An Evaluation on the Effectiveness of Science Communication through Educational Radio

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Abstract

In developing as well as developed countries, science plays a great role for social welfare and empowerment. Of all the media, radio is an effective medium to reach the masses. This is because even illiterates can use this medium, especially in a developing country like India. Gyan Vani make efforts in imparting scientific temper. The present study assesses the perceptions of the radio listeners about the potentiality of the radio to provide science programmes in an effective way in the urban areas. The study explores the broadcasting intensity of the science programmes across radio stations operating in Chennai. In the same line, effectiveness and use of the programme is examined. The study also examines the prospective use of radio in communicating the science programmes and the extent that radio has made effective contribution to the public understanding of science in the study area.

Keywords:　Nature of Science; Society; Public Engagement; Public Understanding of Science; Indian Women

1. INTRODUCTION

Science Communication (SciCom) helps incorporate the knowledge of science into the common culture. Generally, most of the people do not understand the basics of experimentation or scientific inquiry, and the overwhelming majority cannot even explain what a development is in science arena. The research community in science discipline genuinely wants to lower the barriers separating the public from science and help increase enthusiasm for an understanding of science. Public Understanding of Science (PUS) focuses on public engagement with science and is unique in its grassroots approach to disseminating science and generating enthusiasm for the topic.

PUS is a grassroots effort that coordinates a network of organizations into a sustained, national campaign to celebrate science. Its primary goals are to inspire broad appreciation of science and its contributions to quality of life, inform the public about the process and nature of science, as well as science

itself and make science more accessible to everyone. Radio has is one of the fastest growing media in India because of its low cost in availability, maintenance and use. Although radio is one of the oldest media, it is regarded as most persuasive, affordable and the most accessible medium ever. The present study tries to ascertain the role of radio in disseminating science information in Chennai and the effectiveness of radio in transmitting the information to the intended inhabitants and its use. To introspect the effectiveness of radio in communicating science programme, Gyan Vani - Chennai was taken up for the study.

2. CONCEPTUAL BACKGROUND

Several studies illustrate the various dimensions of the science communication process which enable to conceive the conceptualization of the study. Indian society has reached a complex socio-economic and cultural stage and has very limited space for science communication for public understanding. The media speaks very little about the public understanding of science but believes that it will automatically grow over the years due to the public interest in science (Singh, 2007). The professional science communication strategy evolved in mass media communication to address the issues in a more systematic way. Cribbs and Hartomo (2002) describe the methodology of science communication through the mass media and the method to communicate the science stories through newspaper, website or magazine with more clarity; in the same line it is essential to draw the outline for every science news article (Vilanilam, 2003). The role of radio to promote science communication has been well documented especially the role of community radio stations as a potential tool use to provide information and resources to ensure the effective delivery of science information to ensure PUS at the grassroots levels (Gutierrez and Cristina, 2002).

Elements of science communication include (a) scientific contents, (b) simple language, (c) how & why, and (d) newsworthiness. According to a survey on science communication in India undertaken by Manoj Patairiya (2007), the status of science coverage in various media is as follows:

Table 1:   Science Coverage in Various Media

Science coverage in print	3.4%
Science coverage on radio	5.84%
Science coverage on TV	1.8%
Science-based research papers	2.1%
Science-based books	0.2%

Thus the empirical representation connotes that the media's contribution in transmitting the science information to the normal people is squat.

2.1 Objectives of the Study

The objectives of this study are:

(1) To find the reach of science communication through radio among the listeners in Tamil Nadu
(2) To find the perception of listeners about science communication through Gyan Vani
(3) To assess the utility of science communication through Gyan Vani by the listeners

3. REVIEW OF LITERATURE

Raza (2011) found significant regional disparity in awareness levels within India which should be factored into designing national campaigns to improve science awareness. The fact that some states with low literacy rates, scored high on public understanding of science shows that literacy and education are not the only influencing factors. "It indicates that in these places awareness about certain scientific facts has become part of the cultural background and is nurtured irrespective of the level of education," Raza explained.

Chandrappa and Ravi (2009) explain the rapidly growing population and economic development are leading to the environmental degradation in India through the uncontrolled growth of urbanization and industrialization, expansion and massive intensification of agriculture and the destruction of forests. Major environmental issues are forest and agricultural land degradation, resource depletion (water, mineral, forest, sand, rocks, etc.), environmental degradation, public health, loss of biodiversity, loss of resilience in ecosystems, livelihood security for the poor.

According to a survey on science communication in India cited in Patairiya (2007), the status of science coverage is as follows: 5.84% on radio; 1.8% on TV; 3.4% in print; science-based research papers constitute 2.10%; and science-based books is 0.20%.

Chandramouli (1990) reported that majority of the radio listeners wanted information to be presented by a specialist in the form of a straight talk.

Maraty and Reddy (1998) concluded that majority of the respondents quoted reasons for listening of programme as broadcasts were need based and pronunciations of words was normal. The reason quoted for listening programme was easy to understand and attractive.

Chandrakandan and Knight (1987) in their study on 'factors affecting farm broadcasting' suggested selecting the speaker who would be knowledgeable with good pronunciation and voice would be able deliver the message more clearly. The topic should be related to felt need, timeliness and completeness.

4. RESEARCH METHODOLOGY

The study area is confined to Chennai. The researcher preferred to choose Tamil Nadu particularly Chennai since large portion of the people reside in the radio's broadcasting territory, a radius of about 20 km. Two steps of analysis is taken up: firstly purposive sampling was done at Gyan Vani in Chennai and programmes of station is subjected to analysis. The bulk of this report draws on a qualitative textual analysis of these stations' output in one month from April 1 to 30, 2018. Discussions about the coverage of science often proceed from anecdote, citing examples that are not necessarily representative. Qualitative textual analysis can offer a more systematic view of output. But in examining broad patterns of coverage, quantitative analysis can do little to probe the more subtle features of individual items which would be helpful to assess proportion and quality of the science programme broadcast and data collected from the structured questionnaire from 300 samples have been used to understand the perceptions of the radio listeners in Chennai.

5. RESULTS OF TEXTUAL ANALYSIS

Following are the interpretations and inferences from the methodologies conducted for the study. The major providers of the science programmes classified into four sections called Gyan Vani. The information accumulated has been stemmed below viz., reach, utility and level of application of the science programmes in the study area.

It is an educational FM radio network providing programmes covering different aspects and levels of education with about 60% of the programmes highlighting science. Of the two hours of broadcasting time, science programmes cover 1 hour and 30 minutes, whereas the other science programmes is for about 30 minutes, on an average. The non-news science programming is broadcast for about one hour throughout the week.

Though science covered the major part, there were other programmes that dealt with topics like health: about 45%, environmental issues: about 21%, about 14% discussed about the technological development and

ICTs, 11% with agricultural science, and about 9% with life sciences. Moreover, 37% of the programmes dealt with pollution-related problems, 22% concerned with global warming, 22% concerned bio-diversity conservation in Chennai. Pollution and the health problems have a nebulous relationship. On the outset, most of the programmes were restricted in scope for listeners' interaction and the information provided is one-sided without considering the requirement and the response of the listeners.

Majority of the science programmes dealt with health issues concerned with women's health and children's health. Though 35% of the programmes were devoted for the analysis of the causes and consequences of the health problems, it also dealt with the preventive measures to protect them from the diseases, especially epidemic diseases.

In Ariviyal Neram (Science Time), majority of the time is allotted to pollution and its impact on people. Of the many programmes designed and broadcast during the reference period, 37% of the programmes dealt with pollution-related problems; 22% concerned with global warming and 22% bio-diversity conservation in Chennai. Pollution and the health problems have got a nebulous relationship. Apart from this, there are many issues that have been addressed by Gyan Vani through many programmes such as Nalamaai Vazha (To Live Well), Ariviyal Neram (Science Time) and Window on the World Health Report.

Most of the Gyan Vani programmes about energy were typically positioned in the comfortable preference level, though about half were also headlined at the start of the programmes. Half of the science items on broadcast news dealt with energy production and the scope of conventional energy, 37% conservation of energy, around 13% the challenges for the energy production and distribution.

Highly profound scientists and the faculty from IITs and the all the research institutions participated in the programmes; around 89% of the people from IITs and other reputed research institutions and 11% from the independent research community people.

6. FINDINGS

Most of the listeners were moderately satisfied towards the different components of the science programmes broadcast by the radio stations in Chennai. This finding clearly indicates that there still remains more scope to improve the content of the science programmes with respect to various quality dimensions and effectiveness considering the trust the listeners have on the authenticity of such programmes.

Major findings of the study are as follows

Gyan Vani women listeners seem to like health programmes on women especially on nutrition and balanced diet given by experts. The best example is 'Nalamaai Vazha' (To Live Well) energy issues in general and saving electricity in particular seem to have wide listening. The best example is 'Arivial Neram' (Science Time) that gave tips on how to save electricity by Gyan Vani.

Science has still not succeeded in attracting the media to the extent that it could appear on the top list of the audience or become a lead story, like the politics, films or sports. If science were to be presented in the form of poems, stories, folk songs, PSA etc., the common people would be able to understand, appreciate and know science. Explaining science in the form of poetry is not as it may seem. Science dramas and skits are also underutilized. Though science drama and skit did appear during the period of study, it still is not sufficient in number and frequency.

Misleading science information, a continuous decay of creativity in programme formats, distortion, inconsistency organizing of contents, linguistic lapses in terms of slangs and colloquializations and many more deviations can be seen frequently in the programmes.

The contemporary scriptwriters' attraction to science communication resulted from the challenge they meet each time in breaking down complicated science into a simpler form people can understand.

While the skills and techniques of science communication are similar to other areas, these mostly had to do with science and dealing with complex material, working with a scientist and operating within the scientific industry.

There was sometimes a difference in the definition, in what is considered 'accurate' by scientists and must be accommodated in by the science communicator, thus challenging the need for science communication.

Medium level of awareness was found in listeners on science programmes. This calls for the strengthening of content of science programmes. This can be achieved by increasing awareness programmes and establishing more listeners' clubs in the study area.

Most of the urban people especially students, workers, officials and dealers listen to radio only for entertainment. This indicates that radio is still a medium solely for entertainment calling for strengthening the educative and informative functions of electronic media.

With the only barrier being broadcast timings, people suggest that better formats of science programmes would motivate them to listen to science programmes.

The delivery style is important for communicating science. The survey proved that most of the listeners remembered the content of the health-related programmes broadcast which indirectly proves that the content had reached its target audience.

Radio's role in reaching out through science communication programmes in the area of study is very limited though they accelerate science temper among the listeners. It does have a listenership which should be used to extend this knowledge exchange.

Since most of the science programmes avert the consideration of interests of the audience and lack authenticity, they fail to be effective. Science communication through radio in Chennai leaves a lot to be desired. In short, it is ineffective because of a lack of reach, utility and level of perception.

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