Science Communication in Indian Languages
by
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Introduction

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Science Communication

Davis (2010)- Science communication/Science popularisation entails taking science, its discoveries to lay public who are non-scientists.

Trench (2008)- not 'deficit model', with a one-way communication by experts to an audience who are lacking in this knowledge, but instead aims to create a *dialogue* so that science becomes *meaningful* to the intended audience.
Linguistically Diverse India

Languages of India

- Hindi
- Urdu
- Sanskrit
- Tamil
- Malayalam
- Telugu
- Kannada
- Marathi
- Gujarati
- Punjabi
- Rajasthani
- Maithili
- Nepali
- Assamese
- Bodo
- Odia
- Bengali
- Assamese
- Manipuri
- Nepali
- Konkani
- Khasi
- Dogri
- Gujarati
- Marathi
- Hindi

Design: Radhika Naik
India Night 2006
Oregon State
US

Source: http://www.radhika-naik.info/sitebuildercontent/sitebuilderfiles/languages.jpg
Necessity for Science Communication in Indian Languages

In order to make India more scientifically advanced and embed scientific temper in people, science communication must reach to the audience.

So, there is an urgent need for the development of scientific materials in Indian languages to reach every corner of our country.
HBCSE's Aims & Efforts

To improve science and mathematics education in the country from primary school to undergraduate level.

Efforts are made in writing books, booklets, etc. in regional languages and also translations of them from English to local languages.
SMALL SCIENCE

Teacher's Book for Classes I & II
Teacher's Book TextBook and WorkBook for Classes III, IV & V

Source: http://coglab.hbcse.tifr.res.in
Small Science

*Small Science* is a series of innovative primary science books that aim to build constructive teaching and learning in schools.

Designed for experiencing a *meaningful* and *joyful learning*.

- Textbooks, workbooks and handbooks are published for the conceptual guidance.
- Small Science series is available in *English, Hindi, Marathi and Urdu* (for grades 1 to 5).
To reach out to people across the country a website for small science has been developed.

It explores need for using small science for both students and teachers. Provides textbooks, workbooks & handbooks online. Many activities conducted for and by students, teachers and parents are uploaded on the website.
Books

Downloadable books

http://coglab.hbcse.tifr.res.in/
Science Popularisation in Marathi

Initially at HBCSE popularisation of science was extensively done in Marathi, the local language of Maharashtra.

In fact there are over 270 Marathi language publications of HBCSE, such as books, booklets, articles. The books are curricular and co-curricular books in Marathi.
Curricular and co-curricular books
Marathi Kumar Vishwakosh

*Junior encyclopedia* in Marathi containing the terminologies used in the fields of Biology and Environment.

Source: [http://www.vishwakosh.org.in/kumarm/](http://www.vishwakosh.org.in/kumarm/)
The Centre has an exhibition “Gender and Science” which includes works of women scientists in the field of science and technology.
Gender and Science Booklet

Exhibition booklet-
“Gender and Science” is based on the historical disjunction between women, science & technology, and the notable women scientists who challenged it.

This exhibition booklet is also published in Marathi as “Stree Purush aani Vigyan”.
OER4S

Open Educational Resource for Schools (OER4S) is an innovative project undertaken jointly by Homi Bhabha Centre for Science Education (HBCSE), Maharashtra Knowledge Corporation Limited (MKCL) and Indian Consortium for Educational Transformation (I-CONSENT).
Welcome

Welcome to the website of Open Educational Resources for Schools (OER4S). It is an innovative project undertaken jointly by Homi Bhabha Centre for Science Education (HBCSE), TIFR, Mumbai, Maharashtra Knowledge Corporation Limited (MKCL) and Indian Consortium for Educational Transformation (I-CONSENT). The project is financially supported by the Rajiv Gandhi Science and Technology Commission (RGSTC), Government of Maharashtra.

OER4S aims at bringing out educational resources to improve school education and to make it enjoyable. This website provides educational material relevant for students, teachers and parents. It is hoped that the use of these resources would enable to improve the quality of teaching learning process in the schools of Maharashtra.

Aims & Objectives of OER4S

→ to develop educational web resources for improving school education.

→ to provide web resources in different formats (stories, cartoons, question-answer, skits) and make it enjoyable to learn.

→ Information, Activity, Creation and Interaction are used as the four-fold framework for developing the electronic material.
Open Educational Resources are accessible freely by all (students, teachers and parents).

- Stakeholders can choose whatever they find useful for them.

- Feedback from all users helps in the future improvement and development of web materials.
Science Popularization in Hindi

- Popularising in Hindi is done by writing books, booklets, etc. in Hindi and translating school curricular books and other books in Hindi.
Curricular Books in Hindi

Source:- http://ehindi.hbcse.tifr.res.in/books
Science: A Human Saga Exhibition

HBCSE has developed an illustrated exhibition on the history of science — “Science — A Human Saga”. The exhibition captures the origins of science, its history, its development up to the modern period.
The major themes of the exhibition are —

- Great Leaps in Early Period;
- Science in Ancient Greece, Ancient China, Ancient India, West Asia;
- The Scientific Revolution; Science in the 18th, 19th centuries;
- Social Sciences and Modern Science.

Exhibition “Science: A Human Saga” displayed at the ground floor foyer of HBCSE
Science: A Human Saga Booklet
An exhibition booklet is also available in Hindi
“Vigyan: Maanav Kii Yashogatha”
e-hindi

→ HBCSE has an innovative website e-hindi that provides scientific materials in Hindi.

→ Links such as e-lectures, e-books, e-glossaries, e-magazines, e-articles and e-biographies, e-questionnaires are available.

→ Videos of various invited talks are uploaded on e-hindi website.
Hindi Workshops

- HBCSE has organised three national workshops in 2008, 2010 and 2012 at Allahabad for science popularisation and development of educational e-materials in Hindi. All powerpoint presentations and talks were video-recorded, digitized, edited and made available on the website as e-lectures.
National Science Day

To popularise science among lay public, HBCSE celebrates *National Science Day* every year. Workshops, lectures and demonstrations are organised for students, teachers and parents. These are on:

Science and Mathematics topics; Informative softwares; Films and posters on various topics in Science and mathematics are also presented.
Workshops in different Languages

- Hindi Workshops for development of e-materials.
- Workshops in Marathi for developing digital resources.
- Teacher Professional Development (TPD) workshops conducted in English, Hindi and Bengali. [http://teacher-ed.hbcse.tifr.res.in/](http://teacher-ed.hbcse.tifr.res.in/)

HBCSE is the *study centre* for Yashwantrao Chavan Maharashtra Open University (YCMOU) for M.A., M.Com and M.Sc. Workshops conducted in Marathi for the students. YCMOU Marathi books co-edited by HBCSE members.
Appreciation

• The efforts of HBCSE in developing science materials in regional languages are appreciated by many institutions & organisations involved in the field of science communication, as also the State.

• Maharashtra Government has awarded many of HBCSE books for their literary worth. Many other institutions have awarded and commended the works of HBCSE.
Constraints

• Limited expertise in regional languages.

• Few organisations come forward for translating materials in regional languages.

• The extent of distribution of published materials to the intended audience is unclear.

• Rural population has limited opportunity for website, surfing and online learning.

• Updated web resources are required. User-friendly website must be developed.

• Feedback by the users must be taken to improve the effectiveness of the materials.
THANK YOU