

# HOW THE TEACHERS IN ASHRAM SCHOOLS PERCEIVE SCIENCE CURRICULUM AT THE UPPER PRIMARY STAGE

**S.C. Agarkar**  
**N.D. Deshmukh**

Homi Bhabha Centre for Science Education  
Tata Institute of Fundamental Research  
Mumbai

The tribal population in the state of Maharashtra is about 10 per cent of the total population. They are clustered in three traditional regions: Sahyadri, Satpura and Gondvan. Tribal Development Department of the Government of Maharashtra has established adequate number of Ashram schools to facilitate the education of tribal children in each of these regions. After the initial reluctance from tribal communities the enrolment in these schools has improved considerably. Nevertheless, because of lack of tradition of education in their homes, learning of formal school subjects remains a Herculean task for the students. Teachers are expected to make an extra effort to facilitate learning of technical subjects like science and mathematics. In order that they do their job well, they need to have proper perception of the subject as well as of the difficulties faced by the students. What is the perception of teachers related to the aims and objectives of science curriculum? What are the learning difficulties of students and how to facilitate better concept formation in science? What modifications the present evaluation methods demand to assess the knowledge and

skills acquired by the students? These are crucial questions and demand for critical exploration.

As a part of its manifold activities the Homi Bhabha Centre for Science Education (HBCSE) conducts in-service training of science and mathematics teachers. Because of its interest in the education of socially disadvantaged students, HBCSE has been interacting with Ashram school system for about seven years. It had arranged training courses for teachers teaching science and mathematics to Grades IX and X in Post-basic Ashram schools. While interacting with students at secondary level it was observed that many of them had poor initial preparation. This observation brought out the need to improve teaching at the upper primary stage (Classes VI to VIII). Accordingly, in-service training programmes for the teachers' teaching in upper primary classes have been initiated for the academic year 2002-03. In order to assess the needs of practising teachers, an attempt was made to understand their perception about the curriculum, areas of difficulty, ways and means to overcome the difficulties, suitability of evolution methods, etc. This paper describes the design of

the study, data collection, their analysis and implications.

## Designing a Questionnaire and Data Collection

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The researchers had an opportunity to interact with about 60 teachers dealing with students at the upper primary classes during a training course arranged for Ashram school teachers. This opportunity was used to identify crucial issues related to the teaching of science in their schools by forming six groups from among the participants. The leader of the each group was expected to present the summary of the deliberations. The presentations brought out the urgency to tackle issues related to the suitability of school curriculum, teacher pupil interaction, remedial teaching for tribal children, etc. Based on these inputs, a questionnaire was framed to get the opinions of practising teachers on teaching objectives, students' difficulties, validity of evaluation techniques, etc. It had following seven questions:

1. What do you think are the aims and objectives of teaching science at upper primary stage?
2. Which concepts do the students in your classrooms find difficult?
3. In your opinion what are the causes of the difficulty?
4. What do you do to overcome these problems?
5. What is your opinion about the present method of evaluation used to assess the students' understanding?
6. What modifications do you suggest in the evaluation procedure?
7. Taking into account the needs of the country and the requirements of tribal population what changes do you recommend in the school science curriculum?

After each question, enough blank space was provided for teachers to express their opinions in detail. They were encouraged to use additional sheet if required. The sample for the study consisted of 57 teachers who participated in yet another training camp of HBCSE. They were from 57 different schools in Thane, Pune and Raigad districts of the state of Maharashtra. The students to whom they cater to, come from communities living in the Sahyadri ranges of the state. This region inhabits the communities like Warli, Katkari, Kokna, Mahadev Koli, Malhar Koli, Dhor Koli, Thakar, etc. All these castes are categorised as the Scheduled Tribes (S.T.) and are given facilities as per the norms of the State and Central Government.

Traditionally, in the state of Maharashtra, Classes V to VII are considered to be the part of upper primary stage and Class VIII is attached to secondary schools. The basic Ashram schools with upper primary classes terminate at Class VII. The sample of teachers included in the study, therefore, consisted of teachers teaching Classes V to VII. They had Higher Secondary School Certificate (H.S.S.C) along with a Diploma in Education (D.Ed.). Most of the teachers were new to the profession with 1-5 years of teaching experience. Of the 57 teachers who filled the questionnaire, 39 were males and 18 were females. Since teachers are expected to live within

the campus of the schools, female teachers are usually reluctant to accept the job in Ashram schools. However, with special drive to get female teachers at the primary level, some of the Ashram schools could appoint good number of them.

## Data Analyses and Discussion

All the seven questions included in the questionnaire were analysed separately. The salient findings of the analyses are presented in this section.

### Responses to Question 1

Teachers were expected to list the aims of science education they considered important at the upper primary stage. It has been found that teachers usually express more than one aim. The analysis of the data is shown in Table I. From the table it can be seen that a large number of teachers consider developing scientific temper as the most important objective of science teaching. Attempts were made during the course to explore if the teachers really understood the meaning of this phrase. Surprisingly, only a few had a clear understanding of what the phrase really means and what is expected when aims at developing “scientific temper”.

**Table 1**  
**Aims of Science Education at Upper Primary Stage**

Aims	Number of teachers	Percentage
Development scientific temper among the students	36	63.15
Understanding incidences occurring in the vicinity	30	52.62

Creating interest towards science	26	45.61
Brining out social development	23	40.35
Development science related competencies	21	36.84
Preparing students to deal with future problems	15	26.31
Explanation of some simple concepts in science	12	21.05
Developing experiment skills	11	19.29

The second aim referred to by a majority of teachers is to help pupils understand the incidences and happenings in their vicinity. Teachers think that this aim is important for the tribal students as many of them are under the influence of superstitions prevailing in their society. The lack of understanding of cause-effect relationship usually forces people to believe that there is some mysterious power behind it. Most of the teachers displayed the concern of the removal of wrong beliefs possessed by the students. They felt that teaching of science would enable them to think rationally and explore cause-effect relationship behind everyday occurrences.

A little less than half of the teachers (26) believe that the aim of the teaching science at the upper primary stage is to create interest among the students towards science. It is hoped that positive attitude towards science might motivate them to undertake higher students in science and to pursue career related to science. Teachers were aware of the need for adequate number of scientists and technocrats for the country. They were also concerned that the tribal communities are grossly under-represented in these

professions. They were, however, optimistic that with special efforts this picture can be changed.

Social upliftment was considered to be an important aim of science education by 23 teachers. They were more concerned with the improvement of the status of tribal communities. They believed that learning of science would bring about social development by enabling these communities to adopt hygienic practices, by making use of resources properly and by adopting appropriate methods of cultivation. A small number of teacher view teaching of science as a vehicle to bring out the relation between science and social development. Although teachers look at the science curriculum as a means of achieving these objectives, many of them have a feeling that the present content is inadequate to fulfil these demands.

In the recent past, focus of teaching science has shifted from information sharing to developing science related competencies. A programme on competence-based teaching has already been launched in the country for the primary grades. Some teachers (1) are influenced by this thinking and envisage development of these competencies as the main aim of teaching science even at the upper primary stage. The competencies involved are the development of curiosity, skill of observations, ability to draw inference, etc.

Preparing children for their future is considered an aim of science education by 15 teachers. The term 'future' has two connotations: preparing for further studies, and preparing for good citizenship. Learning of science at the upper primary stage is expected to prepare student to deal with high school science without any difficulty. In addition, learning of science is

expected to prepare them to face challenges in the future. Further explorations, however, showed that teachers' understanding of 'good citizen' was unclear.

A dozen of teachers opine that teaching of scientific concepts discussed in the respective textbooks is the necessary task. Teachers should ensure that students have a proper concept formation. Good understanding of textual material would enable them to score better in the examinations. This success is expected to motivate children to read science based material from newspapers and magazines and get enriched.

A small number of teachers (11) view developing experimental skills as an important aim of science teaching. Students with rural background are usually well prepared to work with hands. However, when it comes to handling laboratory instruments these students commit mistakes. These teachers opined that science teaching should aim at providing adequate practice to enable the students to acquire necessary laboratory skills. Acquisition of the skills, they believed, would hopefully develop confidence among the students.

### **Responses to Questions 2, 3 and 4**

Questions 2, 3 and 4 focused on students' difficulties, their causes and possible remedial measures. Because they were closely related to each other, the analysis of responses to all the three questions is presented in one section. As a response to question 2, teachers were expected to list the concepts from the syllabus of Grades V, VI and VII that are found difficult by a majority of students in the classroom. Since most of the

teachers had the experience of teaching science to all these classes or to at least one of these classes, they could supply a considerably long list of concept. Looking at the list, one finds that they can be classified under three categories:

1. *Concepts involving symbols/formulae:* Teachers reported that the concepts involving symbols and formulae are found difficult by a majority of students. For example, when the concept of density is described as ratio between mass and volume ( $m/v$ ) students are unable to know what it means. It might be because students are not familiar with the symbolic language in science.
2. *Concepts that cannot be shown:* In the opinion of teachers the concepts are found difficult if they cannot be shown or demonstrated by an activity/experiment. Examples in this category are: photosynthesis, atomicity, gravitation, digestion, etc. Lack of direct experience adds to the abstract nature of the concept.
3. *Concepts devoid of daily relationships:* If the concept has no relation to the daily lives of students, they find it difficult to understand. Concepts in this category are: catalysis, tides, function of a cell, etc. Since they find no relevance they are not motivated to learn.

Why do students find it difficult to deal with above types of concepts? Question 3 sought for teachers' views on this issue. In addition to listing difficulties associated with specific type of concepts, teachers attempted to mention general difficulties faced by the students in science education. The analysis of the data, thus obtained, is presented in Table 2.

The analysis showed that teachers find unfamiliar language as the single most important area of

difficulty. It would be proper to discuss what sort of linguistic difficulties students encounter. Textbook of science makes use of technical terms derived usually from Sanskrit. Students are unable to decode the meanings of these terms (Agarkar, 1985). Although science textbook is written in Marathi (the official language of the state of Maharashtra) the nature of language spoken by the tribal communities is often different from that used in school textbooks. Teachers too, are tempted to use textual language in classroom discourse making teacher-pupil interaction non-productive, as the students prefer to keep silent when they find the language unpalatable to them.

The second culprit in the eyes of teachers is the poor initial preparation on the part of students. Teachers felt that because of poor learning skills, students were unable to handle involved concepts. On the affective side, teachers felt that students were ill motivated to struggle until mastery in learning was achieved. Thus, inadequate cognitive entry behaviours as well as improper affective entry characteristics were responsible for poor concept formation among the students.

In the views of an appreciable number of teachers (19) it is the lack of facilities in schools that is to be blamed. The laboratory facilities in schools are so meagre that activity based teaching can hardly be undertaken. Apart from teaching school subjects, the Ashram schools have the responsibility of providing education opportunities. In this regard the teachers felt that the situation is far from satisfactory. Since the schools are located in remote areas, opportunities like public lectures and public library are almost non-existent in their vicinity. Electronic media like radio and television

have made a great headway in recent years. These facilities are, however, not available to students. Lack of proper educational opportunities, in the eyes of teachers, hinders the fixation of knowledge gained in school classrooms.

Although most of the teachers have blamed school system, a small number (11) hold teachers responsible for the lack of students' understanding. Bad teaching, in their opinion is the main cause of poor learning. They felt that many teachers do not have clear understanding of the aims and objectives of science curriculum. Some of them were themselves poor in content knowledge with large number of unsolved questions and doubts in their minds. Since there is no mechanism where teachers can receive guidance, they continue to teach badly without ensuring the comprehension on the part of the learners.

**Table 2**  
**Causes of Difficulty**

Nature of difficulty	Number of teachers	Percentage
Linguistic difficulties	25	43.85
Poor initial preparation	22	38.59
Lack of facilities in schools	19	33.33
Lack of educational opportunities	11	19.29
Improper teaching method	11	19.29
Non-conducive home environment	10	17.54
Conceptual difficulties	07	12.28

Non-conducive home environment of the students is said to be the cause of poor learning by 10 teachers. In their opinion, the home

environment, being deprived in a variety of ways, does not provide any motivation to the students to learn science seriously. The educational status of members in the society is such that it fails to provide relevant academic inputs or to satisfy the curiosity aroused in the minds of children.

Are the concepts within reach of students? A few teachers (7) feel that the difficulty level of some of the concepts is so high that students are not prepared to cope with them. Some of these teachers even went further to state that students from deprived homes have a lower I.Q., and hence are incapable of dealing with involved abstract concepts. These teachers need to re-look at their belief system.

Related to various educational problems, question 4 attempted to seek information from teachers about special efforts that they make to help children learn difficult concepts. Barring a few who left the question blank, a majority had mentioned what they do within and outside classrooms. The nature of efforts made by teachers can be conveniently categorised as shown in Table 3.

The large number of efforts are concerned with activities/experiments. In the opinion of teachers it is the abstractness of the concept that makes it difficult to understand. This abstractness can be removed by performing suitable activities. Even though many (41) have said that they resort to laboratory programme, it must be noted that it is mostly of demonstration type. Students are hardly given an opportunity for hands-on activities (Agarkar, et al. 1997).

Since language difficulty was considered to be the main hurdle in learning science, teachers (29)

seem to take care of this difficulty very seriously. On one hand, they try to familiarise students with the formal language by giving reading assignments to the students. To achieve a little fun in this assignment, some teachers even arrange blind games of picking up sheets to decide who should read. On the other hand, teachers attempt to simplify the language of the textbook by providing meanings of technical terms and using colloquial language in the classroom.

**Table 3**  
**Efforts by Teachers**

Nature of efforts	Number of teachers	Percentage
Emphasis on experimentation	41	71.92
Language simplification	29	50.87
Examples and anecdotes	14	24.56
Enhancing pupil participation	13	22.80
Outdoor activities	09	15.78
Question-answer and revision	07	12.28

A substantial number of teachers (14) stated that they resort to giving examples and anecdotes to clarify science concepts. Science textbooks attempt to provide some relevant examples and anecdotes. However, since they are prepared centrally for the use by schools in the entire state, examples cited in the book are seldom relevant to the lives of students. In such a situation, teachers have to look for life-related examples. This is certainly a challenging task that is undertaken by only a small number of teachers.

A group of teacher (13) struggled to enhance pupils' participation in the classroom. Due to fear of committing mistakes, students prefer to remain passive in the classroom. Many of them are afraid of the punishment that the teacher might give if they do something wrong. It is a matter of concern and skill to make students actively participate in the classroom deliberations. It is heartening to note that a small number of teacher strive to achieve this goal.

A few teachers (9) have said that they focus on arranging outdoor activities. Because of the scenic location of the schools, students have a good scope for nature study. Some of the teachers make use of this opportunity by arranging outdoor activities. In their opinions, outdoor exposure is as important as classroom interaction as it provides opportunities for experiential learning among the students. By some (7), however, dealing with students' questions sympathetically is seen as a solution to overcome students' problems. Since the time available in the classroom is not enough to deal with students' questions, these teachers usually arrange separate question-answer sessions during the free time of the students.

### Responses to Questions 5 and 6

These questions were framed to get teachers' opinion about the present mode of evaluation and to seek their suggestions for modifications. Nine teachers did not attempt to respond to these questions. Of the remaining, roughly half of the teachers felt that the present method of evaluation is proper while the other half opined that it is grossly inadequate. It would be informative to inquire why these teachers feel the way they do.

Let us look at the arguments made by the teachers who felt that the present mode of evolution is appropriate. Some of the reasons given by them are as follows:

1. It helps us to discriminate who have acquired concepts and who have not.
2. It enables us to understand the lacunae in the conceptual understanding of the students so that the difficult portion can be revised.
3. It provides an opportunity to the students for written communications and facilitates teachers to know who can express their knowledge properly in the written mode.
4. Since students are expected to remember information for examinations, it helps to develop the skill of memorisation.
5. Examinations arranged at regular intervals of time prompt the students to revise the matter and keep themselves up-to-date.

Why do many teachers think that the present mode of evaluation is not proper? In their opinions it has the following drawbacks:

1. It focuses only on the written mode of communication. Those who are unable to express properly in written mode are at loss.
2. It encourages mugging up of the information without understanding. Good score in the examinations is often wrongly equated with good understanding of the subject.
3. It does not test the skills like keen observation, handling of instruments, ability to draw inference from the data, ability to use information in daily life, etc.
4. It puts undue emphasis on objective testing and hence students usually avoid going deep into the matter.

5. The question papers are usually same for urban as well as for rural children. Rural children are at loss as they have different domain of experience and different level of linguistic competence.

Teachers were asked to make suggestions for the improvement of the present mode of evaluation. Their responses belonged to three different categories. The first category of teachers (19) comprised those who stated that present mode of evaluation is appropriate and needs no modification. The second category comprised those who felt that the evaluation method is generally acceptable but desires some modifications (06). The last category of teachers (23) consisted of those who felt that the present method is grossly inadequate and needs drastic changes. Suggestions made by second and third categories of teachers can be classified as shown in Table 4.

**Table 4**  
**Suggestions for Improvement in Mode of Evaluation**

Category of suggestions	Number of teachers	Percentage
Within class evaluation	16	33.33
Use of experiments/ activities	15	31.25
Diagnostic testing	14	29.16
Based on experiences	09	18.75
Style of questioning	03	06.25
Testing of personality traits	03	06.25



A majority of teachers suggested that teacher-made test should be given importance. A little explanation is required to appreciate the concern expressed in this suggestion. In order to keep pace with other schools, the Tribal Development Department acquires and uses tests made by other educational institutions for the terminal examinations of Ashram schools. Teachers feel that those tests are framed taking urban middle class students into account. Some teachers (3) even felt that the language and the style of questions are unsuitable for the students coming from tribal homes. Due to the common mode of testing students, they felt that their students often performed at a lower level than they deserve. Hence, teachers advocated that testing should be entrusted to the teaching community of the Ashram-school system.

As mentioned above, many of the teachers (15) were worried that the school testing neglects evaluation of experimental skills at the upper primary level even though practical examinations are conducted at school leaving stage. In their opinion, due importance should be given to the laboratory programme both in teaching and in assessment. Activity based assessment would enable the teachers to not only assess students, laboratory skills but also to find out if students can make use of scientific knowledge in practical set up. Along with laboratory testing, a small number of teachers (3) even went further to suggest that personality traits should be assessed.

Appreciable number of teachers (14) suggested that diagnostic tests should be prepared and used frequently to assess the lacunae in pupils'

understanding. Such a test should be administered soon after the completion of the unit in the classroom. Ashram schools cater to a special group of students. Their home background and the nature of experiences are very much different from the other students. The testing that assumes a normal classroom interaction is not suitable to these students. Hence, teachers (9) suggested that the tests should be prepared taking into account the nature of experiences the students have.

### Responses to Question 7

Teachers were asked to offer suggestions of the modifications in science curriculum at upper primary stage taking into account the needs of the country and of the community the Ashram schools serve. Only a small number of teachers could make suggestions taking into account the needs of the country. All those suggestions refer only to the teaching of information technology. They were, however, not clear as to what extent it should be taught to the students. Many of the teachers felt that they have no authority and experience to think of national level policy. They (52) could, however, make suggestions taking into account the requirements of the students, as they have been interacting with them day in and day out. Some of the suggestions made by the teachers are mentioned in Table 5.

In the opinion of a large number of teachers, the textbook is the most important instructional material used in school teaching. The content and the style of textbook influence not only classroom interaction but also learning of the subject. They, therefore, recommended that the textbooks should be modified suitably to facilitate learning

**Table 5**

**Suggestions for Curriculum Modifications**

Nature of suggestions	Number of teachers	Percentage
Inclusion of content useful for social development	24	42.10
Style of presentation in the textbook	19	33.33
Bringing out relation to daily life	15	26.32
Opportunities to develop competence	06	10.52

of science among Ashram school students. The tribal communities are usually dependent on the forest products and agriculture for their livelihood. It should be useful if the science curriculum provides them guidelines to make use of their resources optimally. Lack of hygienic habits is another problem worth-reckoning. It would be desirable if science curriculum attempts to tackle this issue. Because of the isolation from the mainstream, many of the communities are still unfamiliar with the recent technological developments. An attempt to acquaint them with the modern technology and equipping them to use the technology for their benefits would also be welcome.

Apart from the choice of the content, the teachers (19) have specific suggestions for the style of textbook presentations. Firstly, all of them have recommended that it should be written in a simple language palatable to the students coming from tribal homes. Secondly, it should have adequate number of examples and anecdotes to

explain involved concepts. Thirdly, it should provide sufficient number of activities that can be easily performed in the schools. Lastly, it should suggest model questions to assess conceptual understanding of students.

In addition to charges in curriculum and textbook preparation, a substantial number of teachers have made suggestions for the change in teaching style. There were two specific suggestions made by the teachers. The first suggestion refers to relating science to daily lives of students. In order that students are motivated to learn the concepts in science, teachers suggested that the relevance of the content should be brought out clearly. To achieve this goal, teachers will have to make special efforts. Since the textbooks are written centrally, it will not be possible to refer to diverse experiences within the textbook itself. It would be the duty of a teacher to look for appropriate experiences and examples to illustrate or explain the concept at hand.

In the teaching of science, many teachers equate transfer of scientific information to the teaching of science. One of the main aims of teachings is the development of skills pertaining to scientific pursuit. Along with teaching of science, one needs to take into account teaching through science (Shayer and Adey, 1981). Some of the teachers have realised this need and hence suggested modification in the classroom interaction to put emphasis on skill development. In addition to providing opportunities in the classrooms, some teachers feel that deliberate efforts be made to provide out-of-classroom opportunities for learning and fixation of knowledge (Kawathekar and Agarkar, 2002).

## Conclusion and Implications

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The study referred to in the paper was conducted on a sample of teachers drawn from Ashram schools in Sahyadri ranges. There are a large number of such schools catering to rural population in the country. The study has raised issues related to curriculum, teacher preparation, assessment techniques, and school facilities, etc. All these issues are important as far as the teaching of science in Indian schools is concerned and need to be looked critically.

## Framing of School Curriculum

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Education is on the concurrent list of the State as well as of the Central Government. The main responsibility of framing curriculum falls on the central agency (National Council of Educational Research and Training). It usually makes available the framework of curriculum and sample textbooks for the consideration of the state governments. Some of the state governments accept the curriculum as it is, while some others adopt it to suit the needs of their population. The study brings out the fact that requirement of the tribal population are very much different from other population and this aspect must be taken into account while framing the curriculum. Rural people look at education with great aspirations to change their lifestyle. Some of them view education as a tool to remove superstitions; some view it as a means to provide bread and butter while some others look at it as a route to proper utilisation of resource. In the centralised mode of curriculum framing, all these aspects might not get reflected. These changes will have to be made at local level.

## Teacher Preparation

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In India, prospective teachers are expected to undergo training in education. At the upper primary level, teachers usually have Diploma in Education (D.Ed.). It provides general background for the teaching, taking into account the contemporary knowledge in educational psychology. It, however, does not prepare teachers to handle the special group of students like the one being considered in this paper. In the absence of understanding of the difficulties these students face, many teachers hurriedly conclude that the students have a lower Intelligence Quotient (I.Q.). As a result, these teachers are so pessimistic that they go to the extent of making statement – “No change will bring these students into the mainstream”. There is, therefore, an urgent need to change the attitude of teachers towards the educability of tribal students.

Moreover, there is always a change in the content of the subjects they are expected to teach. In case of science, the changes are prominent forcing teachers to deal with concept that they might have not studied during their school days. This brings out the urgent need for the in-service training of teachers. It has been found in many field programmes of the HBCSE that teachers demand for inputs in content as well as in pedagogy (Agarkar, *et.al.* 1997).

## Educational Opportunities for Students

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The school system referred to in this paper caters to a special group of communities that hardly provide suitable home background to undertake

academic activities. Schools are expected to provide opportunities to compensate for this deprivation. Fortunately, there is a scope for undertaking compensatory measures since teachers and pupils usually stay together even after regular school hours. Students have a considerable free time at their disposal to undertake developmental activities. Some of the activities that have been referred by the teachers are the organisation of the picnic and taking students to outdoor activities. There is tremendous scope to channelise peer interaction making the children to undertake academic activities within the schools or out of the schools (Agarkar, *et.al.* 2002).

### **Bridging Policy and Practice**

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One of the major recommendations of the Education Commission Report (1966) was to teach science on compulsory basis up to the school leaving stage. Following these recommendations, curriculum guidelines were prepared and textbooks were written for primary, upper primary as well as for secondary level classes in the decade of 1970. The curriculum was basically discipline based where attempt was made to teach concepts in physics, chemistry and biology. In order that the students can handle these disciplines at the secondary level, the upper primary syllabus was used as a preparatory stage. The New Education Policy (1986), however, brought out the need for the teaching of science

in an integrated fashion. Accordingly, new textbooks were developed highlighting the progress of science as a human endeavour for the pursuit of knowledge. As per the recent thinking (NCERT, 2000), science is to be coupled with technology as both of them usually go together. Efforts to bring out new set of textbooks based on this philosophy have been initiated by the National Council of Educational Research and Training (NCERT). Are the changes in policy transferred into practice? The study showed that many of the teachers do not have clear understanding of the aims and objectives of the changed science curriculum. In the absence of proper information, they continue to teach in their traditional way. Special efforts are required to ensure that policy gets implemented at the school level.

There is a standard mode of evaluation that is followed in the Indian school system. It is based mainly on communication. Pupils who have not developed adequate skills in written communication are often at disadvantages and perform at lower level than they deserve. This aspect is found prominent in case of technical subjects like science that make profuse use of technical jargon. What is required is to adapt different methods of evaluation. One suggestion pertained to oral testing and activity-based testing. These methods are seldom used in the testing at the upper primary level. Now is the time to review them to bring about improvement in the method of evaluation.

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