

# Present Scenario Of Media Education Training At Post Graduation Level On Specialization In Science Communication In Major Universities Of India: An Epistemological Case Study

**Ratul Datta**

Ph.D. Research Scholar, Department of Journalism and  
Mass Communication, University of Calcutta,  
West Bengal, India

**Prof. (Dr.) Tapati Basu**

Professor, Department of Journalism and Mass  
Communication, University of Calcutta,  
West Bengal, India

**Abstract:** *In this research, the main objective is to explore the need of the pedagogic study of growing interest in science communication as an area of specialization in India in the syllabus of the universities at post graduation level. For this assessment, as for methodology, total country India is divided into 6 major zones or sectors. The zones are north, north-east, east, south, west and central respectively. Then for north zone- Uttarakhand, Uttar Pradesh, Jammu and Kashmir, Delhi and Himachal Pradesh, these states and union territories were chosen. For north-east zone- Assam, Mizoram and Tripura were chosen. For east, only West Bengal were chosen. For south- Tamilnadu, Kerala and Andhra Pradesh were chosen. For west- Rajasthan and Gujarat were chosen. Lastly, for central zone- Chhattisgarh was chosen for this research. From among 15 states and union territories, 15 cities viz. Hardwar, Varanasi, Kashmir, Delhi, Simla, Guwahati, Aizal, Agartala, Kolkata, Chennai, Thiruvananthapuram, Visakhapatnam, Jaipur, Ahmadabad and Ranchi. Major findings of this research are, only 10 % of the surveyed communicators have received formal training in science communication, 17% communicators have additional background of science, 3% communicators have chosen science communication as further academic carrier and in professional field also, 12% universities have such person as research guide and faculty who have strong academic carrier in science communication, 9% communicators are willing to write on any scientific subject, 5% communicator have liked to stay at urban area though there is a great need of rural science communication for India. Finally it is recommended that popular science communication should be introduced as compulsory paper at post-graduation level. Certificate and post graduate diploma courses on science communication by respective experts should be organized bi-annually in every university and special emphasis should be given on how to translate from regional languages.*

**Keywords:** *Pedagogic, Science communication, Diffusion, Media, Sustainable development*

## I. INTRODUCTION

This paper is an attempt to understand the complexity of science communication in India and also the very need of science communication training in different universities. In this research, the main objective is to explore the need of the pedagogic study of growing interest in science communication as an area of specialization in India in the syllabus of the universities at post graduation level. It gives a historical view of the growth of science communication, and linking it to

emerging challenges and opportunities of science writing or science journalism in the country. It also gives a brief theoretical understanding of the concept of science and communication to throw a broad light on what constitutes science communicating.

Science writing or science journalism remains undeveloped in India though it had a good beginning in the early 1950s, and there are many dimensions to the problems of science communication. It has not progressed to a desired stage. The larger segments of the populations even do not have

access to scientific knowledge due to illiteracy and in absence of seriously planned agenda for disseminating scientific knowledge to non-scientific community whose curiosity have increased on science and technology over time.

Scientific innovations are the engines of development and the communication of scientific facts to the People is of utmost importance to motivate and develop them. People find it uninteresting as most of the information on Science & Technology is not made available in a user-friendly manner or format. Science communication can be an effective tool for promoting development communication in a developing country like India and hence, its training at post graduation level is needed to be started at every university.

## II. SELECTING AN ACADEMIC FIELD LIKE MEDIA & COMMUNICATION STUDIES

Selecting an academic programme of study in the Indian context is a particularly significant decision with broader family consequences. Economically, one's degree profoundly affects access to a "good job" is simply a job with security, preferably a "desk job" not involving manual labour, with onsite decent housing, medical facilities, schools, transportation, and other amenities generally associated with the government sector. For academically elite students like at an Indian Institute of Technology (IIT), a 'good job' with 'scope' provides not only economic security but intellectual challenge, 'glamour', 'prestige and opportunities for advancement and travel, such as going 'abroad' to the United States (Saxena 2002).

'Communication' seems to be the 'buzz' word of the present era for we live in the age of Information and Communication Technology (ICT). Consequently, this decade (beginning 2000) has witnessed the mushrooming of umpteen number of educational institutions offering programme on the media, thanks to the palatable student community who want them to be in the elite company of people who dare to be different by opting for new academic programmes in the arena such as Journalism, Advertising, Mass Communication, Visual Communication, Electronic Media, Film and Television Studies – that would come under the umbrella term "Media Studies".

With the boom in satellite TV channels and the consequent sudden demand for trained professionals, a host of television training institutes mushroomed throughout the last decade. The vast majority of these were often small time operations with inadequate infrastructure, lacking proper technical facilities and above all offering a curriculum that was not in sync with industry requirements. But things have changed over the last few years. To meet global standards some of the newer media institutes have also collaborated with international universities and media organizations. Some institutes also tend to integrate real time industry exposure into the curriculum design itself. This ensures better learning for the student and also brings about good performance on the job without a long learning curve. The main factor that has contributed in improving the communication education landscape includes a more demanding industry that does not easily hire people who have not been properly trained.

## III. HIGHER EDUCATION SCENARIO IN INDIA

The Indian higher education system is one of the largest in the world. It consists of colleges, universities, institutions of national importance (such as Indian Institutes of Technology, Indian Institutes of Management and Indian Institute of Science), and autonomous institutions with the status of deemed universities. As up to 2016, there are 356 state universities, 122 Deemed to be universities, 47 central universities and 252 private universities i.e. total 777 universities in India. Mass Communication and Journalism Education at various levels are available in most of those major Indian universities. Since 1991, a large number of private colleges are being set up on a self-financing basis and their number has increased rapidly. The private technical education system in India is the largest in the world and the growth of higher education in the last 15 years has been mainly in the private sector (Anandkrishnan 2004).

| S. No. | State             | No. of Universities |         |       |         |        | Included under 12(B) |                |
|--------|-------------------|---------------------|---------|-------|---------|--------|----------------------|----------------|
|        |                   | Total               | Central | State | Private | Deemed | State                | Private/Deemed |
| 1.     | Andhra Pradesh    | 25                  | -       | 20    | -       | 05     | 11                   | 01 (Deemed)    |
| 2.     | Arumachal Pradesh | 09                  | 01      | -     | 07      | 01     | -                    | -              |
| 3.     | Assam             | 18                  | 02      | 12    | 04      | -      | 03                   | -              |
| 4.     | Bihar             | 19                  | 03      | 15    | -       | 01     | 11                   | -              |
| 5.     | Chhattisgarh      | 23                  | 01      | 13    | 09      | -      | 04                   | -              |
| 6.     | Goa               | 01                  | -       | 01    | -       | -      | 01                   | -              |
| 7.     | Gujarat           | 58                  | 01      | 28    | 27      | 02     | 11                   | -              |
| 8.     | Haryana           | 40                  | 01      | 14    | 19      | 06     | 09                   | -              |
| 9.     | Himachal Pradesh  | 22                  | 01      | 04    | 17      | -      | 03                   | -              |
| 10.    | Jammu & Kashmir   | 10                  | 02      | 07    | -       | 01     | 06                   | -              |
| 11.    | Jharkhand         | 15                  | 01      | 07    | 06      | 01     | 04                   | -              |
| 12.    | Karnataka         | 52                  | 01      | 25    | 12      | 14     | 15                   | 01 (Deemed)    |
| 13.    | Kerala            | 16                  | 01      | 13    | -       | 02     | 08                   | 01 (Deemed)    |
| 14.    | Madhya Pradesh    | 46                  | 02      | 21    | 22      | 01     | 11                   | -              |
| 15.    | Maharashtra       | 49                  | 01      | 21    | 06      | 21     | 17                   | 01 (Deemed)    |
| 16.    | Manipur           | 03                  | 02      | -     | 01      | -      | -                    | -              |
| 17.    | Meghalaya         | 09                  | 01      | -     | 08      | -      | -                    | -              |
| 18.    | Mizoram           | 02                  | 01      | -     | 01      | -      | -                    | -              |
| 19.    | Nagaland          | 03                  | 01      | -     | 02      | -      | -                    | -              |
| 20.    | Odisha            | 21                  | 01      | 15    | 03      | 02     | 10                   | 01 (Deemed)    |
| 21.    | Punjab            | 25                  | 01      | 09    | 13      | 02     | 06                   | -              |
| 22.    | Rajasthan         | 73                  | 01      | 22    | 42      | 08     | 11                   | 01 (Deemed)    |
| 23.    | Sikkim            | 06                  | 01      | -     | 05      | -      | -                    | -              |
| 24.    | Tamil Nadu        | 52                  | 02      | 22    | -       | 28     | 17                   | -              |
| 25.    | Telangana         | 21                  | 03      | 16    | -       | 02     | 10                   | -              |
| 26.    | Tripura           | 03                  | 01      | 01    | 01      | -      | -                    | -              |
| 27.    | Uttar Pradesh     | 69                  | 06      | 26    | 28      | 09     | 16                   | 2 (Private)    |
| 28.    | Uttarakhand       | 25                  | 01      | 10    | 11      | 03     | 03                   | -              |
| 29.    | West Bengal       | 35                  | 01      | 25    | 08      | 01     | 13                   | -              |
| 30.    | NCT of Delhi      | 22                  | 05      | 07    | -       | 10     | 05                   | -              |
| 31.    | UT of Chandigarh  | 02                  | -       | 01    | -       | 01     | 01                   | -              |
| 32.    | Pondicherry       | 02                  | 01      | -     | -       | 01     | -                    | -              |
|        | Total             | 777                 | 47      | 356   | 252     | 122    | 206                  | 08             |

Table 1: Total no of Universities in India, as on 2016

## IV. MEDIA STUDIES IN HIGHER EDUCATION

Many valuable recommendations and suggestions have been made by various committees and groups about journalism, media training and education by The All India Newspaper Editors' Conference (1948), The Press Commission Report (1954), The Indian Federation of Working Journalists (1954), The Inter-University Board Committee (C.P.R. Aiyer Committee 1959), The UGC Committee (B. Shiva Rao Committee 1964), and The Ford

Foundation group (The Wilbur Schramm Committee 1963) and UGC Curriculum Development Committee in Mass Communication (2001).

The UNESCO International Commission for the Study of Communication Problems (1980s) said in 1980s, in its report, "In many countries even today, journalists are not regarded as members of an acknowledged profession and they are treated accordingly. To overcome this situation, journalism needs to raise its standards and quality for recognition everywhere as a genuine profession. To be treated as professionals, journalists require broad educational preparation and specific professional training. Programmes of instruction need to be developed not only for entry-level recruits, but also for experienced personnel who from time to time would benefit from special seminars and conferences designed to refresh and enrich their qualifications."

The Press Council of India tried to standardize journalism education in India and held a workshop in 2008. The workshop was attended by representatives from the media industry, media education, professional media bodies and academic institutions. Improvements in journalism education must be also supplemented with funding and support for empirical research in news media's performance and media criticism, which currently is very limited in the country.

The speedy growth of private institutions in recent times has also made this sector highly competitive. The situation gets further complicated by several uncertified course run by reputed media organizations. Several institutes also started these courses without having enough infrastructures. Teachers have little experience as academics or professionals. While the Indian Media industry is expected to grow exponentially at 18.4 per cent with a size of 918 billion rupees<sup>3</sup>, it is yet to create significant number of jobs in the market, also considering the number of students graduating from Indian journalism and media schools every year. The workforce demand for media and entertainment sector currently stands at 4.6 lakh, according to a study conducted by Media and Entertainment Skills Council (MESC) in 2013. It is estimated to grow at a CAGR of 13 per cent to 7.5 lakh by 2017.

## V. PRESENT WORK-FORCE AND JOB OPPORTUNITY

Given the nature of workforce demand in the industry, the focus of the media education is expected to be more on professional training. In this regard, MESC was formed to skill workforce to meet the growing Media & Entertainment Industry which is projected to grow to INR 1457 billion by 2016. According to the MESC Skills Gap Study report, there is sizable shortage of trained professionals that possess the relevant skills for jobs within each subsector. The total current employment in the Media & Entertainment Industry is estimated at ~4.6 lakh<sup>5</sup>, and is projected to grow at a CAGR of 13% to 7.5 lakh by 2017. While these figures are not all relevant to the journalism related professions, it provides an over optimistic picture of this sector. The workforce demand for media and entertainment sector currently stands at 4.6 lakh, according to a study conducted by Media and Entertainment Skills Council (MESC) in 2013. It is estimated to grow at 13 per cent to 7.5 lakh by 2017.

|                             | 2012       | 2013        | 2014E       | 2015E       | 2016E       | 2017E       | CAGR (2012-17) |
|-----------------------------|------------|-------------|-------------|-------------|-------------|-------------|----------------|
| Television                  | 383        | 437         | 529         | 638         | 753         | 872         | 17.9%          |
| Film                        | 112        | 133         | 151         | 170         | 185         | 199         | 12.2%          |
| Print                       | 212        | 230         | 255         | 279         | 304         | 331         | 9.3%           |
| Radio                       | 15         | 17          | 19          | 22          | 27          | 32          | 15.6%          |
| Music                       | 13         | 15          | 17          | 20          | 23          | 26          | 15.1%          |
| Gaming                      | 18         | 21          | 27          | 33          | 38          | 42          | 18.8%          |
| Internet access             | 171        | 248         | 352         | 476         | 564         | 631         | 29.8%          |
| Internet advertising        | 23         | 31          | 40          | 52          | 67          | 84          | 29.4%          |
| OOH                         | 17         | 19          | 21          | 24          | 26          | 29          | 11.2%          |
| <b>Total E&amp;M sector</b> | <b>965</b> | <b>1149</b> | <b>1410</b> | <b>1714</b> | <b>1987</b> | <b>2245</b> | <b>18.4%</b>   |

Source: PWC India Entertainment and Media Outlook, 2013

Table 2: PWC Industry Size Projection

| Workforce size | 2013          | 2014          | 2015          | 2016          | 2017          | CAGR       |
|----------------|---------------|---------------|---------------|---------------|---------------|------------|
| Film           | 160,800       | 179,300       | 199,900       | 222,900       | 248,600       | 12%        |
| Television     | 144,600       | 170,600       | 201,300       | 237,600       | 280,400       | 18%        |
| Print          | 62,800        | 65,700        | 68,600        | 71,700        | 74,900        | 5%         |
| Radio          | 23,000        | 26,400        | 27,600        | 28,800        | 30,000        | 7%         |
| Animation      | 22,100        | 24,200        | 26,600        | 29,200        | 32,000        | 10%        |
| Gaming         | 17,300        | 18,700        | 22,100        | 23,400        | 25,300        | 10%        |
| Digital        | 8,100         | 10,600        | 14,100        | 18,600        | 24,500        | 32%        |
| OOH            | 7,600         | 8,200         | 8,800         | 9,400         | 10,100        | 7%         |
| Advertising    | 15,600        | 17,200        | 18,900        | 20,800        | 23,000        | 10%        |
| <b>Total</b>   | <b>461900</b> | <b>520900</b> | <b>587900</b> | <b>662400</b> | <b>748800</b> | <b>13%</b> |

Table 3: Workforce Demand in the Media Industry

Though Indian journalism and mass communication education is six decade old, but it has yet to take an appropriate shape. It is recognised as professional education, usually referred to by different nomenclatures, viz., journalism, mass communication, advertising, public relations, and media studies depending on the emphasis on different aspects. Very very few universities have science communication as subject of specialization and if it is, faculty with background of both science and mass communication is very poor. One important aspect of these courses is that the students undergo rigorous training in the skills required for the profession. Over half of the total Indian university departments offering journalism courses are providing one-year diploma only and nearly one-fifth are providing bachelor's degree under varied course titles as Bachelor of Journalism, Bachelor of Journalism and Mass Communication, Bachelor of Mass Communication, Bachelor of Mass Communication and Journalism, and the masters programme as Master in Journalism and Mass Communication, Master in Communication. And Journalism, MA Communication), Master in Science Communication {MSC}, and MScC {Agricultural Communication). A few universities are offering full-time MPhil and doctoral programmes.

## VI. INDIAN JOURNALISM EDUCATION: HISTORY AND PRESENT DEVELOPMENT

The birth of journalism education dates back to the early 1920s. Dr. Annie Besant made a pioneering effort in training candidates before joining journalism in Adyar, Tamil Nadu. Thereby, the American College of Journalism in Bombay (now Mumbai) was set up by Dr J B Kumarappa in 1936. Similarly, an experiment on the training of journalists was initiated by Aligarh University. It was however terminated in

1940. It was an endeavour of such colleges to introduce formal training in journalism. It was Punjab University in Lahore (now in Pakistan) that introduced a course in undivided India in 1941 with a one year post graduate diploma course. It later started the course in New Delhi in 1948.

Thereby, the need for journalism training was felt and various associations were formed to conduct training for on-the-job journalists. Journalism courses were being introduced in some universities to meet the needs of a growing number of young men who seek to take up journalism and the comprehensive survey made of the profession and industry by the Press Commission<sup>7</sup>. The note to UNESCO also stressed upon the need to train journalists in technical aspects.

The Indian Association of Education in Journalism was formed in January 1956 in Calcutta, with Prof. P P Singh, HOD of Journalism, Punjab University, Delhi; Prof. Averton Conger, Hislop College, Nagpur University; Dr. S N Sen., Calcutta University; Dr De Forest O'Dell, Osmania University as members. The association had an accrediting committee with members of All India Newspaper Editors' Conference, the Indian Federation of Working Journalists, the Indian and Eastern Newspaper Society, Ministry of Information and Broadcasting and Inter- University Board.

Similarly the Press Institute of India was set up with this purpose with the support of few prominent newspapers, UNDP and Press Foundation of India in the early 60s to conduct training for journalists. In the same decade, six university departments offering academic instructions and practical training in journalism in universities of Panjab, Calcutta, Nagpur, Hyderabad, Madras and Mysore came up. Proposals to start new departments of journalism at Agra, Lucknow, Gauhati (Guwahati), Bombay (Mumbai) and Poona (Pune) were also sent during this time.

Mass Communication and Journalism Education at various levels –such as certificate, diploma, degree, masters and Ph.D. – are made available in Indian universities and private coaching institutions in present times. P.P. Singh set up a department of auspices of Punjab University at Lahore in 1941. The department functioned in Delhi for 15 years after the country's partition in 1947. Later it was shifted to the new campus of Punjab University at Chandigarh in 1962. Presenting a paper on Journalism Education at the Communication/Journalism Teacher's Seminar at Honolulu, Singh (1971) observed: "Journalism education met with strong opposition from working journalists. Few thought that journalists needed training or that they could be trained". Media owners also believed that "Communicators are born, not made". They too did not encourage Mass Communication and Journalism training wholeheartedly because of this wrong notion.

From 1947-1954, five more academic programmes in Journalism were commenced at Madras, Calcutta, Mysore, Nagpur and Osmania Universities. During 1964-1985, 23 universities also launched journalism academic programmes in the country. They include – Universities of Poona, Guwahati, Shivaji, Jabalpur, Punjab Agricultural, Ravi Shankar, Marathwada, Banares Hindu, Saurashtra, Bangalore, Berhampur, Punjabi, Madurai Kamaraj, Garhwal, Rajasthan, Aligarh Muslim, Calicut, Kerala, Maharshi Dayanand, Dharwar, Sagar, Allahabad and Indore. During 1985-2000

many more Universities such as Mahatma Gandhi, Bharatiya, Mangalore, Central University (Hyderabad), Kuvempu, Women's (Tirupati), Tejpur, Shimla, Guru Jambheshwar (Hissar), Kurukshetra, Annamalai, Assam, Bharathi Dasan, Bhavanagar, Chowdhary Charan Singh (Meerut), Dr. Hari Singh Gaur (Sagar), Himachal Pradesh, Nagarjuna, Ranchi, Sri Krishnadeveraya, Bardhaman, Kashmir (Srinagar), Lalitha Narayana Mithila, Manipur, Swamy Ramananda Tirtha Maratwada, Goa, Indira Gandhi National Open University, Anna University, Jawaharlal Nehru University, etc., also started Mass Communication and Journalism degree programmes in tune with the needs of regional media, government and nongovernmental institutional needs.

The Government of India established the Indian Institute of Mass Communication in 1965 to set high standards in journalism and mass communication. Subsequently, the University Grants Commission (UGC) sanctioned funds for Journalism departments in central universities including the Delhi University, the Jamia Milia Islamia University, the Film Institute of India, Pune and The Banaras Hindu University, and state universities such as Kurukshetra University, Anna University, Chennai, Jabalpur University, and several other universities in 1980s. Makhanlal Chaturvedi National University of Journalism & Communication was set up in 1990. From the 90s onwards, besides state and central universities, several private universities and institutions providing a variety of courses in journalism sprung up devising their own modules and course content. Today, there are more than 300 media institutes offering courses in journalism and other applied areas.

## VII. MASS MEDIA IN INDIA

Indian dailies enjoy a daily circulation of 13 crore copies, of which a lion's share is accounted for by 200 big dailies. The 350 main newspapers employ a total of about 5,000 reporters, 2,000 fulltime correspondents, 5,000 stringers and 5,000 editorial staff. All India Radio employs 24,000 people including 4,500 in news production. Doordarshan has 19,000 employees of which about 4,000 are in production and news. All the other private networks (such as Sun, Eenadu, Zee, ATN, Sony, AsiaNet) employ about 1,700 people with only about 500 in direct production and news (outsourcing is a common practice). The advertising industry in India is worth Rs.7, 000 crores a year. As much as 55 per cent of India's ad spend is devoted to the print media. The major ad agencies employ 3,000 professionals in all. The media in India need multi-skilled people with an understanding of the nature of information and well-versed in the new communication technologies, and society as a whole needs more skilled people in media production as well as critical thinking in relation to new ICTs across the economy. This calls for a curriculum with a mix of practical media production (including Internet publishing), media effects, political economy, cultural studies, and suitable internships.



| Year        | No. of news channels | Total no. of channels | % of total channels |
|-------------|----------------------|-----------------------|---------------------|
| 2000        | 1                    | 1                     | 100                 |
| 2001        | 39                   | 44                    | 89                  |
| 2002        | 15                   | 24                    | 62                  |
| 2003        | 12                   | 24                    | 50                  |
| 2004        | 10                   | 28                    | 36                  |
| 2005        | 10                   | 15                    | 67                  |
| 2006        | 28                   | 39                    | 72                  |
| 2007        | 39                   | 74                    | 53                  |
| 2008        | 59                   | 152                   | 39                  |
| 2009        | 33                   | 79                    | 42                  |
| 2010        | 22                   | 47                    | 47                  |
| (2000-2010) | 268                  | 527                   | 51                  |

Table 4: Sharp Increase in No of Channels in India in the last Decade

Media of India consist of several different types of Indian communications media: television, radio, cinema, newspapers, magazines, and Internet-based Web sites. Many of the media are controlled by large, for-profit corporations which reap revenue from advertising, subscriptions, and sale of copyrighted material. India also has a strong music and film industry. India has more than 70,000 newspapers and over 1600 satellite channels (more than 400 are news channels) and is the biggest newspaper market in the world - over 100 million copies sold each day.

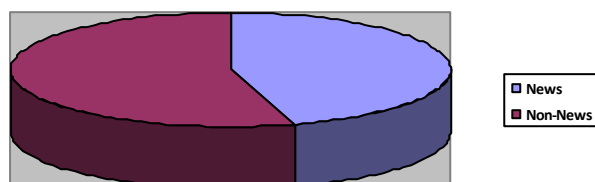


Diagram 1: No of News and Non-news channels in India upto 2016 as per Ministry of I & B

## VIII. ANALYSIS OF THE MEDIA EDUCATION ENVIRONMENT

When discussing the media education scenario, we must refer to the research of P.N Vasanti. According to her, "the communication education sector landscape in our country is dominated by courses on journalism or mass communication that actually fall under a larger umbrella of communication studies. We've also seen the growth of courses focused on marketing-oriented media studies such as public relations, event management, advertising, and media marketing.

Today, the maximum number of courses (40%) are for marketing media, followed by mass communication (30%), and journalism (20%). The curriculum of all these courses often overlaps, but the scope of all these courses and their difference is mostly in the focus and orientation. And there still remains a clear need for courses that teach integrated communication (10%). Integrated communication is considered by many to be the future of the media business. The aim of programmes in integrated communication should be to ensure that there's a comprehensive approach to communication and not just medium-specific understanding" (Vasanti, n.d.).

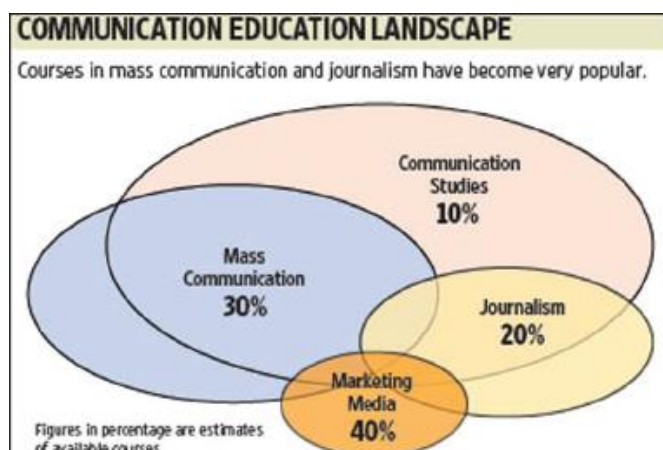


Diagram 2: Share of Media Education Environment in India

## IX. METHODOLOGY USED FOR THIS RESEARCH

For this assessment, as for methodology, total country India is divided into 6 major zones or sectors. The zones are north, north-east, east, south, west and central respectively. Then for north zone- Uttarakhand, Uttar Pradesh, Jammu and Kashmir, Delhi and Himachal Pradesh, these states and union territories were chosen. For north-east zone- Assam, Mizoram and Tripura were chosen. For east, only West Bengal was chosen. For south- Tamilnadu, Kerala and Andhra Pradesh were chosen. For west- Rajasthan and Gujarat were chosen. Lastly, for central zone- Chhattisgarh was chosen for this research. From among 15 states and union territories, 15 cities viz. Hardwar, Varanasi, Kashmir, Delhi, Simla, Guwahati, Aizal, Agartala, Kolkata, Chennai, Thiruvananthapuram, Visakhapatnam, Jaipur, Ahmadabad and Ranchi. Then interviews were conducted with media post graduates, alumni and one senior faculty of the institutes located at 15 cities and towns.

Prior to the field study, the University Grants Commission list of the universities in both the private sector (deemed universities) and public sector (State and Central Universities) offering journalism and mass communication courses in India was collected from the UGC website. Other colleges and private institutions were listed from various online websites. Using the websites of those universities, colleges and institutions, the relevant courses namely Master's and Postgraduate Diploma (PG Diploma) were identified. The duration of this study was about 1 year from January-December 2016.

The questionnaires for the faculty and media graduate interviews consisted of both open-ended and close-ended questions. The questions were divided into categories for each type of respondents. The faculties were asked to respond to specifics related to the courses and papers they were teaching; the number of years of academic experience; knowledge of technical equipments and software; curriculum structure; trainings, conferences attended and the academic performance evaluation by UGC (if applicable to the faculty) and the need for an independent, accrediting body. The media post graduate questionnaire included questions related to the type of specializations in the course that was offered; technical training received; internship undertaken; teaching

methodology; job placement and changes needed in the curriculum.

In each of the cities, Journalists from print, television and digital media organizations were also interviewed. The questionnaire for media professionals was open-ended and was on the challenges in the Indian media education sector and the gaps in the industry and academics. The questions were related to the challenges in the journalism education sector, relevance of journalism curriculum according to industry, faculty experience in industry and factors needed for maintaining quality standards in journalism departments.

**MEDIA FACULTY:** Faculty of prominent journalism schools, universities and institutes were personally met and interviewed using a semi structured questionnaire. The media faculty interviews were conducted after prior appointment and visits to the respective departments and institutions were made. Some of the media faculties have moved from the industry to academics and are working as heads of departments, assistant professors and associate professors. 6 senior media faculties were taken from 15 cities i.e. 90 media faculties were chosen.

**MEDIA PROFESSIONALS:** In-depth interviews with mid-level and senior media professionals in newspapers, news channels and news websites representing English, Hindi and regional media were conducted for this study. The interviewees included senior/veteran journalists, editors, bureau chiefs from newspapers, news channels and news websites. Correspondents at mid level positions in newspapers, news channels and online video forum were also interviewed. Among the media experts, eminent professionals who have been in journalism as well as in academics were also contacted. It was ensured that the technical aspects of news media were also covered and interviews were held with a graphic design professional from a prominent news channel and a production professional that specializes in news programme production. 10 senior media professionals were taken from 15 cities i.e. 150 media professionals were chosen.

**MEDIA ALUMNI, POST GRADUATES AND ABOVE:** Media alumni were interviewed for the study. These respondents had an experience of one or two years of working in various media organisations. These respondents were from across nine cities and belonged to various institutes, departments across the country. 6 alumni from each state were chosen as sample space i.e. 90 post graduates and doctorates were considered for this research.

## X. RESULTS

R-1-It has been found that, among 6 zones divided, for this research, South zone (28 percent) has got the highest infrastructure in universities at Post graduation level, followed by North zone (23 percent), East zone (21 percent), West zone (13 percent), Central zone (10 percent) and then North-east zone (5 percent).

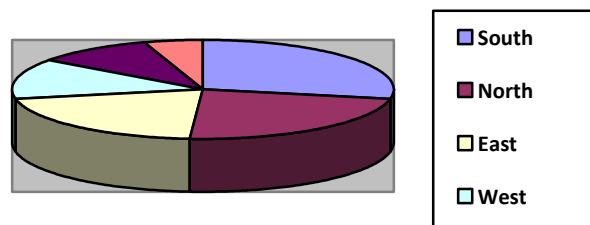


Diagram 2: Zone-wise science communication teaching infrastructure in India

R-2-It has been found that, among 15 cities in all zones of India, Delhi (15.2 percent) students has opted science communication as specialization at Post graduation level. Then sequentially the other cities are Chennai (14.3 percent), Kolkata (12.5 percent), Varanasi (9.5 percent), Ahmadabad (8.5 percent), Thiruvananthapuram (7.8 percent), Visakhapatnam (7.7 percent), Simla (6.9 percent), Jaipur (5.1 percent), Hardwar (4.0 percent), Kashmir (2.9 percent), Guwahati (2.3 percent), Ranchi (1.6 percent), Agartala (1.2 percent) and Aizal (0.5 percent).

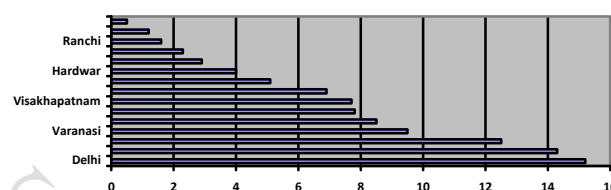


Diagram 3: Science communication as specialization at Post graduation level

R-3- Only 10 % of the surveyed communicators have received formal training in science communication, 17% communicators have additional background of science, 3% communicators have chosen science communication as further academic carrier and in professional field also, 12% universities have such person as research guide and faculty who have strong academic carrier in science communication, 9% communicators are willing to write on any scientific subject, 5% communicator have liked to stay at urban area though there is a great need of rural science communication for India.

## XI. RECOMMENDATION

- ✓ Finally to rectify the aforementioned problems, it is recommended that popular science communication should be introduced as compulsory paper at post-graduation level.
- ✓ Certificate and post graduate diploma courses on science communication by respective experts should be organized bi-annually in every university.
- ✓ Special emphasis should be given on how to translate from regional languages.
- ✓ Scientists should come forward to train journalists on how to handle technical words for the grass-root people.

REFERENCES

- [1] C. Sagan, quoted in SIP Iscope (1988) 16, as communicated personally by Dr. Terry Sejnowski.
- [2] K. Meenu, *Coverage of S&T in national and regional newspapers: a comparative study*, *Indian Journal of Science Communication* (2005)
- [3] Kumar, K. (1981). *Mass communication in India*. India: Jaico Publishing House.
- [4] National Readership Study. (2005). National Readership Studies Council, Audit Bureau of Circulations, Mumbai, India. Retrieved from [www.auditbureau.org](http://www.auditbureau.org)
- [5] Viswanathan, S. (30 September 2003). 125 years of the Hindu. Retrieved on 26 September 2006 from [www.indeconomist.com/300903\\_media\\_hindu.html](http://www.indeconomist.com/300903_media_hindu.html)
- [6] Chatterjee, P. (2008). *Tatwa aru Praoygere Gana Sanjog*. Guwahati, India: Bina Library.
- [7] De Benedetti's, P. (n.d.). Guiding Principles for Creating Media Literacy Projects. Retrieved February 23, 2011, from [www.medialiteracy.net/pdfs/guiding\\_princ.pdf](http://www.medialiteracy.net/pdfs/guiding_princ.pdf)
- [8] Duncan, B., Pungente, J., & Andersen, N. (2002). Media Education in Canada. Retrieved February 23, 2011, from <http://www.aml.ca/articles/articles.php?articleID=272>
- [9] M.M. Gore and A. Mishra, *Vigyan katha ka Safar*, Manjuli Prakashan, New Delhi (2000).
- [10] Kipping, P. (1996, Jan-Feb). Media Literacy - An Important Strategy for Building Peace. *Peace Magazine*, 12(1), 23
- [11] R.A. Ocshe, *Before the gates of excellence: determinants of creative genius*, Cambridge University Press, Cambridge U.K. (1990).
- [12] Partnership for 21st Century Skills. (July 2003). Learning for the 21st Century: A Report and Mile Guide for 21st Century Skills. Retrieved February 23, 2010, from <http://www.medialit.org/reading-room/learning-21st-century>
- [13] Pungente, J. (1989). *Media Literacy Resource Guide*. Toronto, ON: Ontario Ministry of Education.
- [14] Tyner, K.R., & Kolkin, D. (1991). *Media and You: An Elementary Literacy Curriculum*.
- [15] Englewood Cliffs, NJ: Strategies for Media Literacy Inc., Educational Technology Publications.
- [16] Vasanti, P.N. (n.d.). A national policy could help Indian media scale new heights. Retrieved February 2, 2011, from <http://www.livemint.com>
- [17] C.M. Nautiyal, *An idea for a workshop, interfacing scientists, communicators and social scientists*, Netletter (Sep. 2003), NCSTC- Network, New Delhi (2003).
- [18] C.M. Nautiyal, *Science Communication: Quo Vadis?*, *Indian Media Studies Journal* 1, No. 1, Satish Serial Publishing House (2006).
- [19] Proceedings of the Eighth National Conference for Science Fiction Writers at Aurangabad (11- 12 November, 2006) by Marathi Vidnyan Parishad, Aurangabad (2006) 100 pages