It's Question Time

Children Must Look for Answers

By J V NARLIKAR

CURIOSITY killed the cat. What killed curiosity? The answer is CAT, meaning conformism and teaching. I am talking of curiosity in the context of school education, of course.

In his autobiography, the famous astrophysicist Fred Hoyle recounts an episode from his primary school days. His school teacher had told the class that a certain type of flower has five petals. Young Fred was curious and wanted to check the facts by looking for those flowers. While most did have five petals he came across one that had six. He brought it to the attention of the teacher. Had there been only four petals, one could explain the fact by arguing that one had fallen off. But how do you explain the extra petal? Was the rule of five petals wrong, after all, he asked. The teacher was not used to being so questioned and responded by boxing the boy's ears. Fred, however, did not take it lying down. This is not the way of answering a legitimate question, he argued and managed to convince his mother that she should change his school.

Autographed Answers

So far as putting a lid on a child's curiosity is concerned, Indian schools have been no different. Children are encouraged to memorise the text as well as the answers to questions raised therein, regardless of whether they understood the subject matter or not. Their schools hardly provide suitable outlets to their spontaneous questions in case they didn't.

This fact was driven home to me in the following way. For years, I had been operating a scheme of encouraging students to ask questions. At the end of a public lecture there would be the inevitable autograph-seekers. Rather than give my autograph then and there, I would announce that one could get my autograph by sending a postcard with a question relating to what I had talked about, and that my answer would carry my signature. The system worked reasonably well for a while and was based on the premise that of those who rush in for an autograph of the speaker, usually only a small fraction are serious about the subject. So only those would filter through this scheme and take the trouble to write. I was only too happy to spend time replying to their questions as they represented a spontaneous outlet to human curiosity. One NGO in Mumbai subsequently published a booklet of these question-answers in Marathi, under the title *Science through postcards*.

However, we Indians are good at misusing well-intentioned programmers. My intention was to encourage spontaneity in asking questions. Some school teachers began to dictate questions to their class, which were to be sent to me by the students. Thus one week I would receive 50 postcards with identically phrased questions preceded by identically phrased requests for my autographed answers. All from the same class of the same school. Then there were instances of students sending in routine textbook questions which their teacher should have answered, but didn't, because the teacher said, "Since Dr Narlikar is answering these questions you better ask him rather than me". Reluctantly, therefore, I have now stopped that scheme.

Our school syllabi, teaching methods and examinations are, with a few exceptions, based on encouraging conformism and rote learning. Questions by students are discouraged for several reasons. The teacher does not have the confidence to answer the question. Or, the question, although a good one, may be irrelevant to the subject matter in the syllabus. Or, the class is too big for the teacher to be able to establish a one-to-one rapport with each and every pupil. And, of course, there is a shortage of time for questions as the syllabus is crammed with too much matter.

Curiosity Amiss

Whatever the reason, curiosity takes a backseat well behind memorisation of the subject matter. We may proudly assert that this is the way our ancestors acquired knowledge, which was orally learnt, memorised and then passed on to the next generation. This is the way the Vedas were handed down from generation to generation. It also tells us why we do not have the wealth of written knowledge of ancient origin as in the West or in China.

Rote learning, however, freezes the knowledge base in its tracks; there is no evolution, no addition. It discourages creativity and originality. I recall an incident when I was in the 10th standard. I had found on my own, a new and short proof of the Pythagoras theorem. I gave that proof in the half-yearly examination. My class teacher called me to say that although the proof was a good one and he was giving full marks for it, he wished to caution me against giving it in the Board examination; for the examiner there may not appreciate it. I still recall his words: "If the examiner sees an unfamiliar diagram, he will give you zero for it, without bothering to read the proof. The reason? He has very little time to look at the answer-books."

This time-crunch is often held as the prime culprit. With syllabi overloaded with subject matter, harassed teachers addressing huge classes and many outside interruptions like bandhs and holidays, who has time to answer pupils' questions or to encourage a new line of thinking? It will take a long time for our law-makers to get their priorities right and encourage more schools, smaller classes and syllabi that emphasise comprehension rather than an excess of information.

Search and Find

Nevertheless, given the fact that teachers will have no time in the foreseeable future, can we encourage students to be more self-reliant? Can they find answers to their questions themselves? Just as finding a hidden person in a hide and seek game brings pleasure, so can searching and finding the answer to your question. If the school has databases like encyclopaedias, Who's Whos, and books specially written with answers to frequently asked questions, students may browse and locate the answers themselves. With the Internet growing in its coverage and access to it becoming cheaper, the networked PC can be an invaluable tool in this quest. Even with six decades behind me, I experience a childlike thrill whenever my search leads to a website with the much sought for information.

But this will work, provided the school authorities create a time-slot for such a search-and-find exercise, just as they create a time slot for games and PT. During this period, the students are let loose in the library and information centre of the school to find for themselves the answers to their questions. For, they do still have questions despite our educational system...as I have found whenever I engage them in a question-answer logue. I have learnt a lot myself by doing so.

