



A COMPARATIVE ANALYSIS OF THE NEWS COVERAGE AND CONTENT OF SCIENCE AND TECHNOLOGY IN TWO ENGLISH DAILIES

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Abstract

Science and Technology has progressed at a rapid pace, especially in the past 50 years. This revolution has occurred in the entire world, and India has not remained behind in this race for progress and development. Our country has also produced several successful scientists, discoveries and inventions, and with increasing focus on education, we stand as the country that has a workforce with very high potential.

In order to mark India's position in science and technology the world, it is necessary to ensure communication of science and scientific advancements to the general public. The literacy rate has been increasing, and along with it the readership of newspapers. Hence, newspapers play an important role in educating the community about science and scientific development.

This study was carried out to estimate the extent of coverage given to science and the kind of prominence it receives in newspapers. Two newspapers- Times of India, the leading English daily at the national level and Deccan Chronicle, the leading English Daily in Hyderabad city—were chosen for this study. A 20 % sample or every fifth issue from a three month period (January 1- March 31, 2014) was taken. The methodology used was Quantitative Content Analysis, combined with a qualitative analysis of trends in science reporting and presentation of science news.

The study found that the two newspapers together devoted 9.57 % of their cumulative news hole to Science news. Individually, the science coverage was found to be 10.09 % in the Times of India and 9.05% in the Deccan Chronicle, which is quite low, given the everyday advancements in the field of science and technology. In both newspapers, the maximum number of items was included in the category of Environment, Nature, Ecology and Evolution. Qualitative Analysis revealed trends such as several science stories being presented from the "Oddity" angle, where rather than the scientific nature of the discovery/ invention, the story highlighted the 'rarity' of the occurrence. Another trend that was observed was that several stories that had very little connection to science or technology, or had other lifestyle angles, were grouped with hard core science stories, or appeared on the pages that regularly reported science stories, thus confusing readers as to what actually constitutes science news.

INTRODUCTION

Science is an integral part of life, and consciously or unconsciously science plays a role even in the most mundane activities of man. According to Wikipedia, **Science** (from Latin *scientia*, meaning "knowledge") is a systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about the universe. In an older and closely related meaning, "science" also refers to a body of knowledge itself, of the type that can be rationally explained and reliably applied. In modern usage, "science" most often refers to a way of pursuing knowledge, not only the knowledge itself. (Wikipedia, 2014)

Technology (from Greek, *techne*, "art, skill, cunning of hand"; and *-logia*), according to Wikipedia, is the making, modification, usage, and knowledge of tools, machines, techniques, crafts, systems, and methods of organization, in order to solve a problem,



improve a pre-existing solution to a problem, achieve a goal, handle an applied input/output relation or perform a specific function. It can also refer to the collection of such tools, including machinery, modifications, arrangements and procedures. Technologies significantly affect human as well as other animal species' ability to control and adapt to their natural environments. (Wikipedia, 2014)

Science today is no longer only about the theoretical aspects or discoveries related to the pure sciences like Chemistry, Physics and Biology. Science now comprises many new and highly specialized subjects like Energy Economics, Biotechnology, Information technology, Nanotechnology, Genomics, Proteomics, etc. Science today focuses more on its practical and applied aspects rather than theoretical aspects. This has led to the rapid advancement of 'Technology' in today's world. The advent and rapid rise of the use of computers and internet all over the world has changed the way science is visualized by the common man, with a lot of importance now being given to everything related to computers, the microchip, and automated machinery. The other characteristic of today's scientific research is that it is interdisciplinary in nature, combining the knowledge from two or more branches in order to arrive at a result.

This has led to a shift in focus even in the reportage of science issues, with more importance given to practical applications, new inventions and technologies, new software devised every day, and often to issues that seem to be related to science, but focus more on lifestyle changes.

There may be public apprehension about where science and technology (S&T) are taking us, but few would want to return to life in 1900. Even in sub-Saharan Africa, despite deepening poverty, a recent increase in civil conflicts across the region and an upturn in endemic diseases including malaria, tuberculosis and AIDS, several development indicators reflect the positive impact of S&T in recent decades. In the past 30 years, the rise of the microcomputer has enabled spectacular progress in many aspects of society, with computing power now almost doubling every 18 months. Cellular phones and cheap computers are beginning to bring Internet to even rural areas of developing countries, with major implications for distance learning and democratisation. Alongside the microchip, the emergence of genetic engineering and biotechnology must be the most revolutionary development in the second half of the last century. And in its wake come a series of possibilities that link science and ethics more than ever before. (UNESCO, 2014)

Science and Technology in India

Indian capabilities in science and technology cover an impressive range of diverse disciplines, areas of competence and of applications. India's strength in basic research is recognized internationally. Successes in agriculture, health care, chemicals and pharmaceuticals, nuclear energy, astronomy and astrophysics, space technology and applications, defence research, biotechnology, electronics, information technology and oceanography are widely acknowledged. Major national achievements include very significant increase in food production, eradication or control of several diseases and increased life expectancy of our citizens.

Science and technology have had unprecedented impact on economic growth and social development. Knowledge has become a source of economic might and power. This has led to increased restrictions on sharing of knowledge, to new norms of intellectual property rights, and to global trade and technology control regimes. Scientific and technological developments today also have deep ethical, legal and social implications. There are deep

concerns in society about these. The ongoing globalisation and the intensely competitive environment have a significant impact on the production and services sectors.

Because of all this, our science and technology system has to be infused with new vitality if it is to play a decisive and beneficial role in advancing the well being of all sections of our society. The nation continues to be firm in its resolve to support science and technology in all its facets. It recognizes its central role in raising the quality of life of the people of the country, particularly of the disadvantaged sections of society, in creating wealth for all, in making India globally competitive, in utilizing natural resources in a sustainable manner, in protecting the environment and ensuring national security (Global innovation and technology alliance, 2013).

Science communication

Science communication generally refers to public communication presenting science-related topics to non-experts. This often involves professional scientists (called "outreach" or "popularization"), but has also evolved into a professional field in its own right. It includes science exhibitions, journalism, policy or media production. There is increasing emphasis on explaining methods rather than simply findings of science. This may be especially critical in addressing scientific misinformation, which spreads easily because it is not subject to the constraints of scientific method. (Wikipedia, 2014)

Nowadays communication media are dominated by commercial advertisements promoting the fruits of technological innovation in the form of desirable consumer products that are absolutely necessary for a good life and for "well-being". (Vergragt, 2006) But science is not succeeding in attracting mass media interest. It rarely appears as a lead story, as editors and reporters do not consider science to be 'news' in the normal sense. On average, science only accounts for around three per cent of coverage by India's mass media. Additionally, readership of popular science magazines has declined — people no longer rely on print material as their only source of information. Although much has been achieved in India in terms of Science Communication, there is still an urgent need to make science communication activities more effective, both in terms of quality and quantity. We have yet to make a dent in wiping out superstitions that have prevailed throughout the ages, particularly in tribal areas where literacy levels are low and superstition is a way of life.

A study of science and technology coverage demands an insight into issues such as the amount of news space allotted to science in Indian newspapers, extent of coverage in different fields of science, news and features, etc.

An attempt has been made in this study to find answers to these questions based on a content analysis of space allotted to Science and Technology topics in two leading English newspapers- one national and one local (published from Hyderabad). The papers chosen are Times of India (National daily) and Deccan Chronicle (Local daily).

REVIEW OF LITERATURE:

The India Science Report, prepared by National Council of Applied Economic Research, and principally authored by Rajesh Shukla, published in 2005, stated that Television remains the primary source (57%) of information in the country, and is almost five times as popular as newspapers. Close to three-fourths of urban households rely on TV for information, as do half the rural households. Indeed, even educated people rely more on television than on any other medium. In the case of postgraduates, for instance, 65% rely on TV as the primary



information source compared to just 27% for newspapers. Nor is there much variation between information source preferences of the various occupational groups.

Close to two-thirds of the population gets its science-related information from the TV, as compared to under eight per cent from the newspapers.

India's source of information, including that for science matters, is completely skewed in favour of television which is not so in the US. Just 12% of the Indians cite newspapers as their primary source of information as opposed to 29% for the US. Nearly, 65% of science news in India is got from TV as compared to seven per cent in the US. Over 44% of S&T information in the US is got from the Internet as compared to 0.2 per cent in India. (Shukla, 2005)

A study by Bharvi Dutt and K. C. Garg in 2000 analyzed news items on science and technology in English-language newspapers published in different parts of India during January-December 1996. Results indicated that the greatest proportion of newspaper space was devoted to nuclear science and technology, followed by defence, space research, and astronomy. The Pioneer, The Hindu, and The Times of India were the newspapers that together devoted about 23 percent of the total space to items on science and technology. Many of the items were supported by illustrations such as photographs and diagrams. The study indicates that, on average, Indian newspapers devoted far less than one percent of the total printed space to articles and stories related to science and technology. (Dutt et. al., 2000)

Another study conducted by the same researchers in 2012, on 37 newspapers across India for a period of six months concluded that . S&T is not the priority of the English-language newspapers in India. Even sports get several times more coverage than science. There is a case for amply visible representation of science in the press. Health, Environment, Space S&T, and Astronomy were the four dominant subjects covered. It was further found that the national daily The Times of India published from the national capital devoted the maximum space to S&T items (~19%). This was followed by The Asian Age and The Statesman. These three newspapers together accounted for about one-third of the space allocated by all the newspapers and about 39% of the total items. (Dutt et.al., 2012)

A separate study conducted by Bharvi Dutt and K.C. Garg revealed that science and technology coverage in the Indian English-language newspapers revealed dominant representation of biomedical research. The research reported was mainly from foreign sources, mostly performed in US, UK and other developed countries of Europe. Plausibly, this was the major reason that areas of medical concerns in foreign countries such as Neuroscience, Oncology, Genetics and Cardiovascular research constituted more than one-third of the total space whereas neglected tropical diseases have almost been neglected in the coverage. This is despite the fact that tropical and other neglected diseases constitute the greatest health problem in India. (Dutt et.al., 2012)

In a study by Dr. Meenu Kumar in 2013, it was found that on an average only 2.04 percent literature are published on science and technology which is very little amount in comparison to other types of information. Hindi newspapers gave only 1.74 percent news on an average and English newspapers gave 2.34 percent news on scientific issues. English newspapers were found to give a little more information to make people aware about day to day events and also giving details of scientific issues in the form of articles.

The study shows that most of the newspapers published more materials on health and medicine followed by environment. In fact newspapers published what readers like to read



and it is obvious that the people of today are more aware about their wellness and health and they want genuine information on different health topics as guidance (Kumar, 2013).

A study by Mekam Maheshwar and Raghunatha D. Rao in 2011 on nutrition science coverage by popular Indian daily newspapers found that English dailies though published a slightly less number of articles that were nutrition related (NUTRE) topics, but at the same time English dailies covered NUTRE articles more prominently than Telugu *newspapers*. Among all *newspapers*, Telugu dailies published more visuals along with NUTRE articles as compared to English. Majority of the NUTRE information appeared in all the *newspapers* under the study were in the form of feature articles (210) and tips (124). Research/ survey findings (155 articles) were reported significantly in the field of nutrition. Particularly, in Deccan Chronicle, out of a total of 128 NUTRE articles which appeared, 56 were about the results of research or survey in the field of nutrition. During the study period, though a total of 225 articles on recipe appeared, only 55 of such articles were identified with emphasize on importance of nutrition (Maheshwar et. al., 2011).

Studies conducted on the coverage of science in newspapers in other developing countries show similar trends. A study conducted on South African press showed that Of the editorial content studied during the three-month period, only 1,8% was dedicated to science and technology. A great number of articles were obtained from foreign publications, like the *Daily Mail*, and wire services like Reuters, Sapa and Associated Press. According to the data, 38% of the science and technology coverage in this particular sample of the South African press can be attributed to foreign sources or non-editorial authors. However, the South African press appears to have a positive attitude towards science and technology. Overall, the evaluative tone of the coverage was more positive (70%) than negative (30%) in the sample of publications. This trend was reflected in the respective subgroups as well. Seventy-eight percent of the articles published in magazines were written in a positive tone, while 75% of the regional coverage, 71% of the daily coverage and 63% of the weekly coverage was written in a positive tone of voice. (Van Rooyen et.al., 2002)

NEED AND IMPORTANCE OF STUDY:

Newspapers are reaching out to the Indian public like never before, in spite of the increasing reach of the electronic media like television and radio. This has been linked to the rising literacy rate, which has in turn pushed the sale and readership of newspapers higher.

There is a steady rise in the literacy rates in all the states of our country. More and more people are being initiated into the world of reading and writing. They gradually learn to read newspapers and periodicals. Robin Jeffrey who made elaborate studies about the newspaper revolution in India says that the fastest growth rates in newspaper circulation were in states which showed the strongest growth rates of literacy (IGNOU, 2014).

This phenomenon should be taken advantage of and used to disseminate scientific and technological information across the country, to develop a scientific temper in every citizen. This can be best accomplished by using the print media, especially newspapers, as the increasing readership guarantees a wider audience and reach. This will, in future help in building the nation and contribute towards its progress.

The present study is needed because it will provide an insight into the current status of science and technology reporting in English newspapers in India. This will help provide a check on the kind of news that is reported and a realistic picture of the science reportage in India.

It will also help newspapers in identifying the loopholes that exist in their reporting patterns, and help in devising new ways to make scientific information available to



the common man, in a simple and lucid way. As most people neither have access to scientific publications in journals nor the expertise or education required to understand them, newspapers become their main source of information in the absence of other forms of media like television and radio. This kind of study will also be useful to the government as it will be a guide when implementing new scientific policies and programs.

The two newspapers selected for this study are Times of India, the leading English daily at the national level and Deccan Chronicle, the leading English daily in Hyderabad, in terms of readership (according to recent IRS findings). Hence, this study is necessary to ascertain the level of awareness that is spread by the two newspapers that are most widely read- in the country and in the city, where this study is based.

OBJECTIVES OF THE STUDY:

The present study aims to broadly find out the following major aspects of Science and Technology coverage.

1. Importance accorded to Science and Technology news in the newspapers included in the study, in terms of space allotted to them and position in the newspapers.
2. The presentation of science and technology related reports- as hard news which emphasizes facts or as trivialized versions.

SCOPE AND LIMITATIONS OF THE STUDY:

1. This study is only a quantitative analysis and can only give a limited picture of the coverage given to science news.
2. This study is limited only to two English daily newspapers- of which one is local- Deccan Chronicle, published from Hyderabad, and the other is national- Times of India. Only the Hyderabad editions of both newspapers are considered for the study.
3. Daily supplements, Sunday Magazine supplements, and special supplements were excluded from the study. Also pages in the main edition that were specifically devoted to Sports, Business, Entertainment, etc., were excluded from the study. Editorial Pages were also excluded from the study.
4. Only the following pages were considered for study as they were the ones carrying science and technology news on a regular basis. From the Times of India: Front page, City pages, Times Nation, Times Trends and Times Global pages. From the Deccan Chronicle: Front Page, City, State, Nation and World pages.
5. General news on climate was excluded from the study. Only those items related to climate change that had an emphasis on environmental issues were included for the study.
6. Cartoon strips, puzzles, quizzes, crosswords, were not included in the content analysis.
7. Ear panels were not included while calculating ad space in the newspapers.

RESEARCH METHODOLOGY:

The method used for study was Quantitative Content Analysis, followed by a Qualitative analysis for interpretation of science news presentation.

Population and Sample

Two English dailies—The Times of India and the Deccan Chronicle , both Hyderabad editions, were selected for content analysis. The Times of India is a national newspaper and the Deccan Chronicle is a local one. The main criterion for choosing these two newspapers is



that Times of India is the highest circulated newspaper among national newspapers and the Deccan Chronicle leads the circulation figures at the local level.

The universe for the study comprised 90 issues of each newspaper, published between January 1st, 2014 and March 31st, 2014. These months were chosen for study to get the latest figures on science coverage and the three month period was chosen so as to represent 1/4th of the annual coverage- thus giving a reasonable picture of the extent of coverage.

A 20 % sample or every fifth issue during the three month period was drawn by systematic random sampling method, for the purpose of the study. Thus a total of 18 issues (of each newspaper) were studied. As there were no holidays for the newspapers in the three month period, no issue was excluded from the universe of study.

Sampling method

The sample was determined using Systematic Random Sampling method to get every fifth issue. In this probability sampling method, one should assure that the nth number chosen has to be maintained from a starting point already determined. That is, every fifth issue in this context beginning from the 1st of January 2014, meaning the dates of 6th, 11th, 16th, and so on were chosen. By this method, 18 issues of each newspaper were obtained. The total sample thereby came to 36 issues of the two newspapers.

Tool

The 80 issues were subjected to Quantitative Content Analysis to find out the coverage. The total news hole was computed in the measuring unit of column cms. Science news was categorised under the following 12 heads (with symbols to represent each category), to find out the proportion of coverage given to each:

- (1) Astronomy and Astro-physics -- (A),
- (2) Physical sciences (including Physics, Chemistry and Mathematics)—(P),
- (3) Life Sciences (including Botany, Zoology and other related branches) ---(L),
- (4) Medicine and Health— (M),
- (5) Geological Sciences – (G),
- (6) Environment, Nature, Ecology and Evolution—(N),
- (7) Technology (including IT and defence research)—(T),
- (8) Agriculture – (R),
- (9) Education – (E),
- (10) Pharmacy, Industry and Business – (I)
- (11) Policy and law --- (W)
- (12) Miscellaneous—(C).

It is possible that a single item may be suitable to be classified in more than one category listed above. However, for ease of classification, each item shall be classified into only a single category based on the most important aspect of its focus.

In addition, a few items were selected to represent the category called “Oddity” (O) where science news was found to be presented as an odd occurrence or as a trivialised version, where stories that have substantial hard news value are also presented as soft stories. This is also to highlight certain news stories that may not have much of a scientific basis but are still passed off as “Science” or “Technology”, by grouping them with other science stories or by placing them in the pages that usually carry Science stories. However, only the stories that carry a proper scientific basis/ connection have been considered in the content analysis.

The source of the news-like staff, news agency, etc. was also identified. Headlines, visuals, and graphics were counted as part of the news story. Standalone pictures/photographs were each considered a separate item. A news item or article was placed into one of the 12 categories according to operational definitions. Jump stories were considered to be a separate item as a different aspect of the story is often covered in the inside pages under a different heading.

The space allotted to the number of items published in each newspaper and falling into the 12 categories of science news was compared to the total newshole of that paper for getting the percentage of coverage.

RESULTS AND DATA ANALYSIS

This study aimed to quantify coverage of science news in terms of

- (1) Percentage of space allotted to science news content in each newspaper
- (2) Percentage of space allotted to science news in each of the 12 categories identified earlier;
- (3) To identify the treatment given to science news by newspapers in the way of coverage and presentation.

Other details like sources of news, and placement of science stories with respect to number of items were quantified. A comparative analysis of the coverage of science news of the two newspapers selected for the study was carried out.

To determine the science coverage, the newshole and the space devoted to science stories of each daily selected as sample were measured, and this was done for each of the 18 issues (selected from the period of 3 months- 1st January 2014 to 31st March, 2014) of the two newspapers- Times of India and Deccan Chronicle.

A qualitative analysis of the news items that were carried along with science items was done to study whether science news was demarcated clearly to highlight its significance or was lost among the many news stories that appeared along with it. It was found that the two newspapers taken for the study- Times of India and Deccan Chronicle, together devoted 9.57 % of their cumulative news hole to Science news. (See table 1)

Individually, the science coverage was found to be 10.09 % in the Times of India and 9.05% in the Deccan Chronicle. (See Table 2 and Table 3)

Table 1 : Shows percentage of science coverage in newspapers

SCIENCE COVERAGE IN ToI AND DC FROM 1-1-2014 TO 31-3-2014						
NEWSPAPER	TYPE	TOTAL SPACE ANALYZED	NEWSHOLE (col cms)	AD SPACE (col cms)	SCIENCE SPACE	% OF SCIENCE COVERAGE
No. of pages analyzed in ToI -105						
TIMES OF INDIA	National	43680	32570.95	11109.05	3287.3	10.09 %
No. of pages analyzed in DC -108						
DECCAN CHRONICLE	Local	44928	32005.35	12922.65	2897.85	9.05 %
Total no. of pages analyzed - 213						
TOTAL	-	88608	64576.3	24031.7	6185.15	9.57 %

The analysis revealed that science coverage in the Times of India varied greatly from month to month. It showed a science coverage of 13.02 % in the month of January, 10.8 % in the month of February and only 5.6 % in the month of March. (See Table 2) The total percentage of coverage for three months was calculated as 10.09 %.

Even though February being the shortest month had lesser number of issues, it showed a 5.2% higher coverage of science than March. The maximum and minimum values of science coverage percentage cover a range of 7.42 %.

Table-2 : Shows month-wise science coverage in Times of India

Science Coverage in Times of India from 1-1-2014 to 31-3-2014						
MONTH	No. of pages	Total space (col. cms)	News hole (col. cms)	Ad space	Science space	Percentage of science coverage
JANUARY	42	17472	12443.75	5028.25	1621.3	13.02 %
FEBRUARY	33	13728	10095	3633	1097.5	10.8 %
MARCH	30	12480	10032.2	2447.8	568.5	5.6 %
TOTAL	105	43680	32570.95	11109.05	3287.3	10.09 %

The analysis revealed that science coverage in the Deccan Chronicle was almost same in every month with a variation of about 2 %. It showed a science coverage of 8.46 % in the month of January, 10.39 % in the month of February and only 8.30 % in the month of March. (See Table 3) The total percentage of coverage for three months was calculated as 9.054 %.

Even though February is the shortest month with lesser number of issues, it showed the highest coverage of science compared to January and March (10.39 %).

Table-3 : Shows month-wise science coverage in Deccan Chronicle

Science Coverage in Deccan Chronicle from 1-1-2014 to 31-3-2014						
MONTH	No. of pages	Total space	News hole	Ad space	Science space	Percentage of science coverage
JANUARY	39	16224	11640.2	4583.8	985.8	8.46 %
FEBRUARY	34	14144	10557.6	3586.4	1097.45	10.39 %
MARCH	35	14560	9807.55	4752.45	814.6	8.30 %
TOTAL	108	44928	32005.35	12922.65	2897.85	9.054 %

On comparing the science coverage in the two newspapers, Deccan Chronicle seems to be more consistent in the space devoted to science stories than Times of India. However, the overall coverage of science in the three-month period in Times of India (10.39%) is slightly higher than Deccan Chronicle (9.05%)

Number of science stories (items) :

The number of items were counted in each newspaper issue included the sample for the three-month period. Each hard news story, soft news story, brief and standalone picture was counted as a separate item. Headlines and pictures accompanying the story were considered as part of the story and not counted as separate items. The analysis found that Times of India had a total of 101 items while Deccan Chronicle had a total of 112 items. Thus, even though the space covered by science stories was lesser in Deccan Chronicle, the number of items

covered by it were more than that of Times of India. The month wise break up of the number of items in each newspaper and the space covered is given in Table 4.

Table 4: The number of items in each newspaper and the space covered (month-wise)

The number of items in each newspaper and the space covered					
MONTH	TIMES OF INDIA		DECCAN CHRONICLE		
	NUMBER OF ITEMS	SCIENCE SPACE (col. cms)	NUMBER OF ITEMS	SCIENCE SPACE (col. cms)	
JANUARY	47	1621.3	38	985.8	
FEBRUARY	35	1097.5	41	1097.45	
MARCH	19	568.5	33	814.6	
TOTAL	101	3287.3	112	2897.85	

Category-wise science coverage:

When the content categories were analysed, it was found that Times of India devoted 3287.3 col. cms to science coverage in the sample taken from the three month period, while Deccan Chronicle devoted 2897.85 col. cms to the same. The highest area of coverage was given in the month of January in Times of India and the lowest in March. In Deccan Chronicle, the highest area of coverage was given in the month of February and the lowest in March. (See Table 5 & Table 6)

However the total number of items were higher in Deccan Chronicle compared to Times of India. Deccan Chronicle had 112 items compared to 101 items in Times of India. The most number of items were found to be in January in Times of India and the highest number of items were in February for Deccan Chronicle. In both newspapers, the maximum number of items were included in the category of Environment, Nature, Ecology and Evolution—28 in Times of India and 35 in Deccan Chronicle. This was followed by the category Medicine and Health with 19 items in Times of India and 23 items in Deccan Chronicle. The third highest number of items was found to be in the category Technology, in both newspapers, with 13 items in Times of India and 19 items in Deccan Chronicle. (See Table 7 & Table 8)

Table 5: Category wise science coverage in terms of space allotted in Times of India

Category Wise Science Coverage In Times of India (in col cms.)													
	Categories (operationally defined, denoted by single letters)*												Total
	A	P	L	M	G	N	T	R	E	I	W	C	
Jan	459.5	-	125.1	247.9	-	247.75	122.65	5.5	81	60	230	42	1621.3
Feb	58.2	26.5	55.2	179.25	55.35	259.7	301.1	79.6	-	-	41.6	41	1097.5

Mar	-	31.8	25.6	83.6	-	328.6	-	12.7	-	-	50.2	36	568.5
Total	517.6	58.3	205.9	510.75	55.35	836.05	423.75	97.8	81	60	321.8	119	3287.3

Table 6: Category Wise Science Coverage In ToI(number of items)

Category Wise Science Coverage in ToI(number of items)													
Categories (operationally defined, denoted by single letters)*													
	A	P	L	M	G	N	T	R	E	I	W	C	Total
Jan	9	-	5	9	-	10	3	1	2	2	5	1	47
Feb	1	1	2	7	1	10	10	1	-	-	1	1	35
Mar	-	2	1	3	-	8	-	1	-	-	3	1	19
Total	10	3	8	19	1	28	13	3	2	2	9	3	101

Table 7 : Category wise science coverage in terms of space allotted in Deccan Chronicle

Category Wise Science Coverage In Deccan Chronicle (in col cms.)													
Categories (operationally defined, denoted by single letters)*													
	A	P	L	M	G	N	T	R	E	I	W	C	Total
Jan	333.8	-	21.4	83.7	49.2	197.3	167.4	-	31	-	30	72	985.8
Feb	9	18.8	-	461.3	55.95	409	46.6	-	27.8	48.6	20.4	-	1097.45
Mar	12.2	9.8	41.3	212.2	-	397.6	95.7	-	-	-	45.8	-	814.6
Total	355	28.6	62.7	757.2	105.15	1003.9	309.7	-	58.8	48.6	96.2	72	2897.85

Table 8: Category Wise Science Coverage In Deccan Chronicle (number of items)

Category Wise Science Coverage In Deccan Chronicle(number of items)													
Categories (operationally defined, denoted by single letters)*													
	A	P	L	M	G	N	T	R	E	I	W	C	Total
Jan	8	-	2	3	1	9	11	-	2	-	1	1	38
Feb	1	3	-	13	3	13	5	-	1	1	1	-	41
Mar	2	1	5	7	-	13	3	-	-	-	2	-	33
Total	11	4	7	23	4	35	19	-	3	1	4	1	112

* A- Astronomy and Astro-physics ,

P- Physical sciences (including Physics, Chemistry and Mathematics)



L- Life Sciences (including Botany, Zoology and other related branches)

M- Medicine and Health

G- Geological Sciences

N-Environment, Nature, Ecology and Evolution

T- Technology (including IT and defence research)

R- Agriculture

E- Education

I- Pharmacy, Industry and Business

W- Policy and law

C- Miscellaneous

In terms of percentage of coverage allotted to each category of science in the three month period sample, it was found that in both Times of India and Deccan Chronicle, the highest percentage of coverage was given to Environment category (Environment, Nature, Ecology and Evolution), with 25.43% and 34.64 % respectively. Astronomy and Astro-physics category was second highest with 15.74% in Times of India. The second highest percentage of coverage went to Medicine and Health category with 26.12 % coverage in Deccan Chronicle. The third highest was in Times of India was Medicine and Health, with 15.53% coverage, and in Deccan Chronicle it was Astronomy and Astrophysics , which got 12.25 % coverage. The only other category that showed more than 10 % coverage was Technology, in both Times of India (12.89%) and Deccan Chronicle (10.68%) Surprisingly, there were no reports on agriculture in Deccan Chronicle at all, while Times of India devoted 2.97 % . (See Table 9)

Cumulatively, both newspapers devote the highest percentage of space to Environment and Nature (29.74 %), followed by Medicine and Health (20.49%), and Astronomy and Astrophysics (14.1%) and the least coverage was given to Physical Sciences (1.40%)

Table 9 : Comparison of science coverage in different categories in the two newspapers in terms of percentage.

Comparison of science coverage in different categories in the two newspapers in terms of percentage.			
Category	Times of India (%)	Deccan Chronicle(%)	Cumulative % (out of 100)
Astronomy and Astro-physics ,	15.74	12.25	14.1
P- Physical sciences (including Physics, Chemistry and Mathematics)	1.77	0.98	1.40
L- Life Sciences (including Botany, Zoology and other related branches)	6.26	2.16	4.34
M- Medicine and Health	15.53	26.12	20.49
G- Geological Sciences	1.68	3.62	2.59
N-Environment, Nature, Ecology and Evolution	25.43	34.64	29.74

T- Technology (including IT and defence research)	12.89	10.68	11.85
R- Agriculture	2.97	-	1.58
E- Education	2.46	2.02	2.26
I- Pharmacy, Industry and Business	1.82	1.67	1.75
W- Policy and law	9.78	3.31	6.75
C- Miscellaneous	3.61	2.48	3.08

SCIENCE COVERAGE BY SOURCE:

The total number of items in each newspaper were classified according to source of news as from – Agencies, Staff reporters/By-line stories, Freelance/Other newspapers, Own agency (as in the case of Times of India, where the Times Group owns the Times News Network, TNN), Websites, Others(where the source is not mentioned), and those sources which were jointly reported by ‘TNN and other agencies’ or ‘Staff and Agencies’

It was found that, in Times of India, the highest number of items was sourced by staff reporters (28), followed by their own agency TNN (24), and then by other agencies (20). In Deccan Chronicle, the highest number of items was found to be sourced from agencies(39), followed by ‘others’ which had 26 items – where the source was not mentioned in the newspapers and thirdly, followed by by-line stories of Deccan Chronicle staff(20). (See Table 10 and 11)

Table 10: Science coverage in Times of India by source (by number of items)

Science coverage in Times of India by source (by number of items)								
Month	Sources							
	Agencies	Staff/Byline stories	Freelance/other Newspapers	TNN/Bureau	Websites	Others	TNN & agencies	Total
JAN	9	8	9	15	-	5	1	47
FEB	9	9	6	4	1	6	-	35
MAR	2	11	-	5	-	1	-	19
TOTAL	20	28	15	24	1	12	1	101

Table 11: Science coverage in Deccan Chronicle by source (by number of items)

Science coverage in Deccan Chronicle by source (by number of items)								
Month	Sources							
	Agencies	Staff/Byline stories	Bureau Correspondents	Freelance/other newspapers	Websites	Others	Staff & agencies	Total
JAN	18	4	5	2	1	6	2	38
FEB	10	10	8	1	-	12	-	41
MAR	11	6	6	-	2	8	-	33
TOTAL	39	20	19	3	3	26	2	112

SCIENCE COVERAGE IN TERMS OF TYPE OF NEWS AND POSITIONING

The science items were classified as Hard news, Soft news, briefs, and standalone pictures. The Times of India had almost the same number of hard and soft news stories, with the highest number of items being hard news stories (44). Deccan Chronicle had more hard news stories than soft news, and the highest number of items appeared as Briefs (45). (See Table 12 & Table 13).

Table 12: Science Coverage In Terms Of Type Of News In Times Of India

Science Coverage In Terms Of Type Of News In Times Of India					
Month	Hard news	Soft news	Briefs	Stand alone pictures	Total
January	20	17	8	2	47
February	15	11	4	5	35
March	9	10	-	-	19
Total	44	38	12	7	101

Table 13: Science Coverage In Terms Of Type Of News in Deccan Chronicle

Science Coverage In Terms Of Type Of News in Deccan Chronicle					
Month	Hard news	Soft news	Briefs	Stand alone pictures	Total
January	15	4	16	3	38
February	12	13	15	1	41
March	15	4	14	-	33
Total	42	21	45	4	112

Apart from this, in terms of positioning of stories, it was found that Times of India carried only 9 out of its 101 science stories on the front page, and most of the stories (45) were found in the inside pages, of which there were 22 in the Nation pages and 23 in City and other inside pages. 38 stories were carried on its "Trends" pages and 9 on "Global" pages.

In Deccan Chronicle, out of its 112 items, only 3 items were carried on the front page, 56 were carried on its "World" pages, 32 on its "City" pages, 9 on its "State" pages, 12 items on its Nation pages. There were no stories on the back page in either Times of India or Deccan Chronicle.

Science Coverage in terms of presentation of stories:

The items in both newspapers were classified according to whether they were (1) Text only, (2) with accompanying photo/ picture (3) with illustration (4) with graphics. The standalone pictures were excluded from this classification. It was found that in Times of India, out of 94 items, 46 items carried pictures/photos, 42 items were text only, 5 items carried illustrations while only one item contained graphics. In Deccan Chronicle, out of 108 items, 68 were text only, 38 carried photographs/pictures along with copy, and 2 items contained graphical representations. There were no items which contained any illustrations.

TRENDS IN SCIENCE COVERAGE: ODDITY AS SCIENCE

It has been observed that several stories that appeared with a scientific angle to it were instead presented from the "Oddity" angle, where rather than the scientific nature of the discovery/ invention, the story highlighted the 'uncommon' or 'rarity' angle. In some stories, the scientific basis was eclipsed and the story was presented from a "lifestyle" point of view

with a frivolous and superficial treatment given to it. The science behind the event was not explained or approached from a non-serious angle. Though it is a common phenomenon to have soft stories approached from a human-interest angle, as far as it is a science item with a basis in scientific logic, it should be examined in the correct light in order to bring awareness among the people. Technology related stories focussed mostly on mobile technology applications or “apps”. Another observation was that the same story was often given a different kind of treatment and more/less space in the two newspapers. There were 11 such “oddy” stories in Times of India and 10 in Deccan Chronicle. Some of these stories included: “Gamers can now join hunt for cancer cure” in the Times of India, dated 5th February, 2014; “Have an abusive BF? This app may help” in the Times of India, dated 20th February, 2014; “Yemeni girl, 12, cries stones” in the Deccan Chronicle, dated 5th February, 2014; “Pearls removed from man’s body” in the Deccan Chronicle dated 25th February, 2014.



With respect to Briefs/Snippets: – “Facial pics in mind pieced together” and “How to avoid a speeding ticket” in the Deccan Chronicle, dated 27th March, 2014. However the second brief, was given with slightly more detail in the Times of India.



Another trend that was observed was that several stories that had very little connection to science or technology, or had other lifestyle angles, were grouped with hard core science stories, or appeared on the pages that regularly reported science stories. This can confuse

readers as to what is actually science and what is not. Some of the stories that followed this trend are shown below. For example, “Kid suspended for getting chips in tiffin” alongside “First case of a H10N8 virus reported” in the Deccan Chronicle dated 5th February, 2014.



CONCLUSIONS:

The results and data analysis show that despite being two of the most popular English dailies in Hyderabad, the two newspapers devote only 1/10th of their total space to coverage of science and technology issues, which is a very negligible amount. The negligence observed in covering news related to Agriculture is also a major drawback, as 60% of India's population is agrarian and reports of new developments in farming and agriculture are mandatory information for the country and its people.

Research and developments in pure sciences also go unreported, leading to a general dip in the subject among students and the public alike. The consequences of this trend have been observed in the recent rise in demand for applied science courses among students and recruiters.

The presentation of science news also needs to be overhauled, so as to give the requisite importance to the scientific facts behind a phenomenon without trivializing the matter in favour of an 'Oddity' angle. It should be taken care that in the pursuit of "popularizing" science, the real scientific intent behind the story does not get eclipsed.

As a developing country, India still needs to harness its complete potential, and the indifference shown to science and technology matters by the nation's media will slow down India's growth. Hence, there is an urgent need to revise the content of newspapers with regard to science and technology, and a fair proportion of news space should be allotted to it.

REFERENCES:

1. Carine van Rooyen et. al., Report On Science And Technology Coverage in the SA Print Media, *South African Foundation for Education, Science and Technology*, 2002.
2. Dutt, B. and K.C. Garg, S&T coverage in English-language Indian dailies, *Jcom* 11(03) (2012) A01.
3. Dutt, B. and K.C. Garg, Biomedical research coverage in English-language Indian newspapers, *J Scientometric Res.* | Sep–Dec 2012 | Vol 1 | Issue 1



4. Dutt, B., Garg, K. C., An overview of science and technology coverage in Indian English-language dailies, *Public Understanding of Science*, April 2000 vol. 9 no. 2 123-140.
5. Global innovation and technology alliance, India, Science and Technology: 2010-11, http://gita.org.in/ist_india.html, 2013
6. IGNOU , Language Press in India, *Mass communication module*, <http://download.nos.org/srsec335new/ch8.pdf> , May 2014.
7. M. Kumar, Comparison Of Science Coverage In Hindi And English Newspapers Of India: A Content Analysis Approach, *Global Media Journal – Indian Edition/ISSN 2249-5835*, Summer Issue / June 2013/ Vol.4/No.1
8. M. Maheshwar and R. D. Rao, A comparative analysis of nutrition science coverage by popular Indian daily newspapers, *Journal of Media and Communication Studies*, Vol. 3(4), pp. 131-143, April 2011
9. Rajesh Shukla et. al., India Science Report, *National Council of Applied Economic Research*, 2005.
10. UNESCO, The 20th century: 100 years of scientific creativity, <http://www.unesco.org/bpi/science/content/press/anglo/6.htm>, May 2014-05-10.
11. Vergragt , P. J., How Technology Could Contribute to a Sustainable World, *GTI Paper series*, *Tellus Institute*, 2006.
12. Wikipedia, Science, <http://en.wikipedia.org/wiki/Science>, 6th May, 2014.
13. Wikipedia, Science communication, http://en.wikipedia.org/wiki/Science_communication, 2014.
14. Wikipedia, Technology, <http://en.wikipedia.org/wiki/Technology>, April , 2014