

Impact of Vernacular Language in Effective Science Communication

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Abstract: A randomized study was conducted on a group of 100 students of age group 14-17 years. Two groups of 50 students each were formed. The control group was taught about space gallery using English language and the experimental group using vernacular language (Punjabi). The results showed that in experimental group out of 50 about 31 students got more than 60% of marks. While, in control group only 2 students out of 50 got more than 60% of marks. The results implicated that understanding scientific principles in vernacular language gave remarkable results in rural students by avoiding language constraint.

Keywords: Science communication, Vernacular language, Scientific principles

1. Introduction

We all are reliant on science for key decisions in our lives. All that makes our life superior than those who came earlier than us is due to science. Science is beyond the restraints of any language. Studying at advanced level required a set of talents that includes aptitude, intelligence, logical reasoning and aptitude towards learning. These qualities are not slave to any specific language. Awareness at grass root level is always advantageous. Effective science communication is helpful to understand difficult scientific principles in lay man language. Albert Einstein the greatest scientist of the 20th century said that the majority of the original ideas of science are basically simple, and may, as a rule, be expressed in a language understandable to everyone. Ex-President of India and eminent scientist Dr. A.P.J. Abdul kalam said “in a world dominated by science and technology, popularization through science communication is of extreme importance particularly for India where a huge population needs to be told about the influence of science and technology in their daily lives”. Our country has a rich scientific inheritance. Significant scientific researches in the field of mathematics, astronomy, material sciences and medicine have been carried out in India. Numerous students in our country who study in rural schools learn all subjects including science in vernacular languages. There is a huge gap between the common man knowledge and scientific knowledge. Genuine efforts are required to overpass this gap. It is obligatory to communicate science to this rural section in vernacular languages for its deeper penetration and admiration in the society. Language is a medium for creating knowledge and expressing thought. Knowledge is gained through scientific discoveries and that leads to collective change through its dissemination. Language can act both as an opportunity as well as obstruction in the process of knowledge generation.

2. Necessity for Science Communication in Vernacular Languages

In a country where the majority of the population still resides in rural areas and haven't been exposed by the wonders of science and technology. Further, this population

cannot understand other languages well. It is therefore, significant to communicate science to the general people in vernacular language for its farther and deeper penetration and admiration in the society. In order to make India more scientifically advanced and inculcate scientific temper among people, science communication must reach to the masses. There is an imperative need for the expansion of scientific materials in Indian Vernacular languages to reach all corners of our country. Emergent efforts are required to generate resource material in vernacular languages. The vernacular language is the first language acquired. Thus, it is fundamentally the best language known. This is linked with the biased assessment of the individual with respect to the languages he knows (Chakrabarti and Paul, 2008). The naturally attained language is established through interface with the adjoining environment, without educational interference. Expertise in the language is necessary for more learning, as it is considered that the vernacular language is the basis of thought. Vernacular language is psychologically significant to students, particularly children. It helps expand perspective as language and thought are connected and it is not possible to think without knowing language (Chopra and Jeffrey, 2005). The usage of vernacular language as teaching medium improves cognitive talent as it is easier for a child to understand a lesson in its vernacular language. This leads to faster learning. It has been found through research that shifting the learning medium from vernacular language to another language makes students anxious and leads to develop low confidence. Students stop loving school, education and teachers (Coleman, 1982).

Pushpa Gujral Science City (PGSC) is a dedicated body that cultivates an interest in science through open-ended exploration away from text books and black boards, with a scientific approach to problem solving. It has something for everyone, regardless of age, education, profession or social strata and is intended to make science accessible to people who are not part of the formal education system. It showcase contemporary and imaginative exhibits, hands-on experiences, working models, virtual reality, activity corners and live demonstrations to provide an understanding of science and technology to the common man. With this objective, PGSC was opened to the public on March 19,

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2005 for dissemination of science in the northern part of the country. It is a joint project of Govt. of India and Punjab Govt. The centre covers an area of 72 acres of land. It is a unique facility in Northern India with a footfall of 3.5 lac visitors per annum which offers science education for all sections of society across all age groups. The multifarious programs organized by the Science City to sensitize the general masses and young population of the country on important issues and challenges relating to Science and Technology have become very popular. As a part of its activities, the Science City organizes regular extensive science education programmes, activities and competitions for the benefit of the common people and students in particular. It has indeed become a bridge between scientific community and the society. The students visiting Science City are explained about the working as well as given understanding of scientific principles behind the working of scientific exhibits. Since, Science City is visited both by rural as well as urban student groups, therefore, it has engaged Science Guides trained to impart knowledge to the visiting student groups in English and vernacular language. The current study, therefore, intends to assess the impact of language as a barrier in science communication amongst rural students.

3. Objectives

The objective of the study was to compare learning of the scientific principles using English language versus accessible vernacular language among the students visiting a Science Museum.

4. Methodology

A randomized experimental study was conducted on a group of 100 students of age group 14-17 years. They were randomly assigned to two different conditions. Two groups of 50 students were formed: control and experimental group. The control group of 50 students were taught space gallery using English language and the experimental group of 50 students was taught the same gallery with vernacular language (Punjabi). After instructions students were asked to complete a questionnaire on space gallery.

5. Observations and finding

The study has been made with a view to know the effectiveness of vernacular language (Punjabi) in understanding of scientific principles in comparison to English language among the rural students. The understanding of scientific principles in vernacular language gave remarkable results in rural students. The results showed that there was a significant difference in student's ability to answer questions correctly. The experimental group (vernacular language condition) answered questions correctly and significantly faster. Out of 50 about 31 students got more than 60% of marks in questionnaire. While, in control group only 2 students out of 50 got more than 60% of marks (Figure 1). For experimental group vernacular language was used to explain the scientific principles of the space gallery. The results implicated that understanding scientific principles in vernacular language gave remarkable results in experimental group.

6. Overview

The usage of mother tongue as teaching medium improves cognitive abilities as it is easier for a child to understand a lesson in its mother tongue. This leads to faster learning. From the present study it has been concluded that changing the learning medium from vernacular language to English language gave poor results. To flourish science in our country we must promote science at grass root levels in vernacular tongue.

7. Major Constraints

- Inadequate expertise in regional languages.
- Very few organizations come forward for translating materials in regional languages.
- Effective way of distribution of resource material to public is unclear.
- Population living in rural areas has limited opportunity for online learning.
- Updated web resources are required.

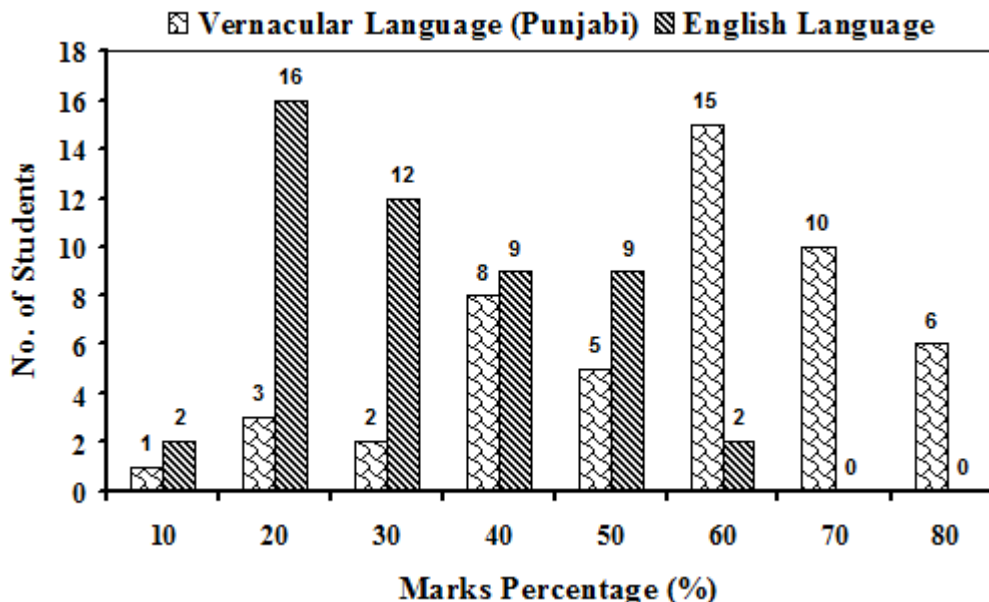


Figure 1: Comparative of percentage of marks obtained in questionnaire using Vernacular Language vs English Language

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