Reg. No. KERENG/2010/35808

ISSN 2231-217 X

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INTER-DISCIPLINARY JOURNAL FOR SCIENCE COMMUNICATION AND JOURNALISM

Volume 02, Issue 02, June 2011

Directorate of Public Relations and Publications
Cochin University of Science and Technology
Kochi - 682 022, Kerala, India

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Yearly subscription: 200 INR (In India)
Price per copy 100 INR (In India)
E-mail: scicom@cusat.ac.in, dpr@cusat.ac.in Phone: +91 484 2577550
Edited, Printed and Published by Dr. S. Anil Kumar
Director, Public Relations and Publications
Cochin Unviersity of Science and Technology, Kochi - 682 022, India

Editorial

SCIENCE COMMUNICATION AND RATIONALISM

Scientific temper is an innate quality of every human being. Man is born with a mind having scientific temper. He wants to touch, experience, explore and experiment with everything around him. But, the social setup, tradition, taboos and education imparted prevent him from asking questions and exploring natural phenomena. He is thereby forced to accept certain notions, that too without using the scanner of scientific outlook and rational thinking. Ultimately the child will grow as a citizen having no scientific vigour, temper or spirit of inquiry. Of course this aspect is disastrous to any developing society or nation with diverse culture.

That is the reason why the Union Govt. of India incorporated a special provision in its Constitution under the topic 'fundamental duty' as "*It shall be the duty of every citizen to develop the scientific temper, humanism and the spirit of inquiry and reform* (Article 51-A(a) of the Indian Constitution)" But the mere incorporation of a provision in the Constitution alone will not help. Instead creative ways should be invented and implemented to make such a provision a reality thereby paving the way for ultimate development. As we know many agencies are engaged in the process of making the citizen scientifically aware. Unfortunately proper care was not taken in tailoring suitable methodology for propagation of science and scientific awareness in a traditional society like India.

Advocates of scientific awareness and scientific temper have often identified superstitions and religious beliefs as the main hindrance in popularizing science. They demand a ban of the use of religious symbols and ceremonies with religious overtones performed in the garb of cultural activities in Govt. establishments and all other public institutions. Some even come forward against the religious ceremonies and way of worship of certain communities, as if it is the only way to achieve scientific temper. Such irrational attitudes of certain groups give an impression that the ultimate way of achieving scientific temper is only through rationalism.

This attitude is counter-productive and of course dangerous. It is true that irrational beliefs should be scrapped and we have to work for it. But religion is deeply rooted in the Indian culture and the common man considers religion and its ceremonies as dear. Anything which challenges the very existence of this deep rooted belief will be viewed with suspicion. It is also alleged that certain religious groups may grab at such opportunities to fulfill their ulterior motives in the pretext of science popularization. Almost all festivals and celebrations are associated with religions and climatic conditions. They are observed throughout the country with much ecstasy and a Govt. elected by the citizens cannot distance itself from such occasions. We can consider such festivals as occasions to celebrate alone without mixing religion with age old celebrations.

As prudent citizens, what we have to do is to devise innovative techniques to utilize such occasions and celebrations to propagate the message of science. Many agencies in the non-governmental sector are already using such techniques like traditional art and other visual forms of art for science popularization in a beautiful manner.

As we know the essence of communication is the message and its transmission from source to receiver without disturbance. It will be successful only if the source is having credibility in the minds of the right-thinking members of the society. Otherwise the message will be rejected summarily.

What we need is a clear scientific line of demarcation between superstitions, cultural practices, religious beliefs and scientific thinking. Superstitions should be opposed. At the same time religion, culture and beliefs should not be insulted because our intention is not establishing a rationalist society, but a society having prudent outlook and scientific temper. Religious beliefs have nothing to do with this, and nothing can be gained by opposing them.

S. Anil Kumar

Science Communicator
Volume 02, Issue 02, June 2011 (Half yearly publication)
Reg. No. KERENG/2010/35808 ISSN 2231-217 X

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Authors who wish to contribute papers may kindly contact the editor through mail: anilvadavathoor@gmail.com / akv@cusat.ac.in or by post. Subscription queries may be addressed to the Directorate of Public Relations and Publications, CUSAT, Kochi-22 or scicom@cusat.ac.in

MODERN TRENDS IN INCULCATING SCIENTIFIC TEMPER AMONG YOUNG TALENTS

Ajit Prabhu V.

Science is always exciting to scientists**;** but**,** is it so for the general public? Science is often frightening or perhaps boring to non-scientists. But it is a fact that only science has created development in all facets of human life. Science education has an important role to play in the all-round cultural and societal development of a civilized society.

Science is generally defined as the body of knowledge, strictly controlled and systematically ordered, that allows reaching objectives through *investigating* phenomena or concepts. India has a rich tradition and a great treasure of scientific heritage. During Vedic, post Vedic and classical periods, science/technology was at its peak of development, although such information was not available to the public. Knowledge was limited to a privileged class. *This was a great historical drawback.* Science and knowledge can develop only when it is shared. Therefore it is essential to create a scientific temper, nurture it, develop it and communicate with the stakeholders and public.

It was our first Prime Minister Pandit Jawaharlal Nehru who popularized the terminology *Scientific Temper in India.* He took several initiatives in the post-independence era for the development of science and technology (S&T) and, mainly on account of this, he *could rekindle* the scientific temper in Indian minds.

Science is always interesting, informative and inspiring. However, for various reasons science continues to be alienated from the young minds in India. If this state of affairs continues to be so, the glory of the achievements we have created is not going to last. Perhaps in this context, it may be recalled that India could not bag any Nobel Prize in science after Sir C V Raman (in 1930)**,** who was born and brought up in India and who studied and did his research in

Dr. Ajith Prabhu V., Joint Director, Kerala State Council for Science, Technology and Environment, Shastra Bhavan, Pattom, Thiruvananthapuram – 695 004
E-mail: drajitprabhu@gmail.com

India. In spite of the mammoth infrastructural facilities created in our country and with the establishment of several Universities and R&D Laboratories, India is not in yet in the forefront. Therefore what is needed is inculcating a scientific temper among the young talents to take the country to greater heights.

Definition of Scientific Temper

"The attitudes of mind which lie behind the method of acquiring reliable and practical knowledge may be called the scientific temper", said Pandit Jawaharlal Nehru. Scientific temper describes an attitude which involves the application of logic and the avoidance of bias and preconceived notions. Discussion, argument and analysis are vital parts of scientific temper. It also includes proper science communication and popularizing science and also creating interest in science education.

Creating scientific temper through education

India today is witnessing a major educational revolution. The whole system of education is experiencing vital changes which are expected to take the country and its coming generations move forward rapidly. As the system prepares itself for re-molding, there is a dire need to inculcate scientific temper among students.

Scientific temper is not confined to teaching science subjects alone or to laws, theories and formulas. Instead, it is a state of mind that always questions everything; seeking knowledge and being satisfied only when proven with substantial evidence. It is the teacher's responsibility to provide the students with an environment where they are able to question the apparently logical; discuss and argue over established norms, laws and theories; and feel free to put the views across without the fear of being ridiculed or rejected. It is the responsibility of the educational institutions and the whole education system of a country to provide an environment to the students where they are not bound by rigid mindsets. They need to seek logic, they need to question all that they observe and believe in applying their knowledge to practical use. Scientific temper can also be interpreted as the curiosity or inquisitiveness to understand more about science and that too with greater enthusiasm. Science learning should not be treated as a punishment; instead it should be through entertainment and with freedom of mind and spirit.

Modern Trends in inculcating Scientific Temper

Scientific temper can be created through non-classroom teaching methods like seminars and workshops, training programmes, demonstrations, exhibitions, even science magic, etc. Scientific temper development should be a continuous process. Some of the recent trends in India on the subject are described below.

a) Science Congresses

Indian Science Congress presently organized by Indian Science Congress Association provides an opportunity for showcasing the scientific achievements in the country. It also provides a platform for all science lovers and scientists to come together to share the views on science. There are special sessions targeted for children, science communicators, media, etc. Usually the Congress organizes exhibitions in which all the top R&D organizations of the country participate and provide multifaceted knowledge to the delegates. It is in fact a rare opportunity to meet the *Who's who* in science and technology like Nobel laureates, eminent scientists, technocrats, Bhatnagar Awardees and Young scientists. The presence of the Prime Minister who customarily inaugurates the Congress adds value and color to the function; it also highlights the importance given by Government of India for Science and Technology. Indian Science Congress is always an avenue for inculcating scientific temper, perhaps it may be the only mammoth science event in the country.

Subsequent to Indian Science Congress various States started organizing State Science Congresses. Kerala Science Congress organized by Kerala State Council for Science, Technology and Environment, is one of the first and the best State level science events. Similarly various agencies and institutions started organizing science congresses in many specialized areas of science like Children Science Congress, Environmental Science Congress, *Swadeshi* Science Congress, Engineering Congress, Energy Congress, etc. It is a positive movement, whatever may be the theme, to organize such science events which have got long term impact in developing science and scientists in India.

b) Science & Technology Museums

National Council of Science Museums (NCSM), an autonomous organization under the Ministry of Culture, Govt. of India, is the apex body of Science Museums and Science Centers in India. The

Council is engaged in popularizing science and technology amongst students and general public through exhibits, exhibitions and activities and in creating a scientific awareness and developing a scientific temper in the society. The human insight is described as 83% through Sight, 11 % through Hearing, 3½ % through Smell, 1½ % through Touch and 1 % through Taste. This explains the importance of seeing and learning. Science & Technology Museums displays different exhibit, static and dynamic models, instruments, botanic gardens, energy parks, etc. which offer excellent opportunities for 'seeing and believing/learning" model for students and public.

The objectives of NCSM are:

- To portray the growth of science and technology and their applications in industry and human welfare, with a view to develop scientific attitude and temper and to create, inculcate and sustain a general awareness amongst the people.
- To collect, restore and preserve important historical objects, which represent landmarks in the development of science, technology and industry.
- To design, develop and fabricate science museum exhibits, demonstration equipment and scientific teaching aids for science education and popularization of science.
- To popularize science and technology in cities, urban and rural areas for the benefit of students and for the common man by organizing exhibitions, seminars, popular lectures, science camps and various other programs.
- To supplement science education given in schools and colleges and to organize various out-of-school educational activities to foster a spirit of scientific enquiry and creativity among the students.
- To organize training programs for science teachers/students/ young entrepreneurs/technicians/ handicapped/housewives and others on specific subjects of science, technology and industry.
- To render assistance to universities, technical institutions, museums, schools and colleges or other bodies in planning and organizing science museums and also in training of personnel for museum profession.

- To establish Centers for development of science exhibits and demonstration aids.

NCSM supports to a great extent in establishing Science Cities, Regional Science Centers, and Science & Technology Museums in the Country in State levels too.

Science City, Kolkata, the largest science centre in the sub-continent, under the National Council of Science Museums consists of two facilities, the Science Centre and the Convention Centre. The Science Centre complex comprises Space Odyssey, Dynamotion, Evolution Theme Park, Maritime Centre and a Science Park. The Space Odyssey houses India's first Large Format Film Theatre, Time Machine, 3-D Vision Theatre, Mirror Magic and exhibits on space science, motion, electricity and virtual reality. The Dynamotion Hall has a Butterfly Corner, Aquaria, an exposition on giant robotic insects and host of interactive exhibits on science & technology for both education and entertainment of the visitors.

The National Science Centre, Delhi is a unit of the National Council of Science Museums, and is a pioneering institute engaged in the popularization of science among the people of the northern part of India in general and among the students in particular. It was inaugurated on the 9th of January 1992 by the then Prime Minister of India. Since opening, the Centre has rendered unstinted service to the cause of science popularization.

c) Science Communication Websites

Popscience, the abbreviation of Popular Science, is the interpretation of science intended for the general public and students. This science learning portal initiated by the National Council of Science Museums is the first of its kind in India. The goal of this portal is to capture and deliver the methods and accuracy of science, while making the language more accessible. Scientific information, experiments, unexplained facts and biographies of some eminent Indian scientists are discussed in this portal. This is the place where one can come across the science publications and recent activities and latest science news. The portal is an interactive one where anybody can pose any questions on any topic under science and interact. Subsequent to this various initiatives are taken for creating web portals to provide insights in science and to sensitize on scientific facts.

d) Science Film Shows

Nehru Science Centre, Mumbai, gives various science shows to students and teachers on request. The shows include Science Vs Miracle, Unexpected Science, Fun with Physics & Chemistry, Matters at low temperature etc. These shows, full with demonstrations, present a fascinating science thereby making learning of science a joyful experience. Apart from that, science fiction films, films on energy and environment, other interesting science phenomenon provides spectacular learning and is one of the powerful and effective methods of inculcating scientific temper.

e) Planetariums

A planetarium is a theatre built primarily for presenting educational and entertaining shows about astronomy and the night sky, or for training in celestial navigation. A dominant feature of most planetariums is the large dome-shaped projection screen onto which scenes of stars, planets and other celestial objects can be made to appear and move realistically to simulate the complex 'motions of the heavens'. The celestial scenes can be created using a wide variety of technologies. Whatever technologies are used, the objective is normally to link them together to provide an accurate relative motion of the sky. Typical systems can be set to display the sky at any point in time, past or present, and often to show the night sky as it would appear from any point of latitude on Earth. Several Planetariums across the country continue to serve the audience with exciting feelings of outer space and celestial objects.

f) Science Camps and Science Kits

Creativity is the unique mental process which results in an original and novel product. The students are provided adequate guidance to develop their innovative ideas into a meaningful kit/model. The model could be robotics, principles of electricity, plant science, or on any scientific principles. Similarly, science kits, like parts of telescope for assembling, parts of electrical bell for assembly, etc. can provide effective means of science education.

g) Observance and Celebrations of Important Days

With a view to encouraging, popularizing and inculcating scientific temper among the children of the country, DST, NCERT etc. organizes several national level programmes where children

showcase their talents in science and technology. The National Science Exhibition for Children by NCERT and the National Science Day Celebration on 28th February and National Technology Day on 11th May, every year by DST are major events meant for children. The major objectives of these programmes are the following.

1. Exposing and encouraging scientific talent among children.
2. Making children realize the relevance of Science and Technology to society, as well as their responsibilities as scientists and technologists of tomorrow.
3. Developing creative thinking, a habit of exploration and promoting life skills among children through self devised models of simple apparatus.
4. Stimulating interest in science and inculcating scientific temper in the younger generation.
5. Encouraging the problem-solving approach and the development of appropriate technology, especially for rural areas and integrating scientific ideas/principles related to daily life situations.
6. Inculcating an aesthetic sense and team spirit among the participants.
7. Popularizing science among the masses and creating an awareness of the role of science in the socio-economic growth of the country.
8. Developing appropriate techniques for communication of science.

Similarly there are commemoration and observance of several important days like Earth Day on 22nd April, World Environment Day on 5th June, Ozone Day on 16th September, World Forest Day on 21st march, World Wetland Day on 2nd February, etc. The activities on such special occasions arouse true spirit of science.

Other new trends include declaring a whole year on some particular science field such as International Year of Chemistry, International Year of Forestry, International Year of water, International year of Bio-diversity, etc.

h) Puppet Shows and other Folklores

Science can be better propagated locally through folklores like monkey show using ventriloquism, puppet shows in regional

languages, dramas, etc. Recently it has been found that some agencies earnestly develop various traditional art forms to communicate science interestingly like science magic, science dramas, etc. Such art forms are essentially effective instruments for science education and propagation.

Role of Scientific Temper

Scientific temper should create the attitude of mental activism, the spirit of urge, curiosity to find answer, striving to discover and do the work by taking interest and enthusiasm. It should also help in developing attitude of not accepting answers with scrutiny which requires observation, seeking solid information and incontrovertible data, suitable analysis before accepting any thing in the society and should finally culminate in innovations and inventions.

Scientific attitude requires objectivity and not rushing into readymade opinions, but it requires observation and exploration before forming an opinion. It does not give room for blind beliefs and one sided set mind. But helps to look out for evidence, exploration and analysis in order to formulate dependable hypothesis. Analysis is a rational process and reasoning is applied to examine the data and draw conclusion from it.

The curriculum and text books also play a crucial role in developing scientific temper. The lessons and concepts should reflect more with facts, scientific values, judgment on appropriate experimentation and exploration. It should reflect lessons which make children curious and inquisitive in the experiments to develop scientific research and scientific education, the concept should motivate and it should arose curiosity and interest. It should include problem solving method, inquiry models, and exponential method be encouraged.

Relevance of Scientific temper

Science is mainly concerned with understanding nature and probably unraveling its laws and in this sense it is beyond the realms of political, social and religious boundaries. Science is the only human activity which has built-in self corrective mechanism while all other activities of human race require external force to bring about corrective mechanisms in their fold. It should not be construed that science is the most harmless and highly acceptable activity of human beings. In a sense it is so when it enhances knowledge and produces useful

applications. Is the present system capable of creating knowledge and innovations? Panditji has repeated that "our people must develop scientific temper; then only we can progress". Scientists, political and social activists are all for this scientific temper. Some consider scientific temper to be the same as rational thinking. Some consider it as not believing in superstitions. But scientific temper is something more and some what different. On one side as a whole, we are developing in many aspects. But are we searching or researching in science? Can we develop real primary knowledge? Or are we simply following somebody's knowledge? Here comes the relevance of scientific temper which should eventually result in some useful product to the society.

Conclusion

Pandit Jawaharlal Nehru in his celebrated book "Discovery of India" *has* written: "The applications of science are inevitable and unavoidable for all countries and peoples today. But something more than its application is necessary. It is the scientific approach, the adventurous and yet critical temper of science, the search for truth and new knowledge, the refusal to accept anything without testing and trial, the capacity to change previous conclusions in the face of new evidence, the reliance on observed fact and not on pre-conceived theory, the hard discipline of the mind - all this is necessary, not merely for the application of science but for life itself and the solution of its many problems."

As it is a fact that our country is getting equipped for a quantum leap in the field of S&T and also is preparing ground for the knowledge hub of the world, the role and relevance of scientific temper is much more crucial in the coming years. The essence of science should be conceived by the students without much stress or difficulty. Learning science should be through fun which will certainly attract the students to science. As described in this article, quite a lot of initiatives are evolved to inculcate scientific temper though non-classroom methods of learning science, self learning through experimentation, visual observation and through proper interaction. Science Cities, Regional Science Centers, Science & technology Museums, Science Congresses, Science Web Portals, Science through Folklores, etc. are found to be emerging trends in science education. All these are powerful instruments for inculcating scientific temper.

COMMUNICATING SCIENCE THROUGH ICT: A STUDY OF VKC'S IN PUDUCHERRY

Jayaprakash D. & I. Arul Aram

Communication of information about science and technology is essential for good governance. Communicating science to the public comprises diverse approaches such as public talks, debates, exhibitions, publications, science theatre and television documentaries and Information and Communication Technology. Often, these activities form part of a wider campaign to engage people in science such as in the case of pulse polio campaign. Government policies in areas such as reproductive childcare and universal pulse polio vaccination are better implemented with the able backing of ICT. Formulating programmes require a collective effort among policy makers, scientists and communicators.

ICT and good governance

ICTs increasingly and demonstrably provide opportunities for governments to create innovative approaches in not only improving public service delivery that extends to the remotest areas, but also engaging citizens in government's decision-making processes. Today, more than 90 percent of all developing countries practice e-governance. In South-East Asia, for example, the Association of Southeast Asian Nations has committed to employ ICT in the provision and delivery of services by the government.

ICT-centred governance would usher in free flow of government information to all those who needed it. Thus, people can benefit directly without having to grease the palm of middlemen. The point is that IT can make a difference even in a society handicapped by underdevelopment and illiteracy. There is all the more the need to take up IT-centred development since grants are readily available for IT projects – one could easily get a grant for setting up an irrigation management information system but not for desilting the irrigation channels. The Kothmale Internet browsing through radio project has opened up new job opportunities for the rural youth. It also increased

Jayaprakash D., is a Research Scholar in the Department of Media Sciences, Anna University Chennai, Tamil Nadu. E-mail: jpdmedia@gmail.com, Dr. I. Arul Aram is an Associate Professor in the Department of Media Sciences, Anna University Chennai. E-mail: arulram@yahoo.com

the level of educational achievements among students. By encouraging community participation, the project strengthened the community bonds. Government websites constantly updated the content to augment database constantly accessed and transmitted over radio. Thus the project helped build e-governance too. Technology was demystified so that all could share its benefits. The people also took part in the management of the station and had a say in the scheduling and programming. The individualistic medium of computer / Internet (normally used only by the elite) is being made a collective medium for the masses.

Focus on Information Technology

Communication of information about science is essential for good governance. IT can help democratize governments. It can make information transparent and thus reduce bureaucratic and political control over information. APSWAN or Andhra Pradesh State Wide Area Network enables connectivity among departments as well as the various offices of each department. CARD or Computer-aided Administration of the Registration Department has become one of the most successful examples of e-governance. Many other states in India have followed suit. If not anything, such initiatives have speeded up transactions and have brought in some amount of transparency. Andhra Pradesh is setting up Internet kiosks at all public call booths in all its villages. In fact, hoarding of information is common with government departments; and data that are vital for grassroots development are normally not revealed. But ICT-centred governance would usher in free flow of government information to all those who needed it. Thus, people can benefit directly without having to grease the palm of middlemen.

The point is that IT can make a difference even in a society handicapped by underdevelopment and illiteracy. There is all the more the need to take up IT-centred development since grants are readily available for IT projects – you could easily get a grant for setting up an irrigation management information system but not for desilting the irrigation channels.

Non-government organizations involved in science-based activism such as AIDS awareness and environment awareness too employ science communicators. Of late, people are particularly interested in health and environment, and this has been reflected in

increased coverage of these subjects in the media. Curriculum should also reflect this reality and offer special papers on Environment and Health. The scope for specializing in environment communication and health communication is increasing.

Information forms the basis to create awareness, though awareness to action calls for an integrated approach to development. For instance, the Kothmale project in Sri Lanka experimented with Internet browsing through radio. Here the questions of the listeners are searched in the Internet and the answers translated into the local language and contextualized by volunteers, and then broadcast. The project expanded knowledge base. According to Wijayananda Jayaweera (2001), given that information becomes knowledge only when it is discussed and contextualised in the community, the radio-browsing model has many advantages over browsing the Internet individually, particularly when language becomes a barrier to understand the content.

The Kothmale Internet browsing through radio project has opened up new job opportunities for the rural youth. It also increased the level of educational achievements among students. By encouraging community participation, the project strengthened the community bonds. Government websites constantly updated the content to augment database constantly accessed and transmitted over radio. Thus the project helped build e-governance too. Technology was demystified so that all could share its benefits. The people also took part in the management of the station and had a say in the scheduling and programming. The individualistic medium of computer / Internet (normally used only by the elite) is here made a collective medium for the masses.

Village resource centres

The village resource centres (VRCs) in the Pondicherry Union Territory of India have been developed by the M.S. Swaminathan Research Foundation in Chennai. Pondicherry, which was the administrative headquarters of the French territories in India, comprises 130 villages and the Pondicherry town. Tamil is the language spoken with English and French as languages of the administration. About 20 percent of the rural families live below the poverty line.

In 1997, MSSRF started a programme that would use access to information as the key to holistic rural development. Later in early 1998, the Information Village Research Project was established with financial support from International Development Research Centre (IDRC), Canada. MSSRF provided villages with free technology and information in exchange for the villages' promise to house the computers and staff their operation. MSSRF gave four Pondicherry villages in its network other practical, highly local information, which was distributed through the village computer network in the local language, Tamil. Mostly, information which was not on the Internet was disseminated.

The village knowledge centres were first established in Kizhur, Mangalam, Embalam and Veerampattinam villages of Pondicherry. The four villages were linked to an MSSRF hub at Villianur through an ingenious wireless system which served as a VRC. The centre at Embalam was uniquely located on the premises of a village temple, which is owned by the community through an informal trust. In each centre, a Pentium PC with multimedia and a deskjet printer had been installed in a specially designed box to prevent rodent attacks on the instruments. The computer could be connected to the wireless network through a modem and a specially designed interface. The volunteers too contributed news from the locality. A graduate of the Indian Institute of Technology at Kanpur oversaw the project. A local area network based on Very High Frequency (VHF) radio had been established with the Villianur office serving as a hub, handling voice communication as well as data. The project was later expanded to 12 villages of Pondicherry.

Formerly called "information shops", the village knowledge centres provide information to the rural population on relevant issues such as: health (vaccine/medicine availability in the nearest health centre); relief information (loans, availability of officials); agriculture (local market prices for rural produce); transportation information; micro-meteorological information (relating to the local area); surface and groundwater-related data; and translating English-based Internet content into Tamil and contextualizing it.

The village knowledge centres were operated by individuals on a semi-voluntary basis. Such individuals were identified on the basis of the following criteria: education (at least high school); socio-

economic status (marginal farmers were given preference); gender (other things being equal, women were given preference); and age (preferably in the 20-25 age group). They were given two days of training by MSSRF. The training session consists of demonstration and hands on training of the wireless instruments, PC keyboard and mouse, and use of conditioned power supply. And one person per village was selected from among the trainees, for each of the centres.

The equipment was provided to the operators and they were trained in the basic operations of a computer, elements of word processing, spread sheets and HTML, using e-mail and Web browsing, use of the radio modem, and general matters, including basics of upkeep. The training and materials are in Tamizh, the local language.

Value addition by professionals or trained individuals, to networked information helped rural families to have accessibility. A small VRC office in a centrally located village, Villianur, served as the value addition centre, where the project staff surfed the Internet for useful contacts or technologies. Each centre varied slightly in the way it was operated and supported. In Kizhur, the volunteers were chosen by the Village Development Council, which also nominated a 23-member (14 men and 9 women) group to guide the centre's operations. At the centre in Embalam all the volunteers were women in the 21-27 age group; each of them spent half-a-day at the centre, rotating the schedule.

Three points to start a VKC based on MSSRF experience are:

1. It is a people-centred programme based on community ownership. The community as a whole must endorse it.
2. It must take into account the local context and the information needs of the local people. Only then it can provide useful demand-driven services. Although we may use a variety of technologies in gathering and reaching the information, the programme is not meant to demonstrate the power of technology. Usefulness is more important than the use of latest technology.
3. The programme should be inclusive and not be associated with one group or caste; it should allow everyone to take part. The ICT-enabled knowledge centre should be located in a public space, say in a village school or panchayat building, to ensure social inclusion in access.

Different models tried out

A few of the early MSSRF centres housed in individuals' homes had to be closed down, as the benefits were not reaching all members of the community, especially people belonging to the Dalit community. Social inclusion, reaching the unreached and voicing the voiceless are articles of faith in the MSSRF-IDRC ICT programme. This project was followed by several other ICT-enabled information delivery projects (often referred to as 'info-kiosk' projects) in different parts of India. Information needs vary from place to place. Villagers in a fishing village are keen to get accurate forecasts of wave heights and location of fish shoals. The women need more information on health-related issues from women doctors. That is why it is important to provide timely locale-specific information. The information provided should be authentic and useful in the specific context. Knowledge centre staff work closely with partner organizations such as agricultural universities, Krishi Vigyan Kendras (KVKs), human and animal health institutions, research laboratories and field stations and marketing organizations.

The project continues to experiment with a range of technologies, but it is people-centred, focusing on people and their contexts. Both connectivity and content were given concurrent attention. The work in each village starts with social scientists / social workers getting to know the people and making a study of their needs and current level of familiarity with sources of information and the technological means to gather information. Rural families need both dynamic and generic information. Dynamic information includes managing and market factors as related to crops, animal husbandry, fisheries, agro-forestry and agro-processing, whereas generic information includes local news, employment news and government schemes. Information provided should be demand-driven. The project is bottom up and recognizes the local people's right to know from the very beginning. Information needs of the community and the people's familiarity with different technologies and communication channels should be assessed, particularly through participatory rural appraisal. Fostering a sense of local ownership has been an important feature of this programme. For MSSRF to move into a village and help set up a knowledge centre, the village community has to provide a room in a building which has easy access and provide volunteers as well as pay for electricity and upkeep of the centre. The village volunteers

are trained in the operation of computers and maintenance of the communication equipment as well as to gather and input information. The emphasis is on overall development; i.e., the project is society-centric rather than technology-centric.

Information is necessary but not a sufficient condition for empowerment. Information has to be linked to the means of using the information. For example, if old people are empowered with knowledge relating to cataract, they should know where the cataract eye surgery can be performed at a low or no cost (in Pondicherry, the Aravind Eye Hospital provides this facility). In fact, increased health expenditure due to serious ailments is an important reason for farmers' indebtedness and even suicides. ICTs are tried out to bridge gender, social, economic and technological divides. The resource centre is at the core of the ICT for rural development movement.

Several other initiatives such as self-help groups, skill building, micro-credit, literacy, agriculture, health, governance and education are built around it. Poverty will persist so long as a large proportion of the rural population is engaged only in unskilled work. Here ICT is being used to bring about a paradigm shift from unskilled to skilled work and from routine on-farm to value-added non-farm activities. Having experimented with ICTs in a dozen villages in Pondicherry, MSSRF takes the concept of VRCs to other regions and other parts of the country.

This MSSRF-IDRC project was designed as a test bed for research into how ICTs could be used in rural development. MSSRF scientists have tried a variety of communication technologies for transferring information (voice, data, image, etc.) between the knowledge centres. These include Internet, VHF two-way radio, spread spectrum, World Space Radio, satellite communication using C and Ku bands and low-cost wireless technology. Each project had its unique model. Some models were government supported, and others adopted a business model that made users pay from the beginning. Two such were established by large industrial houses, essentially to reach out to clients and supply them with products useful to them (ITC's e-chaupal and Hindustan Lever's iShakthi). n-Logue, an IT company largely promoting the technologies developed by IIT, Chennai, has a franchise model, wherein they provide an info kiosk (PC with an Internet and videoconferencing facility, scanner, photocopier) at a low cost and train the kiosk owner, and the owner provides different services and tries to earn a reasonable income.

The Veerampattinam centre, though unique in its own right, represents the model of MSSRF VRCs. The concept of a resource centre in these villages revolves around community needs and the centres have become places where anyone who needs to share information can go. The approach of MSSRF is to have people as the focus. It looks at local contexts and needs and then proceeds to satisfy those needs within their context. It is ready to use any technology that comes in handy. For example, in VRCs and VKCs, it uses notice boards, public address systems (loudspeakers put up in different streets of a fishing village) and a local language twice-monthly community newspaper along with solar (photovoltaic) energy, the Internet, spread spectrum technology and Motorola two-way radio. Technology is often a mere enabler. What people want delivered is healthcare, education, agriculture, markets, entitlements, credit, and better livelihoods.

When the tsunami struck in December 2004 at Veerampattinam fishing village in the southeast coast of India, a mysterious spring showed up in the temple tank drawing crowds. So, when the tsunami hit the beach initially, most of the villagers were seen around the tank and could be evacuated by panchayat leaders. Mani, a fisherman, saw the waters rising when he was working on his boat motor and raised an alarm. He first alerted six women, who were on the beach, hurrying them into a boat, which was then swept into the village. He rushed to the public address system (in the VRC), which was found locked, broke it open and alerted the village. Veerampattinam, which has more than 6,200 people, lost one life that day. Thus goes a news report in The Hindu (Muthalaly 2004).

Such VRC initiatives of the MS Swaminathan Research Foundation (MSSRF), Chennai, are an effort to present workable models of providing information and communication technology (ICT) for development. They strive to offer services that closely suit community needs. The idea is that a well-placed computer linked with other ICT tools – like an irrigation pump or a community well – may become another tool for development. Each day, the project's staff downloaded a map from a US Navy website that showed the wave heights and wind directions at sea. This not only increased the catch of fisher folk but also contributed to their safety. The project also helped improve access to markets through the availability of prices and marketing opportunities information; improved access to

health infrastructure; increased exposure of rural youth and school students to computer-based networking; increase in awareness of ecologically sound techniques in agriculture and animal husbandry, leading to enhanced income. But all these are tried out mainly through ICT intervention. MSSRF has demonstrated that a VRC is a workable model, and the National Alliance for Mission 2007 took the task of making every village a knowledge centre by taking ICT there, before the country celebrated the 60th anniversary of Independence in 2007. This paper examines whether ICT intervention in rural development is sustainable.

ICTs can be described as a varied set of goods, applications and services used to produce, store, process, distribute and exchange information. They include both the most familiar technologies of television, radio and telephone (now called older or traditional ICTs) and the relatively newer ones – personal computers, mobile phones, satellite and wireless technologies and the Internet. Increasingly, the demarcations between these media or delivery channels are blurring as the world becomes more networked, as evidenced by interconnected telephone services, standardized computer hardware and seamless data transmission (UNDP 2001). ICT includes radio, television, telephone, computer, Internet services, web-based PCs, mobile phones, WLL network, projectors, wireless sets, I-pods, interactive boards and many more such kind of devices which are helping people to gather information and also communicate through the same.

ICT demonstrates its contribution as a tool, a resource for learning and as a catalyst in thinking. As a tool it takes on the 'donkey work' of processing and displaying information in a variety of forms. As a resource for learning, it provides insight into the nature of the subjects being studied. As a catalyst in thought, it organizes and presents information to the learner and provides the opportunity to develop higher order skills of analysis, interpretation and evaluation (Loveless 2003). ICTs can mesmerize many and distort perception and public discussion. The real crux of the matter is not technology but information. Here one would like to say that how much information is available in all the accessible and timely manner how many people at any given time surrounded by a deluge and digital hype, governmental and civil society participants at the world summit on international society run the risk of missing this crucial point (Gunawardhane 2004).

Self-help groups

ICT Self-Help Groups (SHGs) are being promoted to organize and manage these village knowledge centres. The self-help group (SHG) account software developed by the MSSRF facilitates SHGs in villages to maintain and store all its records in the computer. SHGs know people's priorities the best. According to Prime Minister Manmohan Singh (2004), there are seven priority sectors for focused attention. These are agriculture, water, education, healthcare, employment, urban renewal and infrastructure. These seven sectors (saat sutra) are the pillars of the development bridge we must cross to ensure higher economic growth and more equitable social and economic development. There are numerous ongoing rural ICT projects in different parts of the country. Synergy and convergence are attempted among all ongoing efforts.

Take the story of S. Chitra, president of the Durga women SHG in K. Ramanathapuram. She and her group are operating a highly scientific small-scale factory producing Pseudomonas Floureceus fungicides. They have a five-year business plan and are confident about prospects for the future. The only help they needed from MSSRF was the initial idea of what they could do as a group to improve their livelihoods. ICTs in the form of information are thus helping a group of otherwise poorly educated women take charge of their lives and that of their families.

In an area constrained by language, literacy and connectivity barriers, simply installing computer telecentres without providing assistance would be insufficient. With such assistance, the emergence of VRCs and info-kiosk movement has demonstrated that the local panchayats and self-help groups can take advantage of appropriate ICTs and that they can easily access the scientific and technical knowledge they need to solve local problems and enhance the quality of their lives, as well as to communicate their own insights and needs back to government departments and scientists. A national movement of knowledge centres needs to be established in mission mode to ensure quick implementation at the local level, create information infrastructure and locally appropriate and relevant content for rural economy through active involvement of Gram Sabhas, local SHGs and NGOs (Communication Initiative 2004).

Mission 2007 to Rural Knowledge Movement

Formed in May 2004, the National Alliance for Information and Communication Technologies (ICTs) for Basic Human Needs sought to take the ICT-enabled knowledge revolution to all of India's 637,000 villages by August 15, 2007, when the country celebrated its 60th year of Independence. The Alliance saw itself as acting as a catalyst for technology innovation for rural ICT applications and connectivity. It worked to bring the private sector and the academia together with strong support from civil society organizations to experiment every innovation among the target communities. The Alliance was using networking and partnership as strategies for taking ICTs to the poor and the disadvantaged in India's rural communities. One focus of these task force activities was how to use the ongoing efforts by the government and the private sector in creating an ICT infrastructure, human networks, and political institutions to provide multipurpose information kiosks in rural areas.

The Jamsetji Tata National Virtual Academy for Rural Prosperity had been established under the guidance of MSSRF. Mission 2007 envisaged creation of a cadre of one million grassroots level Fellows. In association with alliance partners it was identifying a million grassroots knowledge workers who will be enlisted as Fellows of the Academy. They would be the torch bearers of the knowledge revolution in Indian villages. The knowledge centres were being set up and managed by ICT self-help groups comprising both women and men.

The goal of taking the benefits of ICT to every village in the country can be accomplished only by providing a platform for partnership [particularly with grassroots civil society partnership] among the numerous agencies and individuals who are working in different parts of the country in setting up information kiosks and other methods of empowering rural people with the technologies associated with the digital age.

The first meeting of the MSSRF-Tata National Virtual Academy for Food Security and Rural Prosperity was held on February 21, 2004. In this meeting, it was decided that the NVA should help launch an Every Village a Knowledge Centre Movement in collaboration with IGNOU, the 11 State open universities and other appropriate government and non-government organizations. The idea

is to cover all villages by generating synergy between different technologies, particularly between the Internet and the community radio and the symbiosis among all institutions engaged in the field of technological and skill empowerment. Although the target was not achieved within the specified period, it was worth the effort.

The deadline passed by without much of the task of Mission 2007 being accomplished. But the cause was noble. Mission 2007 concretized the concept of ICT enabling of all the villages of India. After August 15, 2007, it was converted into the Grameen Gyan Abhiyan (Rural Knowledge Movement). The so-called movement has over 400 partners with an aim to creating a rural knowledge revolution. It has built multi stakeholder partnership with different ICT4D models. They include the community based models, entrepreneurial models, government models, business models or the corporate models, cooperative models, and combinations of all these models in pairs or more. The movement aims to address the knowledge gap that exists in rural areas, and the divide between the Shining India and the non-Shining majority. It strives to develop a user controlled, owned and managed network which will help reach the rural population in terms of information, knowledge and skill empowerment.

Lessons learnt

The MSSRF initiative of setting up VRCs and VKCs gives contextualized information to villages regularly. The VRC earlier functioning from Villianur has been shifted to Pillyar Kuppam. Thirteen VKCs functioning under that VRC are managed by local volunteers. The projects are supported by grants from the International Development Research Centre, Canada, and other agencies. Notice-boards, loudspeakers, and a local newspaper are used to disseminate information. Notice-boards are updated daily. Loudspeakers are used to announce weather forecast twice a day and other information such as the schedule of panchayat meetings. Since 2002, *Namavoor Sethi* (Our Village News) comes out as a fortnightly newspaper giving government news, political news, employment news, healthcare news, and agricultural information. Now the newsletter is being distributed at the doorsteps, but this procedure is going to be changed and the newsletter will be henceforth kept in the VKCs itself to eliminate distribution efforts and to make all the villagers visit VKCs.

VKCs have a Microsoft Unlimited Potential Programme through which free self-learning CDs are given to high School and

higher secondary school students to teach themselves courses such as Computer fundamentals, Microsoft Word, Microsoft Excel, Microsoft Powerpoint, Microsoft Access, Digital Media, Internet Browsing and Web Designing. The students who finish a two-month course are awarded certificates from Microsoft. But most students use the VKCs only for playing computer games, which nevertheless makes them computer savvy. Occasionally, VKCs conduct awareness programme against AIDS and liquor consumption. Vermiculture and mushroom farming have been tried out with the information backing from VKCs.

One question repeatedly asked is why India, weighed down by high rates of illiteracy and underdevelopment, should spend heavily to provide villages with ICT. Should not the priorities be on schooling, health and agriculture? But then, we should not be lagging behind in information technology revolution that is gripping the entire world. Also, the mere fact funds are readily available for IT rather than tackling malnutrition means that IT for grassroots development needs to be taken up. According to M.S.Swaminathan (2007), "from my long experience in agriculture, I find that whenever poor people derive some benefit from technology, the rich also benefit. The opposite does not happen."

Information technology, particularly the Internet, has opened up new frontiers. The Internet has no borders, no censors and no Big Brother. It could be a place to learn about issues, connect with those affected by issues, start conversations about remedies, raise funds for solutions, coordinate solution teams, post the whole process and invite real-time feedback from participants around the world. Organizations working for social change are already employing information technology and the Internet to achieve their goals (Tresser, 2003).

Local bureaucrats are often reluctant to give up their monopoly on information, which can be a source of power used to extract bribes. This may be one of the reasons why ICT intervention fails once the demonstration phase is over. Not always the success of a project should be seen in terms of its sustainability in terms of continuance of the project. A good number of VRCs and village knowledge centres of MSSRF might have folded up. After the demonstration phase, such projects often cease as grants dry up or the project manager on the spot quits taking up a high paying job. But one's loss is another's gain and thus the skills imparted to the project staff do not go waste.

Also, the fact is that the villagers have undergone an attitudinal change and they have got over the fatalistic mindset. More so, they have been focusing more on livelihood issues which no doubt ranges high in the priority list of villagers. If villages abandon virtual communities and involve actively in local (physical) communities, there is nothing wrong in it. After all, the focus of VKCs was on how the communities could improve their livelihoods using information to innovate, and take charge of their own destinies.

Harris and Rajora (2006) studied whether the ICT projects were reaching goals of utilization by communities to improve lives and livelihoods through better access to education, agricultural information, weather, health information, and markets. They found that there is a need to train staff for skills in organizing the community to continually expand use of the technology and skills for dependable maintenance of technology. The users should have a say in determining the sort of technology and content.

A few of the early MSSRF centres housed in individuals' homes had to be closed down, as the benefits were not reaching all members particularly the marginalized. Likewise, lessons can be learnt from experiences. The centres should be located in a public place and not be associated with any one caste or group. Bridging divides such as digital divides, caste divide and gender divide is a prime aim of ICT intervention.

A sustainable business model should be evolved. Public-private partnership has proved to be the most sustainable model, based on the MSSRF experiments. This will also take care of the public relations aspect of the project at least in the interest of the partners. A wide range of services should be offered with the most basic technology possible. The services offered should be closely related to the needs of the community. The info-kiosk should serve as a communication hub, providing multiple telephone and communication services to the village, a virtual academy and training centre and banking, to have greater economic viability.

Democracy requires that people have the ability to move from participation to power. A strategy of working through and with grassroots organizations needs to be adapted. Partnership in terms of local civil society activism rather than posh corporates or NGOs will promote sustainable rural development. The activism of these kinds of grassroots organizations is the need of the hour. It can serve

as an effective democratic tool, if grassroots organizations are strengthened.

Some NGOs use the Internet to learn about the experiences of their counterparts elsewhere and replicate them in their area without adapting them to the local context. This short-cut solution is counterproductive. The same problem is there when MSSRF's village resource centres are replicated without much understanding of the social processes (which include an agrarian orientation) that went along with it. The successful Satellite Instructional Television Experiment (SITE) of 1970s had to cease as the American satellite was made available for the project for just one year. The father of Indian space science, Vikram Sarabhai, had said India would use the satellite communication and leapfrog into developing; but this did not happen despite initiatives in satellite-based communication. This does not mean satellite TV was incapable of doing this. The fact is (i) communication for development was not promoted extensively and (ii) other infrastructure necessary for development was not made available. IT initiative at the grassroots can take lessons from SITE. It is better not to depend on temporary high technological intervention. Some low profile sustainable technological models like the use of loudspeakers along with a computer centre will work wonders. Unless ISRO or some corporate sponsors are ready at hand or a revenue model is in place, continuance of the project is not possible.

Routine power failures and overloaded telephone lines make connecting to the Internet a frustrating proposition. Of course, solar power and wireless telephone have also been tried out. An integrated use of the Internet and community radio will be an effective means of reaching the unreached and giving voice to the voiceless, now that NGOs can set up community radio stations in India.

The local communities should be able to run the centres when the implementing agency withdraws its backing. The centres should be owned and managed by ICT self-help groups, grassroots institutions such as local panchayats, farmers' associations, or fisher folk's cooperatives. Members of all strata such as caste and gender should form part of such a centre. Some technical skills required for maintaining a connectivity infrastructure should also be in place.

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FOOD SECURITY CHALLENGES AND FOOD SECURITY BILL 2011: THE INFERENCES AND IMPERATIVES

D. Rajasenan[*] and Rajeev B.[**]

Abstract

Food prices are critical to the social stability in poor countries, as any increase in food prices will result in the reduction of food intake, thereby resulting in nutritional deficiency. A solution to this serious problem is to increase food production in line with the ever increasing demand and also in line with the population growth. Low productivity of Indian agricultural sector worsens this situation. Solutions to ensure food security are to supply food items at a subsidized rate. This warrants immediate appropriate steps to enhance productivity through the adoption of new and advanced techniques and tools as well as by sustaining fertility of soil. One important step to food security in India has been distribution of food grains through Public Distribution System (PDS) across income groups and regions. The new and progressive legislation of the Central government known as "Food Security Bill 2011" will have far reaching implications as it safeguards food security to 75 percent of the rural and 46 percent of the urban population. But targeting food security between APL-BPL, based on poverty line estimation, as priority and general categories does not give desired results as food has to be an entitlement just as education and health.

Introduction

Classical economists highlighted the need and importance of food security for the survival of mankind. Ricardo (1817) cited the positive nexus between land rent and population growth with an explanation of comparative advantage. Malthus (1798) warned food insecurity by explaining short term gains in the standard of living would inevitably be destabilized as population growth surpasses food

[*] Prof. (Dr.) D. Rajasenan, Director, Centre for the Study of Social Exclusion and Inclusive Policy (CSSEIP), Cochin University of Science and Technology, Kochi-22; Email: rajasenan@cusat.ac.in

[**] Rajeev B., Research Assistant, Centre for the Study of Social Exclusion and Inclusive Policy (CSSEIP), Cochin University of Science and Technology, Kochi-22; E-mail: rajeevbhaskars@gmail.com

production and inasmuch as drive living standards back towards subsistence. Engel (1857) explained the plight of the poor as they spent very large part of their income on food and hence the food insecurity, as food inflation hurts the poor in a disadvantageous way. But technological revolution with new mechanized agriculture combining new disease resistant and high yielding variety of seeds helps in overcoming many issues of food production. The world economy witnessed a metamorphosis with many food deficient economies turn into food exporting countries. But globalization and shift in interest of various countries ended in food insecurity and food grains inflationary pressures.

Food security according to Food and Agricultural Organization (FAO) is a situation that exists when all people, at all times have physical, social and economic access to sufficient, safe and nutritious food which in turn meets their dietary needs and food preferences for an active and healthy life (FAO, 2002). The concept is also wide as it can be assessed at any level ranging from single household to the global level. The Millennium Development Goals (MDG) aims to reduce the population experiencing hunger to 50 percent of the existing level. However, it is very unlikely that this will be achieved as the main core of MDG weighs up quantity rather than on quality. Even though the global per capita food production is way above the FAO's anticipated figures, the number of people having lack of access to minimum diet has increased from 824 million to 925 million in the MDG baseline year of 1990.

The world agricultural scenario gives a dismal picture about the small farmers irrespective of developing or developed nations, which points to the fact that about three quarters of the small farmers are in a state of poverty and hunger. It is estimated that about 500 million small farmers in the developing countries produce 80 percent of the total food consumed in Asia and sub-Saharan Africa and feed about 2 billion. The poor farmers in the developing countries are in a sorry state of vicious circle because of labour stickiness, lack of skill and primitive farming which in turn results them as outliers from the mainstream society. Any kind of crop failure will have grave consequence on their livelihood security due to their over dependence on farming pushing them further deep into a no-win situation of poverty, hunger, unemployment and exclusion. Their counterparts in the developed nations are well-versed as they are backed by sophisticated technology and capital. The respective governments in the developed

nations also lend a hand to their farmers by implementing farmer-friendly policies and programmes.

Affordable food prices are critical to the social stability in poor countries, as any increase in food prices will result in the reduction of food intake, thereby resulting in nutritional deficiency. Even though food shortage or insecurity is not experienced in developed nations, they play a pivotal role in creating this phenomenon among the poor and developing nations through determination of food prices in the global commodity markets. This, coupled with stringent world trade rules by WTO worsens the situation of food security among poor countries. It is predicted by some foremost climate models that the climate change will degenerate this situation more against poor developing countries as a two degree temperature rise as per the international climate change negotiations will benefit the rich developed countries in the temperate zones and the yield of poor countries in the tropical zones will come down as the temperature rise in the tropical zones. Critical situations like this call for decisive action. One solution to this serious problem is to increase the global food production in line with the ever increasing demand and also in line with the population growth. The FAO predicts that global food production should increase at a rate of 70 percent or more by 2050 to feed the hungry mouths as population is estimated to increase by 30 percent during the same period. Divisive actions such as industrial farming and biotechnology are also needed. Industrial agriculture or industrial farming mainly focuses on innovation in farming techniques. The use of advanced techniques of farming will make it capital intensive, which will adversely affect the livelihood security of farmers and farm workers in poor developing countries. Hence, it is all the more important to find a sustainable solution and rehabilitate the excess labour prevalent in farms of poor nations by finding an alternate employment and livelihood option. Another challenge with regard to industrial farming is the environmental cost involved with the same. A major critical area to be looked into is Genetically Modified (GM) crops developed through biotechnology. However, the predicament is that capital intensive farming techniques and intellectual property rights needed for GM crops are held by large capitalist countries and small developing nations are again at bay. Co-operative farming seems to be a solution for farmers in poor developing nations which would help them to acquire the necessary techniques and capital for expansion.

Indian situation

The per capita consumption of cereals in India for 2007 is 174 kg, which is below the average of 182 kg recorded by the least developed nations and even far below the level of 196 kg recorded by Africa. Ironically, cereals account for nine-tenth of food grains and provide three quarters of energy and protein. A daily intake of 50 gm of protein is necessary for a human but the intake figure of India is less than 10 gm. Low productivity of Indian agricultural sector worsens this situation. Solutions to ensure food security are to supply food items at a subsidized rate. This warrants immediate appropriate steps to enhance productivity through the adoption of new and advanced techniques and tools as well as by sustaining fertility of soil.

There is a myopic view among the policy makers that cereal consumption in India is decreasing due to the negative income elasticity of demand for food grains. Increase in per capita income due to the development imperatives in the economy allows the consumers to diversify into superior food such as milk, eggs, meat, etc. This in a way has to increase the demand for food grains for generating value addition but this has not happened in the case of India where the poor (who form the majority of population) have not experienced an income rise because of high skewness in income distribution in the post globalised economic growth. Hence the question of increase in purchasing power to buy superior food does not arise even though their work nature (which is highly labour intensive) calls for consumption of such food. The so called theorists in economics fail to draw a distinction between direct and indirect cereal consumption. It is observed that as a country's per capita income rises, direct cereal consumption decreases and indirect consumption of cereals in the form of feeds for farms and livestock increases (see Table 1). Out of the total cereal consumption share of indirect consumption will be more. U.S. leads the pack with 87 percentage share of indirect use. According to Krugman (2011), the major reasons for increase in global food prices is due to the increasing demand and consumption of cereals in developing countries like India and China. Liberalization measures from 1990s onwards has increased the income levels, but reached in the hands of a meager minority. It is generally believed that in India, agricultural sector was totally ignored during this globalization era. Large scale unemployment and underemployment in this sector further worsened the situation.

Irrespective of rural-urban difference, poor in India remain as outliers and are excluded from the growth experienced in the economy. The period of economic reforms saw a decline in per capita direct cereal as well as indirect cereal (in the form of meat, egg, etc.) intake.

Table 1 Direct and indirect consumption of cereals for 2007

Country/ region	Production*	Net imports & stock changes *	Total supply*	Direct use*	Indirect use*	Direct per head consumption**	Total per head consumption**	%share (indirect)
India	212.4	-9.5	202.9	177.7	25.2	152.6	174.2	12.4
LDC's	125.9	14.5	140.4	105.5	34.9	136.9	182.1	24.9
Africa	130.8	58.1	188.9	138.7	50.2	144.1	196.4	26.6
China	395.3	-8.9	386.4	203.8	182.6	152.5	289.1	47.3
E.U.	261	14	275	61.7	213.3	125.1	557.3	77.6
U.S.	412.2	-137.6	274.6	34.5	240.1	111.6	889.5	87.5
World	2121.3	54.6	2066.7	966.2	1100.5	146.6	313.6	53.2

Source: FAO (2007) [* quantity in million tonne s ; ** quantity in kg.]

Poor do not have the financial capability to enter into this consumption basket. In India the hypothesis put forwarded by Krugman is erroneous as the rich and those benefitted with an income increase had the capacity to enter into the indirect cereal consumption basket of meat, egg, etc. In fact, the domestic cereal supply drastically came down to 156 kg/head during this period. Table 1 depicts that India has the lowest share of indirect consumption out of the countries/ regions put under analyses. Proteins and nutrients are provided through non-vegetarian food and lack of intake of these products will adversely affect their nutritional intake. The need of the hour is to take proactive steps to bring down the rate of poverty and unemployment spread across rural and urban India without any divide. One such step should be to extend schemes like Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) to urban areas as well.

BPL-APL dichotomy in estimation of poverty line

Poverty estimation in India is carried out by the Planning Commission. However, even the proficient and expert analysts have not been able to identify a benchmark level of income which can be used to realistically classify the population as BPL or APL. Recent estimates state that a person spending more than Rs.26 in rural and

Rs.32 in urban is not considered as poor and is not entitled to receive the benefits of BPL provided by the government. These estimates are unrealistic as inflation and income increase among the rich as well as the middle class has shot up the price of fuel and other essential commodities and services. It can be pointed out that this is not because of the lack of proficiency or knowledge, but artificially deflating the number or percentage of poor in India. Even those coming under the official estimates fail to get the BPL cards as they are exploited by the local authorities due to their poverty and are denied these entitlements, which is their right. It is the responsibility of the government to supply quality food grains to all irrespective of BPL-APL families (at a subsidized rate for BPL) so as to ensure food security for all. This will resolve the issue of black marketing and supply distortions currently prevailing. It is the right of the citizens to have access to quality and nutritious food irrespective of his income, caste, gender, etc. and the authorities concerned should focus on this rather than embarking on artificial measures like deflating the number of poor, targeted distribution of food grains, etc.

Public Distribution and Food security in Kerala

Public Distribution System (PDS) is one of the most discussed as well as the obvious choices, which could ensure adequate supply of food grains at an affordable and reasonable price. In Kerala, 95 percent of households were covered by PDS during 1991. Monthly entitlement of food grain per adult was 13.8 kg which is above the minimum daily requirement of 370 gm per person stipulated by the Indian Council of Medical Research. This progressive and efficient model of PDS improved the consumption and nutritional level of inhabitants in this state. The most important factor which leads to the success of Kerala model of food security scheme was that it ensures equitable distribution of food grains across income groups and regions. During 1997 the system of PDS was changed to Targeted Public Distribution System (TPDS). A distinction was drawn between BPL and APL in the TPDS system, with an arrangement of the former rightfully getting more subsidies and benefits. The TPDS also saw a change in Centre-State control with respect to allocation to BPL households. The TPDS scheme covers 25 percent of the total population of the state, which is termed as BPL. Government continued to provide the additional grain under this scheme. However, prevalence of various schemes resulted in confusion and distortions among the

consumers as well as the distributors. High prices for APL families meant that the ration shops lost the comparative advantage over other private shops. Consumers began to shift to other private traders as well as big retail outlets due to quality as well as the range of selections available with these retailers. In fact, the entry of big players in the retail sector speeded up this shift. Major reason for the failure of TPDS was due to its inefficiency to estimate a reliable income level to determine BPL households.

Food Security Bill 2011

The Bill tries to ensure that "every person shall have physical, economic and social access, at all times, either directly or by means of financial purchases, to quantitatively and qualitatively adequate, sufficient and safe food, which ensures an active and healthy life". The Food Security Bill 2011 envisages 'priority as well as general category' along with BPL/APL households. The bill mainly aims to concentrate on individual food entitlement rather than food security of the household. The Bill proposes to provide 7 kg of rice, wheat and coarse grain per head per month to the priority families at Rs 3, Rs 2 and Re 1 a kg respectively and to provide food grains (minimum of 3 kg) at half of the minimum support price to general category. The bill provides for cash reimbursement if the government fails to provide subsidized food grains during natural calamities. This will ensure that if grains are available it will be supplied and thereby prevent rotting of grains in the warehouses. Another feature of the bill is to provide entitlements to pregnant as well as nursing women, provision of nutritious food to children, as well as entitlements to destitute, homeless, etc. The Bill also makes provisions to identify and provide immediate as well as a permanent relief to starvation. It also proposes to make procurement; storage and distribution of goods effective *inter alia* monitor these processes to check for anomalies. The Bill also calls for the constitution of National as well as the State Food Commission but the whole process should be transparent and accountable.

Major issues include the endless search of BPL figure and it also categorically ignores the State government's estimates of BPL. It is condemned that the proposed legislation as a "travesty of food security", as "not only does it continue with the flawed system of targeting food security at Below Poverty Line (BPL) and Above Poverty Line (APL) sections as 'priority' and 'general' categories, it links rights

and entitlements of general sections to the so called reforms in the PDS". It appears that the Central government wants to utilise the widespread demand for a strong food security bill to push through narrow agendas of those agribusiness and corporate, who want dismantling of the PDS and a truncated food security bill. Food security neither shows the nutritional level nor does it have policies to improve this. This leads to a situation of large scale exclusion of the needy.

Price rise and future trading of food grains is partly responsible for this situation. The futures trade in food grains was contemplated originally to help the farmers to obtain reasonable price for their crops in the market and reduce exploitation of the farmers. But futures in food grains has brought in outsiders in the form of speculators to trade in these commodities and make fluctuations in the price which is neither helping the farmers nor consumers which would creep in grave consequences on the food security of the nation. The poor working class needs more quality and nutritious food than others. But steps are not taken to ensure the desired nutritious levels of the poor. There is a lot of wastage of food due to lack of storage facilities as well as use of proper technology to process these items. This is seen mainly in the case of fruits and vegetable items. It is relevant in the case of India where sixty percent of the people are vegetarians and hence could depend on fruits and vegetables to maintain their nutritious level.

Conclusion

Agricultural sector in the economy has been ignored by the government recently and on the other hand giving lot of incentives to the industry in the form of tax rebates and perks. There is an urgent need for capital for the development of agricultural sector which is considered to be the main factor that would ensure food security to the citizens. Storage of grains and other food items is a serious issue in India. Storage facilities available with FCI warehouse are pathetic and new addition to the warehouses have been negligible and even the railways have also reached its optimum supporting level. So a proper storage/logistic and processing support are imperative to achieve food security in India. Government should ensure universalisation of nutritious food rather than following a targeted system or supplying only essential grains. This is all the more important because of the fact that the targeted system tends to breed corruption and black marketing. Public distribution system should be

strengthened and effective as greater part of the profits in the retail food markets are taken by the intermediaries. A lion's share of the income of the poor and low income families are spent on food items and this limits them to consume only essential grains and skip nutritious food. Procurement and distribution of essentials as well as nutritious food items, such as pulses and other grains which contains more micro nutrients and proteins should and could be provided by the government at a reasonable rate.

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IMPACT OF MOBILE PHONE ADVERTISING ON GIRL STUDENTS IN THE COLLEGES OF SILCHAR

Partha Sarkar

Abstract

The study "Impact of Mobile Phone Advertising on Girl Students in the Colleges of Silchar" is aimed to explore the importance of impact of mobile phone advertising on the college girls in Silchar town. The status, contributing factors to the impact of mobile phone advertising and media exposure level of the people, opinion of the respondents in preferring brands are the specific objectives investigated in the study.

As required by its nature, objectives and design, the study is based on survey research and secondary data. This study reveals that how mobile phone advertising has an impact on their decision making process. However, this study is an important one because the various influences of advertisements on people have studies extensively in a number of other countries. The study is in no way comprehensive or complete. Thus, the study is an attempt to find out the impact of mobile advertisement and its impact on the values, attitudes and aspirations on these girls.

Introduction

Advertising is an institution of society that has the capability of informing the citizen, stimulating economic growth and providing knowledge useful in decision-making as well as the tendency both to misallocate scarce economic resources and lead consumers to engage in behavior that may not be in their own best interests. Advertisements give us one of the most important things in a free, vibrant, democratic society. It is called the freedom of choice. We can choose from different brands of similar products and we know the options that we have thanks to these advertisements.

Dr. Partha Sarkar, Asst. Professor, Department of Mass Communication Assam Central University, Silchar, Assam E-mail: parthasarkarsil@gmail.com

Innovation creates marketing opportunities and challenges. Mobile advertising, an area of mobile commerce, is a form of advertising that targets users of handheld wireless devices such as mobile phones. It can reach the target customers anywhere anytime. In order to promote the selling of products or services, all the information required to communicate with the customers are transferred through mobile devices. Combining with the customer's user profile and context situation, advertising companies can provide the target customers exactly the advertisement information they desire, not just "spam" them with irrelevant advertisements. The current study attempts to study consumer responsiveness to mobile marketing, in terms of its impact on purchase decision making. The primary objective being to gain an insight into the perception of mobile users, towards mobile marketing and advertising and their utility value in terms of impact on the purchase decision. Hence we are attempting to explore consumers' responsiveness to mobile marketing, taking into cognizance the impact of demographic factors. The study also aims to concretize some features enhancing the acceptability and utility of mobile marketing and advertising and suggests an appropriate strategic initiative for the same. The major findings reveal that the perception of consumers towards mobile marketing can be broadly categorized into three factors: 1) Lack of conceptualization and personalization of mobile ads 2) Disruptive nature of mobile ads 3) Perceived usefulness of mobile ads. Customers are looking for customization of mobile marketing messages as per their individual requirements, tastes and preferences. Hence the need of the hour appears to be customization. Customization combines operationally driven mass customization with customized marketing in a way that the company is able to respond to individual customers by customizing its products, services, and messages on a one-to-one basis. Marketers could harness the complete potential of mobile advertising by deploying Intelligent Mobile Software Agents, which enable firms to completely customize mobile marketing messages to individual customer preferences. Our responsiveness conceptualization closely relates to the attentiveness level but carries over to the communication and persuasion levels in the sense that we assume that they are closely related. As a consequence the study attempts to examine the relationship between marketing and advertising efforts (through mobiles), on the one hand, and the consumers' responsiveness in terms of impact on their purchase decisions, on the other.

Nobody particularly loves the idea of getting more advertising than they're already receiving from the world around them. Despite this, most people seem to accept that increased advertising is just a part of their lives. Although some consumers protest that they don't want to be bombarded with cell phone ads, it is likely that these ads will start to get incorporated into cell phone use gradually until they become the norm.

Although there are going to be problems that crop up with cell phone advertising, it is likely that this area of the industry is going to see continued (and potentially explosive) growth over the next few years. The mobile phone has become a tool of daily use just like the television and radio have been and that makes it a tool that is wide open for the development of advertising

Review of Literature

There are few studies made on the impact of mobile advertisements on the consumers. Many studies were carried out extensively in this field abroad. "Impact of Mobile Phone Advertising on Girl Students in the Colleges of Silchar Town" is one of them.

Aim of the study

The aim of the study is to determine the impact of mobile phone advertising among the female students in the colleges of Silchar town.

Objectives of the study

The objectives of the study were:

1) To analyze the impact of mobile phone advertising on the girl students in the colleges of Silchar town.

2) To know the attitudes and the buying habits of the college girls

3) To know whether mobile advertising is made for fulfilling personal needs.

4) To know whether mobile phone education is a must now-a-days.

Methodology

The present research was survey research based on formal and informal interview. The total size of the sample was 60

respondents. Structured questionnaire schedule was prepared as an instrument for data collection. The sample was selected through simple random sampling method. The questionnaire schedule was comprised into four sections. *Section 1* comprised relevant questions to determine the socio-demographic data. *Section 2* comprised of questions relating to the kinds of advertising. *Section 3* comprised of questions to find out the impact of mobile phone advertising whereas *Section 4* included questions to find out attitude inventory of the students in Silchar town.

Data gathering

The data have been gathered through structured questionnaire schedule. Students of three reputed colleges i.e. Guru Charan College, Cachar College and Women's College in Silchar town are collected through random sampling method.

Respondents of the study

Since the study is done on the college girls in Silchar town, the colleges that are selected are Guru Charan College, Cachar College and Womens College. A sample of 60 girls was collected from these colleges through purposive sampling method.

The study area

The three districts of southern Assam – Cachar, Hailakandi and Karimganj together constitute Barak Valley, which in the pre-Independence period was a part of erstwhile Surma Valley. Silchar is the headquarters of Cachar district in Barak valley. Silchar is situated between longitude 92o15 and 93o15 and latitude 24 8 and 25 8 North and is bounded on the North Cachar Hills of Assam and Jaintia Hills district of Meghalaya, on the east by Manipur, on the south by Mizoram and on the west by Tripura and Sylhet district of Bangladesh.

Population:

Linguistically speaking, the Bengalis form the majority in Silchar's population. Besides the Bengalis, there are also other communities inhabiting the town. They are chiefly the Manipuris, the Kukis, the Nagas and the Nepalese. Silchar has a population of more than about 799,407. Males constitute 51% of the population and females 49%. Silchar has an average literacy rate of 79%, higher than the national average of 59.5%: male literacy is 83%, and female literacy is 76%.

Economy:

Silchar is now a full fledge region having all the avenues of its further prosperity. Assam University, National Institute of Technology (NIT), Medical College, Polytechnic, Technical School, Research Centres serve the necessarily in different sphere of this region. Radio and TV centers have been functioning here since long time. The economic condition of the people is at par with other region of the country, for business is flourishing day by day. This region maintains a good cultural heritage in folksong, dance etc.

Being a land-scare area it needs appropriate planning and technology to ensure maximum yield. Flanked by at least five of seven political units in the region, its central situation has to be recognized by the Union Government for the location of the regional offices. The feeling of the neglect and discrimination has to be removed, and the linguistic and cultural identities of the people to be guaranteed, since these are essentially linked with the question of development.

Findings-

Education of the Respondents

Education	Total	Percentage (%)
HS	17	28.3%
Degree	43	71.7%
Total	60	100%

The above table shows that 71.7% of the respondents are pursuing their degree courses, whereas 28.3% pursuing their higher secondary.

Mobile advertising seen in television

Percentage	Mobile advertising seen in television		
	Yes	No	Total
	60	Nil	60
Percentage	100%	Nil	100%

Since television is regarded as the most active medium it was found that among the 60 respondents 100% of the respondents have seen mobile advertising in television.

Mobile advertising seen in newspaper

Percentage	Mobile advertising seen in newspaper		
	Yes	No	Total
	53	7	60
Percentage	88.3%	11.7%	100%

Newspapers offer a medium for longer, more complex messages. It also provides enough lead time to permit the production of art and thus it is the active medium of communication and that's why 88.3% of the respondents have seen mobile advertising in newspapers whereas 11.7% have not seen mobile advertising in newspapers.

Mobile advertising heard in radio

Percentage	Mobile advertising heard in radio		
	Yes	No	Total
	11	49	60
Percentage	18.3%	81.7%	100%

The most interesting fact in this region is that the radio has failed to create any impact on the respondents because only18.3% of the respondents have heard mobile advertising on radio and that also on irregular basis whereas 81.7% have not heard mobile advertising on radio.

Slogan of mobile phone

Percentage	Remember slogan of mobile ads		
	Yes	No	Total
	35	25	60
Percentage	58.3%	41.7%	100%

The above table shows that out of 60 respondents, 58.3% of the respondents could recall any slogan of the mobile ads whereas 41.7% could not at all recall any slogan of the mobile advertising.

Mobile phone helps while buying

Percentage	Mobile ads helps while buying		
	Yes	No	Total
	55	5	60
Percentage	91.7%	8.3%	100%

The above table shows that 91.7% of the respondents think that mobile advertising is really working in the minds of the students while buying whereas only 8.3% think that this type of advertising is not working in the minds of the students while buying.

Mobile ads is made for fulfilling personal needs

Percentage	Mobile ads is made for fulfilling personal needs		
	Yes	No	Total
	40	20	60
Percentage	66.7%	33.3%	100%

The above table shows that 66.7% of the respondents think that mobile advertising is made for fulfilling personal needs whereas 33.3% think that this type of advertising is not made for fulfilling personal needs.

Impact of advertising

Mobile ads motivate to buy

Percentage	Mobile ads motivate to buy		
	Yes	No	Total
	47	13	60
Percentage	78.3%	21.7%	100%

The above table shows that 78.3% of the respondents agree that mobile ads motivate them to buy whereas 21.7% agree that it does not motivate them to buy.

Mobile ads is informative

Percentage	Mobile ads is informative		
	Yes	No	Total
	52	8	60
Percentage	86.7%	13.3%	100%

The above table shows that 86.7% of the respondents agree that mobile ads is informative whereas only 13.3% do not agree that this type of ads is informative.

Mobile ads need to be advertised

Percentage	Mobile ads need to be advertised		
	Yes	No	Total
	56	4	60
Percentage	93.3%	6.7%	100%

The above table reveals that 93.3% of the respondents claimed that mobile ads need to be advertised whereas only 6.7% claimed that mobile ads need not to be advertised.

Mobile ads is authentic and true

Percentage	Mobile ads is authentic and true		
	Yes	No	True
	20	40	60
Percentage	33.3%	66.7%	100%

The above table shows that 33.3% of the respondents think that whatever is being advertised is authentic and true whereas 66.7% think that whatever is being advertised is not authentic and true.

Promises made by the mobile ads

Percentage	Promises made by the mobile ads		
	Yes	No	Total
	20	40	60
Percentage	33.3%	66.7%	100%

The above table shows that 33.3% of the respondents agree with the promises made by the mobile ads whereas 66.7% of them do not agree with the promises made by the mobile ads.

Friends acts as a means of advertisements

Percentage	Friends acts as a means of advertisements		
	Yes	No	Total
	51	9	100
Percentage	85%	15%	100%

The above table shows that 85% of the respondents agree that friends act as a means of advertisements in the case of mobile phone whereas only 15% of them do not agree with that.

Negative impact of mobile advertisements

Percentage	Negative impact of mobile advertisement		
	Yes	No	Total
	28	32	60
Percentage	47.6	53.3	100

The above table shows that 46.7% of the respondents think that there is a negative impact of advertisements whereas 53.3% think that there is no negative impact of advts. of mobile phone on them.

Summary

It can be concluded from the findings that majority of the respondents were graduates, and the mobile phone ads do play an important part in their livelihood as it helps to define their lifestyle. The study also revealed that the appeals that were used in advertising did influence the respondents. Some advertising has traded on prestige: others have used reliability. Some have promised glamour and the good life. Some have embraced fantasy, and others have been firmly fixed in reality. To make these appeals advertisers associate their products, verbally and visually, with other images, symbols, logos and values that are likely to attract the consumers. Thus it has been found that there is a relationship between the impact of mobile phone advertising and the opinion of the respondents and the extent of use of mobile phone by them. But today because of growing competition advertisers use variety in mobile phone advertising. But it is a big question whether these advertisements are really created keeping in mind for fulfilling the personal needs of the consumers or they are simply meant for promoting their product and increase their sale in the market?

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PERCEPTIONS OF SENSATIONALISM IN NEWS: A QUANTITATIVE STUDY

Ambika Babu

Sensationalism in journalism has been a topic of discussion in several scholarly research articles. Quite a few scholarly definitions of sensationalism focus on its effects on the human sensory system. According to Danielson (cited in Tannenbaum & Lynch, 1960, p.382) sensational news stories are "under distanced" - meaning, they violate a comfortable psychological distance between audience members and their perceptions of events in the physical world. Thus, sensational stories provoke more sensory and emotional reactions than what society has deemed proper to desire or experience. Recently, Grabe et al, (2001) explicated sensationalism as those news characteristics capable of provoking emotional responses and physiological stimulation among the audience. Operational definitions of sensational news are based on the assumption that topics like crime, entertainment or disaster contain more emotion eliciting elements than non-sensational themes like public affairs or politics (Adams, 1978). While sensational news is characterized as story that amuses, excites and entertains, "proper" news is commended for its ability to enhance public knowledge by appealing to reason over emotion (Grabe, Zhou & Barnett, 2001; Slattery & Hakanen, 1994). Finally, when it comes to measuring news sensationalism, researchers have primarily used two different approaches: content analysis and empirically derived judgmental index.

A majority of researches treat sensationalism as a researcher-defined property of news contents, such as graphical pictures or crime news. Typically, the measurement involves some form of content analysis, which classifies the news into sensational and non-sensational categories. Recent researches employing content analysis have suggested that there have been substantial shifts towards sensationalism in local television news as well as network newscasts over time (Slattery, Doremus & Marcus, 2001; Slattery & Hakanen, 1994). The researchers coded the stories for their topic and scope. In their study, Slattery and Hakanen, (1994) introduced a secondary

Ambika Babu, Research Scholar, North Carolina State University, North Carolina, USA.

coding step of "embedded sensationalism." The objective was to include those stories classified under the categories of "government" or "community affairs" but contained some significant elements of sensationalism. The proportion of sensational stories jumped significantly higher when public affairs news was coded under this category. Researchers have also coded news messages for their structure or form (Grabe et al, 2001). This could explain the possibility of packaging non-sensational stories in a sensational style, as established by "embedded sensationalism" and vice versa.

The second approach considers the reactions of audience to different news messages. An empirically derived judgmental index serves as a measure of the degree of sensationalism. Tannenbaum and Lynch (1960) devised a measurement procedure called "Sendex", which compares an individual's perception of content with the meaning of sensationalism to him/her. This device has been recently used to measure difference in perceptions of sensationalism among American and Mexican news audiences (Perry, 2002).

It may be observed that all of these studies have attempted to measure sensationalism on inferential grounds. These researches used intuitive and expert judgment to categorize news messages into sensational and non sensational /standard news. Sensationalism thus may be regarded as a judgmental phenomenon, a function of the reaction made by an individual to the message stimulus, rather than some quality inherent in the content (Tannenbaum & Lynch, 1960). Thus perceptions of sensationalism may vary among different individuals. This however does not disregard the possibility that there may be certain characteristics of a message that stimulates the judgment of sensationalism. Against this background, the current study attempts to measure perceptions of news sensationalism among communication graduate students. Based on its findings, the study establishes that audience will perceive that message traditionally classified under 'sensational' as more sensational, but not necessarily less credible than the message traditionally classified under 'non sensational'. The following section of this paper attempts to support this thesis through statistical analysis of the data collected. The arguments of the current study are presented in the following hypotheses.

H 1: Audience will perceive Message 1 more sensational than Message 2.

H 2: Audience will perceive Message 1 less credible than Message2.

Method

The study used a survey designed to measure the two dependent variables, sensationalism and credibility. The independent variables were the two different news messages. Respondents were fifteen students of a graduate course in communication at a southern university in the United States (N=15). Each student received two different news messages conforming to the traditional dichotomous classification of sensational and non-sensational news. Message 1 was an Associated Press crime story with shades of racism. This story was selected, as previous scholarly researches have categorized crime under sensational news topics. Message 2 was a freelance report about the environmental problems caused by plastic bottled water. This story was chosen to represent a topic classified under non-sensational news stories. The students were not told that the study concerned perceptions of news sensationalism.

Along with each message, the students were given a self-administered questionnaire, which contained empirically validated attributes of sensational news as well as adjectives indicating credibility of news. After reading each message, they were asked to rate each stories on a scale of 1 to 5, ranging from 'most fitting' to 'very not fitting'. The reliability of the scale items was computed using SPSS. Cronbach's Alpha for the 6 descriptors of sensationalism was .706 and that of the 7 descriptors of credibility was .805. The mean scores for the two independent variables, Message 1 and Message 2 were computed separately for each dependent variable. Next, two Paired-Samples T-Test were used to compare the differences between the mean scores of Message 1 and Message 2 for each of the two dependent variables, news sensationalism and credibility. This t-test would determine if the difference between these mean scores is sufficiently large enough to be beyond what one would expect by sampling error alone.

Results

The difference in responses to sensationalism was first compared. Significant difference emerged for the perceptions of sensationalism in the two messages. The mean value of Message 1 = 2.2095 (Msg1sesvar) was lesser than Message 2 = 2.7429, (Msg2sensvar). After, computing the paired t-test, the p value obtained was lesser than .05. The results thus indicated that audience rated

message1 significantly more sensational than message 2 (t = 2.817, df = 14, p = .014 < .05). Hence, hypothesis 1 was supported.

When the difference in responses to news credibility was compared, the mean value of Message 1 = 3.0571 (Msg1cred) was greater than Message 2 = 2.6571 (Msg2cred). However, the obtained value of t = 1.598 was lesser than the critical value of 1.761 and the level of significance was greater than .05 (t = 1.598, df = 14, p = .132 >.05). The mean scores were in the expected direction; however, the p value might be the result of the small sample size. Nevertheless, we could conclude that the difference between means of message 1 and message 2 was not significant at the .05 level. Hence, we failed to reject the null hypothesis of Message 1 more credible than Message 2. Consequently, hypothesis 2 was not supported. The following tables (Table 1 & Table 2) show the paired samples t-tests for news sensationalism and credibility, respectively.

Table 1

Paired Samples Test

	Paired Differences					t	df	Sig.(2-tailed)
	Mean	Std.Deveiation	Std.Error Mean	95% Confidence Interval of the Difference				
				Upper	Lower			
Pair 1 Msg1sensvar-Msg2sensvar	-0.53333	0.73335	0.18935	-0.93945	-0.12722	-2.817	14	0.014

Table 2

Paired Samples Test

	Paired Differences					t	df	Sig.(2-tailed)
	Mean	Std.Deveiation	Std.Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Msg1cred-Msg2cred	0.40000	0.96921	0.25025	-0.13673	0.93673	1.598	14	0.132

Discussion

The results of the statistical analysis performed, supported the first hypothesis that audience would perceive message 1 more sensational than message 2. However, the data analysis failed to support the second hypothesis that audience would perceive message 1 less credible than message 2. As this research is a pilot study conducted as part of course requirement, there is room for considerable refinement in the actual measurement techniques. To begin with, the findings on the perceptions of sensationalism are based on a small sample of graduate students, who may not have exactly clear ideas about the target concept of sensationalism. A comprehensive research using a large, more heterogeneous sample might yield sharper results. Another issue relates to the concept of embedded sensationalism. This occurs for example, when news stories dealing with politics and public institutions are presented within the context of sensational events. The selection of news stories for the current study was based on the traditional dichotomous classification of sensational and non-sensational news. Message 1 was a typical sensational news story while message 2 was standard news. However, many respondents attributed sensational characteristics to Message 2, and rated it less credible than Message1. This may be due to the presence of emotional eliciting elements embedded in the story as a result of the style of writing or presentation. The consequent ratings might have thus affected the results to some extent. Another aspect of measurement that requires refinement is the scale. The attributes were selected based on their content validity. The basis of selection seemed reasonable considering the scope of the current study. Nevertheless, a measurement technique like Tannenbaum and Lynch's "sendex", which compares an individual's perception of content with the meaning of sensationalism to him or her, may be appropriate for a more sophisticated research (Perry, 2002).

Conclusion

This study was an attempt to measure the perceptions of news sensationalism. From the results obtained, it may be concluded that audience tend to perceive those messages traditionally classified under 'sensational' as more sensational. But they do not necessarily find sensational messages less credible than those messages traditionally classified under 'non sensational'. As mentioned earlier,

it can be assumed that sensationalism is basically a judgmental concept, existing mainly in the beholder. Hence it continues to be an ambiguous term not limited to any mass medium or specific group of people. Though there is an extensive body of research on sensationalism, there is vast scope for further research. In spite of sensationalism being an important concept, it is surprising to find a lack of consistency in the treatment of the subject. A majority of the literature reviewed limited their investigation to network television news, employing content analysis. Very few studies could be found investigating sensationalism in print journalism. There seems to be no research investigating the influence of gender on perceptions of sensationalism. Another area for study is the impact of sensationalism on viewer memory and credibility of news. Considering the rising significance of sensationalism in contemporary journalism theory and research, further research can enrich the existing studies.

Appendix: Survey

Section 2: For each of the attributes listed below, please indicate how well it fits the above message:

	Descriptors	1-Very Fitting	2- Fitting	3-Neutral	4- Not Fitting	5- Very not Fitting
1	Factual					
2	Exaggerated					
3	Trustworthy					
4	Boring					
5	Exciting					
6	Informative					
7	Inaccurate					
8	Believable					
9	Sensational					
10	Interesting					
11	Bold					
12	Colorful					
13	Acceptable					
14	Responsible					
15	Controversial					
16	Relevant					
17	Arousing					
18	Tells the whole story					
19	Objective					
20	Useful					

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MEDIA LITERACY EDUCATION IN THE CONTEXT OF PEACE EDUCATION

Vedabhyas Kundu

If anything could humanize Moammar Gaddafi, it was the before-and-after drama that emerged as images of the fallen dictator flooded the Internet and cable news. One early bit of data pinging out of Sirte looked like a screen grab from a cellphone video, filled with telltale markings that suggest but don't assure authenticity - a time-and-date stamp, battery-level indicator, elapsed-time bar and play button on the bottom. The dead Gaddafi was seen with half-open eyes, as if staring at the camera, bloodied but ashen, looking hauntingly like himself, but with the odd, theatrical mask of a white-faced geisha. It felt real, but it had a strange, too-concentrated emotion....

Authenticity in the digital age is all about the feel of the image, the drama of how it seems to have been made. Anything can be faked in our wag-the-dog world, but it's hard to fake this well this quickly. An image feels true not because it looks true - that's easy to do - but because it arrives in a way that feels true.

More is more, and speed matters in the authenticity game of digital imagery. The self-reinforcing surge of Gaddafi images and video erased doubts. News Web sites and television called it for death, the headlines went big, the scrolling ticker was scrubbed of equivocations.

The flood of information on television always confuses our sense of tense, but this simultaneity of death and life changed everything. The death footage was no longer about forensics, proving that a bloodthirsty man has been killed. An image of a corpse is a data point. An image of a living man juxtaposed with an image of his corpse is a drama. Everything in between is left to the imagination, and in that gap even a thug whose monomania brought death to people as far away as a small town in Scotland and a discotheque in Germany can suddenly seem human. Split screens on television filled in the gap: crowds of young men, pumped with the ecstasy of victory, tearing

Vedabhyas Kundu, Programme Officer, Gandhi Smrithi Darsan Samithi, 30 January Marg, New Delhi. E-mail: vedabhyas@gmail.com

at the fallen regime's green flag with knives, shredding pictures, firing guns into the air.

Philip Kennicott poignantly highlights how the mass media especially television and the news media flashed repeatedly the gruesome and ghastly images of the Libyan dictator. This was definitely not the first time when the media played out such grisly images and headlines; and it was not the last time when such imagery would appear to suggest that possibly the media revels in violence and killings rather than reporting it. What started with the first Gulf War in early 1990s when Cable News Network, the American television network bombarded public around the world with 24-hour relay of live images of the war thereby heightening the perception of the war is now a universal phenomenon. Termed as the CNN effect by media scholars, some talk about it in terms of formulations which address only the policy forcing effect on humanitarian intervention decisions, while others suggest a whole new approach to foreign policymaking and world politics (Gilboa, 2005).

Talking about how the news media covers conflicts, Cottle (2009) argues that the media not only communicate or 'mediate' the events of the war; they enter into its very constitution shaping its course and conduct. In this sense war becomes mediatised. They are reported widely and extensively in the news media and it is mainly by these means that the unfolding events of wars become conveyed.

What then is mediatised war? Cottle sums up saying, "When war or conflict becomes a media spectacle and when symbolic war events are deliberately staged for news cameras; when combatants digitally record military actions and circulate them on the Internet for their own and others' amusement; when inhumane acts and atrocities are choreographed in front of video cameras, uploaded to the Internet and globalized by the world's news media. These countless images and information releases which enter into the course and conduct of war and conflict via the media is more than mediated war."

The mediatisation of conflicts can be explained in the context of globalization of mass media, new information and communication technologies and developments in the field of warfare. These are some of the principal changes now transforming the media's relationship to and representation of war and conflicts.

In fact the changes in the media globally has been aptly explained by Tehranian (2002) who notes that during the past three

decades (1970-2000), global media have gone through major technological and structural transformations leading to significant penetrations of national media systems. "This has taken place through direct broadcast satellites (DBS), low orbit satellites, digital telephony, the Internet, as well as such micro media as audiotapes, videotapes, CDs, computer laptops and palmtops, and wireless telephony and Internet. Global communication has virtually created a world without borders. While the commercial systems dominate the content of news and entertainment, government systems attempt—often unsuccessfully—to control the flows by censorship within their own territorial sovereignties."

According to Tehranian while the commercial media system in the more developed countries (MDCs) is dominated by an oligopoly of nine transnational media corporations (TMCs), government media monopolies control the flow of information and news in most of the less developed countries (LDCs). He further points out that three technological trends characterize the global media, including *digitalization, convergence, and miniaturization.* The technological transformations have led to three structural consequences, including *globalization, localization, and fragmentation*. Structural changes have in turn led to three new cultural patterns, including transnationalization*, tribalization,* and *democratization*.

Mc Cannon (2009) goes on to argue that 'it is an era in which the world's most dominant organizations are the media cartels and their major advertisers'. "They drive relentlessly for profit, overwhelming busy parents, teachers, counsellors, and preachers. Daily, we create a historic new social experiment with the health of children and democracy. As mainstream media merge into ever larger global conglomerates, advertiser-approved content expands to the exclusion of less profitable, prosocial programming for children and quality news for citizens," he says.

In line with the changes in global media, the Indian media too has seen rapid changes. N Bhaskara Rao et al (2005) and Abhijit Banerjee (2006) talk of the major structural changes in the Indian media and its increasing proliferation over the past decade.

Ninnan (2006) for instance point out that in 1991 some of the big media companies either did not exist then or were cottage industries. These could be linked to the opening up of the economy following the economic liberalization process in 1991 (Abhijit Bannerjee, 2006).

Bhaskara Rao et al (2005) argues that with big money involved in the running of the media industry, 'advertising, market research and media planning sets the scope and pace of media including in the case of ownership pattern and journalistic trends.'. J V Vilanilam (2005) taking forward the discourse on how the media industry has shaped up post-1990s observes that the 'media seems to have only one goal and that is to deliver the maximum number of readers, viewers and listeners to the advertiser'.

Scholars like Taleb (2004) have done extensive study on media coverage of conflicts. They note that media frame conflicts in one of five ways: as win/lose conflicts, as human interest stories, as economic forces, as morality tales, and as indicators of blame.

The centrality of media in conflict situations is further accentuated by the significance reporters themselves attach to such scenarios. In journalistic circles, the 'glamour' of war correspondence is much coveted and assignments to trouble spots much fought over. Many reporters who do get the opportunity to cover conflicts see themselves as extraordinary individuals, ¯soldiers without the means of self-defence, who function in ¯hell (Pedelty 1995) to bear witness to history.

While there is truth in that claim, conflict coverage is not so idealistic or selfless as it is made out to be. Sullying the pristine image that many reporters carry in their heads is a plethora of factors – the most overlying being, correspondents belong to ¯larger news organisation which discipline their work, ¯determining not only which stories are covered but how they are framed (Van Ginneken 1998, cited in Carruthers 2000). Though the nature of news is ¯partially unpredictable (Palmer 2002) much of the news production is routine, subject to much bureaucracy (Sigal 1973, Schlesinger 1987).

'Bureaucrats' in news organisations –meaning editors or the management– determine which wars should be covered, and which not, which reporter to send out and for how long (Carruthers 2000). They decide if a conflict merits 'first-hand' reportage, or if 'agency copy' will suffice (as Van Ginneken 1998 notes, most war reports are the work of second-hand sources and 'stringers' in trouble spots; cited in Carruthers 2000); how the reporter is 'briefed' and what type of stories are demanded of him/her, how it is edited, headlined, and displayed.

In light of the above discussions, it can be pointed out that the role of media in conflict situations has been a matter of contention and contestation. It is a double-edged sword. It can be a frightful weapon of violence also when it propagates messages of intolerance or disinformation that manipulates public sentiments. Radio Mille in Rawanda is one of the most appalling contemporary examples. The inevitable manipulation of the media in war situations leads to greater polarization and fuels mistrust between populations in conflict (Hieber and Media Action International, 2001).

At this stage it is crucial to underscore why the discourse on media and its role in conflicts is crucial and the related effects to audiences. Given the environment in which media operates and the present era of mediatised conflicts, it is significant to understand media effects.

Early empirical studies of Lasswell (1927) relating to stimulus-response principles assumed that the media were powerful. Studies by Klapper (1960), however, point out that media are weak. Fruh and Schonbach (1982) note that the mass media and its recipients interactively affect each other in a variety of ways. McCombs and Shaw (1972) postulated the agenda-setting approach which pointed out the cognitive effects on recipients.

There have been other orientations on media effects. Katz and Blumler (Blumler, 1974) talked about the uses and gratifications approach which concentrated on the needs of recipients, whom they regarded as being actively satisfied by the media. Bauer (1964) subsequently developed a 'transactional approach' which assumed the existence of transactional relationships between sender and receiver. Fruh and Schonbach (1982) further developed this approach into a 'dynamic transactional approach' and found that the actual influencing potential of media offerings resulted from recipients' interpretations.

Berger and Luckmann (1966) note that the effects of media should not be attributed to the facts reported in the media, but rather to assume that 'reality' is socially constructed. They further point out that media thus serve as not only mediators, but also as constructors of social realities.

Festinger (1957) points out that reported events serve merely as raw material. Offered in de- and re-contextualized form, they mirror

senders' constructions of reality. Through cognitive processing on the part of the recipient, these constructions may be integrated into the recipient's subjective reality.

Then there is cultivation analysis developed by George Gerbner, which, primarily focussed on television programmes. It held that exposure to news will, over time, have a cumulative effect on the audience perception of the world (Gerbner & Gross 1976, Griffin 1996, Weimann 2000). The effects are gradual and long-term, but significant; and they are on the *attitudes* of the viewer rather than on their *behaviour*. Thus, while the media content might not lead to direct, imitative responses to violence, heavy exposure could cultivate attitudes more consistent with what is presented in the news.

Morgan & Signorielli summarise it thus:

Cultivation analysis looks at [television] messages as an environment within which people live, define themselves and others, and develop and maintain their beliefs and assumptions about social reality … Cultivation does not imply any sort of simple, linear ¯stimulus response model of relations between media content and audiences. Rather, it implies long-term, cumulative consequences of exposure to an essentially repetitive and stable system of messages, not immediate short-term responses or individual interpretations of content. It is concerned with continuity, stabilization, and gradual shifts rather than outright change. (1990, p18)

Working on the same premises, Douglas Kellner (1995) argues that audience perception is dependent on the 'media culture' it lives in. To him media are an integral part of modern existence, the driving force behind a culture, a ¯contested terrain across which key social groups and competing political ideologies struggle for dominance. He holds the media ¯produces the fabric of everyday life, dominating leisure time, sharing political views and social behaviour, and providing the materials out of which people forge their very identities. Like Gerbner and Morgan & Signorielli, Kellner sees news messages as providing an 'environment' in which people constructs their social reality. As such, media messages are not consumed in isolation, or in originality, but are interpreted by the receiver on the basis of own values, commitments, sense of belonging, etc. Audience immersion in this environment could result in an internalisation of the 'reality' presented over and over (Morgan & Signorielli 1990).

Meanwhile Potter (2005) lists five types of media effects. These include cognitive, attitudinal, emotional, physiological and behavioural. Cognitive effects are learning of information and retaining that information in either short-term or long term memory.

Amongst attitudinal effects, media through information and images facilitates either creation of opinion, change in opinion or reinforces already existing attitudes. This fact is greatly used by advertisers to sell their products. In the long run, individuals who get exposed to a particular theme continuously start to believe in what is being portrayed. Ross (2003) quoting a study of youngsters watching movies in which actors smoke noted that 52 per cent of adolescents took to smoking after they saw the actors.

Some of the immediate emotional effects include temporary reaction to a particular programme. However, in the longer run, media can actually stunt emotional growth and desensitize an individual. Potter notes that the long term physiological effects include increasing tolerance to certain experiences and shift of brain activity. In this context, Winn (2002) cautions that television hooks children into entertainment, keeps their brains functioning at a low level, and makes them passive acceptors of media messages. Also children who regularly get exposed to media violence tend to become less sensitive to aggression and violence.

The media present images that attract and hold the attention of individuals. They tend to alter their behaviour to follow what attracts them. The other short term behavioural effect includes the tendency to imitate. This is especially true in case of children and young people (Comstock et al,1978).

What is media education?

If we have to further the discussion in the backdrop of arguments put forward by Gerbener, Morgan, Signorielli and Kellner on how 'news messages provide an environment' in which people construct their social reality' and the emerging media scenario, it would be pertinent to promote discourses on how citizens can be empowered to critically understand the media messages. McCannon (2009) lists four approaches taken up to address the situation: a) Government censorship; b) increased regulation; c) reform of the media system; d) media education.

As Silverstone (1999) underscores 'media is now at the core of experience, at the heart of our capacity or incapacity to make sense of the world in which we live'; it is now becoming imperative that citizens develop capacities to negotiate the complexities developed due to the mediatisation process. It is in this context, media education needs to be encouraged as it is concerned in using critical thinking methodologies to combat inequalities and problems within culture (McCannon.2009). It draws upon a wide ranging trans-disciplinary subjects like education, communication, media studies, psychology, cultural studies, literacy studies, library and information sciences, health, medicine, science, religion, political science, history and technology.

Stressing on the right of citizens to media education, the UNESCO Conference on Media Education organized in Vienna in 1999 reiterated, "Media education is a part of the fundamental right of each and every citizen of any country in the world of freedom of expression and the right to information, and is a tool for building and maintaining democracy." It also underscored that 'media education should be aimed at empowering all citizens in every society and should ensure that people with special needs and those socially and economically disadvantaged have access to it."

McCannon notes that media education can teach: information about the media; skills of analyzing the media; techniques of media production; and strategies of active involvement in media-related issues. Through such a process, an individual develop capacities to deconstruct media messages; develop awareness on the impact of media on individual and society; critical thinking skill that allows audiences to develop independent judgements about media content; and awareness of media content as a text that provides insight into our contemporary culture and ourselves. McCannon goes on to underscore five basic principles of media literacy education:

a) Media messages are constructed

b) Messages are representations of reality

c) Each form of media uses a unique set of rules to construct messages.

d) Individuals interpret media messages and create their own meaning based on personal experience.

e) Media are driven by profit within economic and political contexts.

As the example cited above on the killing of the Libyan leader Gaddafi, different forms of media through their influential imagery and message try to influence citizens across the world. It is in this context; the importance of media literacy education is reiterated. Also the ability to articulate on different issues and respond to crises can be linked to the notion of active citizenship. Here too, Renee Hobbs (1998) articulates on the importance of media literacy education. She notes, "Media literacy practices helps strengthen students' information access, analysis and communication skills and build an appreciation for why monitoring the world is important. Media literacy can inform students about how the press functions in a democracy, why it matters that citizens gain information and exposure to diverse opinions, and who people need to participate in policy decision-making at the community, state and federal levels. Secondly, media literacy can support and foster educational environments in which students can practice the skills of leadership, free and responsible self-expression, conflict resolution and consensus building, because without these skills, young people will not be able to effectively engage with others in the challenges of cooperative problem-solving that participation in a democratic society demands. Third, media literacy skills can inspire young people to become more interested in increasing their access to diverse sources of information."

Meanwhile, within the framework of education, Asthana (2008) points out Dewey's theory of education with its emphasis on interaction, reflection and experience and Freire's insights on dialogical education and developing consciousness has shaped contemporary discussions on media education, learning and literacy.

One of the important thinkers of media education, Masterman (1985 and 2001) underlines its aims as that of enhancing student's understanding of how the media represent reality; producing well-informed citizens who can make their own judgments on the basis of the available evidence. He says, "Media education is an essential step in the long march towards a truly participatory democracy…widespread media literacy is essential if all citizens are to wield power, make rational decisions, become effective change agents, and have an effective involvement with the media.

Kumar (2007) has tried to give a perspective more relevant for developing countries when he says 'the primary goals of media education are thus the conscientization, empowerment and liberation

of the community and of society as a whole. Its concerns are the promotion of equality, social justice, democracy, freedom, human dignity and a more humane society. The methods or strategies it employs are dialogue, reflection and action.'

Intersection between media literacy education and peace education

The notion of media education as being an important pathway to active citizenship, its importance to be an effective change agent and a catalyst for promotion of 'equality, social justice, democracy, freedom, human dignity and a more humane society' has intersection with the aims and goals of peace education.

The Preamble to the Constitution of UNESCO underlines, "Since war begins in the minds of men, it is in the minds of men that defences of peace must be constructed." The goal of peace education is not only to prevent peace but also to maintain peace and promote a culture of peace.

UNESCO identified eight areas that form the framework of programme of action to promote peace education (Mayor and Adams, 2000). These include education for a culture of peace; sustainable economic and social development; respect for all human rights; equality between men and women; participatory communication and free flow of information and knowledge; democratic participation; internal peace and security, including disarmament and economic conversion.

Similar to media education borrowing from Freire's insights on dialogical education, peace education too borrows his insight of dialogic education. Freire's education for consciousness and problem-posing education was a method to make people human. Dialogic education is to recognize the aim of oneself and of one another. It is important to understand the feelings of others and to be together with one's heart.

Meanwhile, Kekkonnen (1985) outlines the goals of peace education and stresses it is to create an individual capable of critical thinking, feelings of solidarity with the less privileged and empathy, and one who has on the basis of his or her conviction has a humanistic orientation towards life and is able to act in cooperation with others to create a more just world.

Harris and Morrison (2003) note some important purposes of peace education. These includes: how peace education promotes respect for different culture and help students appreciate the diversity of human community; it emphasises on knowledge and teaches skills; focuses on strategies to achieve both individual and societal change; it teaches a respect for all forms of life; helps students learn about the problems of human rights and justice; to help manage conflicts non-violently.

The approaches and goals of peace education as noted above has definite synergy with the goals of media education. The ubiquitous and all-pervasive nature of contemporary media especially the new media which has even entered our bedrooms makes it imperative to incorporate skills to critically analyze and understand media in any peace education programme. The goals of media education like ability to use media and construct media messages necessarily should be linked to peace education so that its purposes as outlined by Kekonnen, Harris and Morrison can be achieved. Increasingly the advent of digital media and citizen journalism has enabled citizens around to world to reflect on media coverage which tend to promote violence and conflicts.

For instance, Chris Elliott, The Guardian's readers' editor during the time of Gaddafi's killing, got into a discussion on the contentious matter of whether it was right to publish pictures - especially on the front page - of Muammar Gaddafi's bloody corpse. He pointed out that many readers and some members of the paper's staff objected to their use in print and online. Media education will enable citizens to respond to such contentious issues and hence could promote discourses for non-violent discourses.

Towards an Indian model of media education

In the backdrop of the above discussions on the intersection between media and peace education, I will try to outline a possible Indian model of media education which tries to articulate a humane approach to the study of media based on the prescriptions of Indian thinkers- the overarching goal being a peaceful, non-violent and just society. The work of Mahatma Gandhi, Rabindranath Tagore, Aurobindo, and Amartya Sen can be considered to develop a framework of such an Indian model. In fact to prepare young people to use media and communication education for development, peace

and justice, the teaching methodology should strive to incorporate the spirit of the philosophy advanced by these thinkers.

Mahatma Gandhi in *Young India* (3-6-26) stressed on the need to have their own initiative and cease to be mere initiators. Gandhi laid importance on the need of students to think and act for themselves. If media education has to help students to make critical judgements of media text, Gandhi's emphasis of not just relying on text-book learning becomes important.

In *Young India* (29-1-1925), Gandhi says, "Pupils must know to discriminate between what should be received and what should be rejected. We are thinking, knowing beings and we must in this period distinguish truth and untruth, sweet from bitter language, clean from unclean things and so on.

Gandhi was in favour of an education which taught students to have pride in their surroundings; he stressed on the importance of education to be rooted in the culture and life of the people. This precisely should be the aim of media education- focus on the local culture and tradition- help facilitate students to appreciate their own culture.

As media education stresses on practical work, Gandhi's stress on 'real education which draws out the best from the boys and girls' becomes pertinent. (Harijan,1-12-33). He held that true education of the intellect can only come through a proper exercise and training of the bodily organs. 'An intelligent use of the bodily organs in a child provides the best and quickest way of developing his intellect, he said. The underlying importance of practical work in media education is captured by the Gandhian vision of education.

Another important aspect that media education needs to capture is the Gandhian approach to peace and non-violence. No media education curriculum incorporates the Gandhian communication model which stresses on non-violence, peace and humanism. In fact it is ironical that students of mass communication in India are acclimatized with communication models of Shannon and Weaver, Lasswell and others but not of Gandhi.

Gandhi's writings and speeches showed remarkable self-restraint and moderation, strict conformity to truth and a desire to do full justice to the viewpoint of the opponent remarkable self-restraint and moderation, strict conformity to truth and a desire to do full justice

to the viewpoint of the opponent- characteristics which remained with him through life. (Preface to the First Volume in Collected Works of Mahatma Gandhi, Vol 1, xix)

Gonsalves (2010) explaining the Gandhian communication model points out, "From start to finish, the underlying principle of Gandhian engagement with an opponent in a conflict is to keep the channels open, to avoid intimidation and to remove all obstacles to dialogues."

Further, Naess (1955) describes Gandhi's communication theory as:

a) on-site accumulation and analysis of facts, with opponents participation;

b) identification of interests in common with opponents;

c) formulation of a limited action goal acceptable to all parties and mutual discussions of same;

d) a search for compromise without ceding on essentials.

Bode (1995) captures Gandhi's communication theory as that consisting of four units: non-violent speech and action; maintenance of relationships and enrichment of personhood; openness; flexibility.

Hence to promote a culture of peace and non-violence and to prepare students to use media and communication for conflict resolution, the Gandhian approach to communication needs to be incorporated in curriculum.

The other important contemporary thinker whose views on education need to be the essence of media and communication education in India is Rabindranath Tagore. He believed that it was not enough to pass on information, what was important was the ability to put to use what one has learnt and to develop curiosity and alertness of mind (Shiksha, 1990).

Tagore was opposed to borrowed knowledge that distanced pupils from their own social and cultural fabric. He said that education which imparts knowledge but bears no relevance to life situations is of no avail. He said that the curriculum should be developed by teachers and students together. It should be based on their needs and requirements. He laid stress on discussion as a mode of delivery of knowledge. The books should serve as mere supplements to knowledge acquired through life situations and on independent

thinking. Learning should proceed from familiar situations to unfamiliar situations. They should be encouraged to learn from and about the natural phenomena that they encounter in their daily lives. Essentially, Tagore focuses on connection of knowledge outside school curriculum. His stress on 'learning to proceed from familiar situations to unfamiliar situations is what is expected out of media and communication education.

Sri Aurobindo's vision of education should also be reflected in media and communication education in India. According to Sri Aurobindo, any system of education should be founded on the study of the human mind. The means through which education could be made meaningful was to acquire an understanding of the instrument of knowledge and develop a system of teaching which was natural, easy and effective. The teachers need to accept their role as that of a helper and guide not as an instructor who imparts knowledge, trains the mind of the children, and makes imposition on them. At best, the teacher can make suggestions and encourage the children to acquire knowledge for themselves. It is improper to be geared to drawing out the innate abilities in children and perfecting them for noble use. Furthermore, the children should be made familiar and aware of all that surrounds them and environment, sounds, habits, and customs, nationality. The purpose here is to foster free and natural growth, for these are the pre-requisite of genuine development.

Sri Aurobindo said it was not enough to acquire competence in the discipline and to have the entire knowledge at one's fingertips. The major issue is not what is learnt but what one does with that learning, the use that the knowledge is put to and the way in which it is put to use. It is significant that through media and information literacy, citizens can use media to further a just and peaceful society.

Meanwhile, Das (2009) had argued on using Sen's capability approach to define media education in India. Sen and Dreze (1995) argue that the notion of capability is essentially one of freedom-the range of options a person has in deciding what kind of life to lead. They argue that one way of seeing development is in terms of the expansion of the real freedom that the citizens enjoy to pursue the objectives they have reason to value, and in this sense the expansion of the real freedoms that the citizens enjoy to pursue the objectives they have reason to value, and in this sense the expansion of human capability can be, broadly, seen as the central feature of the process of development.

This expansion of human capabilities can be linked to the notion of active citizenship. Media and communication education should not only help in the expansion of choices but also lead to active citizenship.

Hence as underlined in the discussions above it would be pertinent to integrate the perspectives of the above Indian thinkers in media education curriculum in India so that their approaches to a non-violent society based on ideals of justice and equality can be articulated. This approach will go a long way in developing inter-disciplinary approaches between media and peace education.

Conclusion

This paper discussed the contested discourses on the role of media in conflicts and the imagery and messages that it uses to influence citizens. This led to the discussion on the importance of media education for promotion of active citizenship, participatory democracy and how citizens can make use of it in further non-violent discourses. It was further underscored how there is an intersection between media and peace education and why there is need to incorporate techniques of media literacy in any peace education programme. Lastly, the writer tried to outline an Indian model of media education for a peaceful society with concerns of human dignity, justice, equality and freedom.

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Reg. No. KERENG/2010/35808 ISSN 2231-217 X

Volume. 02, Issue. 02, June 2011 (Half yearly publication)

CONTENTS

Annual Subscription Rs. 200 (INR)

Edited, Printed and Published by Dr. S. Anil Kumar
Director, Public Relations and Publications
Cochin University of Science and Technology, Kochi - 682 022, India

Printed at Jose Printers, S. Kalamassery, Cochin - 682 033