

Children's Science Congress a Noble Initiative for Promoting Science Temper: A Case Study of Uttarakhand State

D. P. Uniyal, J. S. Aswal, Vikas Chander, Pranendra K. Kaushik, S. Khadija Bari, Ankita Pokhriyal and Rajendra Dobhal
Uttarakhand State Council for Science and Technology, Dehradun, Uttarakhand

Abstract

Uttarakhand State Council for Science and Technology dedicated to science popularization in the state. Being a maximum representation form hilly areas of the state, it is utmost urgent need of the hour to disseminate the science in far flung rural area of the state. The 25th children science congress 2017 has organized at council premises on 20th December 2017 under seven themes in which 130 schools students represented their poster/oral/science models form 11 districts.

INTRODUCTION

In today's world, every one requires a minimum knowledge of science, even to lead the healthy and happy life. This is a part from acquiring an ability to handle gadgets comfortably. But the question of scientific temperament (also enshrined in constitution of some countries including India's) is even more important. The life style, level of essential facilities and educational levels in the rural and urban areas are quite different especially in the developing countries. In the multifarious society like India's Mahatma Gandhi's advice to "think about the poorest of the poor" would be a good guiding mark. Therefore the science communication for the rural folk using media, science awareness programme, science exhibition etc. should also be a priority. However, print media, radio and TV do carry matter on agriculture science but, there is a fallacy regarding the rural people needs. For the society, in general, attitude is more important than acquiring scientific information. While the information part is more concerned with the material side directly, the former is more concerned how the people react to situation even the social ones [1].

As the Uttarakhand state is Himalayan state carved out from Uttar Pradesh during 2000 having maximum area under mountainous region, the rural children have been educated from Government primary schools and inter colleges situated in typical geographical conditions. Being a mountainous state it is difficult to communicate science. To generate curiosity and develop scientific temper among the school children in rural folk of the state is most important, so that they can adopt science as a career option and they will also be aware about the science around them and scientific activities across the globe. As the decade 2011-2020 has many global scientific concerns like climate change, biodiversity conservation, information technology and agriculture productivity etc. It is important to address these issues among students to generate scientific curiosity at small scale and awareness about the scientific activity across the globe. Hence, Science and Technology communication should be taken in the wider sense and includes interactions.

SCIENTIFIC TEMPER IN RURAL CONTEXT

Curiosity is a basic trait of human nature. If the people experience anything new, they also get curious. They want to know the reason even without a scientific background. Curiosity leads to keen observation and questioning. It also ensures that, one tries to go to the bottom of the matter rather than being convinced by the simpler dogmatic explanation offered by the others. This may mean one will not accept some super natural power as the cause behind the phenomenon but some physical cause, and so on. To sustain this element of curiosity is a key to evolve a progressive and creative society, immaterial of whether it's rural or urban. Thus many of the science exhibitions, lectures, science mela and children science congress considered useful for the rural people to generate curiosity. Such exposures educate people, more importantly, it expands their horizon. Early exposure to trends of modern research will lead to entry of more people from rural areas into research and adopt science as carrier. It will be useful for the society to have people from rural background in the main-stream S&T research, who'd contribute to research and development with rural needs in mind. Therefore, early exposure of the rural people to modern discoveries and inventions is all the more critical. This may also encourage literacy which, in turn, may help in improving scientific temperament [1].

With the scientific revolution of the 17th century one can see communities working hard to communicate new discoveries and ideas in science through the form of advertising, experimenting and other popularization activities. Analysis of the popularization work carried out by the scientific community makes it accessible to acknowledge a variety of motivations, attitudes and intentions behind their forays into this field. The relationship between science and public has undergone profound changes over the centuries. The relation of science with life is important. One's natural curiosity and personal interest are important factors to motivate common people towards scientific temperament. Lack of this is a basic factor behind superstitions and faith in the 'super natural'.

This is reflected in concerns for health, diseases and disasters etc. Its relation with economy, quality of life, anxiousness about the future, emotions, relationships and the like, will decide if S & T communication will appeal to them. The S & T popularization efforts that ignore these basic points are unlikely to succeed.

APPROACHES TO COMMUNICATE SCIENCE

The S&T coverage of about 1 to 2 percent in most newspaper can hardly be termed satisfactory [2]. The science coverage in newspapers is still largely event- based rather than being scientific content based. The science plays a crucial role in modern society and the popularization of science in any form is closely related to the rise and development of the society. Science popularization is an attempt to reduce the distance standing between science specialists and the public. Science popularization is the interpretation of scientific information intended for general audience [3]. This could be achieved by providing platforms for students to attempt to exhibit their creativity and innovativeness and more particularly their ability to solve a societal problem experienced locally using method of science. In the last few years, direct interactions have gained popularity and are accepted as a popular mode of science communication. It has become a regular feature during the national level and many district- or state- level Children Science Congress programmes are held annually in India where some of the best known and senior most scientists such as the heads of the departments of atomic energy, space, S&T and other dignitaries have interacted with the students. Organization of Children Science congress annually is one such attempt. By its implication, the Children's Science Congress prompts children to think of some significant social problems, ponder over its causes and eventually try and solve the same using scientific approach. This involves close and keen observation, raising pertinent questions, building models, predicting solutions on the basis of a model, trying out various possible alternatives and arriving at an optimum solution using experimentation, field work, research and innovative ideas. The Children's Science Congress encourages a sense of discovery. It emboldens the participants to question many aspects of our progress and development and express their findings in their vernacular.

The field-based programmes (street plays, puppet shows), blending art and science, have also come up as popular alternative modes of science communication. Given the power conditions in the rural areas, radio may be more relevant there than TV. The fresh advent of Frequency Modulated (FM) transmission in India is a welcome step. It should help to enhance the reach of audio medium especially as even some schools have started their own transmissions. With information abundant at fingertips, there is also the fear of mis- information being free. Therefore, more scientists taking to science- writing would be desirable. Even in villages or small towns, there are people who develop indigenous tools and aides for agriculture. These days, the media plays a critical role in creating role models. It's necessary to project (deserving) scientists, international or otherwise, to show that society wants them [3]. However, it will be damaging to be confined to the foreign scientists alone, or to only those decorated by the advanced countries. This is because people from the developing or under developed countries wouldn't easily relate to the heroes from advanced places. Models who belong to the same place, give the people a feeling of self respect. Social similarity with the role model reassures people that they can emulate the models. Even in villages or small towns, there are people who develop indigenous tools and aides for agriculture. '*Jugad*', in local parlance, refers to the local indigenous methods of somehow managing things creatively. This projection will be useful to the society by encouraging of fulfilling local needs. The Indian Science Congress did indeed take an initiative in this direction by inviting such inventors and arranging their interaction during its annual meets. If we look at accounts of the early twentieth century in India and the renaissance in Europe during 14th to 17th century, both of which saw an emergence of so many creative people, we can appreciate that it's not the material returns alone that attract a potential practitioner to a profession. Many of them died paupers but they commanded respect from the society [4]. Science communication and popularization has been picking up momentum again. In addition to increasing number of planetariums, science museums/ centers and science cities, there is enough activity in media.

National Council of Science and Technology Communication, Department of Science and Technology, Government of India, New Delhi organizes various scientific programs across the country to disseminate the science in the society. National children science congress is the one of mega flagship programme organizes from block level to national level in different state, throughout the country. Uttarakhand State Council for Science & Technology (UCOST) being a nodal agency of this organization hosted 25th State Level Science Congress consisting sub themes, viz., Ecosystem and Ecosystem Services; Health, hygiene and Sanitation; Waste to Wealth, Society; Society, Culture and Livelihoods and Traditional knowledge systems. Considering all these the focal themes for 2018 and 2019, National Children's Science Congress has been chosen as "Science, Technology and Innovation (STI) for a clean Green and Healthy Nation". With clear understanding of these areas narrated so far, local and regional issues may lead one for innovative thinking and come up with new solution(s) while considering the overall health of nation as one cannot ignore the role of society and culture and its interconnectedness to livelihoods, lifestyles and sustainable progress.

Uttarakhand State Council for Science & Technology (UCOST), Dehradun has hosted 25th State Children

Science Congress (SCSC) 2017. Many national and state level organizations viz., also actively contributed in the event. Their enthusiasm and academic and industrial experience has boosted curiosity among school children's. Society for Pollution & Environment Conservation Scientists (SPECS), National Academy of Science, India (NASI) UK Chapter, National Council of Science Museums (NCSM), Swami Rama Himalayan University (SRHU), Oberai Motors, and Himalaya Drug Co. A total of 130 school students from all over Uttarakhand participated in the congress. It was categorized under seven themes which also represents the state as well as global concerns viz. Food & Agriculture; Natural Resources Management; Disaster Management; Energy; Lifestyle & Livelihood; Traditional Knowledge System and Health, Hygiene & Nutrition, in which district wise representation were found maximum form Pauri (12) followed by Udham Singh Nagar, Chamoli, Haridwar and Dehradun (11) participation from each schools respectively. The participation of schools students/mentor also depends on their school location and communication facilities available. Therefore, minimum representation was found form district Pithoragarh (2) which is situated far flung remote as compare to other schools. Simultaneously, the minimum male (2 students) and Female (1 student) were also represent form the same district. Whereas, maximum female students (8) were participated form district Dehradun and Uttarkashi, respectively followed by district Rudraprayag with (7 student) representations (Table, Figure 1). As a Agriculture is a key stay of the state people, having maximum population of hilly areas depends on agriculture for their livelihood, showed maximum representation (26 students) through poster/oral/model presentation under the Food and Agriculture theme followed by Health, Hygiene and Nutrition with (23 students), Traditional Knowledge System and Natural Resource Management with (13/11 student) participation, respectively (Table-Figure 2).

27 escort teachers and mentors were also participated on the occasion with the school students. A panel of esteemed judges from various reputed institutions was present to assess the performances of the students and to guide them. A fair representation of both male and female candidates was shown from all the participating districts. Out of the total participation 14 students (male and female) were recommended by entire panel to National representation.

Table: 1:- District wise participants

Serial No.	Name of District	Participants	Male	Female
1	Rudraprayag	9	2	7
2	Nainital	7	3	4
3	Pithoragarh	2	1	1
4	Udham Singh Nagar	11	5	6
5	Bageshwar	9	4	5
6	Pauri	12	6	6
7	Chamoli	11	6	5
8	Haridwar	11	6	5
9	Dehradun	11	3	8
10	Tehri	6	3	3
11	Uttarkashi	11	3	8

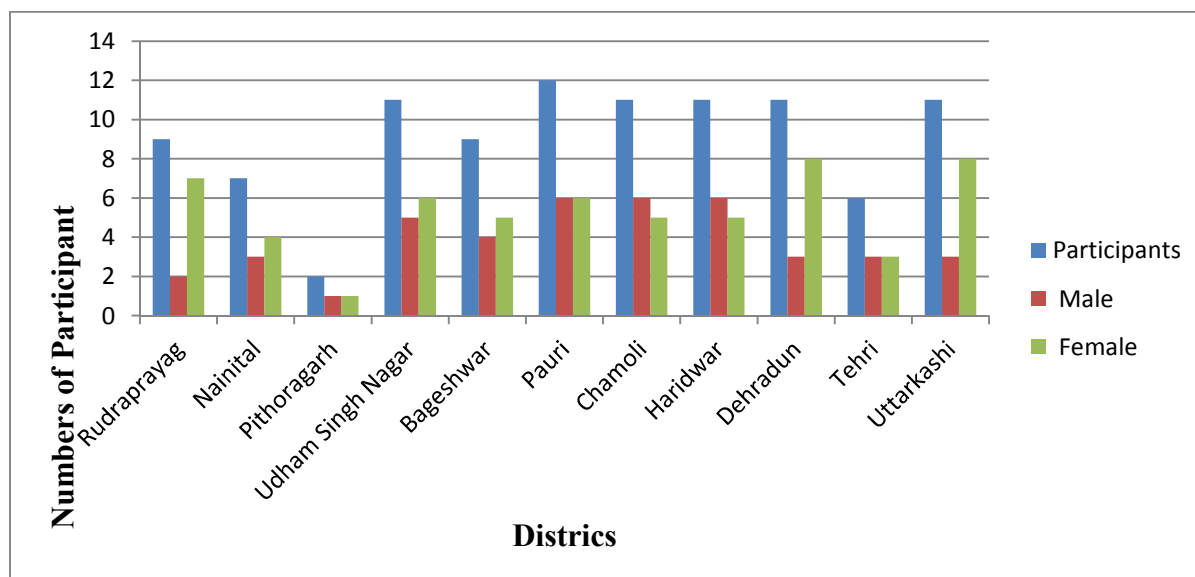


Fig-1 District wise participants

Table:2 :- Theme wise participants

Serial No.	Name of Themes	Participants	Male	Female
1	Natural Resource Management	11	4	7
2	Disaster Management	7	4	3
3	Food and Agriculture	26	13	13
4	Health, Hygiene and Nutrition	23	13	10
5	Energy	12	6	6
6	Lifestyle and Livelihood	9	1	8
7	Traditional knowledge System	13	3	10

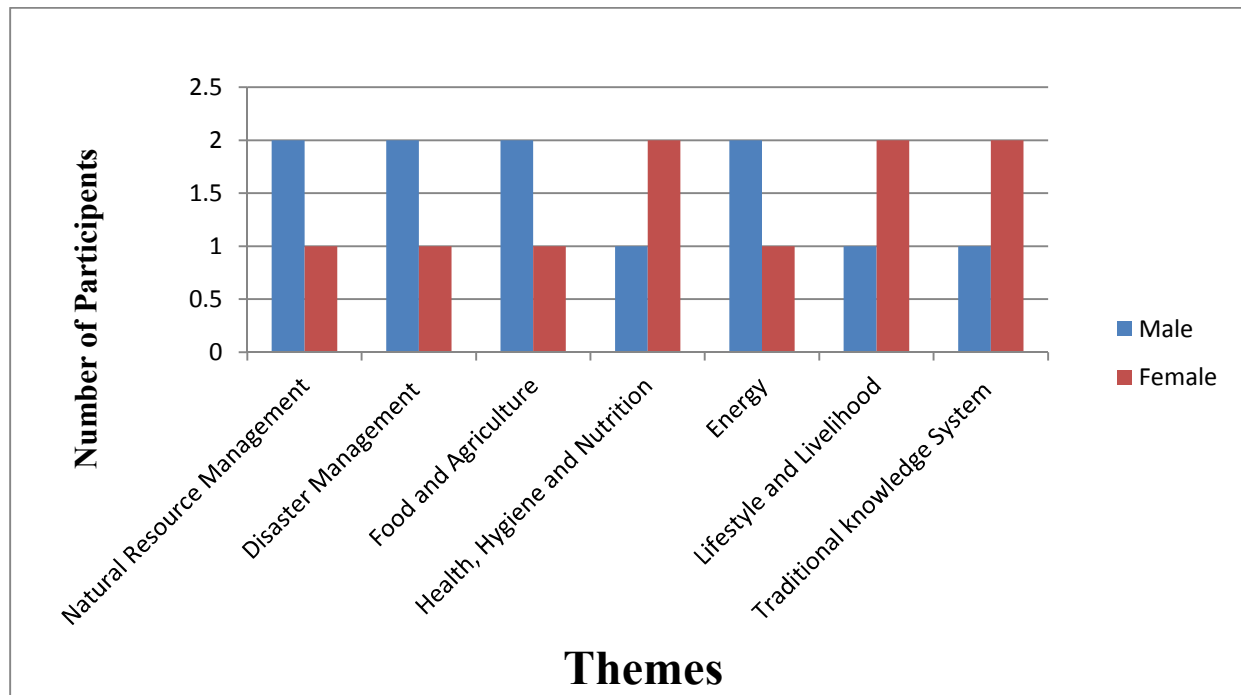


Fig-2 Theme wise participants

Table: 3:- Winning contestants

Serial No.	Theme	Male	Female
1	Natural Resource Management	2	1
2	Disaster Management	2	1
3	Food and Agriculture	2	1
4	Health, Hygiene and Nutrition	1	2
5	Energy	2	1
6	Lifestyle and Livelihood	1	2
7	Traditional knowledge System	1	2

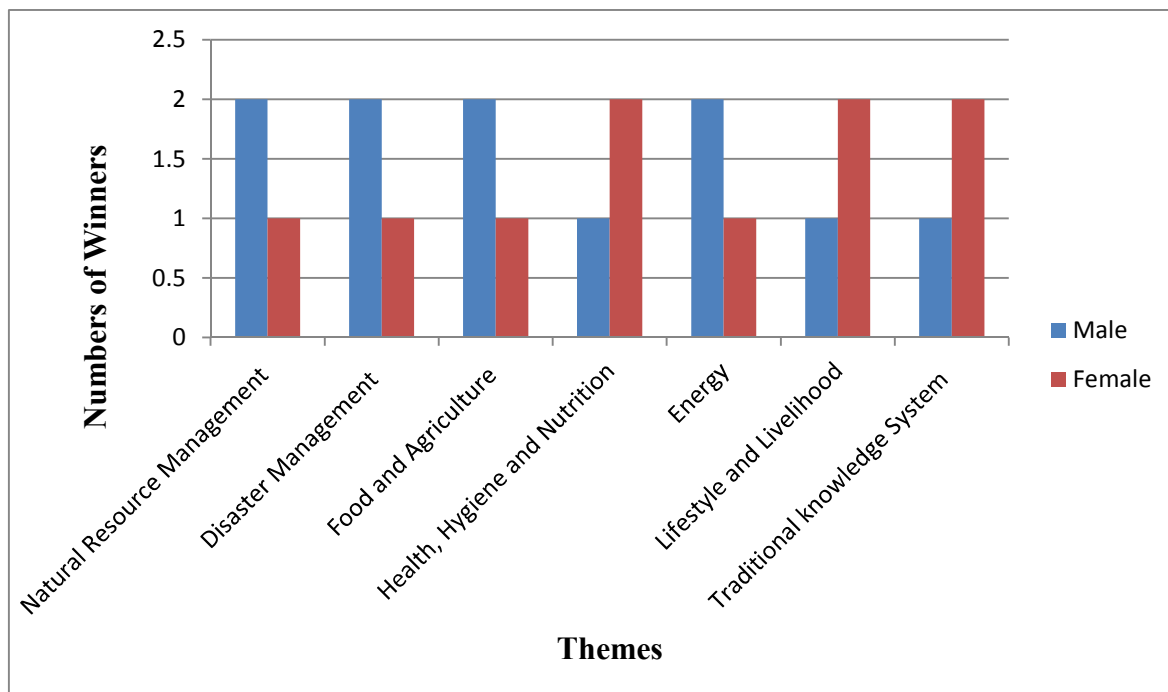


Figure – 3 Winning Contestant

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