the local needs of communities, local programming is 7 percent. This
percentage varied widely from city to city, from a high of 12 percent of airtime in Washington, D.C., to a low of 3 percent in Kansas City, MO.

The study reveals that most of the countries of the world whether developed or developing have focused on educational broadcasting. Most of the nations have realized the significance of education in economic and social development as also the overall human development. Education in all its forms health, agriculture, telemedicine besides primary, secondary and higher education is of prime importance to almost all the nations and they are making continuous efforts to enhance the educational aspects in their broadcasting networks.

This is quite evident since almost all the countries have a 24 hour educational channel dealing with primary, school and college education besides the open universities.

RECOMMENDATIONS

Emphasis is on science and technology education since this leads to overall progress of a nation. The purpose should be to lay down specific policy matters regarding the broadcasting and telecasting networks. The electronic media being very powerful can influence the functioning of the individuals, community and nations as a whole.

The Indian broadcast policy as a whole should include the following points:

1. The programming should be in a manner so as to promote education, as well as formal education, and life long learning. It is in
this context that programs that promote science and technology should be given emphasis.

2. Doordarshan and broadcasters in various developing countries should work towards the concept of broadcasting in the public interest, with a commitment to development broadcasting. Only such a commitment will guarantee Doordarshan a special role and allow for different types of funding (e.g., government subsidies, memberships, grants) besides advertising.

3. A separate DD channel should be created for developmental broadcasting as a terrestrial channel and to ensure that cable systems also carry the same. Many of the poor are still illiterate and rely on terrestrial TV for education, information, and entertainment. This separate channel could target both rural and urban audiences with programming that is more relevant to their lives.

4. Policy and decision-makers in broadcasting, education and training and the IT industry should consider that technology has raised the quality of individualized distance instruction and that electronic media have had an impact in a number of areas especially in technologically based distance education programs. Integrated type of development broadcasting in India will ensure its continued existence in the new global and commercialized socio-economic and media environment.

5. India’s broadcast policy should reflect India’s commitment to public service broadcasting and its role in the socio-economic development of the country. This can be amply demonstrated by relevant programming on Doordarshan, the national sole public service television broadcaster of the country.
Electronic media are very powerful and can influence the overall functioning of the society.

6. Programming should promote Science and Technology since India is a country which suffers from tremendous superstition and blind faith. In fact science at times has not progressed due to blind faith. The electronic media through its programming should not promote superstition, religious fears or lay emphasis on astrological forecasts.

7. Popularization and creation of science are intimately related. This gives us the illusion of being a superpower status, but unless science becomes a part of our religion this concept of superpower may be a dream. This concept of science and religion being intimately connected can be publicized, with the masses being made aware of, and educated of the same by the electronic media.

Modern biotechnology opens up a broad range of potential applications in agriculture, industry, medicine, environmental protection and resource conservation. This technology is accordingly also expected to make a major contribution to solving problems in developing economies. On the other hand, there is also concern that its use could further widen the technological and economic gap between rich and poor countries.

“Globally, biotechnology is providing powerful tools for sustainable development in an increasingly broad range of human activities including: agriculture, fisheries and forestry; human, animal and plant health; pharmaceutical, biochemical and food industries; and waste management, bioremediation and a range of environmental conservation endeavors. The biotechnology tools include in vitro culture; identification of candidate genes and gene isolation;
bioengineering techniques that allow modifications to genes, biochemical pathways and organisms; molecular marker technology, which aids in accelerating breeding, ensuring sustainable systems of resource exploitation, traceability through DNA fingerprinting and developing methods of disease diagnosis.”

Our whole Science and Technology structure needs revamping. “Developing biotechnology based industries require the involvement of a wide range of expertise from a variety of disciplines. It requires expertise in genetics, biochemistry, microbiology and molecular biology and competence in the use of molecular biology tools; it needs entrepreneurial skills relevant to biotechnological industries; as well as knowledge on enabling policies such as policies on biotechnology, bio-safety, intellectual property rights. Furthermore, the ability to store, manipulate, manage and decipher information from very large genome based or protein based data sets or molecular marker data (bioinformatics) is imperative to function in a biotechnology enterprise. Other skills that are required are engineering skills associated with developing fermentation systems or waste management systems or technology development and team skills.” The public and specific target groups have to be educated and trained and made aware of various scientific innovations and it is in this context that the electronic media plays a major role.

The universities in the region should aim at recruiting graduates from a broad disciplinary base (biologists, chemists, information technologists, social scientists, agriculturists, engineers, medical scientists and clinicians) into postgraduate programs that provide a flexible training environment that will provide the requisite grounding
in a specific area and the team skills to function in a multi-disciplinary
unit that can support biotechnology industry development.” 15

8. These innovations should be highlighted by the Electronic media in
their programming and due emphasis should be given to Science and
Technology since they are the very basis of the development of a
country. Programs for colleges and higher institutions and the general
public should be made innovatively by the programmers to sustain
interest and thereby create awareness and bring about attitudinal
change amongst the masses. Thus leading to the socio-economic
development of the country.

9. The communication departments of the country should be geared
up to face the challenges of illiteracy, superstition and blind faith,
poverty, poor health and hygiene etc, by creating educative,
informative, scientific programs on the electronic media followed by
inter-personal means. Thereby motivating the masses and bringing
about attitudinal change.

10. Community viewing centers should be provided and strengthened
in various areas. E-mail services and Fax services should be
provided. Villagers should be familiarized with these services.

CONCLUSION

Significant developments have taken place in the world
Broadcast systems that have influenced the policies and status of the
individual Nations, whether on entertainment, educational,
instructional or informative aspects. Educators have seen television’s
potential as an instructional tool. Satellite communication technology
has proved to be a strong tool to support development education.
Communication and communication media are important
components, as well as indicators, of the development process. These are essential supports to development programs. The satellite based interactive system is ideal for training large numbers in the shortest time possible. Countries are taking steps to harness the power of satellites and the new communication technologies with the purpose of education and national development. The development of Science and Technology in the 20th century is the most important development for the survival of a nation. Bio-Technology, genetic engineering have appeared as Sun-rising Technology and these Biological revolutions have tremendous potential to transform society. Education should reach the masses through broadcasting for development of the country. The policy should be such which aims to induct scientific education in Technology.

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