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RESEARCH ARTICLE

The Social Web as a Communication Tool in Indian Science Communication

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ABSTRACT

Facebook, Twitter, YouTube and many other social networking sites have now became an integrated part of our lives. These sites allow users to interact and share online content and connect with like-minded people. Its strengths are rapid dissemination and amplification of content. Social media tools can be some of the most rewarding and informative resources for science communicators, especially in a developing country like India, by generating public awareness of science, public understanding of science, scientific culture and science literacy. As individuals increasingly seek information online about science and technology issues, public communication of science via online platforms becomes an ever more important opportunity to facilitate dialogue between science and society.

This study discusses whether the main aim is simply to reach a wide audience or to engage meaningfully with a smaller audience in a most trustworthy manner. It also discusses how to use social web as an effective communication tool in the Indian context. This will be based on primary data collected through interviews, survey and by rigorous analysis of collected data.

KEYWORDS: Communication, Social Media, Science Communication, Communication tools, Digital Communication

Introduction

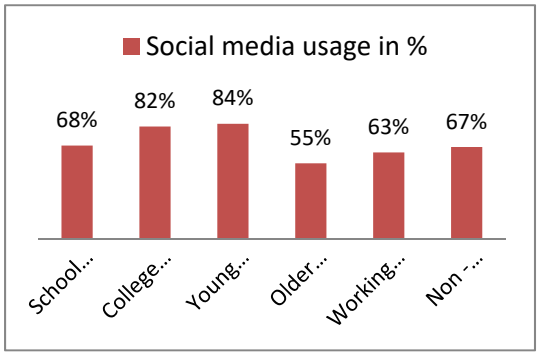
In India, modern science and technology has the potential to address the pressing needs of improved nutrition, potable

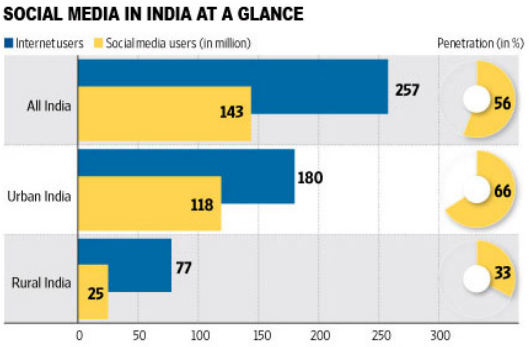
drinking water, public health, safety, shelter and much more. People, in general, are inquisitive about the latest scientific concepts and technological developments, but what is often lacking is popular, attractive, lucid and catchy presentation to non-experts[1].

E-science greatly expands the interaction among science communicators and researchers, first and foremost. The immediacy of this contact and the ability to combine it with the sending of information, whether raw data, final text or graphics, supporting documents and so on — means that collaboration has many new possibilities[2]. Communicators and researchers in different cities or nations can collaborate far more easily, without meeting face to face.

Background

For many Internet users in India, the access is primarily for accessing social media networks. As per a report published by





the Internet and Mobile Association of India (IAMAI) in March 2016, 66% of the 180 million Internet users in urban India regularly access social media platforms, while young men (84%) and college students (82%) form the largest demographic of active social media users in India, working women and non-working women include 63% and 67% respectively[3].

With new apps and social platforms emerging each year, India's media landscape is rapidly transforming, as there are signs that interest in science communication is diminishing in the print media. Only 17% of the people are interested in science-based programmes and 24% people consume technological news from the Audio-Visual medium. Consequently, social web can become an effective tool for communicating science[4].

Objectives of the Study

This research is an attempt to understand the complexity and use of the different social media platforms for science communication and public engagement with science and how people respond to media.

This study will explain whether the main aim is simply to reach a wide audience or to engage meaningfully with a smaller audience in a most trustworthy manner and also how to use social web as an effective communication tool in the Indian context.

Methodology

Firstly, a series of scoping interviews of science communicators and scientists were conducted who had used social media for scholarly communication and a few science communicators and scientists who were not using social media to do a comparative study.

Secondly, a national online survey was conducted to explore the attitudes towards science communication, data sharing and the use of social media in the research development and dissemination process. This research is mainly based on primary data collected through interviews, survey and by rigorous analysis of collected data. The sampling frame of the survey was the population of scientists and researchers in a random sample of three universities. An invitation email with a link to the online

survey was sent to over 1000 people. Among them, 500 usable samples of Indian citizens aged above 16 were taken into consideration.

Some of the key research questions were:

- Do common Indians consider social media as an important source to get science news or information?
- Which social media platform is dominating in the social media landscape to get science news in India?
- Are Indians trusting social media as a source to get science news?
- Which social media platform is more preferable for Indian scientists to discuss their work?
- According to Indian scientists what are the potential positive and negative consequences of using social media in research work?

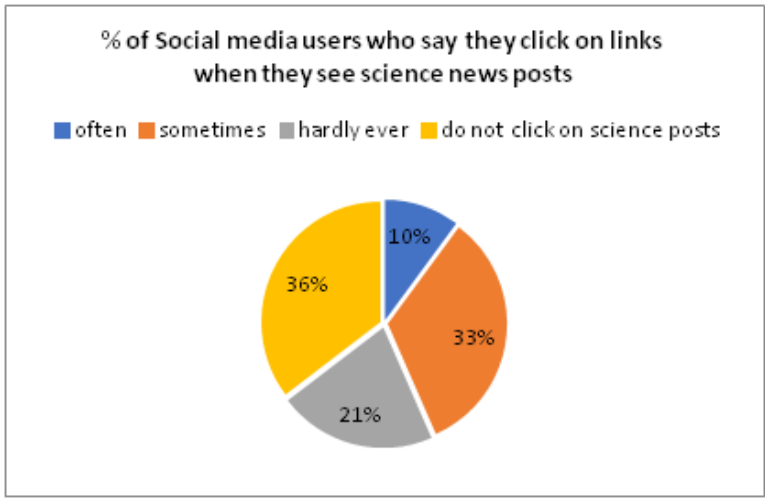
Findings

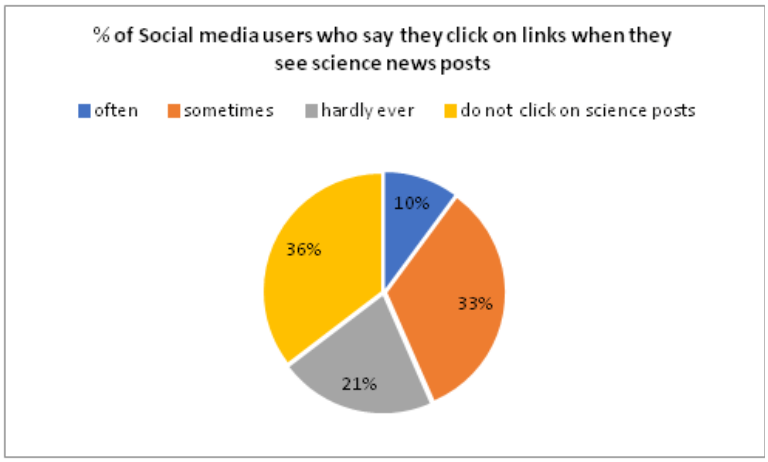
A few selected social media tools were considered in the survey: blogs, Twitter and social networking sites such as Facebook, WhatsApp, Messenger and Research Gate. These social media tools are quite different in the services they provide: Blogs usually have no word limit, so users can write a summary of their published journal paper, while social networking sites such as Academia.edu and Research Gate allow users to upload full papers.

A number of participants from the scoping interviews of this research highlighted how they would link their Twitter and Facebook accounts to their blogs to publicise their blog posts. As such, it was important to capture the multiple uses of these tools by some academics in the survey.

The survey found that about a quarter of social media users follow science organisations, people or pages. 80% of social media users don't follow any science account in India; only 20% of users do follow any science account.

Among science news consumers from social media, Facebook is the most popular platform among Indians. Rapid dissemination and amplification of content and the ability to lead informal conversations make it a powerful tool to use in a





professional context. It can provide a highly personalised and relevant "Table of Contents" to keep up to date with current research, popular science and broader issues such as science policy, funding, publishing, or personal career development.

Science news consumers in social media mostly distrust this medium as a source of any important news. 59% of social media users distrust this medium, whereas 26% trust and 15% stayed indifferent to the question of trustworthiness of the medium.

Scientists meet on the social network to discuss their research and build new collaborations. The social network seems to have evolved into a forum for researchers and scientists to discuss their career aspirations, research and obstacles. Actively participating in social media networks allows scientists to disseminate research findings quickly and effectively as well as raise their own profile, of their research groups or institution. Twitter is the most preferred platform for scientists for sharing and discussing their work.

The survey found that the vast majority of scientists and researchers had never posted updates of their ongoing research on research blogs (84%), Twitter (84%) or social networking sites (81%).

Table 1: Publishing ongoing research updates on blogs, Twitter and other

How often do you do any of the following in your research work?	**Always**	**Often**	**Sometimes**	**Never**
Publish research updates on blogs	1%	2%	12%	84%
Publish research updates on Twitter	1%	4%	11%	84%
Publish research updates on other social network sites	1%	3%	15%	81%

This research also examined the researchers' and scientists' attitude towards the potential benefits and negative consequences of using social media in their research work. As Table 2 highlights, academics were asked to what extent they agreed or disagreed with different statements regarding using social media in their research work.

Table 2: The potential positive and negative consequences of using social media in research work

To what extent do you agree or disagree with the following statements?	**Strongly agree**	**Agree**	**Neither disagree nor agree**	**Disagree**	**Strongly disagree**
Communicating research on social media benefits the public	9%	45%	35%	9%	2%

Social media promotes my professional profile/helps me find collaboration opportunities/increases my chances of getting funding	7%	32%	40%	17%	4%
Research published on social media cannot be trusted	17%	41%	30%	10%	2%
Communicating research on social media risks my ideas being stolen	4%	26%	44%	23%	3%

Discussion

In the age of digitisation, the research findings suggest that social media tools provide new opportunities for more open and two-way science communication. Such communication can be a valuable part of the research process; it can contribute to the development of collaborative problem solving and lead to a more informed public as they find new ways to engage with scientists and scientific research.

Social media has been transformative in how it has democratised communication. But it's a double-edged sword: social media allows scientists to correct misinformation by communicating their findings to public audiences to promote an understanding of complex issues. Equally dangerous though, social-media activism has the potential not only to distort public understanding of these critical issues but also to disrupt governmental support and policy regulations.

In addition to knowledge transfer and self-presentation, social media may open up new possibilities for developing and testing new forms of target group communication, dialogue, etc. Therefore, experiments in using social media may become the only way to evaluate whether and in which cases the gap between scientists and laypersons can be reduced. There are opportunities for a more creative, dialogue-based relationship between scientists and the public, which would help overcome the knowledge gap and transform the deficit model of conducting and communicating science in India.

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