

Science text books in India – what children really want to read!

P. J. Lavakare

Balaram¹ has referred to the comment of Bruce Alberts² about ‘factoid-filled text books’ that prevent children from learning science. The situation in India is not very different as can be seen from the following experience the author has had while engaging school students of the 8th and 9th class in a relatively well endowed school in the capital city.

The author was invited by the National Book Trust (NBT) to write a popular science book for school children. Not quite sure what the children would like to read, he decided to take up a ‘survey’ in this school, by actually engaging the students of a joint class of 8th and 9th standard. The approach was to initiate an open discussion challenging the students to ask any questions, that they feel that study of science can answer. This was the beginning of the ‘ask club’ that these science classes were called. The school authorities were reluctant to mix two classes; and further they felt that focus should be on preparing the students for appearing for competitive examinations in the final year. Both these requests were not acceded to by the author. The school authorities even wondered whether any of the student would attend such classes. They proved to be wrong, as the students used to wait for their ‘Sir’ to visit them and, if absent, wanted to know why. Initially students restricted themselves to asking the standard questions that were in their science text books. The author ‘poked’ them with situations that were not in their text books. ‘Your electricity bill in the house is very high. How will you reduce it?’ Their immediate reaction was ‘this is not in our science text book’. But once challenged to seek the sources of power consumption in the house (fan, heater, air conditioner, etc.) and their relative usage, they quickly grasped the importance of ‘energy saving’ and wanted to learn the principles on which these power sources work and how they could optimize their use. No doubt the class meandered into understanding different laws of science which determine the main problem that they wanted to solve. These sessions then slowly turned into more complex and challenging questions like ‘do you think there is life in the universe, beyond the earth?’ The answers were not restricted to simply ‘yes’ or ‘no’, but they were expected to

reason out their answer with stating ‘why’? The debate naturally turned to the issue as to ‘why and how do humans and animals communicate with each other?’ This took us into the realm of discussions on smoke signals, the Morse code and to Marconi radio communication. One then introduced them to the giant radio telescope near Pune and to the NASA project of Search for Extra Terrestrial Intelligence (SETI). They would ask about astrology and the credibility of the horoscopes (a subject that cannot be discussed in Indian science text books) and why it gets mixed up with astronomy. The children loved to ‘learn’ through this kind of questioning. They enjoyed understanding the laws of physics, chemistry, biology and even the laws of probability, in a multidisciplinary way of learning – not compartmentalized in silos – while trying to answer their basic curiosity of finding out ‘if there is life in the universe’. They enjoyed these ‘ask club’ sessions and the divide between the class 8 and class 9 disappeared. They were learning as a group through interaction and by asking questions. There were no formal text books. The author was thrilled to see the excitement with which the students came to the class (‘club’). Many of them started surfing the net to find out answers to questions that used to bother them. After a few months of observing these students, the author understood what the children really wanted to ‘know’, what they might like to read and how they could be made curious to learn.

In the final session of the ask club, the author disclosed the reason why he had embarked on this ‘survey’ and shared his secret with the students. He then asked ‘What shall I write in my book so that you will read it?’ The answer was a collective and emphatic one: ‘Sir, write something that is not in our text books!’

The above story expresses the desire of the students on what they would really like to read in their text books. This has resulted in the author’s book titled *Science and You* (published by the National Book Trust, India, 2002, ISBN 978-81-237-3657-0). The book starts by asking the students to look around their environment and start finding answers to the questions that come to their mind as they see the world around them. The students were also keen to know what it means to

be doing science and to be a ‘scientist’ – the aura that still exists in the society. Perhaps they were already excited to take up science as a career. To excite them with the thoughts of a scientist, the author requested Jayant Narlikar to write a guest chapter in the book and titled it ‘Science and Me’. Narlikar ends his chapter by describing his passion for ‘teaching and research’ and why he chose the career of a scientist instead of joining the Indian Administrative Service – a choice that was very popular then. The student readers would understand the excitement of choosing science as a career.

It is indeed a great pleasure for the author to learn from the National Book Trust that this little book has been translated in a local language and is being reprinted often, with over 40,000 copies sold so far. This cannot match the number of copies of the science ‘text books’ being sold every year, but certainly tells us what the children like to read about science. They have learnt that science is not locked in their text books, but pervades in the outside world of nature. The text books are expected to help them look outside into this world and not restrict them to the pages of the text books.

Recalling Bruce Alberts’ words again ‘the factoid-filled text books... make science seem like gibberish – an unending list of dry meaningless names and relationships to be memorized’. Having said this, there still remains an enigma. If our students did not read (and memorize) their text books, how else would they be able to answer those set questions in their ‘rigid examinations’ to be able to get marks that will enable them to get the high ‘cut off’ marks needed to enter a college of their choice? For them, and for the standard teachers, all the science is still in their text books!

The editorial ‘Science in School and Colleges: Teach Less, Learn More’ should be the motto that will attract our students to science. *But* are the text book writers and examiners listening?

1. Balaram, P., *Curr. Sci.*, 2013, **104**, 7–8.
2. Alberts, B., *Science*, 2012, **338**, 1263.

P. J. Lavakare is in the 19 Khagol Society, 38/1, Panchavali, Pashan, Pune 411 008, India. e-mail: lavakare@vsnl.com