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## SCIENCE COMMUNICATION IN INDIAN DAILIES: A CONTENT STUDY OF INDIAN NEWSPAPERS

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#### **ABSTRACT**

Everyday life of an individual is based on one or the other scientific aspect and knowledge. Mass Media plays an important role in informing, educating and persuading people for taking decision. Science communication not only helps people to be aware of scientific innovation and technology in the country and around the world but it also helps them to be more informative and rational in taking logical decisions in their daily life. The present study is conducted with an aim to analyze the nature of the science news stories published in Indian dailies. For this research paper, four National dailies are taken in to consideration- two leading English newspapers namely Hindustan Times and Times of India and two leading Hindi dailies namely Hindustan and Dainik Bhaskar. The content analysis technique is employed to study the importance given to scientific news coverage by these Indian newspapers, with an aim to bring out the due importance given to the Science Communication in relation to types of scientific literature published, frequency of news on various subjects, origin of the story (national origin and international origin) and pictorial support in science news articles.

For this study, all editions published in May 2013- June 2013 by the four sample dailies from the population were considered for the analysis. All news items (except advertisements and special supplementary materials) published in each daily edition for all the seven days of the week for two



Issues, Content analysis, Descriptive statistics.

months were coded and analysed. The unit of analysis in this study was a complete article. However, the analysis of the data is based on descriptive statistics which include simple frequencies, crosstabulation and percentile method. The study results revealed recent trends and gaps in Science Communication practised by Indian Dailies.

KEYWORDS : Science Journalism, Scientific Innovation and Technology, Scientific

#### **INTRODUCTION:**

A nationwide people concern about the scientific issues is increasing, especially after the successful 'Mars Mission' of India. The hunger and eagerness for science communication has also increased in day to day activities. Mass Media plays an important role in informing, educating and

persuading people for taking decision. The mass media, scientific research, government policies, public attitudes and behaviours all intersect to influence the level of science communication a country has. Science communication not only helps people to be aware of scientific innovation and technology in the country and around the world but it also helps them to be more informative and rational in taking logical decisions.

The early modes of science communication was identified as when stone tools were created by early man, followed by fire kindling technology to preparation of cave sketches used to disseminate information. Foundation of science communication was laid with the publication of Asiatick Researchers, quarterly from Asiatick society, Calcutta in 1788. Since then the efforts were made to evolutionary the trends of science communication, to explore newer and innovative modes, means and ways to communicate and popularize science communication in the country.

Science and technology news is referred to as any news piece- hard news, article, current issues, discussions, interviews or editorials, which is disseminated through printed literature, or broadcasted on TV or radio or through World Wide Web to a mass audience. Gregory (1991) defined science and technology communication as an important feed for people's daily lives. According to Weingart (2002) "what is existent, what is happening and what is important" is science journalism". Science communication is the appropriate use of media skills and dialogues to initiate one or more of the following personal responses to science (the AEIOU vowel analogy): Awareness, Enjoyment, Interest, Opinion-forming, and Understanding (Burns, 2003). Inculcating the importance, requirement and need of science communication in common man's life becomes an imperative duty of the mass media to communicate such content on day-to-day bases. "Scientific communication is the process by which the scientific culture and its knowledge become incorporated into the common culture" as defined by Bryant (2004).

The tone of science reporting in mass media somewhere or the other reflects the scientific development in the country. India has progressively developed in terms of quantity in science communication through science magazines, TV programmes, radio programs, large number of publications, exhibitions and interactive programmes to popularize science among masses. But there is still an insignificant contribution of scientific and technology content in terms of number of newspapers articles on daily basis. "Popular science writing in India is still lacking in its texture and highly dependents on foreign sources" as stated by Singh (1993) in his study. Though science journalism in India has gone beyond the stage of infancy but it still needs to get developed as in other countries.

#### **REVIEW OF LITERATURE**

A study was conducted in India on Science and technology coverage in Tamil newspaper by Arulchelvan (2008) finds out "that not much importance is given to Science & Technology coverage in the Tamil print media due to dearth of trained, educated and dedicated science journalist". According to the study conducted by Carine van Rooyen (2007) in South Africa found that the South African press published a small percentage of Science and technology articles. The press there is dependent upon foreign publications and new agencies for news related to science and technology, increasing the burden of inadequacy on the already crippled state of science communication in the country.

Foreign researchers also have same concerns about science communication in their own country. Kauhanen and Noppari (2007) in Finland stated in correspondence to their research on science communication that, "continuous research, criticism, discussion will help in motivating the Science & Technology temper, scientific innovation, journalism discussions and publications in the media. Such an effort will result in to growing number of coverage of scientific issues in the Finland print media". In

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an another Indian study on science journalism, by Indu Puri (2006) on newspapers in Gujarat, where 28 newspapers with altogether 1926 copies were analysed for various unit and categories of analysis. The researcher observed that 7.5% of newspapers have no news on science and technology and rest had some or little coverage which varied in form and substance. The study also found the average number of news item on science issues was four in the newspaper which is quiet less as compared to other streams of journalism. Results also revealed that medicine and health related issues are covered more frequently under a regular health column i.e. 48.9% in Gujarati newspapers, 39% in Hindi and 30% in English. In comparison to other language newspapers international news on Science & Technology was more published in English newspapers. According to Chakrawaty 1.17% space is given to science journalism in Anand Bazar Patrika and 2.47% space is given in Statesman for scientific issues.

The present study is conducted with an aim to analyse the nature of the science news stories published in Indian dailies. The types of stories published, tone of coverage and the origin of the scientific stories all essential elements are analysed. For the study, researcher has analysed four leading national dailies two English and two Hindi, publishing from India only, namely Hindustan times, Times of India, Hindustan and Dainik bhaskar, were identified based on their circulation and popularity in the state, especially in north India.

#### **IMPORTANCE OF THE STUDY**

In the light of the twenty first century when India is aspiring to become a superpower by 2020 the publication of science and technology news has a great role in recognising the scientific development of the country. The study is important to analyse the characteristics of science journalism in contemporary India. It is important to disseminate information on scientific development, basic health knowledge, research on technology, news, issues and discussions to the masses by both journalist and scientist. Scientist and researchers are responsible towards the society for the work they are responsible of. So it's their duty to inform citizens of latest developments using mass media.

Further it's the responsibility of mass media like newspaper to deliver plenty of literature on science and technology news to enhance knowledge of common man. This study analyzes the kind of role played by newspapers for enhancement of science journalism in India.

#### **OBJECTIVE OF THE STUDY**

The broad objective of this research is to assess the nature and treatment given to the coverage of science and technology news in Indian dailies.

#### Specific objectives

- To explore the various new trends in science journalism
- To identify the characteristic features of science news
- To find out the frequency of type of scientific literature published
- To find out the origin place of these news stories
- To explore the tone of coverage of science stories in Indian newspapers

#### Area of the study

For this research paper, four National dailies are taken in to consideration- two leading English newspapers namely Hindustan Times and Times of India and two leading Hindi dailies namely Hindustan and Dainik Bhaskar. The Times of India (TOI) has the highest readership (16.3million) in English daily in India as per the Indian Readership Survey (IRS) 2012 Q4 and is popular in north India. The

Times of India is a broadsheet newspaper of Bennett, Coleman Co. Ltd. and is owned by Sahu Jain family. Hindustan Times (HT) has a circulation of 1.4 million copies as of 2010 according to Audit Bureau of circulation. As per The Indian Readership Survey (IRS) 2012 HT has a readership of (37.67 lakhs), placing it as the second most widely read English newspaper in India, owned by the KK Birla group.

Hindustan is owned by Hindustan Media Ventures Ltd. has the third highest readership (12.24million) daily as per the Indian Readership Survey (IRS) 2012 making it the third most widely read Hindi daily in India. The fourth newspaper Dainik Bhaskar is owned by D.B. Corp Ltd. having the readership of 14.41 million daily according to the Indian Readership Survey (IRS) 2012 Q4, placing it at the second most widely read Hindi daily in India.

#### **METHODOLOGY**

This research study has used a qualitative and quantitative content analysis technique to study the importance given to scientific news coverage by these Indian newspapers. According to Berelson (1952) Content analysis is defined as, "a research technique for the objective, systematic, and quantitative description of the manifest content of communication".

The purpose of this study is to investigate the extent of scientific news coverage given by these newspapers addressing the following questions:

- What was the frequency of scientific news in these four dailies?
- What were the content characteristics of these science and technology news?
- What types of scientific literature are published and their frequency?
- What is the average story depth (pictorial support and tone of coverage)?

For this study, all editions published in May 2013- June 2013 by the four sample dailies from the population were considered for the analysis. All news items (except advertisements and special supplementary materials) published in each daily edition for all the seven days of the week for two months were coded and analysed. The sample size collected from all the four newspapers for two months is N=327. Out of which 227 belongs to English dailies, 152 news stories were published in Times of India and 75 news stories were published in Hindustan Times. 100 news items were published in Hindi dailies, of which 34 science stories were published in Hindustan and 66 news stories were published in Dainik Bhaskar.

The unit of analysis in this study was a complete article. The variables such as origin place of stories, scientific literature published, illustrations accompany stories and tones of coverage of articles are studied. These unit of analysis and categories of analysis were then given numerical codes which is then coded in a code sheet. Further these codes were calculated and tabulated using Statistical Package for Social Sciences (SPSS) on computer. The analysis of the data is based on descriptive statistics which include simple frequencies, cross-tabulation and percentile method.

#### Results

Table no. 1: Frequency of the science news items in all newspapers

Newspaper	Frequency	Percentage
Times of India	152	46.5
<b>Hindustan Times</b>	75	22.9
Hindustan	34	10.4
Danik Bhaskar	66	20.2
Total	327	100.0

In table 1 the frequency of news stories published in newspapers are measured. Results reveal that a little less than half (46.5%) science news stories were published in The TOI in both the months. While a little less than one-quater (23%) news stories were published in Hindustan Times and almost one-fifth (20.2%) were published in Danik Bhaskar. This indicates that The Times of India has devoted more space for publishing science stories than Hindustan Times among two English dailies. Whereas only one-tenth (10%) of science news stories were published in Hindustan. However, it is interesting to note that percentage of science news articles published in both the Hindi dailies i.e. 30.6 percent is much less than the alone percentage of published article in TOI. This shows the waning trend of science communication in Hindi dailies.

Table no. 2: Monthly occurrence of the science story in a news paper

Month	Frequency	Percentage
May 2013	191	58.4
June 2013	136	41.6
Total	327	100.0

In table 2 monthly occurrences of science stories is measured. In the month of May 2013 a little less than three-fifth (58.4%) of stories were published in all the sampled newspapers though only 41.6 percent stories were published in the month of June 2013 in all four newspapers. It is important to note that 5th June is being celebrated as World Environment Day still the number of stories published in the month of June are less in comparison to the month of May.

Table no. 3: Frequency of the type of science news stories published in newspapers

Science Stories	Frequency	Percentage
Hard news	57	17.4
Feature	185	56.6
Editorial	3	.9
Chronology	1	.3
Tit -bits	76	23.2
Others	5	1.5
Total	327	100.0

In table 3 the frequency of the type of science news stories published in newspapers is measured. Results reveal that, a little more than half (56.6%) of science stories are features in character, followed by 23.2 percent of tit-bits of science news or information. Whereas it is interesting to note that only 17.4 percent of the science stories are hard news in character. This shows that a very low amount of coverage of any kind of science news gets published as hard news. This emphasis on the need of focusing on reporting issues related to research and development in science and related sectors. However, presence of science issues in editorials is in namesake only.

Table no. 4: Illustrations accompanying science stories in newspapers

Illustration	Times o	of Hindustan Times	Hindustan	Danik Bhaskar	Total
Photographs	70	19	12	42	143
Caricatures	3	2	0	0	5
Tables	2	0	0	0	2
Others	2	7	12	3	24
Not	75	47	10	21	153
Applicable					
Total	152	75	34	66	327

In table 4 the illustrations accompanying science stories in newspapers is measured. Results reveal that a little more than two-fifth (43.7%) of science stories are published with photographs, out of which almost half (49%) of the science stories accompanying photographs are published in TOI. Danika Bhaskar published 42 science stories with photographs. While science stories with caricatures and tables are published in namesake in TOI, in other three newspapers their account is nil. This indicates that only photographs as illustrations has been used extensively for science stories whereas there is no trend of using caricatures, tables or any other form of illustration in support of science stories. However, it is interesting to note that a little less than half (47%) of science stories were published without any illustration among all four newspapers.

Table no. 5: The origin of science news stories

Origin	Frequency	Percentage
National	42	12.8
International	285	87.2
Total	327	100.0

In table 5 origin (place) of science news stories is measured. Results reveal that a little less than nine-tenth (87.2%) of science news stories have international origin where as only one-eighth (12.8%) of science new stories published in sampled newspapers has their origin from India. This shows that most of the stories published in newspapers are of international origin and amount of science stories published in newspapers originating from India is quite low. This indicates that the issues and news of research, development and scientific knowledge from within the country is quiet limitedly available to the readers.

Table no.6: Accredited sources of science news stories

Sources	Frequency	Percentage
News Agency	242	74.0
Syndicates	1	.3
Byline	61	18.7
Others	23	7.0
Total	327	100.0

In table 6 accredited sources of published science stories in newspapers is measured. Results reveal that a little less than three-fourth (74%) of science stories published are sourced from news agencies where as only 18.7 percent of science stories are accredited to correspondents. This shows that science correspondents are contributing less towards science news, issues and information. However, source of science news from syndicates is negligible.

Table no. 7: Science literature published in newspapers

Science news	Frequency	Percentage
Health	78	23.9
Scientific Technology	174	53.2
Agriculture	2	.6
General Science	51	15.6
Environment	10	3.1
Developmental	8	2.4
Issues		
<b>Education Based</b>	4	1.2
Total	327	100.0

In table 7 science literature published subject wise was measured. Results reveal that a little more than half (53%) of science stories are based on scientific technology, followed by a little less than one-quarter (24%) science stories on health and only 15 percent science stories were on general science issue. This indicates that other subjects and issues of science news and literature are hardly given any importance in newspapers. However, science issues related to agriculture, environment, educational knowledge and development issues are neglected by Indian newspapers.

#### **DISCUSSION**

Recent study indicates that science communication by these sampled dailies is in a bad condition due to various reasons that this study of content analysis of science stories in Indian dailies has came across. These reasons are low frequency of publication of science stories in Indian dailies, poor coverage of hard news stories or scientific literature, extremely terrible publication of Indian origin science stories, low frequency of correspondents of science communication, and no focus or coverage is given to various issues of science communication especially in areas of agriculture, environment, development issue, and science education to readers by Indian dailies.

Science and media plays important role in every society. Science journalism plays a key role in communicating scientific knowledge through which his/her everyday requirements, needs and benefits are met. Thus the layman is benefited with the new advancements in science and technology and is able to fight against hunger, drought, diseases, and social evils, like superstitions, etc., with scientific knowledge. In India science communication is still not widely appreciated by newspaper industry. The low frequency of science news articles in Indian dailies showcases the attitude of newspaper organisation towards science communication. It is in bad shape with abysmal condition especially in Hindi dailies that targets maximum number of readers in the country. They are depriving Hindi reading readers from the basic and needed knowledge on varied scientific literature.

Though the condition of science communication is little better in English dailies in comparison to Hindi dailies. But the inclusion of varied issues or scientific literature is still has not been widely explored by English dailies. Science and technological issues still finds there place in newspapers but developmental issues of science especially agriculture, general health, environment and science education are still on verge to discover some place in Indian dailies. Also, issues related to research and innovations are not widely being covered by newspapers. This deprives readers from diverse knowledge on science development and related issues and for such information they have to rely on other forms of media like television or specialised magazines.

This study also reveals that most of the science communication stories are features in nature and not much hard news or editorials are being published by these Indian dailies. Also, the accredited source of most of the science news is news agency and a few of them are sourced from correspondents. This shows that the dearth of correspondent and editors who writes on science communication and issues, making a demand for journalist and media persons in science communication. Also, it is worth noticing that, most of the science stories published by Indian dailies are of international origin, forwarding the expertise, innovation, issues, research and development of science and technology of foreign countries. Depriving and neglecting Indian readers of information of scientific temper of Indian origin issues. This study reveals the shortcoming of science communication in Indian dailies which can be overcome by promoting scientific temper among readers who will demand more scientific knowledge as well as among media persons who will provide scientific information to readers.

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