Voices of Teachers and Teacher Educators

ISSN 2455-1376

Volume VI Issue II February 2018

Voices of Teachers and Teacher Educators

February 2018

Volume VI Issue II

Published by:

National Council of Educational Research and Training (NCERT) on behalf of Ministry of Human Resource Development, Government of India, New Delhi.
Preparation of the publication at NIE (NCERT), New Delhi.

Cover Design & Layout Design: Mohd. Amir and Tarkeshwar Gupta

About the Journal

The journal 'Voices of Teachers and Teacher Educators', an initiative of the Ministry of Human Resource Development (MHRD), is now being co-ordinated by the NCERT. The Journal highlights the vital role of teacher education in India, as the country is poised to provide quality education to all its children, irrespective of gender, caste, creed, religion and geography. The National Curriculum Framework (NCF)-2005, the National Curriculum Framework for Teacher Eduation (NCFTE)-2009 and the Right of Children to Free and Compulsory Education Act (RTE)-2009 all reflect this commitment and underline the principles that make such an effort necessary and also spell out the strategies for it. The challenge is to augment the role of teachers in shaping the social transformation that India is witnessing, have a long lasting impact on the quality of education, and making education equitable. Teachers and all those concerned with education need to recognize that their ownership and voices are important and that they can and do learn not only from their own experiences but also from each other through collective reflection and analysis. The Journal attempts to lend voice to teachers, teacher educators, researchers, administrators and policy makers in varied institutions such as schools, Cluster Resource Centres (CRCs), Block Resource Centres (BRCs), District Institutes of Education and Training (DIETs), Institutes of Advanced Studies in Education (IASEs), Colleges of Teacher Education (CTEs), State Councils of Educational Research and Training (SCERTs), etc., and make their engagement visible in accomplishing extraordinarily complex and diverse tasks that they are expected to perform. Contributions to the Journal are welcome both in English and Hindi. Voices is an e-Journal and we hope to circulate it widely. We also look forward to suggestions and comments on the articles published. The views expressed and the information given are that of the authors and may not reflect the views of the NCERT.

Call for Contributions

This biannual publication is for all of us: teachers, teacher educators, administrators, researchers and policy makers. It seeks to provide a platform and build a network for our voices, ideas and reflections. To enable this journal to reflect all voices, we must contribute to it in as many ways as we can. We look forward to many contributing with different experiences, questions, suggestions, perspectives as well as critical comments on different aspects of teacher education and schooling. The contributions could be in the form of articles, reports, documents, pictures, cartoons or any other forms of presentation amenable for print. We also seek comments and reflections on the current issue to improve publication and make it a participative endeavour. We must together make this journal truly reflective of our voices. We look forward to receive your contributions for the next issue by 15th May 2018. We also look forward to comments and suggestions. The next issue would be focused on Teacher Education- Perspectives and Practices. The contributions can be sent to the following:

E-mail: voicesofeducators2016@gmail.com

Contributors

1. R. Ramanujam, Institute of Mathematical Science, Chennai
2. Hriday Kant Dewan, Azim Premji University, Bangalore
3. Kinnari Pandya, Azim Premji University, Bengaluru, Karnataka
4. Anamika, Department of Education, University of Delhi
5. Aerum Khan, Central Institute of Educational Technology, NCERT, New Delhi
6. Haneet Gandhi and Alprata Ahuja, Central Institute of Education (Faculty of Education), University of Delhi
7. Khan Waqaruzzaman, Lecturer Senior Secondary School, Chattisgarh
8. Tanya Saxena, Freelance Educator, Hydrabad, Telangana
9. Vinay K. Kantha, Ex Prof. Patna University
10. N. Upender Reddy, Consultant, Commissioner office Telangana, Hydrabad
11. Namita, Lecturer , Dr. B.R. Ambedkar University, Agra
12. Bhupender Singh (JPF) and Patanjali Mishra (Assitant Prof.), Vardhaman Mahavir Open university Kota
13. Pooja Singal, Department of Elementary Education, Lady Shri Ram College for Women, University of Delhi
14. Rajni Dwivedi, Freelance Educator, Tejpur, Guwahati
15. Anuradha Jain, Resource Person, Azimpremji foundation, Jaipur
16. Dhananjay Kumar, Resource Person, Azimpremji foundation, Dhantari, Uttrakhand
17. Jay Shankar Chaubey, Resource Person Azimpremji foundation, Udham Nagar
18. Beena Anil, Assitant Prof. SDNB, Varshnav College for women Chennai

CONTENTS

Editorial

This is the second issue of VOICES on curriculum. It continues the exposition and the analysis from the first issue. As we had seen from the variety of papers in the previous issue as well, the curriculum has off and on been on center stage for the last four decades and indeed the whole of last century. The contours, scope and dimensions have also waxed and waned in this period. The domains of curriculum and the onus of constructing it, implementing and maintaining it involve many players. As we all realise curriculum can not be easily defined or bounded. Often it is considered to be all encompassing including even the teacher development and the systemic concerns but sometimes it may just get limited to being identified as the syllabus or just the content list. Whichever way we may consider it a curriculum can be considered to be at the "heart" of a learning institution or a teaching-learning system. Clearly no school or university can exist without a curriculum and some in fact argue that even a teacher can not function without a curriculum in her mind. The lack of awareness of the curricular ideas that drive her/his decisions often makes the teacher follow the laid down curricular principles in patches or often even follow practices that are in conflict with them. The prevalent teaching-learning process thus becomes a curious mixture of stated principles and what may be euphemistically called 'folk' curricular and pedagogical understandings.

Considered in a broad manner a curriculum incorporates the planned interaction of pupils with instructional content, materials, resources, and processes for evaluating the attainment of educational objectives. Some curricular documents including the Indian National Curriculum Frameworks include even the preparation of teachers, their capacities, role and their governance as well as principles outlining the structure and nature of the system to transact education. The driving force of any curriculum document are the goals and expectations innate to it and explicit in it. In another words, the specified expectations and the ones that are expected in addition or sometime even in contradiction. All those who are a part of the education process and those that interact with it in some degree bring not only their own expectations but also their own interpretations of the expectations generally agreed to.

This continuously interactive nature implies an ever evolving, churning and transmuting kaleidoscopic set of expectations. Examining the earlier conversations on this makes obvious that curricular choices have always remained areas of deliberation and reflection and they would remain so in future too. Given all this the consequence is that any useful curricular document needs not only to be clear and aligned to the aspects that are relevant to us from all perspectives but also help those using it to be clear about the expectations from them, while recognising that the expectations would be influenced by a variety of factors and interest groups resulting in a continuous discourse on and around parts of them. The most difficult in this process is to keep the main ideas and purposes in focus as we build the rest of the edifice. The challenge being to have a consistent set and then to maintain the set as the rest of the structure and the super-structure gets built. It is around this that major parts of the curricular debates are concentrated.

These conversations have gone back and forth and on occasions have widened the scope of education and its purpose and sometimes narrowed it perhaps in an attempt to track the achievable outcomes. In the context of India we talk about

curriculum in the context of an effort at making education universal and in the context of a democratic country with a vision enshrined in the constitutional preamble. The factors that influence discussion on the purpose of education and the nature of participation in it on the one hand would flow from that and on the other from the economic and the global phenomena affecting lives including of economy and vocational opportunities. The discussion around objectives and purposes will always be contentious and convictions around the agreed objectives would determine the nature of its outreach and its quality. The deliberations around purposes and their conversion strategies have continued ever since the idea of education was conceived and so also in the context of India. What the NCF 2005 (National Curriculum Framework 2005 published by the NCERT), underlined was that purposes are central to any analysis or attempt to formulate pedagogy or technology.

NCF 2005 and the subsequent discourse also brought out that a proper formulation of educational processes towards access or quality can not be embedded in any method or in the developed materials. These essentially reside in the people engaged. Education being a human interactional process the most critical resources in education are the people and the way they are treated and the manner of building dialogues between them. A meaningful use of the curriculum would involve clarifying purposes, principles to be followed, strategy, materials creation and localisation, orientation of teachers, trial of the ideas and building of systems. These systems need to be such that they are systems of participation, have assessment processes that enable empathy laden feed back and encouragement process and made a continuous effort to build the self image of the teacher and have the society and the administration respect and value her as she is the central person carrying the responsibility of transacting. This apart from other things also requires the system to engage with the documents and the entire machinery to consciously and constructively interact with the educational process. This to have continuous conversations that are rooted and embedded in the document but with an open mind.

The requirement from the systems is that they must be simple, clear and easy to use, yet that can ensure the principles. Systems that would hold the program, mechanisms that would continue to build excitement and newness of learning and doing to enable teachers to renew themselves for each new student set. The articles in the previous as well as this issue combined have managed to touch only a few of the aspects but they have brought out some important questions and thoughts for deliberation. The curriculum also has structured in to it some parts of the expectation of the processes and the players. What it needs to however certainly do as the first step is to make a clear statement about the purpose.

It is important to also recognise that education is like nutrition and its need can not be met by palliatives or symptomatic treatments of short term injections of analgesics or supplements. It requires sustained effort to build the cognitive and reflective ambience required to nurture it. It requires from the system expressed through the teacher temperance and fortitude. It is the daily classroom that must show this in building exciting engagement. The article by Prof Ramanujam points to this in the context of technology and how it needs to be understood differently. It has to include all children and make them and the teacher feel at ease. It is important to have the idea (call it technology or innovation if you must) remain exciting for the teacher and each following set of students day after day.

The paper by Prof Ramanujam further presents the wide notion of Technology and its place in education. The paper argues that in the current scenario there is a techno-mania prevailing. This views ICT as the most critical tool and conflates in to ICT all aspects of Technology in our lives and in classrooms. It limits this role to merely of making classrooms fun and/or functioning such as to make teacher redundant. The role and importance thus given suggests that ICT can or should even replace teachers or any need for them to be capable requiring continuous capacity building and empowerment. He further points out that those who criticise ICT also discredit the entire gambit of technology with it. The paper suggests that all these ideas need to be applied with care and understanding. Ramanujam further addresses the meaning of Technology. He brings out the many different notions of how we need to interact with it and that there are alternative ways possible.

Ramanujam brings up the Nai Talim as a reference point to argue that technology is not merely equipment, or techniques or the benefits that accrue from it. He points out that as was argued by Nai Talim, students need to bridge the gap between head and hand. He emphasises the need for an alternative view to technology and its place in education. Together with the articles by Rajaram Sharma and Sreeranjini with Gurumurthy in the previous issue of VOICES we get a whole view of how the ICT and technology can be useful in classrooms and the pitfalls in the path.

The purpose of education and what we want to do in a democratic society is important to consider. Do we want to track memory and facts or skill to use algorithms and follow manual driven procedures and processes or we want to focus on developing belief and practice of equality, freedom and fraternity. Included in it is in the sense of feeling and allowing this to the other. This has lead to the development of rights of people as essential human rights. These are essential elements to be transacted in the schools. The paper by Anamika highlights the importance of having human rights and their being included in education. She presents conversations with some social science teachers and their views how to deal with human rights in the classrooms is an attempt to lay down both the need and manner of making this possible. She argues that the principles of Human Rights are human dignity, equality, non-discrimination, universality, interdependency, indivisibility, inalienability, and responsibilities. These can be universally considered as imperative for education and the features of the pedagogy for them would include belief in the efficacy of Human Rights and a critical perspective on social disparities, inequalities, and discrepancies. This spirit must be applied both inside and outside the classroom. It may be useful to extend the analysis to other subjects even though Anamika's paper suggests that Social sciences are the ideal ground for it.

Vinay Kanth and Upender Reddy write about the development of the State Curricular Frameworks for their respective states. They have emphasised the participation of people from different experience bases. The teachers, the educators from the DIET and SCERT, faculty members from Universities, Institutes of National repute working in this field. Both bring out the specific points that the state teams included in the curricular documents to keep in mind the context of the state. Kanth points out that the key point of the Bihar document is the recognition of the importance of the rural children and their education. The BCF has a special chapter on it. He also points out that while

the BCF does not have the 21 position papers like the NCF 2005 has, yet is is closely aligned to it. The departures are small and conscious. Reddy points out that the development of the State curricular framework was a direct development from the transformational effort that the then undivided State of Andhra Pradesh was attempting. The state efforts even prior to the NCF 2005 were aligned to the understanding behind it and the NCF led to the natural development of the state framework. The effort was followed by text book development and assessment processes that were aligned to the framework. He points put the specific points that emerged on the components included in this development effort and lays out the recommendations that he considers important for this process to the meaningful and the challenges that may lay dormant but are very much there.

The essence of these papers is that transformation is a long term process including many participants and views. All those included or indirectly associated with such efforts would like to be and must be involved in the dialogue around the process. It thus implies that any educative process and each process of intervening in big or small way in it has to be seen as a new one and should include new way of and new kind of action. The process would be a new experience. So innovation is not model to be transported like technology but an action experience to be lived through, an experience that renews and changes you as much as it changes others.

In the same vein the papers following on specific curricular ideas and experiences of constructing materials suggest that while, materials, ideas, technologies are useful sharable things but the heart of the matter is in the people using them. By now many materials and technologies are available and are being developed. The task is to have the purposes, principles and mechanisms that are aligned to the Constitutional commitment and to each other spelt out. The strategy can evolve and transform but the alignment to the above is critical for us to be transformative.

The papers on curriculum and text book development conceptualisation and their processes focus on many important aspects. The papers in this stream cover Science, Mathematics as also early childhood education and language. There are two papers on science curriculum, one by Hriday Kant Dewan and the other by Aerum Khan. These may be read in conjunction with the article by Amitabha Mukherjee in the previous issue on VOICES on curriculum. In his paper Dewan argues for not just an alternative process but an alternative notion of science education. He points out that the notion of a good science classroom is confused with doing some activity including experiments. This experiment of course can be just a demonstration or the task putting some equipment together and attempting to match the previously known observations. The idea of experiment as an exploration and attempt to discover something new is missed. He points out that while in the larger discourse methods and folk ideas take precedence there have been rigorous attempts to conceptualise and implement an alternative process of science-teaching.

For Dewan the essential features of the alternative attempt to formulate science education include the insistence that the child must learn the importance of conducting experiments, record as well as systematise observations, analyse them and compare different sets of observations so as to be able to generalise and articulate principles. Classrooms of science must build in her confidence for learning science imbued with the foundational structure of science rather than

to swamp them by temporary information. Dewan also presents an anecdotal account of a group of teachers exposed to doing science. He points out that the task is not easy as the teachers themselves feel under-equipped as they never had such experiences. The existence of efforts that have stayed for long however, suggests that it is possible through sustained rigorous effort.

The paper by Aerum Khan traces the evolution of the place of science in the curricular documents. She argues that the term scientific literacy has always been considered important and suggests that this is essential for a democratic polity as it promotes reason and reliance on reality. Khan recounts the evolution of the term scientific temper from Scientific literacy. She mentions the declaration on scientific temper as a land mark document. For her, scientific temper is an attitude that involves agnostically viewing and examining everything. No acceptance without testing or trial but have the mind to change beliefs in the face of evidence. Aerum points out that elements of fairness, equality and democracy are built into it as also is the hard discipline of the mind. This is not only necessary for applying science but for life itself. She suggests that the notion of science as included in the NCF 2005 and then subsequently in the NCFTE 2009 is deeply imbued with a sense of scientific temper. She gives examples of the way the position paper on teaching of Science presents science and the strategies to teach real science that builds a scientific temper. We recognise that this paper takes a very specific modernist position on the nature and definition of science and there are opinions on the other side and also some that are more moderate. It would be nice to have some of those views in the next issues.

The paper by Kinnari Pandya examines the National Early Childhood Care and Education Curriculum Framework 2014 on parameters outlined in the NCF 2005. She points out that the framework has comprehensively spelt out the features of human development in the initial years and laid out the framework to scaffold the development and maximise the learning. While so far early childhood care and education has been seen as an intuitive endeavour between the child and her mother or care-taker for very young children, and for 3 year plus children, it has been seen as a preparation for schooling. The framework brings out essential features of the suitable engagement that would provide the child with an appropriate opportunity and context. She suggests that the document may also help align the several prevalent models based on particular philosophies and the programmes that follow eclectic approaches for pre-schooling. Pandya further details the expectations from a curriculum framework document that have been specifically fulfilled by this document, alongside highlighting the key aspects of the ECCE framework.

She further argues that occasionally, the document goes beyond the brief of a curriculum framework and gives more than the guiding principles. This includes specifics of what to, and details how to implement the objectives stated in the curriculum core. She suggests that while this is beyond the ambit of a framework document, given the dearth of comprehensive literature on early childhood education curricula, the details seem worthwhile. She points out that the guidelines provide theoretically guided balanced mechanisms to deal with issues such as home language, multilingual classrooms, inclusion, school readiness, material/resource rich environment, etc. In a sense the what of early years curricula is brought to focus with concerns like whether 3 Rs or emphasis on holistic development fore-grounded, activity and play in early learning,

assessment, balance in routine for young children, and so on.

At the end she points out that while it is three years since the NCF ECCE was outlined it is yet unknown in the sector. She adds due to the diversity of the nature of preschools and ECCE centres, the vision and the principles laid in the NCF ECCE are far in the horizon. She suggests that systematic efforts to bring awareness among the private sector and the non-government organisations to adopt and/or align with this national framework would be required. She further highlights the need for specific measures to orient parents and caregivers of children under 3 years of age, inclusion of the principles outlined in the framework getting incorporated in pre-service curricula and in-service professional development of Anganwadi workers, preschool teachers, as well as teachers of elementary schools along with other stakeholders of the system.

The second set of articles on mathematics focuses on the development of mathematics text books. They are a follow up from the issues of VOICES on mathematics and then the article in the previous issue by Disha Nawani on the notion of text book and its role in the classrooms. The papers in this category are mathematics textbook-centric. The first paper focuses on laying down an edifice for the analysis of the mathematics text books. We know that popularly, and commonly textbooks are bequeathed with the sole responsibility of preserving and transmitting the content matter. Dewan, Gandhi and Ahuja, through their article "Searching for didactical negotiations in mathematics textbooks" entreat that besides this prima facie task, textbooks also harbour information required for edifying discipline-specific thinking. The authors offer analysing mathematics textbooks for their didactical dispositions as route for knowing the disciplinary perspectives, processes and structures delivered through the textbooks. Their didactical framework being based on the recommendations of the Position Paper on Teaching of Mathematics, 2006 deliberates on searching the vigour with which mathematics textbooks amalgamate the content with its pedagogical aspects. The framework is categorised in two sections offering guidelines for assessing the pedagogical inputs and approaches adopted in bringing a disciplinary understanding, and analysing how textbooks position mathematics in learners' socio-cognitive milieu. The article concludes by recognising the inherit lack of personification in textbooks and urges on the role of teachers in filling this gap.

Waquar and Tanya speak about their experience of development of a mathematics text book set for the secondary classes and the challenges that lay in the path. The article by Waquar presents his individual journey of learning and the change he saw in himself in the process of thinking about the text book. Tanya's paper on the other hand is about the collective journey and the steps that are necessary for a collective process of text book writing. The paper investigates how the principles and framework of the textbook evolved and how their alignment to the NCF was attempted. Beginning with the development of common guidelines the process of developing chapters as a collective endeavour meant more than just making a list. They had to be shared and internalised as the words used did not have the same implications for all members. The paper points out that the next step was to examine and transform these guidelines to secondary math learning objectives and how they would be presented in the book. The implication of the principles is highlighted in the nature of the chapters added, the nature and types of problems, and in various other ways including the formatting, presentation and layout of the book. Tanya points out that the

group benefitted a lot from discussing the NCERT position paper on mathematics as well as text books of NCERT and other states. She highlights some of the guiding principles, namely that the purpose of the mathematics text book to be read and understood by children, the fact that children formulating problems is as important as their solving a variety of problems, illustrations are needed to make book friendly. These include depicting the expected mathematics classroom with children consulting each other and learning cooperatively and including examples that relate to life and expecting learners and teachers to add more examples etc. Besides these important pedagogic principles she points out that the focus of the content also came in for scrutiny. There was added emphasis on proofs, visualisation, data handling, ratio proportion as integrated, etc. The nature of mathematical knowledge and its functioning principles were kept in mind to the extent it was possible at that level. As an illustration she points out the integration of multiple ratio proportion examples under one category so that they can be seen as emanating from the same logical structures.

The issue has three papers that focus on the curricular concerns around education. These are of distinct genre but have messages that are common. The paper by Rajni Dwivedi is on the manner the curricular concerns on the learning of Language have been focussed in the national framework documents. Through the example of an effort of curricular intervention of interveners from outside the system in collaboration with the system designated authority for it, she illustrates how churning in educational thinking has multiple strands. She suggests that while language has always been central to human learning but has in recent years become a core focus in the policy documents. Dwivedi further points out that while there is an increase in the understanding of this issue but many important aspects have not yet become a part of the discourse. The paper brings out the importance and nuances of developing the emphasis on Language and its teaching-learning and elaborates the implications. Her paper underlines the importance of continued dialogue on this and sharing amongst different perspectives on it leading to greater appreciation of the shared principles and their implications giving greater flexibility to the practitioners.

The second paper in this category is the Role of a language teacher in Primary classes by Anuradha Jain. Anuradha extracts some benefits for teachers in working and observing children. She suggests that this helps teacher understand how children think while helping the teacher do self assessment and reflection. She argues and shows through illustrations that children look forward to conversations in the school and actually want freedom and choice for their path of learning. In the context of language teaching-learning Jain suggests that beginning classes should not be started with formal teaching but with semi-informal conversations with and among children. The nature, structure and themes of conversations need to promote simple conversations in the language familiar to the children. The conversations where-ever possible should necessarily should also located in themes that children are knowledgeable in and find interesting. In this many ways to provide new themes can also be introduced through the use of the library. She emphasises that conversations among children are important as they also are a part of socialisation.

The third paper is entitled Multilingualism by Pooja Singhal explores the role of language in teaching learning situation. She has highlighted the fact that language learning should be embedded in the socio-cultural environment of the

child and multilingualism should be used as a resource to bridge the gap between home language and the school language. She has also highlighted the fact that literacy originates from the oral language of the child and in the absence of the child's voice it is not possible. She presents arguments to emphasise the Socio-cultural uniqueness of each language, meaning making, impossibility of exact translation and the implication for the language of the children in classrooms. This has many critical implications. For one it implies the need for an important role being given to the 'role' of language of the child. She argues that in the formative years of a child language is very crucial as it is 'constitutive' of a child's socio-cultural reality. Singhal is worried by the observation that a country which abounds in languages, the language of teaching acts to 'dissociate' rather than connect the knowledge of the outside world from the local milieu of the child.

There are some articles that deal with specific aspects of language as a curricular concern. Namita emphasises the role of literature in education. She argues using the example of Vishnu Sharma's Panchatantra and Narayan Pandit's Hitopdesha, that literature can be used to both build a cultural connect with the heritage for the children and also promote their cognitive ability. This can be done by using the stories in a manner that is somewhat discursive. This allows for children to use and build on their abilities and paths of thinking to interrogate before accepting principles. This enables the intrinsic interests in stories being harnessed for building conversations.

The paper by Dhananjaya is focussed on the challenges in the third language namely Sanskrit. He points out that the three language formula although sound in conception has not been implementable. The challenge with the third language being taught is that the children have no link or experience of it. They have neither interest in it nor do they have faith in their ability to learn it. The paper is focussed on a study that was attempting to understand the interest and attitude status of each of the individual; teacher or student in this exercise. Dhananjaya points out that the classrooms of Sanskrit are also disinteresting because of the materials and the Conventional classroom processes. Dhananjaya speaks about his effort wherein they brought in small stories in Sanskrit to the classroom and also got them to express and write whatever they themselves could from their life experience. They found in this process that children enjoyed and opened up to enjoy Sanskrit. The concern was however to ensure the participation of the children who are hesitant and shy and manage those who are smart and respond quickly so that they do not usurp the entire space for conversation and dialogue. He finds that allowing children to construct or borrow lexical items from other languages that they knew help them learn the structure and manner of constructing sentences in Sanskrit. The paper resonates generally with the ideas on language teaching-learning expressed in other papers earlier but flags in addition the concern about the treatment to the idea of the third language and the reason for its existence.

In her paper 'Teacher tasks as change makers in an ESL classroom', Beena Anil points out that change can come about from teachers and their understanding. She points out the importance of activities that students can engage with autonomously to learn. She elaborates with sources what her meaning of such an activity as a task is and presents the features that make some engagement a 'task'. In this purpose and the nature of the learner engagement are critical parameters and they can be estimated by the check-list she provides. She

presents the learning and implications of a quantitative study imbued with some qualitative elements that she has conducted on the relationship between learning and manner of performing the tasks.

Many of the other articles reflect on the experiences of working with children and point out that strategies to build academic democratic interaction systems are possible. Democracy does not mean anarchy and 'I do what I please' but a constant process of review and analysis that does not fear hierarchy of any kind. The issue has many papers that present this in different ways stressing the importance of space for the experience, expression and voice of the children.

One such paper by Bhupender Singh and Patanjali Misra entitled 'Swaal poochne ka swaal' focuses on the way classroom processes and attitude of teachers and parents should include the voice and thoughts of children. They argue that child is composed by and interacts with the whole environment. That has social and cultural components as well. And this is often missed. From this interaction with what goes on around child comes up with her formulations, questions and ideas.And these must have space in the classrooms. They point out that neither teachers nor parents encourage it and gradually the child feels inhibited to the extent of being voiceless about her own thoughts. She is also looking for what is the expected thing that has to be said. They also point out there is also a disapproval of the children intermingling and learning from each other particularly enforced in the classrooms. They also point out that even speaking or laughing loudly is prohibited in the classroom and even socially as it is considered to be rowdy and uncouth. They cite sources to reinforce their argument about need for dialogue between teacher and students. There maybe a quibble with their use of the 'satiate the curiosity' or with 'answer all their questions' and it perhaps does not go well with the rest of the ideas they have expressed. The paper focusses on the critical question that it is also the socially and culturally accepted norms that ensure that children become conformists and silent in the classrooms. Their strongly expressed valid plea is to make a change in this.

The paper by Jai Shankar Choubey explores the role of conversation with children in school. He argues that conversations in classrooms are extremely important as they widen understanding, imagination, thinking etc. They also build self confidence and prepares learners for reading and writing as well. Choubey points out that conversations provide an occasion for bringing the experiences of children and engage with the ideas embedded in them. He feels that conversations particularly with children are not given the kind of attention they should and there is an attitude of disdain for it. They are seen as trite and common and hence not learning occasions unlike the tasks of reading and writing. Choubey suggests that while informal conversations are important in the classrooms, the real role for classrooms is of formally structured conversations. A Structure not to direct who would speak or an expectation that everyone would say 'correct' things but structured to have focus and consciously going deeper in a question. He adds that conversations help teachers and learners understand each other better when views are expressed freely.

The other pieces in the issue are two reports. One, a report of a workshop on inclusive education held at the Central institute of Education and the second a report on the conference jointly organised by three different academies of sciences on education.

The workshop organised by the Central Institute IASE was a dialogical interaction among school teachers and scholars to consider the policy to praxis linkage. The discussions brought out nuances of inclusions and the possible ways of enabling the linkage. Among the important points made were the insight that reading stories in the classroom could be a simple way to include many and story telling could be made an inclusive process. There were discussions in depth on some aspects of differentiated abilities. The point is that in each of these there are many levels and multiple aspects. These abilities lend features that enable learners to be more capable in some ways but not so in others. Those with impaired visibility have lower mobility and limited exposure but extremely developed tactile sense. Similarly, children who have ADHD need to be recognised and identified but not so to label them but to try to figure out their strengths and their challenges. What was emphasised was that inclusion is about creating effective classrooms where diversity could be addressed with inclusion. Different ability children have often less opportunity to gain experience which leads to less friends and poor socio-economic cognitive development. This further limits contact and mobility, thus making a vicious cycle. To involve students in learning a concept, range of experiences need to be wide and thus to ensure children do not lose interest due lack of stimulus, we need to ensure an enriched environment specific to the abilities of the learner. An important message was that inclusion means inclusion in all spheres of life and not just in to academics.

The report of the conference is important as the various National Academies of Sciences came together to think about elementary education in the country. They brought in selected teachers from all over the country to express their analysis and make suggestions. The teachers presented papers and contributed to the recommendation. The emphasis in the conference was on building commitment and strategies for the vision and purpose of education as envisioned during the independence movement. The report emphasised inclusion, sensitivity to the the children and a greater awareness and empathy for the challenges faced by the teachers in ensuring the vision. It suggested creating opportunity and attitudes for greater and more inclusive community ownership with decentralised processes under a broad framework of principles and strategies. The report is the essence of this churning. What is presented here is the summary of the report.

We have two announcements, one is a National Conference on Branding of Government Schools and the second is about a seminar on science and science education with the presentations and discussions in Hindi and Punjabi. The announcements seek wider participation and further details are on the link provided.

The next issue of the Voices of teachers and teacher educators is on Teacher education: Perspectives and Practices. It is expected that this may also have a second issue or even more due to the importance of the theme and also because of the large churning in ideas around this.

R. Ramanujam
jam@imsc.res.in

Technology in the Classroom: What are we looking for?

Abstract

This paper presents a critical account of the role of ICTs in meeting the need of universalization of quality education in India. It also emphasises the potentials of technology interventions in classrooms.

The New Technomania

In recent times, there is a big buzz on the use of technology in education. The discussions during the last two years on the Draft New Education Policy (in the process of making) referred repeatedly to the potential of technology towards solving many of the outstanding problems of education in India. The TechVision 2035 document of the Government of India privileges and centralizes "*the role of Information and Communication Technologies (ICT) in meeting the need of Universalization of Quality Education in India".* Invariably, certain premises seem to be at work in such discussions:

- ICT can help overcome the serious problem of lack of "quality teachers" by providing direct access to "quality presentations" via video and other modes, perhaps with recourse to MOOCs (Massive Open Online Courses). [Consider the success of Khan Academy videos.]
- ICT would help easy access to information from a wide range of sources, thus liberating the student from dependence on teachers and textbooks.
- ICT would dissolve the boredom that hangs heavy over classrooms, make the classes more interesting.
- The new generation of children love technology, take to it easily; it is only teachers who find technology threatening, and this is all that is "holding us back".

While not all of these premises operate at equal strength in every discussion, there is an undercurrent of discourse built on such axioms. There is an element of truth in every such assertion, mixed with many problematic attitudes, and untangling the mess can be challenging, especially when governments and public opinion shout out such claims as facts. But before we discuss these assertions on ICT, we need to raise a point of order.

Technology Does Not Mean ICT

If this is stating the obvious, then it seems to be necessary to state the obvious, and to state it loud and clear. Reading any of the education policy documents or the TechVision document, one would be pardoned for assuming that technology in education only means the use of ICT and the setting up of "*smart classrooms*". One thinks, using technology is only about bringing Internet connectivity into class, and the use of multi-media, videos and hyperlinked material, so that distant voices can beam down content, and textbooks are replaced

by the extensive knowledge available easily on the World Wide Web. Rarely does one see mention of technology in education refer to lathes, foundry or good old agriculture.

A similar equation of all technology with ICT is often found among critiques of technology use in classrooms. Typically, the dangers of the Internet, especially for young children, is emphasized, and with good reason: the recent disasters with the Blue Whale game underline such dangers. Another criticism is about the seductive nature of technology, again especially for the young ones, getting them hooked to fast moving images that deter sober reflection. The television has amply demonstrated how passive it can make children, and it is not a stretch to accuse 'educational technology' of similar pitfalls as well. Again, these critiques implicitly accept the equation of technology and ICT, perhaps as a backlash to the technomaniacs. Indeed when ICT is being pushed as a major "solution", such response is perhaps reasonable. Yet, we do need to examine underlying assumptions, and build our arguments on sound reasoning.

The Questions We Need to Ask

If we are to speak of technology in education, what should be our understanding of technology ? What should be the attitude to technology in our curriculum, and teaching/learning practices ?

Some years ago, inteacting with a group of 10-year olds, I met a boy named Manikandan who told me he wanted to grow up and become a scientist. When questioned, he said he wanted to build *idly-making machines*. It turned out that this child was from a single-parent family in which the mother was making a living running an idly-shop at a bus stand (a familiar sight to Tamilians). It is natural for this boy to have such an ambition. The question is: what is the probability that he would get to build such a machine, the chances that he would develop the technological capability for it ? For a moment, assume that he does extraordinarily well in his exams, gets through the Joint Entrance Examination of our Indian Institutes of Techhnology. Would the best technology education in the country be able to develop in him this capacity ? (More likely, if he got there, woud he even want to build idly machines ?)

The education that Manikandan receives in school does not address technology and its nature. School typically teaches Manikandan to see technology as given, (as a potential consumer), and not anything he can participate in. Science education is compulsory, but has little to say about the relationship between science and technology. Social studies do not at all refer to how modern societies relate to technology. Our children do not develop a healthy and yet critical attitude to technology, one that is based on principled understanding. Technology assessment is not part of the curriculum even in the prestigious institutions of technology. All this together suggest that we are not even asking the right questions about technology in the context of education, let alone have good systemic answers.

When it comes to the *use of technology for educational purposes*, there are more questions to ask:

- How does technology help the educational purposes that schools seek to achieve ?
- Can technology enhance the educational experiences that can be provided to achieve these purposes ?
- How can the education system contribute to the development of such technology ?

- How do we ensure that these educational purposes are indeed being accomplished ?

It is not the aim of this short article to provide a comprehensive answer to these questions, nor is the author competent to do so. What is hoped for is an articulation of some guiding principles that can help us answer these and related questions.

Technology in the Science Classroom

The 1986 Policy on Education asserts: "... all areas of development are science and technology based and for that we need experts, middle - order workers and scientifically literate citizens."

It goes on to discuss how the curriculum should be designed: " ... for conscious internalization of healthy work ethos. This will provide valuable manpower for economic growth as well as for ideal citizenship to live effectively in the science/technology based society. " Such coupling of science and technology is natural to policy but alien to the classroom.

If there is one domain that calls for curricular action in school, it is that of technology. The current school curriculum considers science education to be central, but tehnology is largely peripheral within it. Other subjects of study, such as social studies, hardly ever refer to the role of technology in shaping modern society, let alone critique that role. At the tertiary level, technological studies are termed professional and separated from science. This works well for the large industrialised modes of production, with all technology creation patented and owned by big industry, and the general public being merely consumers of technology. Unfortunately, in the poor countries, this has largely led to the import of technology in the large, and citizens' ability to innovate confined to the small.

On the other hand, there is an increasing perception that 21st century modes of production will allow for small industries innovating in technology, created by groups of individuals without exclusive technological training. The East Asian and Western European countries have integrated technology education into school science education, and the study of technology in relation to society is also given curricular stature in these systems. In Sweden, for instance, every high school has a workshop that includes a foundry and carpentry, and science laboratories are integrated with the workshop. The Chinese school system is transforming itself to such a model.

The science classroom is the best place to introduce technology to children. This cannot be achieved by "lessons" on X-technology or Y-technology, to be learnt as information items and memorized. In fact, what is needed is nothing less than what ought to be the central goal of science education any way: to provide not only a factual and conceptual understanding of natural phenomena, but also a fluency in working with the material world in a way that builds on experimentation, observation, prediction and critical inquiry. This needs the active and simultaneous engagement of the mind, the heart and the hands. Technology is best learnt by doing, by active engagement with material and energy conversion.

Articulating the goals of science education to include active hands-on engagement with the material world implies according primacy to wood and metal, to leaves and stones, to life forms and crystals -- not by seeing them as pictures (or worse, reading their descriptions) in books but touching and feeling them, working with them, and manipulating them. This is essential for not only understanding science but

also for developing an integrated feel for technology.

Coupled with experimentation, an emphasis on **quantification** is a characteristic of science. Measuring, estimating, approximating, calculating and model building are everyday processes for any form of science, and these again are habits to be inculcated in the learning child, not only for sharpening her own abilities but also in building a society that can critically engage with issues of technology use and its impact on the environment.

Children need to perceive the rootedness of technology in science, as also the technological potential embedded in science. That technology is the conversion of material and energy in different forms by work, and that this is based on sound scientific principles, is a realisation that every child learning science must internalise. Prioritising this in science education is important not only for addressing a lacuna in the system but also for giving an important direction for the future of our children.

Apart from hands-on experience, science pedagogy itself needs to actively make connections with technology. For instance, rarely is the teaching of Pascal's law accompanied by pointing out that this is indeed the principle that literally enables huge trucks to be held up on mere rubber tyres pumped with air. On one hand, the sheer wonder of air holding up a heavy truck is important for the learning child, and on the other, the tremendous opening up of possibilities in the child's mind is critical for planting the seeds of technological innovation. Biodegradation is a phenomenon to be understood, but it is also important to see the possibilities of composting in technological terms. This is a connection mostly missing in our science curriculum, and a careful reworking of curriculum can make science learning not only immensely enjoyable to children, but also useful to them and to society in later life.

The Hands and Minds Disconnect

Why is it that such a disconnect between conceptual science learning and a hands-on culture of making things, accepted for so long, as a matter of course ? Is it perhaps impossible to achieve an integration of the two ? Are we perhaps talking of a new idea so revolutionary that nobody has thought of it before ?

On the contrary, this is a very old idea, whose seeds were sown in India long ago. In the 1930's Mahatma Gandhi advocated **Nai Talim**, a new style of education for a new country. Gandhi and Kumarappa built a curricular framework on a principle that called for integration of work and education. The village-based society they envisioned would not see education as preparation for entering the lab out force post-education, but as education through work. In Nai Talim, work raises questions inside the child's mind: why does this work and not that? How does material get transformed? Science provides answers, and the child is able to see how the learning improves his/her work and results. This is admittedly a crude summary of the idea, but the critical point to note here is that Gandhi was not speaking of vocational education or work education but education through work. What is relevant to this discussion is that such a viewpoint builds a natural healthy attitude to technology and the understanding of how material and energy are transformed through work.

The country chose a different pathway in education, and the Gandhian vision of education was sidelined alongwith the Gandhian vision of development. There was a fear that bringing work into schools would perpetuate caste hierarchies. On the

other hand, elitist attitude privileges intelllectual work over physical work took root in school education. By now, theoretical insights and conceptual understanding are seen as important, hands-on activity gets mentioned only in the context of "making classes interesting". Slowly, memorization and rote learning have taken over, and concepts took a backseat as well. The Indian **pathashalas** were famous for remarkable feats of memory, and so our current toppers are in examinations. Neither the Gandhian vision of work in education nor the Nehruvian vision of inculcating the scientific temper in children have been realised in our school system.

With such a history, it is perhaps not suprising that our recent discussions on technology in education equate technology with ICT use. Here is technology that is not messy, one does not need to muddy one's hands, deal with hot metal, make errors in measurement. Even the dangers relate to the mental world, not the material one.

The Potential

If we would reorient ourselves on the lines we have been discussing, the potential benefits would be immense. Providing linkages for schools with technology institutions requires more re-orientation on our part than great resource investment. A visit to a bicycle shop or a motor garage has immense educational value. Agriculture and animal husbandry are practised all around, but they are not seen as opportunities for ``science tours". Indeed, within a few kilometres of every school, some manufacturing or industrial processing activity does take place, but active linkages for school and science curriculum with these institutions are almost entirely absent. Science laboratories are integrated with workshop practice, as the Scandinavians do. Even while we wait for such a possibility to become a reality for our children, we need to begin by opening windows and doors to simply make use of opportunities for technological education that are present around schools.

This only calls for an enabling mechanism to be set up in terms of curriculum, syllabus, school functioning and new practices in teaching and learning.

Every time someone speaks of ICT and mentions how children take to such technology, how their 4-year olds could operate mobiles when they couldn't, it is worth remembering that for lakhs of Indian children, working with wood and metal comes naturally too. They have always been good at handling **any** technology with their nimble fingers, not only ICT. It is the education system that never took this ability seriously.

On the other hand, the benefits ICT can bring to our education are immense too. ICT has a disruptive power that needs to be harnessed. The higher echelons of our system are characterised by many kinds of barriers: entry barriers, language barriers, disciplinary barriers, performance barriers. ICT offers us wonderful opportunities for breaking these barriers. We simply cannot enter many of our elite institutions, but ICT can take us right into their offices and laboratories. If speaking English is a difficulty and hence a passport denied into many realms, ICT can offer a backyard route in. Practitioners of one discipline may never talk to those of another discipline but ICT platforms can ease conversation and collaboration between them. We can go on in this vein, it suffices to say that the potential of ICT for democratization of education is immense.

But there are many down-to-earth ways in which the benefits of ICT are

immediate in education. We are all acutely aware of the tyranny of the textbook in our schools. Breaking into the linear structure of our textbooks and deconstructing it is easy for ICT with the highly flexible modes of navigating educational material it can offer. It can also tremendously help in localizing and even personalizing content, which is most welcome in a scenario that creates a false uniformity. The combination of these two, flexible navigation and personalized content, opens doors to new ways of learning. Consider a child interested in light, exploring art and photography on one side and physics on the other. Such breaking down of compartments is natural in ICT enhanced education.

Once we start envisioning the possibilities, we can see that ICT not only has the potential to enrich our education but indeed can also provide a tool for educational objectives that we *cannot* accomplish without it. As an instance of the latter, consider the question: how would the world look and behave if the acceleration on earth due to gravity were just a tiny bit less ? It is hard to imagine such a thing, harder to quantify what we imagine. A computer simulation can achieve this very well, can make us think, and indeed lead us to more related questions and open-ended exploration. In a mathematics class, we could not only graph a cubic polynomial, but pull the curve down, predict how the quadratic coefficient would change, and verify it. Try doing it on paper! Consider zooming into topographic maps in geography. Consider visits to distant museums.

All such singing glories of ICT should always be viewed with healthy suspicion. In a country where socio-economic disparities are reflected in access to and use of technology, we cannot further create technology dependence without universality of access. The dangers of unsafe use of Internet are far too real and immediate to be ignored.

To conclude, we can perhaps offer some guiding principles for technology in education:

- ICT and its visual/simulational ability does offer a tremendous opportunity for empowerment in education, but this is only one dimension for a Technology Vision in Education.
- We need to see students as constructors of knowledge and technology, and not merely consumers of the potential offered by technology.
- Working with nature and material is essential in education, and this means innovative incorporation of other forms of technology.
- Technology can play a significant role in *engaging* students in learning, and this needs to be understood and used carefully.

Understanding of technology and a healthy attitude to technology are a fundamental aspect of modern life, and our education system needs to respond significantly in this regard.

Hriday Kant Dewan
hardy@azimpremjifoundation.org

Why a Different Approach to Science Teaching

Abstract

The paper explores different approaches to science teaching and shares an analysis of reflection of the idea of quality science education in the policy and curricular documents. It also presents and analyses some experiences of working with teachers and the implications if that.

The notion of the meaning of good science education has been a contentious debate. The understanding of good science-education has evolved over time in the context of Indian education. Over the last few decades experiments have become an important component of science education in schools. The manner of its articulation and its expression in the materials and methods does not reflect the spirit of understanding of either the notion of science or the possible purpose and the process of learning science. It is not that there are no known efforts from India in this direction and no alternative examples and principles available. But the principles in the policy and the curricular documents and even from the Hoshangabad science education program have been reduced to a few catchwords and rituals. The understanding of science education must consider the nature of science including the meaning and purpose of education. It must also consider its relationship with society including the concern about its hegemonic relationship in some world views. The purpose and the methods apart from all this must also include in some manner the experience and abilities of children. While this is not easy to construct in a simple meaningful manner, the principles can be articulated but their exposition in the classrooms depends on the beliefs and confidence in teachers. Teachers even though enjoying an exploratory experience of experiments and analysis with simple components of generalisation do not feel confident of being able to make such experiences possible for children in the classrooms.

Background

Science teaching has been a major area of interest in pedagogic circles for quite a while. As far back as in 1964, the Kothari Commission's[1] report stressed the need for good quality science education and suggested that ways and means should be found so as to have children conduct experiments and discover principles from the observations of these experiments. It was not easy to set-up a structure which would make experiments possible in the schools. Following this, many other sources have suggested a need to provide scope for children in the elementary schools to conduct experiments. In this direction there have also been attempts to set-up outside the classroom structures that would give children an opportunity to conduct experiments as also to observe events and analyse observations. It has never been an easy task and a variety of hurdles increase the difficulty.

There have been attempts spread across the country to provide science kits to schools so that children could be shown experiments and observe

some of the experiments that are given in their books being done. G.P. Tulasi[2a] talks about the 1970's effort of the NCERT in developing and trying out the series 'Science is doing'. Tulasi points out that while in conversations there was a mention and acknowledgement of the fact that children at the primary stage would be at the concrete operational stage and hence only could deal with science and mathematics concepts based on concrete materials (which in the case of science would mean experiments and kits), this was not accepted. The result was the series of books that followed had concrete materials and experiments but not as the core strategy. Experiments were encouraged in them merely as simplistic demonstrations of scientific concepts and principles but not for actually experiencing the process of doing science and engaging with concepts.

These books of the National Council for Education and Training were used by the States across the country put title like "Science let us learn by doing". This on the cover page seemed to be indicating acceptance of the principle that science needs to be learnt through experimentation, the reality was not so. Tulasi in introduction to the book points out that "Several Science text books were available at that time in the market based on the NCERT's syllabus for Science in Primary classes[2b], they were mostly content oriented. Though 'Learning by Doing' is accepted as the best way of learning science, yet 'reading a textbook' and 'listening to the teacher when he reads the book' were very much in use in the primary science classes. It looked that curriculum developers, textbook writers, apparatus designers and teachers had generally gone about their work without taking into consideration the Cognitive Development of primary school children for whom the materials which they produced were intended".

During the same period an effort took root in the Hoshangabad district of Madhya Pradesh which went closer to the stated goals and strategies of science-teaching. Known as HSTP (Hoshangabad Science Teaching Project) this had NCERT as a partner as well. The program expected children to work collectively, conduct experiments, analyse observations, generalise and infer linkages, causes, consequences and their interrelationship. Some of these ideas went in to the preparation of the 1986 National Policy on Education document. The policy document included a section on science education, wherein the need for children having the opportunity to conduct experiments was stressed and it was suggested that changes towards this direction would be welcome.

The Quality Notion in Science-Teaching

The popular discourse in the improvement of the quality of science-teaching has been focused on methods. All kind of methods are spoken about and these also suggest the use of the experience of the learner in some way and seem to also emphasise process skills. The listing of these process skills and the content of science often gets mired in the process and product debate. What ever is considered desirable is suggested but often as optional addenda. These include collaborative work, active experimentation and data processing, using the real life experience in a way to link conceptual elements in the curricular choices with it, etc. There would therefore, be recommendation of experimentation, observing and as so on but as pieces not organically linked to the main body. The explorations in science are as optional projects and hence largely inclined towards exhibits and concrete displayable materials.

The adaptation of the idea of learning by doing and experiencing thus became a buzz word without some of the major elements. These ignored elements were the nature of science and scientific knowledge, process of learning of science in the sense of acquisition of concepts, collective work and dialogical processes, bringing in the experience of the children and constructing on that. In a nut shell what got emphasised from the academic discussions that constructed the NCERT effort and the HSTP were phrases like do experiments, do projects, apply science ideas etc. The basic underlying principles that informed these as one set of possible outcomes were totally missed. The quality discourse in science teaching as well as in other subjects has remained restricted to showing and telling through concrete things missing the underlying principles arising from what we want children to experience, do and learn in the school and the classrooms. The effort to use a richer more comprehensive formulation of quality, which would include the nature of subject, nature of knowledge and the purposes of learning science could not become a part of the wider discourse in the program for a variety of reasons.

Purpose of Science Education

The basic issue that confronts science education therefore, is to escape from the trap of this caricature of quality science education. As pointed out, this relates partly to the meaning of science, its nature and what it means and also partly to what we mean by learning. If we examine the common text-books (Govt or private) being used to teach science in the elementary classes, we would find them full of abstract statements and detailed information that do not relate to the experience of the child and also not perhaps to the nature of science it self. They may have frills of experiments and projects but they are not integral to the method or the materials and hence miss their purpose entirely. Progressively, over the years materials from higher classes have been shifted to the lower classes to balance the so-called "explosion of knowledge". The argument given is that every year new facts are discovered and new information generated, if these are not 'given' to the children, they will not be aware of the direction in which science is progressing. They must be familiar with the definitions of these words and be exposed to all these names with the expectation that the child will be acquainted with these names. This has come from a mis-interpretation of the Kothari Commission's[1] suggestion that as the knowledge is increasing rapidly, we must take cognizance of it and develop in learners a sense of curiosity and capability to be able to acquire the relevant conceptual understanding. The report states, "*There has been a great explosion of knowledge during the last few decades. In a traditional society, the stock of knowledge is limited and grows slowly so that the main aim of education is interpreted to be its preservation. In a modern society, on the other hand, the stock of knowledge is far greater and the pace of its growth is infinitely quicker. One of the main tasks of education in a modern society is to keep pace with this advancement in knowledge. In such a society, knowledge inevitably ceases to be something to be received passively; it is something to be actively discovered."(Clause 1.70 page 18)*

The Commission's report went on to say is that this 'to know' does not mean 'learning by heart'. It further pointed out the need to have science as the basis for technology, industry and agriculture and for strengthening the commitment to free enquiry and the quest for truth encouraging the spirit of enquiry and experimentation to make

scientific outlook a part of our life and culture. They pointed out that science loosens the bounds of dogmatism and dispels fear and superstition as also fatalism and passivity. In essence the objectives laid out were, "*The quality of science teaching has also to be raised considerably so as to achieve its proper objectives and purposes, namely, to promote an ever deepening understanding of basic principles, to develop problem-solving and analytical skills and the ability to apply them to the problems of the material environment and social living, and to promote the spirit of enquiry and experimentation.*" *(Clause 1.23 page 7)*

The Education Policy[3] in 1986 and amended in 1992 argued for the need for stronger science education spirit of inquiry, courage to ask questions, creativity, objectivity and an aesthetic ability. It further suggested need to develop problem solving and decision making ability and relate to science to all aspects of daily life. It also argued for promoting science education to everyone even those outside the framework of formal education; a wide set of purposes, that are not linked to passing tests and exams and to knowing facts and details. The National Curriculum Framework 1988[4] reiterated this and hence argued that science and mathematics need to be integral parts of school education up to class 10. The main purpose again was to develop curiosity, scientific method of inquiry and preparation for competent participation in a changing society and culture, with a rational outlook.

As we can see Science education has remained a concern in the policy and in the curriculum documents each one building on the previous. They have underlined and reiterated the twin objectives of scientific temper and curiosity and the use of science to aid development in agriculture and technology. They suggest that science curriculum and teaching should be focussed on doing experiments and analysing the observations from the experiments and the experiences of life to form understanding that is useful and meaningful even as it is rooted in the known principles of science. The science teaching programmes however have been moving in another direction. The direction is increasingly towards what has been described in Tulasi's introduction. The same is reflected in the analyses in the position paper National Focus Group on Teaching developed during NCF-2005 exercise by the NCERT. The National Curriculum Framework for School Education 2000[5] pointed out that the task of the NPE 1986 (92) and the curricular framework of 1988 in improving science education is yet to be completed (pg7). It also adds the need to shift from traditional learning atmosphere to one that encourages exploration, problem-solving and decision making; from prescriptive teaching to participatory, decentralized and interactive group learning. Change from focussing on collection of information to its processing with encouragement to search for patterns and connections. (pg16-17)[6a]. Similarly the position paper on science education 2005 of the NCERT additionally suggests that science education must be actively engaging and involve enquiry, exploration, questioning, debates, application and reflection, leading to theory building and the creation of ideas/positions. (pg 17-18)[6b].

The Notions of Current Science Teaching

In spite of the principles laid out in the NCF 2005 and the position paper, the teaching of science even till secondary and sometime even till senior secondary classes is devoid of experimentation. The

general principles that are used to think about the curricular organisation and its transaction include ideas absolutely incongruous with the the principles in policy documents. The popular ideas of quality lay aside all the notions linked to the purposes and use a list of quick fix short cut clues like from simple to complex, from near to far, there is an explosion of knowledge account for that. The other type of folk ideas used are, children need to be exposed to everything, they should be given these in small bits, they must be given useful facts as messages to be remembered as and when they are needed or some exciting discovery takes place. It is not necessary for them to understand these. They would understand them later. They must be given rules to follow to develop correct and ethical behaviour, These and other such principles define the operative notion of quality and this in the context of science education leads to the following as the underlying assumptions for any teaching-learning conceptualisation and practice:

1. There is an assumption that learning is a linear process and equal chunks can be learnt in equal time.
2. It is further assumed that learning, a fact is independent of the development of any other understanding in the child. It is, therefore, not necessary to present the materials in a linked manner and ensure that there are no arbitrary details included. This approach does not need to emphasise articulation of their observations or enunciation and discovery of the rules by children.
3. The information in and about science is considered to be fixed and unquestionable. Everything that experts of different hues and interests consider important for themselves has to be put in.
4. The accepted principle is that everything that is related to the idea needs to be put in for exposure of the children even if briefly and in passing.

In all this, the fact that details of information are changing each moment is totally over-looked. The attempt is to constantly put in more and more to keep pace with information about the developments in various aspects of technology. It is easy to see that there is no way by which the world of children or even material that can be put together by the 'experts' who prepare the books keep pace with information about the developments in various aspects of technology. Because of the principle that children must be given an exposure to everything 'significant; there is very little selection possible based on the learning needs of the children. Most of the material is forced to be put in so that the child is introduced to it. This results in inadequate space being available to workout these ideas in the text-books as well as in the classroom. Over simplifications and metaphoric expressions have to be used to make concrete, abstract information. This often results in gross errors and certainly does mislead students and makes them develop incorrect pictures in their mind.

The materials include examples of experiments but these experiments are often not doable. The authors pick-up the experiments from other books and without trying them include them in the book. In many of these experiments, it is not possible for the teacher to conduct the experiments in the classroom because the instructions are not clear or the kit is not easily accessible or sometimes, even because the expected results are mistakenly anticipated ignoring scientific analysis.

One classic example of this is the experimentation to measure the

amount of oxygen in the air. This is to be done by allowing candle to burn in a closed space (glass placed upside down) and then measuring the amount of water that would rise in the glass.

The conclusion of the experiment is often given as 20% water would rise in the glass and the reason is that burning utilises the oxygen and hence the water rises up to fill the space of the burnt oxygen. In this, what is forgotten is that when candle burns carbon dioxide is formed and there is no reduction in the total volume of the gasses making up the air. But the point of importance for the program is the fact of 20% oxygen and the experiment has no other relevance [7].

Since the amount of information and facts are considered to be the important part of the classroom transaction, it is not considered amiss to include information that the child would not otherwise have an experience of. It is also not considered important to make children do experiments and increase their experience base. There is an emphasis of facts and definitions and this makes the text-books unrelated to the experience of child and only focused on what adults think he/she should know. The text of the books, therefore, becomes dense and full of unknown technical words with no relationship to what the child can perceive in her environment. The lack of attention to concept development in the child is apparent throughout the program of science teaching. It is in the nature of instructions put down, in the kind of information given, in the kind of evaluation parameters considered valuable and in the teaching-learning as well as the evaluation processes, etc., as well.

There are Alternatives

It is not as if there are no alternatives, there are many possible ways in which children can be required to do experiments and analyse them as well. The example of the NCERT's efforts over time, of the Bal Vagyanik of the HSTP[8], The little Science[9] developed by the HBCSE and many state Govt books themselves show the possibilities. The important requirement for that is to have a question that we want to explore or a statement that we want to test. Experiment is not a way to remember facts but to experience and learn the process as well as to understand concepts. What they show that this can be done and children given the possibility to observe and analyse the observations to generalise and form answers. The effort of PRASHIKA[10] for the primary classes showed that children not just test hypothesis but also articulate and check their own. It gives many ideas that expect the children to value their observations and analysis. The basis principle has to be as Dewan[11] argues in his paper that experiments have to be with a sense of finding out some things that are not known to the experimenter and not just having to reproduce some numbers. Simple investigative tasks can be found and set up that expect a certain process to be followed.[12]

It is not as if there can only be a few investigative tasks. These can be as many as are and it is merely a question of the attitude. With the right approach there can be many investigative tasks constructed and their pursuit can create more such tasks. All phenomena and even the known experiments have elements that can be investigated for new dimensions. The important thing is to do the exploration and the analysis with an open mind not focussed on reproducing the known answers or even validating them. For example, the rolling of a ball with similar speeds on different surfaces to study the variation in the distance travelled. Or the extent

of bounce of a ball from different heights on different kinds of surfaces or the same surface with different types of balls. It is not that these have to be all constructed as experiments to observe, record and analyse data. As we go to the secondary classes and beyond, more be thoughtful experiments requiring predicting the outcome and reasoning out the prediction could be used. For example what happens when you throw a ball up with different jerks upward. How high would it go? What are the forces acting on it once it leaves the hand? Or the task of collecting objects (or just their names) of different kind and predict which will float and which would sink and why? All this, without collecting the data first, thinking about the possibility, thinking of reasons for it and then checking it out if correct.

The Notion of What is Science

The other aspect of what is science and what is knowledge and how sometimes it becomes accepted as scientific knowledge also need to be thought about. In this also embedded is the issue of the direction of the disciplines development, the factor and forces that guide it and the underlying power and economic dynamics. The question of nature of science also needs to confront its relationship with technology and be both aware of their dialectics. The fact is that while technology, power-dynamics and economic considerations have and continue to influence science and the question it investigates, on the other hand the principles discovered themselves give rise to many technological ideas. The comforts, the travail and the tools of constructions and destructions are all available to us now. This relationship yet remains to be included in the science classroom in a nuanced manner. Neither the occasional/strange sources of discovery arising out of the hunt for the technology nor the essence of the mutual symbolising they have often in treatment and in common discussion science and technology get fused into each other. The radical view on the other side is that science is value free and objective and has no relationship to power or technology

We debate the technology and science and continue to analyse it as the mutual influence waxes and wanes (never disappearing altogether, never becoming a complete merger). We are not doing justing to the learning of science. For science needs to be also examined for its choice of concept and challenged in its claim for objective study of world. The issue of which lens of perspective shows what science needs to be analysed too.

There is similarly question of power and hegemony. It is true that science can give away to question the order of things and seeks objective justification from empirical evidence. This does force acceptance of many principal that challenge iniquitous power relations as being unjustified. In principle can also give humans a confidence in themselves and in nature. A sense that largely understood by process and forces arising from known resources and that this set is not yet complete. This to some may mean science would eventually have assumes for everything that happens and to other that it would continue to have to hunt as the answers finds pose more complex questions and hence it would always be a learning field. It would never answer everything not because anything outside but because of the system of knowledge itself. This needs more detailed discussion but that can be done elsewhere. Suffice to say science need not become mystical to accept its inability to give comprehensive explanations. This hegemony is in context of its relationship with nature.

There is also a question of science and hegemony of power on science and the struggle or the lack of its from science to free itself of the push power and structure and give it.

It was argued by the Kothari Commission that Science, by its emphasis on reason and free enquiry, even helps to lessen ideological tensions as they often arise because of adherence to dogma and fanaticism. They add that although presently mostly engaging with the understanding of Nature it is tending to help humans understand themselves in conjunction to the universe. They articulated the hope that the future pursuit of Science would not be mere material affluence and power. The subsequent developments have not quite borne this hope or the hope that Science would develop a temperament that would build in humans rational empathy and a sense of equality.

Hegemony and Science

Besides this question of the relationship of science to construction of values, the issue of its strength and limitation as a truth criteria has also become widely discussed. In this, the hegemony of 'Science' over the modes of knowledge and thinking has also come up in discussions and challenged strongly. In this conversation there are some meaningful arguments that need to be taken cognisance of but a large number are also frivolous. The over done subject centered view of reality cannot provide common meanings. A multitude of such views without notion of judgement, i.e. a set of criteria that would be the basis for making them coherent would cause havoc in sharing a world. Similarly, the hegemony of Science cannot be invoked to defend un-examinable beliefs, therefore Science has to examine its choice of areas of study and evaluate them critically. The opening of the science classroom to explorations of ideas that children form can therefore be an interesting exercise as can be the analysis of the questions studied and not studied by science help learners understand the direction of development of Science and that alternatives to that do and have existed.

It is time that we examine some of our assumptions about the nature of knowledge and how children learn and make more interesting and meaningful science education possible. While the larger questions of hegemony and modes of knowledge is not being addressed the steps of allowing explorations and thinking need to be begun. Unless we give opportunity to children to conduct experiments, record and systematize observations and analyse what is happening in this process, we would not succeed in giving them adequate confidence to become learners. We need to break the notion of disjunction between life and between school and ensure that children are able to carry their ability to explore ideas to their environment and explore and utilise their own observations systematically. It is much more important for a child to be able to absorb and analyze from experience then to remember by rote definitions, formulae and alien names.

The Features of the Alternative

The essential features of the alternative attempt to formulate science education include the insistence that the child must learn the importance of conducting experiments, record as well as systematize observations, analyse them and compare different sets of observations so as to be able to generalize principles. It is important for the child to be able to formulate arguments to explain his or her understanding and to logically connect her experiences with what she does in the classroom. It is much more important to build

the confidence for learning science and make the foundation of basic concepts on which the structure of science develops then to have children swamped by information that may be very topical and temporary. In our opinion, it is possible to provide kit materials to schools and ensure that there is a space to store them and it is possible to have teachers trained so as to make possible science classroom that are genuinely discovering answers to questions formulated by the students also. And to develop the foundation of the conceptual structure that will help children to do science in different ways in their life.

We are also aware that there is a balance that needs to be built. It is not desirable to have children discover everything from scratch and allow them to come up with explanations and arguments that are similar to arguments given in Aristotelian times. We are also aware that science is changing and developing all the time and that new words are acquired by science every moment. We also know that in order to become a learner the child must have the basic of the conceptual structures, she would utilise to develop further concepts from her experiences set up. But we feel that there is no point including so much information that entire school programme becomes abstract and meaningless for the child and is totally dictated by what adults consider to be of value for her. In a process of redefining science education these considerations must be kept in mind and we should not make the mistakes made earlier also of keeping the subject needs and the needs as spelt out by the adults as the focus. The focus should be participation, involvement, exploration and change rather than safe conservatism.

Trying an Inquiry Approach with Teachers

As we can see the principles that have been repeatedly articulated have not reached the classrooms as yet. The impediments are many in terms of systems and beliefs of both teachers, administrators and educators. Before it can get into classrooms the idea of exploring has to reach teacher. How far this can go? An example of this is our experience with a small number of teachers over a series of workshops. In these workshops, teachers were taken through tasks to explore the word science, its meaning and the implications of that for its teaching. The experience gave the teachers opportunity to explore Science teaching. The tasks used in the workshops were simple, used simple equipment and had the possibility of easy repeatability. Teachers worked in groups and developed the scope of the set of experiments as they went along. In that process they also extended and widened the inquiry statement as well. The inquiry statements were such that they had no answers available in books or web and hence had to be reasoned out.

The general attitude of teachers to Science including as a learner became clear quickly. Initially, the school teachers showed a nervous anxiety and attempted to answer everything using complex concepts and definitions. They gave the impression of science being a body of known and correct knowledge to be transmitted. They were afraid to draw any conclusion from their observations and even afraid of recording observations as they did not know the correct observations. In their panic, they refused to see even commonsense approach and tried to explain simple phenomena using complex formulations in an attempt to mystify issues.

The other crucial aspect is that once they started the journey almost everyone enjoyed working with their hands, doing the experiments and then thinking openly. There was no expression of boredom, lack of participation or enjoyment while these discussions were taking place. yet there were as few die-hards who refused to touch any equipment and who thought they could answer everything and explain everything from their theory and logic. They denied what they observed as wrong and said the experiments were incorrect as they did not conform to theory.

On the other side was the convenient retreat, 'how do I know what will happen', how can I predict anything. The argument was that the knowledge of science is only empirical. What has happened is for us to see and I would know what would happen in the next case only when it is done. A reluctance to see pattern and linkage between the results. Both these views were based in an understanding of science that it was the business of scientists and experts and laboratories. Both views were unwilling to accept a responsibility of making sense of what was seen and forming ideas to share. It is also important to point out that while they were free in their speculations, they did not want to use the observations of the experiment in any way to inform or structure them.

The other aspect that emerged sharply is the fact that the Science education that all of go through forces us to doubt the experimental data rather than the conceptual predictions in the case of a mismatch between the two. In this, as well in almost all the other workshops too even at the level of textbook writers and trainers of science teachers, there is a lack of appreciation for errors and measurement problems. science is accurate, does not lie and gives absolute answers is the normal belief. When confronted with the problem of the length of a table, they felt that using a better apparatus, the length could be measured exactly. It took some thinking in many discussions as well as their own encouragements for them to be convinced that measurement is always limited by error which may be reduced but can never be dispensed with entirely or that weight of the bob in an oscillating simple pendulum did not give as much of variation of time period as they believed from their science learning. What we realised were that the major challenges before us in developing an alternative of more meaningful Science teaching are:-

1. Lack of openness in teachers about exploring and thinking about new issues.
2. A feeling that it is more important to state and define something in exact words than to think about and develop one's own understanding and consequent definition.
3. Science and its process of development seem to have been entirely left out when they were learning and the way they were taught.
4. Their understanding of science concept is weak and they are unable to think openly and ask a wide variety of questions. They do not feel that process of Science and developing the capability of working according to that process is a valuable asset. For them much of it is a waste of time and they feel compelled to push learning facts as proper Science teaching.
5. There is a desire for a lot of existing information and straight-forward answers. They have statements from different texts that they have read, which they believe and quote

without any basis. Not only is their faith in the textbook deepen but, they also have a tendency to believe anything that has been written and printed. We had discussions on some of the information they had picked from different sources but there was nothing in their experience to back the information. The understanding that they exhibited stemmed from a pedagogy which has taught them to value facts. The struggle of learning about nature and its laws discovering a better understanding about every things around us does not appear to be an active proposition.

6. It becomes important to communicate to the teachers, the necessity for openness about learning of science and present to them the tentativeness of science and its inability to claim final and true answers. Most striking thing about the workshop discussion was that people realised that the fable of the apple falling on the head of Newton is hopelessly inadequate to explain the kind of generalisation that Newton reached. The discussions made them understand that as a science student or as a science teacher the thing to realise is that there was an enormous amount of existing work that was available and served as input for Newton to make the generalisations. Yet what Newton said, what Einstien said, and what great scientists have said recently are all open to question, research, and modifications. This message of tentativeness continues. It is fascinating for people to historically trace the development of understanding/knowledge and realise that science always changes and that there have been no fixed rules in science.

7. We also explore in the workshop of the experiments that were there in the text books and tried to do as many of them as possible. We discovered that it was not easy to do many of the experiments. Some of the experiments did give answers that were different from what was expected. It also emerged that in some of the experiments the expected observations and the reasons given for them were logically fallacious and inappropriate.

   All of us felt uncomfortable about the way experiments were designed and presented in the textbook. What we gathered by looking at the textbooks was that the main purpose of experiments in the text books seems to be to verify and agree to what is being said as a fact. The child or the teacher has to report results after the experiments and invariably the result need to match with the age old experimental results done some where else with different apparatus. Variation in the result or an alternative answer is not expected and premium is on reaching the same answer as given in the book just below the experiment.

Summing up

So where does this leave us? Science education needs to be and be changed. The principles and descriptions of what is Science and what its learning means have been articulated and classified in policy and curricular documents.

The nature of our understanding of Science, its nature and relationship with human society and natural work is evolving and changing as its relationship with the other knowledge domains including the community knowledge, yet the importance of its method and need for learning it both as a conceptual edifice and a criteria

for judgement cannot be discussed or even devalued. The challenge is to make the understanding of Science, its way of thinking and doing reach a wider community in particular all those who are engaged with education in some way. Without that as a start the project of meaningful science teaching is a non-starter.

Notes of Explanations:

1. The Kothari Commission was set up to suggest the means to improve education in the country. The importance that was given to science education is evident in the fact that a task force was set up by the Commission to focus on science education. This task group focussed on science education not including medical education or professional, vocational and technical education. The later were taken care of by another task force. What the Kothari Commission says about Science education is important to consider in understanding the importance that was associated with science. It said "Science education must become an integral part of school education and ultimately some study of science should become a part of all courses in the humanities and social sciences at university stage also. The quality of science teaching must also be improved considerably so as to promote a deep understanding of basic principles, to develop problem solving and analytical skills and to promote the spirit of enquiry and experimentation."

   And "Every primary school should have a science room to keep specimens, models and charts with necessary storage facilities. Every higher primary school should be provided with one laboratory-cum-lecture room."

2. *Task Force on Science Education*: 'The mandate of the group was to focus on the science education excluding medical education and consisted of D.S. Kothari, S. Deb, B. D. Jain, P. Florence Nightingale, R.C. Paul, R.N. Rai, T.S. Sadasivan, D. Shankernarayan, Shantinarayan, A.R. Verma, R.D. Deshpande and I. C. Menon (Secretary). There was another task force on Professional, vocational and technical education. No taks force was setup for language, social studies or language education separately

3. Hoshangabad Science teaching programme was a program of Science teaching in Schools of Madhya Pradesh. For details see Joshi Sushil Jashn e Talim, Eklavya Bhopal 2015 (ibid 8)

References and Suggested Reading

1. Department of Education, Govt of India (1966), *Report of the Commission on Education* 1964-66, pages 7,9,25 Clauses 121-124.169, 170

2(a). G.P. Tulasi (2004). Discovery Publishing House. New Delhi, p. 372.

2(b). G.P. Tulasi (2004). quoted from *Minimum Learning Continuum* (NCERT, 1979). Discovery Publishing House. New Delhi, p. 372.

3. Department of Education, Govt. of India Education (1992). *National Policy on Education 1986 ammended in 1992*. Section 8.18, New Delhi.

4. NCERT (1988). *National Curriculum Framework for Elementary and Secondary Education. A Framework 1988*. New Delhi.

5. NCERT (2000).*National Curriculum Framework for School Education 2000*, pp. 16-17.

6(a). NCERT (2005). *National Curriculum Framework-2005*. pp. 16-17

6(b). NCERT (2006). *Position Paper of the National Focus Group on Teaching of Science*, New Delhi. p. 17-18

7. Dewan H.K. (1995). Kyo kare prayog*?. Sandarbh*, 4 (March-April), p.15

8. Joshi Sushil (2015). Never a dull moment: Academic narrative of Hushangabad Science teaching Programme. *Jasne Talim* (HSTP). Eklavya Publication, Bhopal.

9. HBSCE. Small Science Textbooks, Workbooks and Teacher's Book's for Classes 1-5. Mumbai

10. Dewan H.K. (1994). *Prashika*, Pathyakrum. Unpublished

11. Eklavya (1992). *Khushi-Khushi* (Class III-V). Primary School Text cum Workbook, Bhopal

12. Dewan H.K. (2012). *Kaisi ho vigyan ki kaksha.* Khojicaur Jaani, January-june,14

Kinnari Pandya
kinnari@apu.edu.in

The National Early Childhood Care and Education Curriculum Framework, 2014, and its Implications for Practice

Abstract

National Early Childhood Care and Education Curriculum Framework 2014 is a significant milestone in articulating the key objectives of an early childhood program and process important for an early childhood teacher and a centre to follow. This paper examines the ECCE curriculum framework on parameters outlined for a Curriculum Framework in the position paper of the National Focus Group on Curriculum, Syllabus and Textbooks brought out by the NCERT. Alongside, it provides an overview of the National ECCE curriculum framework. Further, it suggests some necessary steps required to translate the aims articulated in the curriculum framework to prepare and educate all stakeholders involved in offering early childhood programs – parents, teacher educators, teachers, caregivers, centre managers, other functionaries engaged with planning and implementing early childhood programs.

1. Introduction

The field of Early Childhood Care and Education (ECCE) in India has shown steady but substantial move towards bringing recognition and policy emphasis for care and education of children below eight years of age in the past decade. While programs for children from marginalized sections, and other socio-economic classes have co-existed in our country for decades, a systematic policy recognition and provisions for it has taken a long while and struggle of several years to reach some major milestones in the field of ECCE.

The National Curriculum Framework 2005 through its *Position Paper of the National Focus Group on Early Childhood Care and Education (ECCE)* laid a detailed backdrop of the significance of ECCE, global and local contexts that influence, the nature of early childhood programs and critical importance of the early years, historical backdrop of the domain in India, the various inter-sectoral policy provisions for mothers and children below eight years of age. The document discusses the issues and challenges of equity, access, quality and issues of early language development alongwith questions of multilingualism, mother-tongue, and English emphasis. It further highlights the need for a Curriculum Framework for ECCE, and outlines the key curricular and pedagogical considerations for children of different age groups - Curriculum for Infants and Toddlers (Birth –2+), Curricular Framework for 3–5+ children; other issues regarding 3–5+ children; Curriculum in the early primary grades, 6–8+ children.

This was followed by the much awaited provisioning of a *National Policy on ECCE in 2013* by the Ministry of Women and Child Development. The policy laid out critical provisions of enabling safe, nourishing environment for children below eight of years of

age across various socio-economic-cultural-regional contexts of the country. Quality Standards document supplementing the policy provisions further specified standards of delivery for ECCE programs.

Further, *the National Early Childhood Care and Education Curriculum Framework, 2014* (referred to as NCF ECCE 2014 hereafter) is a historic contribution to the domain. This document builds on aspects outlined in the ECCE position paper and lays the foundational aspects critical for a quality ECCE curriculum across diverse settings.

This paper provides an overview of the key elements of National ECCE curriculum framework 2014and discusses steps for effective implementation of the recommendations made in the curriculum framework across pre-school settings.

2. National Curriculum Framework on Early Childhood Care and Education– An Overview of Key Elements of the Framework

A curriculum is broadly referred to as 'plan of facilitating learning in a child'. A fuller definition borrowed from position paper of the National Focus Group on Curriculum, Syllabus and Textbooks suggests, *"Curriculum is, perhaps, best thought of as that set of planned activities which are designed to implement a particular educational aim – set of such aims – in terms of the content of what is to be taught and the knowledge, skills and attitudes which are to be deliberately fostered" (Winch) together with statements of criteria for selection of content, and choices in methods, materials and evaluation. (Stenhouse)"* (as cited in NCERT 2006, pp. 12).

The structure of a curriculum framework proposed in this position paper is as follows:

2.1 Foundations of a curriculum- includes, assumptions concerning human beings and society; epistemological assumptions; assumptions about learning; assumed understanding about the child and her context.

2.2 These foundational assumptions further guide the *Core of a curriculum.* i.e. Aims of education; stage specific objectives; principles of content selection and organization; criteria for good methods; criteria for good material; and principles of evaluation. This is a two-way and continuous process that would keep refining with every cycle of curriculum execution.

2.3 The Curriculum details follow from each of these core elements:

a. Stage specific objectives and principles of content selection and organization guide the formulation of actual syllabus. These together with the criteria for good methods guide the classroom practice and criteria for good material available in classrooms.

b. Similarly, principles of evaluation guide the actual scheme of evaluation – i.e. formative evaluation such as use of checklists based on continuous observation, portfolios and records of children's work, and so on; Or more summative evaluation to test overall progress of children.

An analysis of the NCF ECCE 2014 in light of the above criteria for a curriculum framework is attempted below. This exercise in parallel also provides an overview of the key ideas and processes recommended in the NCF ECCE 2014.

2.1 Foundations of the has been Curriculum: The foundation articulated in parts of Section 1, titled Foundations of Early Care

and Learning in the Curriculum Document, pages 4 to 9. This highlights:

2.1.1 *Assumptions concerning Human beings and Society:* Growth and Development of children is most rapid in the first six years of life. 90% of brain development occurs before 6 years of age as per neuro science research. Psycho-social stimulation is equally critical as health and nutrition for ensuring optimal development of children. Children who do not receive psycho-social stimulation (i.e. limited social, emotional, cognitive, language and creative inputs) are likely to remain 'at-risk' in terms of 'life chances and opportunities'. (pp. 7).

2.1.2 *Epistemological Assumptions:* The understanding of child-development theories, and neuro-science evidence guide the significance of working with young children and planning early childhood development programs.

Appropriate positive environment will ensure cognitive, linguistic, social, emotional, psycho-motor development for all individuals. The understanding of 'critical periods' or 'sensitive periods' would enable planning for appropriate learning opportunities and developmental delays.

Assumptions about working with children are guided by theoretical views emphasized by Rousseau, Frobel, Montessori, Dewey along with Indian thinkers such as Gandhi, Tagore, Aurobindo, Gijubhai Badheka, Tarabai Modak. They emphasised upon the ideas such as child's interest should be the starting point of activities for the child, everyday experiences provide rich opportunities for learning, action and direct observation are the key ways to educate. Besides this, focus was also on the importance of exploration, rhyme, rhythm, music, movement, learning in mother tongue, amidst nature, integrating the principles of child-centered education.

2.1.3 *Assumptions about Learning:* Principles of Child Development and learning given by Piaget, Vygotsky, Bruner, Urie Bronfenbrenner and Gardner guide the understanding of how children learn. i.e. Children's learning and development happen in socio-cultural context, and children constantly construct their understanding of the world around them and make sense of the perceptions and experiences. The role of a more knowledgeable other is critical in children's process of learning and meaning making. Play is a significant part of this process of learning and exploration.

Several other principles of early learning such as children are curious, engage in learning from birth, build on previous experiences, learn in a context through direct experiences are enlisted forming the foundations for early learning.

2.1.4 *Assumed Understanding about Child and Her Context*: The NCF ECCE acknowledges the diverse and varied geographic,

social, cultural, linguistic, and economic context that families of young children in Indian society belong to, and the diverse needs and strengths each family offers to the child. It borrows the vision of the Indian child articulated in the National ECCE Policy 2013 to provide "nurturance and promotion of holistic development and active learning capacity of all children below 6 years of age by promoting free, universal, inclusive, equitable, joyful and contextualised opportunities for laying foundation for development and attaining full potential". The curriculum further builds on that vision and views "children as happy, healthy and confident; each child with unique identity, grounded in their individual strengths and capacities; and with respect for their unique social, linguistic, and cultural heritage and diversity." (pp. 6)

2.2. Curriculum Core: Based on the above foundational principles of the domain of Early Childhood Care and Education, the Core of the curriculum get articulate in part 2 of the section 1 in the curriculum document i.e. pages 1 to 24. The specifics of objectives, and core of stage wise curriculum and organization principles are articulated in detail in Section 2 on Goals and Development of Learning pages 25 to 42 of the NCF ECCE.

2.2.1 *Aims of Education:* To put it simply, the aim of early childhood care and development program is 'holistic development of a child'. Articulated as broad objectives of the early childhood care and education program, the curriculum framework emphasizes the 'need for holistic and overall development that will facilitate a child's learning and development and lay foundation for helping the child achieve her full potential'.The curriculum framework further articulates several specific objectives across development domains – i.e. language, physical motor, cognitive, aesthetic, ethics, along with nutrition routine, health and hygiene habits, respecting each child's individuality and enabling positive self-concept, transition from home to preschool and preschool to school, and promoting development of an overall personality.

2.2.2 *Stage Specific Objectives*: The curriculum framework divides the learning and development of children in two sub-stages:

Stage 1: Birth to 3 years where the focus is on care, stimulation and interaction i.e. survival, safety, protective environment, health care, nutrition including infant and young child feeding practices for the first six months, attachment to an adult, opportunity for psycho-social stimulation and early interaction in safe, nurturing and stimulating environments within the home and appropriate child care centres.

Stage 2: From 3 to 6 years where the key goal is care, early learning and school readiness, protection from hazards, health care, nutrition, attachment to an adult, developmentally

appropriate play-based preschool education with a structured and planned school readiness component for 5 to 6 year olds Inter-relationship between each domain of development and specific development milestones/learning objectives in each sub-stage have been elucidated.

2.2.3. *Principles of Content Selection and Organization; Criteria for Good Methods:*

'Play' in its different forms and stages is considered the most critical element of early learning opportunity and environment. Along with play, activities that are well-planned, implying a series of experiences which provide cognitive and physical stimulation and are challenging enough to learn a concept, are emphasized as the foremost elements of the process of learning. These are key guiding principle for content selection and methods of engaging children.

Further, the NCF ECCE 2014 organizes the overall curriculum -learning goals and practices with *Context, Content and Process* as the three core components. It articulates each with reference to content selection, organization, pedagogy, and material selection.

- Context- where in learning takes place, the environment where the child belongs.
- Content- The specific goals within each domain of development that guide the activity to be undertaken.
- Process– the 'how' of each activity, the pedagogy that adults and caregivers in the child's environment use to create an enabling environment for that learning goal.

Each of these three components have been articulated with reference to the stages 2. For instance, for children in stage 2, i.e. 3 to 6 years of age, the content and themes can emerging from immediate environments and then moving to peripheral and abstract concepts, including themes related to child's self, relationship with people and understanding of the world around. Some other criterion are inter-connected learning opportunities, linking across different learning experiences, reflecting real life contexts of children, use of different materials and activities to revisit concepts often to strengthen their understanding and so on.

The NCF ECCE 2014 further recommends that the curriculum for young children should center on the principle of children's increasing ability to learn complex concepts and suggests 'Spiral Curriculum' as one of the organizing principles. This suggest initially learning with concrete objects in simpler action-based forms, pictorial to abstract forms, and the same concepts revisited at more complex levels.

For this age group a program that is sensitive to young children's attention span is needed. This implies organizing focused activities for 15-20 minutes. A rouine that four-hour long program

with, providing flexible learning environment, break times, nap times with some routine activities. A develops a sense of security in children through a combination of 'structured and unstructured; active and quiet; outdoor and indoor; self-directed and adult initiated, individual, small group or large group learning activities. These should reate to child's environment and be enjoyable and challenging for children' (pp. 40). It, recommends that groups to be based on interests and styles, and ability levels of learners and their age. Active parental support and involvement to enable a close home-school connect; community partnerships to enable resource contribution and healthy school relationships among all stakeholders, i.e., family, school staff, children and so on.

The framework elucidates each proces in the Program Planning and Practices section 3. It gives Do's and Don'ts and key points for creating a suitable and enabling learning environment.

The curriculum framework for ECCE further outlines the details of the curricular activities, for both development stages alongwith the developmental objectives. Here the document begins to move out of the realm of conceptual framework, and provides specific details of *'what to'* and *'how to'*.

The issues of multilingualism, multi-age, multi-level grouping, inclusion, school readiness, and so on are also elucidated at length along with practices for creating the appropriate learning environments based on theoretically guided ideas for practice.

The roles of teachers, parents, administrators/centre managers have been further specified in the section on planning ECCE programs.

2.2.4. Criteria for Good Material: To create a stimulating environment for early learning, the material ought to be varied, stimulating, local, age and developmentally appropriate, so as to trigger a child's curiosity, sustain interest and motivation for learning. Safety and hygienic condition i.e. clean and toxic free material is also recommended as a criterion.

The materials can be multipurpose to be used both at home and in school or can be specific. Similarly they can be for both parents and children to use or be specific, natural and locally created material by craftsmen, parents, teachers, is another criteria to make the program creative and sustainable. The framework gives an indicative list of indoor and outdoor materials as well.

2.2.5. Principles of Evaluation: Pages 57 to 60 of the NCF ECCE 2014 articulate the purpose, principles process of evaluation. It envisages two fold purpose for assessment gauging the progress in learning and development, enabling early identification of developmental delays, special learning needs of a child. This will provide useful information for appropriate intervention and engagement; a feedback to the early childhood program; leading evaluation, revision and changes. The emphasis is that the nature of assessment be purely qualitative with no test-based assessment. Home-based

assessments by parents are recommended to get a holistic picture of the child's learning and development. Various methods of assessment such as collection of children's work, anecdotal records, photographs of work undertaken, health progress and so on are suggested. A developmental checklist across developmental domains is given.

2.3. Curriculum Details: The ECCE curriculum framework document in sections 2 and 3 specifies several details such as age and stage specific objectives, specific themes and content, nature of activities to be undertaken across developmental domains, It also gives the long-term, mid-term, short-term goals an indicative daily routine, nature and type of teaching learning material, and guidelines for an appropriate evaluation scheme for assessing young children. Several of these elements fall outside the realm of curriculum framework as defined earlier. However, it does not lay out the full schedule or a theme-wise twelve month plan, day wise. This typically would form the syllabus. These are more specific details that each program would ideally individually work out depending on the broad curricular goals and guidelines.

2.4. Overall Observations:

2.4.1. Early childhood care and education has usually been considered an intuitive endeavor between mother care given and child for very young children, and as a preparation for schooling for 3+ children. Several models based on a particular philosophies or those following eclectic approaches are prevalent in the country as this sector is unregulated. In this context, the NCF ECCE 2014 is a welcome step.

2.4.2. From the above analysis, the NCF ECCE 2014 comes across as a comprehensive document that fulfilling the criteria of a curriculum framework. At several instances, it moves beyond stating the guiding principles gives several specific suggestions to implement the curriculum core. Given the dearth of comprehensive literature on early childhood education curricula, the details are worthwhile.

2.4.3. The guidelines provide guided and balanced mechanisms to deal with questions from the ground on several issues such as debates on home language, multilingual classrooms, inclusion, school readiness, material/ resource rich environment– whether 3 Rs or emphasis on holistic development, role of activity and play in early learning, assessment, balance in routine for young children, and so on.

2.4.4. Further, it specifically articulates the role and possible contribution of teachers, parents/care-givers are community.

2.4.5. The framework overtime may ensure a more systematic and informed approach to ECCE program across centres.

2.4.6. The idea that curriculum framework and curriculum details will be seem as bi directional continuous process that would keep refining with every cycle of curriculum execution could have cognised been emphasized.

3. Concern in Practice

3.1. It is three years since the NCF ECCE was outlined. It is however a hardly known document even in the ECCE sector.

3.2. The NCF ECCE in principle is a guiding document for all ECCE centres and preschools across the country. However, given that there are several kinds of pre schools and ECCE centres running in the country with no uniform norms or a regulatory body to govern these centres, it will be long before the vision and the principles laid in the NCF ECCE document may be realized.

4 Positives and Implications:

4.1. The public system pre schools – i.e. Anganwadi centers of the Integrated Child Development Services scheme have started implementing an adaptation of the curriculum framework based on the directives of the Ministry of Women and Child Development and NIPCCD.

4.2. Systematic efforts to bring awareness among the private sector and the non-government organizations to adopt and/or align with this national framework would be required.

4.3. Within the roll-out in ICDS, it is often seen that it is the syllabus, and what to do is what reaches the Anganwadi teachers. In order to realize the objectives of early learning and development outlined in the framework, a holistic theoretical understanding based on which the principles of pedagogy and practice have emerged should be discussed and analysed with Anganwadi teachers as a part of their in-service capacity development programs, sector meetings and in other opportunities.

4.4. The core ideas of the document should get included in pre-service and in-service teacher development programs for early childhood and elementary school teacher.

4.5. Other stakeholders in the eco-system of an ECCE centre such as the centre managers, parents, support staff, should also get oriented towards the expectations from a quality early childhood education program.

To conclude, there is a long way forward for this landmark document, the National ECCE curriculum framework 2014, to realize the vision of facilitating holistic development of every young child in our country. Several systematic efforts across levels will be required to ensure that quality early childhood care and education programs are available to children in our country.

References:

- NCERT (2006). *Position Paper of the National Focus Group on Curriculum, Textbooks and Syllabus* (2005), NCERT, Delhi
- GOI (2014). *National Early Childhood Care and Education Curriculum Framework* (2014). Ministry of Women and Child Development, New Delhi

Anamika
anamika.n.h@gmail.com

Pedagogy of Human Rights Education in an Elementary School of New Delhi: Probing the Role of Social Science Teachers

Abstract

Human Rights(HR) education can be introduced at all levels. The elementary level Social Science education is crucial for the development of the concept of human rights among adolescents. The pedagogy of human rights education can be a useful and effective way of inculcating deliberative methods, humane and judicious values, and rational and critical thinking among pupils. The present study is an attempt to assess social science teachers' pedagogy in the context of human rights education. The issues germane to the study are framed through a series of questions on self-perception of teachers, praxis, obstacles and pedagogy. The issues are examined with a set of three teachers of sixth grade and their classes in an elementary school of New Delhi.

The findings of this study suggest that the agency of the teacher is crucial for successful implementation of HRE; that a teacher has to have passion and commitment for HR; that the rights of students as individuals must be respected by the teachers; that HRE must be context specific; that the Universal Declaration of Human Rights can be used as a universal standard to teach HR.

Education shapes our lives through continuous socialization of pupils. It prepares future generations to participate in social change and contribute to society's development. Human Rights (HR) are fundamental to the dignified existence of human beings and cannot be denied in any circumstances. Human Rights Education (HRE) is an emerging field and is all encompassing in nature. It is more than educating students and people in HR, i.e. to know one's rights and respect others'. HRE addresses the developmental aspects of an individual in totality. It builds on cognition, attitude towards, and skills required for establishing the HR in a society. HRE can be introduced at all levels of education. The elementary level Social Science education is crucial for the development of the concept of HR among adolescents. For the pupils of this age group, the guidance of teacher and the pedagogy of HRE are critical for a clear understanding of the concept. The pedagogy of HRE can be a useful and effective way of inculcating deliberative methods, humane and judicious values, and rational and critical thinking among pupils. The present study is aimed to explore the role of elementary school Social Science teachers in promoting HRE. The study also intends to evaluate how Social Science teachers of elementary schools perceive HR and HRE. It throws light on the praxis of HR educators. Further, it explores the obstacles faced by the Social Science teachers while putting HRE into practice. The issues that the present research intends to raise are: (1) How the pedagogy of HRE is perceived by Social Science teachers

of the elementary school of New Delhi in the context of their values, beliefs, attitudes, and ideals of HRE? (2) How is the pedagogy of HRE of Social Science teachers of New Delhi put into practice? (3) What are the problems and obstacles faced by Social Science teachers during the process of teaching human rights? (4) Can there be a general pedagogy of human rights education, which can be applied across different educational settings and disciplines? The issues are examined with a set of three teachers of sixth grade and their classes in elementary school of New Delhi. All the three teachers have attended a workshop on HRE, hence can be considered to be equipped in transacting HRE.

Research Methodology

To examine the above research questions, the study employs critical qualitative research method. It is one of several genres of inquiry into non-quantifiable features of social research (Carspecken, 1996, p. 3). The basic premise of criticalist scholars is that inequality, oppression, and unequal power relations are the main features of all societies whether they are hidden or apparent. Hence, the purpose of critical qualitative research is not only to expose such disparities, but also ensure social change through unbiased research. A valid research is based on validity claim. Validity claim entails, first, the procedure followed to come to a claim, and, second, the acceptance of it by a certain social or cultural group. Carspecken categorized validity claims into three sets: objective, subjective and normative. The objective category includes existing things and events that are directly accessible to all; for example, classroom observation notes, recording or videotaping. The subjective category includes feelings, desires, intentions and states of mind which are directly accessible only to the subject-actor. The observer does not have a direct access to these and has to rely almost entirely on versions received from the subject. There is always a possibility that the whole picture is not presented by the subject. In the normative category, value[1]* claims have an important role. Value claims are a subset of normative truth claims because these are concerned with what is good or bad right or wrong. They also include ideas about what is proper, and what is appropriate and hence what behaviors ought to be exhibited in which circumstances (Carspecken, 1996, p. 86). The normative category includes consensus among a community about an activity or event whether it is proper and appropriate. As claims, they impose on others by tacitly insisting that the other should conform to a certain convention. In the academic world, there is a broad agreement among scholars over value-based norms. In a nutshell, objective category denotes "the world", subjective category indicates "my world" and normative category implies "our world".

On the basis of the three validity claims categories, five stages that have been evolved in critical qualitative research: (1) compiling primary record (2) preliminary reconstructive analysis (3) dialogical data generation (4) describing system relations (5) system relations as explanations of findings (Carspecken & Apple, 1992, pp. 507-554; Carspecken, 1996). These stages are flexible and circular in nature, and carry the possibilities of referring back to the earlier or later stages while conducting research.

Critical or Radical Pedagogy

McLaren (1995) visualizes the present time as a precarious moment in history,

* Norms and Values are distinct but internally connected.

where relations of subjection, suffering and contempt for human dignity are at the center of social existence. The present education system is not only reinforcing, but also validating the current power structure and relations prevailing in our society. Critical pedagogy addresses the issues such as how society and culture form and nurture social disparities, how power relations work in favor of dominant blocs, how social facts are closely related with values and dominant ideologies, how certain groups are unjustly privileged, and how mainstream research practices are involved in the reproduction of systems of class, race, and gender oppression.

HRE in India: How Independent or Integrated?

In India HRE is predominantly a part of Social Science. There are NGOs promoting it as an independent subject as well. NHRC also suggests that HRE should be incorporated in the syllabus as a separate subject (Kothari, 2000, pp. 21-27). There are policy papers and reports claiming that there were initiatives in the past to incorporate HRE into the school curriculum. One such instance goes back to 1974 when India committed to implementing the UNESCO recommendations concerning education for international understanding, cooperation and peace and education relating to HR and fundamental freedoms.

National Curriculum Framework-2005 (NCF-2005) adopted the concept of HR as the basic frame for Social Science curriculum. The Social Science textbooks were written in this spirit. The themes and concepts pertaining to HR dealt with in sixth class Social Science textbooks are: respect for diversity, understanding diversity in terms of religion, language, region, social status, economic position, inequality, unity in diversity, freedom, difference and prejudice, creating stereotypes, inequality and discrimination, untouchability, right to equality, women's rights, dalits' rights, right to education, secularism, right to vote, women's struggle for right to vote, racial discrimination, language-based discrimination, social movements, equality and justice, education of girls, right to information, gender equality, sanitation, contract worker's rights, sanitation workers' right, workers' rights and right to livelihood (Social and Political Life-I, 2007).

All these HR issues covered are relevant to the contemporary Indian society. The violation of many of these HR issues can be seen in everyday life. The topics included in Social Science textbook indicate that curriculum framers do believe in eleven or twelve year olds' capacity to understand complex issues of HR and the harsh realities of HR violations in Indian society.

On the other hand, there are Indian scholars who call themselves "Radical Humanists" and hold a different opinion from the education policy makers. When HRE was taught as a subject, observed Pinto (2000), it is taught as an academic discipline like any other subject (pp. 50-62). HRE taught as an academic discipline would not lead to the desired objective of activism on the part of the learners. Academic disciplines have a tendency to promote theoretical understanding and lack practical activism, the primary goal of HRE. Ahmad (2000) opined that HRE should be built into the teaching programs of the different disciplines rather than be introduced as a subject of study and research in itself (pp. 43-44). Nayak stated that HRE should seek for a comprehensive curriculum (2000, p. 85). Nayak proposes that HR teaching should permeate not only

all school subjects, but every aspect of school life. Though inclusive and integrative opinions about HRE into school education are floating in the intellectual environment they have neither made their way to the minds of education policy makers nor have triggered the imagination of school administrators and teachers.

Teachers and Human Rights Education

Bajaj (2011) argued that textbooks play a crucial role in HRE. The sixth class Social Science textbooks have plenty of relevant HR material in various units. The incorporation of HR curriculum into textbooks however, does not in itself guarantee the desired result. Tiwari (2004) stated that in the field of HR, the perception of teachers/ trainers and their commitment to the cause would count more than any well-prepared curriculum or elaborate guidelines (pp. 423-445). To a large extent it is the agency of the teacher that will determine proper implementation and outcome of HRE. Batra (2006) emphatically supported the agency of the teacher as the critical link between teaching learning environment and curriculum (pp. 88-90). Mirza (2004) states that it is expected that teachers themselves must demonstrate appreciation and understanding of HR in their interactions with the students (pp. 218-229). Teachers' narratives also contribute to creation of HR culture (Zembylas, Lesta, and Charalambous, (2016). It is true that improper and limited understanding or misunderstanding about HR on the part of teachers can pose a danger to the successful implementation of HR in school setting.

Characteristics of Human Rights Educators

The discipline of HR and HRE is in a nascent stage. Claude (1996) argued that to further the discipline more literature that is founded on experiences, practices and researches of scholars, educators, and other stakeholders, such as government, NGOs and INGOs need to be generated. Due to lack of literature there is no theory that can describe the characteristics of HR educators. A few characteristics of HR educators have however been pointed out. Stobart (1991) argued that effectiveness of HRE depends on the commitment, quality and skills of the individual teacher. Shiman (1991) too expressed that the establishment and furtherance of HR is largely dependent on the right temperament and commitment of the teachers (p. 190). This study finds that, as far as characteristics are concerned, a common thread runs through all three teachers. During this study the following characteristic were observed commonly in all three teachers: critical thinking, commitment and belief in HR, belief in efficacy of HRE, belief in democratic communication and not in giving instruction, having the zeal of a learner, functioning as participator not controller, observer, activist, have the ability to handle challenges, patience, and tolerance.

While, some of the characteristics were dominant in some teachers, they were all present to different degrees. The question is if these qualities are specific to HR educators or all teachers have them. The answer is difficult in the absence of comparative perspective. Teachers who do not believe in HR practice are not capable of respecting childrens' rights as humans. Their classes tend to be more authoritative than democratic. They seldom allow critical thinking as it curtails their power and puts a question mark on their classroom behaviour. Their classes are always quiet because no discussion is

required and the teacher's words are final.

Pedagogy of HRE: Teachers' Perceptions and Praxis

The success of any endeavor depends on the attitude of the actor towards it. The enterprise of HRE has more to do with positive attitude of teachers, students, school administration, and the government towards it. The agency of teachers is crucial for HRE and hence their perception of HR becomes very significant. This section analyzes the perceptions and praxis of pedagogy of HRE teachers.

The concept of HR is universal and has eightfold elements mentioned in the Universal Decleration of Human Rights (UDHR). Teachers in this study have developed their own definition of HR that emphasizes certain elements of the UDHR, such as human dignity and equality. For Sara, HR are nothing, but a matter of common sense. She prefers to perceive HR in concrete form. Sheela perceives HR in linguistic terms. She says that it is fair to argue that the nature of the language used in a society is indicative of whether HR are being respected or not. Maya opined that HR are fundamental for an individual to lead a respectful life. All the three teachers perceive HR differently according to their belief and value system so that whichever element of HR they think is crucial, is highlighted in their definition.

Magendzo (2005) urged teachers to be conscious of the manifestation and experience of HR in everyday life as well as in their personal and collective experiences. For Sara, HRE is not something that can only be taught in classrooms. It is an experience that life offers every single day. If students are incapable of feeling anything about the child beggars, long discussions on HR within the walls of the classroom are futile. Thus, HRE has to establish the relationship between the classroom and the outside world. For Sheela HRE is to learn the language of HR. She thinks language is a socio-cultural construct. It reflects the thinking of a society. The language used in communication, literature, textbooks, and other media has examples that are in clear violation of HR. Flowers (2003) warned against the misuse of HRE by those who learn the language without embracing the vision. For Maya, justice and fairness are the backbone of HRE; and HRE can help in solving HR related problems that are structural in nature. Maya's point of view goes back to DHRE that clearly mentions human dignity, equality, justice and fairness as the skeleton of HRE. These principles should be the guiding force of the content of HRE.

To teach HR concepts Sara employs the project method involving new learning experiences. Discovery of new facts gives students a sense of achievement. Most importantly, after completing the project they become some sort of authority on the subject. They acquire first hand experiences that provide a strong foundation to their theoretical knowledge. Comparison puts empirical facts in a wider perspective and the students see the same problem from different perspectives. Sara's pedagogy of HRE is based on service learning approach. Service learning is experiential learning designed to provide a service needed by the community while allowing students to learn and apply course concepts in the real world (Eyler and Giles cited in Krain and Nurse, (2004). Service learning is different from community service. It provides a linkage between the course work and real life experiences. Sara by employing project method tries to connect the theoretical knowledge with practical experiences.

The teacher's code of conduct plays

a major role in shaping ideas among students. Sheela keeps this in mind and makes it an integral component of her pedagogy. Sheela thinks that a teacher's actions, statements, opinions and practices matter a lot in teaching HR. Her pedagogy of HRE is based on reconstructionist approach. In this approach teachers are entrusted with a huge responsibility (Reardon, 1995, p. 12). Sheela considers case study method as most appropriate to transmit HRE. Case studies are based on real life experiences that offer a picture of what goes on in peoples' lives. It has the potential to move the students' inner self to do something concrete to improve social conditions and contri, bute towards social transformation. This is also in accordance with reconstructionist approach where teacher is visualized with the hope that she would bring in social change with effective implementation of HRE.

Maya's pedagogy of HRE is based on the concepts of justice and fairness. For her context is very important. She does believe that HRE, taught in the right context, can be made meaningful and familiar to young children. Maya's pedagogy of HRE is based on international standards and institutional approach. The pedagogy also follows the accountability model because justice and fairness are core concepts of legal approach that is the back bone of accountability model. Her pedagogy of HRE also has an element of service learning approach because she gives examples of HR violations from daily life. She believes that these examples can ignite the inner HR activists in children.

The approaches and models of HRE are important for teachers and HR educators to be well versed in the pedagogy of HRE. The understanding of these approaches and models provide a better grounding in HRE and its implementation. Their real efficacy can only be judged by the outcome of the program of HRE. The present study has focused only on the implementation part. To include the part on evaluation would require another long term study in which the cognitive and behavioral skills, attitude, and practices of students can be considered.

Problems and Obstacles faced by Human Rights Educators

Flowers (2015) writes that if teachers are to feel safe addressing controversial topics and local issues, they need community support (p.11). Lohrenscheit (2002) and Lister (1991) have come up with a list of probable challenges and problems HRE might face. They have raised certain questions to alert HR educators and have solicited response. For example, how can one learn and teach complete HR in surroundings where some rights are denied, such as women's rights or are the HR's complex for minds at this stage? These questions are useful for the training in HRE. Except Lohrenscheit and Lister no significant work is available. In addition there is practically no research conducted on the teachers who are teaching HR. Therefore, there is no clear picture about the kind of problems and obstacles that are being faced by them in classrooms and outside. This study throws some light on this issue.

The teachers in the present study shared their experiences about problems and obstacles. Sara considered media as the greatest obstacle in the way of HR. She blamed media for inducing violence, rudeness, greed for material things, and anxiety among youngsters. According to her, the students 'would imitate fight sequence of a famous actor or use indecent or inappropriate language for the sake of fun in school. In the past while involved in such activities some students have got

hurt. Students learnt to smoke while emulating film characters'.

It has been felt by scholars and people generally that the media is not playing a very constructive role. The representation of reality in the media is highly questionable. The adolescents are vulnerable when it comes to fantasy. If not guided properly they might start considering fantasy as reality. This would be a very precarious situation and adversely affect their overall development. It is a matter of great concern to make media responsible and accountable as well. And then have the young generation understand the difference between right and wrong.

Sheela found the lack of infrastructure in the school a big problem. The government schools are not equipped with even basic amenities such as desks, charts, globes, electricity, and hygienic toilets, let alone high tech gadgets. Sheela recalls the following experience:

"When I announced the screening of *The Diary of Anne Frank* the whole class was excited because it was the first time they were going to watch a movie in the school. I brought the CD and gave it to the assistant to set up. I was shocked to know that there was a projector that was never used and there were problems setting it up. The remote was also missing. The result was that we could not screen the movie and I had to postpone it. It was so depressing to see the children's disappointed faces. I took down the details of the projector and learnt how to use it. I also bought a remote. Finally, we managed to watch the movie. It is not this example but many more could be cited. Sometimes there are no equipments, and when the equipments are available either some part is missing or not working."

It is true that government schools in India are always short of hardware and software facilities. Teachers who are keen to make their teaching interesting can easily lose interest due to some glitch. In such a scenario, it is the students who suffer. It is their right to have all the facilities in the school. When seen from HR perspective, their Right to Education is being violated by the lack of basic amenities.

Maya asserts that theoretically HRE exists in our society, but in reality it is completely missing from daily life. A similar situation exists in schools where HRE is dealt in theory, but nobody is bothered about applying it. For Maya lack of collegial environment was also an obstacle. She felt whenever she tried to do anything new her colleagues discouraged her. Maya shared her experience of what happened when she just joined the school:

"I was very excited when I joined this school. I had many plans and I was very enthusiastic to put in all my knowledge and skills and make all possible efforts to make my teaching effective. My passion towards teaching was obvious to the school staff. I was trying to be involved in everything ranging from prayer to cultural activities and competitions. One day the senior most teacher came to me and said, 'don't you think you are unnecessarily tiring yourself? What would you get out of it? It is not going to last very long'. There were others too who had similar feelings, but did not express. They started ignoring me and would say, silly things to discourage me. It was clear that they were not happy with my passion towards my profession. I decided to keep a low profile. Now, whatever I do in my classroom I do not share it with my colleagues. I have one or two colleagues with whom I am in good terms, but they are men, so I cannot have open and regular discussions with them. This is the decorum of the school that female and male staffs have very formal relations."

For a newly appointed young and relatively less experienced teacher it is a matter of concern that her colleagues are not supportive and compassionate. There is a significant amount of time that a teacher spends with her colleagues. Maya's colleagues tried to demoralize her. The unfriendly and obtrusive collegial environment impinged upon the development of a budding teacher. The teacher had to face challenges from her new teaching assignments as well as from the attitude of the colleagues.

Another noteworthy point is gender segregation where Maya teaches. While, there are no written rules that male and female staff cannot communicate with each other, but segregation is a norm and a practice. This situation is typical of all government schools in Delhi. There are no common staff rooms for teachers. They sit separately. Segregation endorses traditional gender stereotypes. It might lead students to think that male and female teachers are different and it is not appropriate for them to converse normally. The only form of conversation that takes place between these two sets of teachers is about examination or admission. The gender segregation at teachers' level might have reached the level of students too as it seems that segregation is presented as an ideal for students' to follow. This is not a healthy practice for HRE. To break gender stereotypes is on the agenda of HRE. In a school where gender segregation is visibly practiced there can hardly be an ideal environment for HRE.

Can there be a General Pedagogy of Human Rights Education?

The eight principles of HR provide the ground for general pedagogy of HRE. These principles are universal and need to be practiced and upheld. The dignity of an Indian individual is not any different from that of a Chinese or American or European. These principles must guide HR educators in their pedagogical beliefs, values, and practices. In addition to the HR principles, UDHR is another standard that needs to be followed by every nation (Torney-Purta, 1987, pp. 223-233).

The pedagogy of HRE has certain standard approaches and models that can be applied by any HR educator in any context as the guiding force of these models is the HR principles with universal standards. In addition some skills and attitudes, such as critical thinking, commitment and strong belief in HR, belief in efficacy of HRE, belief in democratic communication, patience, tolerance, responsibility, and strength to fight for ones as well as others HR are needed. These are applicable in any context as relationships are guided by power structures.

Concluding Remarks

Best (1991) stated that defending and promoting HR is largely a matter of education and it depends on the attitudes and efforts of teachers (p. 120). An HR educator must be endowed with or develop abilities, values and beliefs that are essential. Stobart, 1991 argued that effectiveness of HRE depends on the commitment of the individual teacher. (Osler & Starkey, 1999, pp. 349-359). An HR educator must have a firm belief in the necessity and efficacy of HR for social transformation. A teacher must practice HR in the classroom as well as outside and must see social disparities, inequalities, and discrepancies with a critical perspective. The critical perspective on issues prepares the ground for HR implementation and shows rationale behind things. For instance, the presence of stark economic disparities is not God given, but man made and hence changable. Thus, it is imperative for an HR educator to analyze social conditions critically and instill the same ability among the students.

References

- Ahmad, I. (2000). Human rights education in India: Unresolved problems of perspective and pedagogy. In R. M. Pal & S. Chakraborty (Eds.), *Human Rights Education in India* (pp. 43-49). New Delhi: Indian Social Institute.
- Bajaj, M. (2011, June). Teaching to transform, transforming to teach: exploring the role of teachers in human rights education in India. *Educational Research*, 53(2), 207-221.
- Batra, P. (2006). Building on the National Curriculum Framework to enable the agency of teachers. *Contemporary Education Dialogue*, 4(1), 88-118.
- Best, F. (1991). Human rights education and teacher training. In H. Starkey (Ed.), The Challenge of Human Rights Education (pp. 120-129). London: Cassell, Council of Europe.
- Carspecken, P. F. (1996). *Critical Ethnography in Educational Research*. New York: Routledge.
- Carspecken, P. F., & Apple, M. W. (1992). Critical qualitative research, theory, method, and practice. In M. LeComte, W. Millroy & J. Preissley (Eds.), *Handbook of Qualitative Research in Education* (pp. 507-554). San Diego, CA: Academic.
- Claude, R. P. (1996). *Educating for Human Rights*. Quezon City: University of the Philippines Press.
- Flowers, N. (2003). What is human rights education? *The Human Rights Education Handbook*. Retrieved on November 2, 2008 from http://www.hrea.org/pubs/HREA-Research-in-HRE-Papers_issue1.pdf
- Flowers, N. (2015). The global movement for human rights education. *Radical Teacher*, 103, 5-17.
- Kothari, R. (2000). Human Rights Education: Two pedagogies. In R. M. Pal & S. Chakraborty (Eds.), *Human Rights Education in India* (pp. 21-27). New Delhi: Indian Social Institute.
- Krain, M., & Nurse, A. M. (2004, February). Teaching human rights through service learning. *Human Rights Quarterly*, 26(1), 189-207. Retrieved on November 2, 2008 from Academic Research Library.
- Lister, I. (1991). The Challenge for human rights. In H. Starkey (Ed.), *The Challenge of Human Rights Education* (pp.245-255). London: Cassell, Council of Europe.
- Lohrenscheit, C. (2002). International approaches in human rights. *International Review of Education*, 48(3-4), 173-185.
- Magendzo, A. (2005). Pedagogy of human rights education: A Latin American perspective. *Intercultural Education*, 16(2), 137-143.
- McLaren, P. (1995). *Critical Pedagogy and Predatory Culture*: *Oppositional Politics in a Postmodern Era*. London: Routledge.
- Mirza, N. B. (2000). Education and human rights. In H. Talesra, N. Pancholy & M. L. Nagda (Eds.), *Human Rights Education: A Global Perspective* (pp. 218-229). New Delhi: Regency Publications.
- Nayak, P. (2000). Human rights education in perspective. In R. M. Pal & S. Chakraborty (Eds.), *Human Rights Education in India* (pp. 85-101). New Delhi: Indian Social Institute.
- NCERT (2005). *National Curriculum Framework-2005*. New Delhi
- Osler, A., & Starkey, H. (1999). Rights, identities and inclusion: European action programmes as political education. *Oxford Review of Education*, 25(1&2), 199-215.

- Pinto, A. (2000). A pedagogy for human rights education. In R. M. Pal & S. Chakraborty (Eds.), *Human Rights Education in India* (pp. 50-62). New Delhi: Indian Social Institute.
- Reardon, B. A. (1995). *Educating for Human Dignity: Learning About Rights and Responsibilities*. Philadelphia: University of Pennsylvania Press.
- Shiman, D. (1991). Teaching human rights: Classroom activities for a global age. In H. Starkey (Ed.), *The Challenge of Human Rights Education* (pp. 189-204). London: Cassell, Council of Europe.
- *Social and Political Life-I* (2007). New Delhi: National Council of Educational Research and Training.
- Stobart, M. (1991). Forward. In H. Starkey (Ed.), *The Challenge of Human Rights Education*. London: Cassell, Council of Europe.
- Tiwari, A. (2004). Human rights education: Role of teaching and training institutions. *The Indian Journal of Social Work*, 65(3), 423-445.
- Torney-Purta, J. (1987). Human rights and education viewed in a comparative framework: Synthesis and conclusions (pp.223-233). In N. B. Tarrow (Ed.), *Human Rights and Education*. Oxford: Pergamon Press.
- Zembylas, M., Lesta, S., & Charalambous, C. (2016). Toward a critical hermeneutical approach in human rights education: Transformative possibilities and the challenges of implementation. *European Education*, 48, 137-157.

Aerum Khan
aerumkhan.ciet@gmail.com

Science, Scientific Literacy and Scientific Temper in the Curricular Documents

Abstract

Developing a scientifically literate population is a significant challenge and one of the most important objectives of Science education at school level in India as well as globally. Only a scientifically literate person can be rational, logical, and critical in her approach for making decisions and solving problems of daily life. The spirit of inquiry and the acceptance of the right to question and be questioned are fundamental to Scientific Temper. This research article attempts to review different curricular documents developed post-independence which have shown the path to the role of Science as a subject in general and scientific temper and scientific literacy in particular.

Introduction

Science in the modern world occupies a central place in the basic curriculum. A spirit of enquiry, an attitude of rationality, an itch for experimentation, etc. which are the essence of scientific temper, have to be inculcated with regard to every activity (Nayar, 1989). The ideas expressed by D.P. Nayar fully reflect the importance of Science in the curriculum. The attributes developed in an individual can be characterised to a better extent as scientific literacy and later on scientific temper.

The first efforts to communicate the so called modern western scientific ideas to the Indian public was made during the second half of the 19th Century. Small 'science societies' developed in various parts of India. Parallels could be drawn between what happened in Europe in the 17th and 18th Centuries and the efforts to disseminate Science in India in the latter part of 19th and the first half of 20th century. It is obvious that in India the number of people involved in Science related activities at that time was quite limited, and no serious effort was made to bring them together into a large scale 'Science movement'. Although the Indian freedom movement also operated as a carrier of modern scientific ideas (Raza, Singh, Kumar, Nayak, 2008).

Almost all the political leaders of Indian freedom movement and social reformers repeatedly emphasised the need to integrate modern Science into Indian culture. In 1937 Gandhiji emphasised the need of Science in Nai Taleem (New Education), he writes:

'Only every handicraft has to be taught not merely mechanically as is done today, but scientifically….'

(M.K. Gandhi, *Harijan*, 31 July 1937)

India got freedom from British rule in 1947, this was followed by the plans of the emerging ruling class and politicos to build a modern industrialised India. They recognised the need for a wider acceptance of scientific ideas in society. After this phrases like 'scientific temper', 'scientific belief system', broad scientific outlook' and 'scientific method' began to echo in various public forums.

The Freedom movement, though primarily political in nature, at times, operated as the carrier of modern scientific ideas. Serious efforts both at the level of the Government machinery and by the non-governmental organisations had to wait for the imminent Independence from the British Imperialism.

The dream of building a modern and industrialised India conceived by the leadership of the freedom struggle required technical manpower to be trained within the country in large numbers. A wider acceptance of scientific ideas in the society was a necessary precondition for achieving the goals that the leadership had set before the new born Independent India. Phrases such as 'scientific temper' 'broad scientific outlook', 'scientific belief system' and 'scientific method' echoed repeatedly in various forums of debate. Newspapers, magazines and electronic medium (television network did not exist at that time) began to be used for the dissemination of scientific information.

In the latter half of the fifties a large number of new books for teaching science in regional languages were written. The number of popular books on various topics of science and related subjects swelled. Translating English texts posed two major problems, one that Indian languages culturally had a limited capability of expressing modern scientific ideas and secondly, there was an acute shortage of standard technical terms. These terms had to be coined, at times this was done mechanically and at others, recourse was taken to using familiar but inaccurate terms leading to obfuscation or in some cases incorporation of 'anglicised' terms into the local languages (Raza, Singh, Kumar, Nayak, 2008).

Scientific Literacy and its Etymology

One of the primary goals of Science education can be summed up as development of scientific literacy in the individuals. Scientific Literacy (SL) is the ability of individuals to live satisfactorily and conveniently in a techno-Science culture. A literate population is equally imperative, but scientific literacy is a significant subset of literacy. A high scientific literacy rate is important for today's technologically driven society particularly for a nation that is among the fastest growing economies with a rapidly burgeoning population, the majority of it concentrated in villages and remote areas. In simple terms scientific literacy implies the ability of a person to ask questions, determine answers to questions derived from everyday experiences. It is the ability to seek explanations to natural phenomena instead of merely accepting given statements or considering them to be miracles. A scientifically literate person should be able to take informed decisions; and take positions that are scientifically and technologically informed. Such a person understands scientific concepts and processes required for the participation in society and economic productivity. The term 'scientific literacy' also refers to understanding of science to contribute to public debate of socio-scientific issues and to make informed decisions on these issues, as well as the appreciation of processes, values and ethics related to science (Dawson & Venville, 2009).

Scientific Temper and its Etymology

The Scientific temper needs to be a way of life for individuals and societies. It uses the scientific method which includes questioning, observing physical reality, testing, hypothesizing, analysing, and

communicating (not necessarily in that order). "Scientific temper" describes an attitude which involves the application of logic. Discussion, argument and analysis are vital parts of scientific temper. Elements of fairness, equality and democracy are built into it (The Hindu, 2005).

In 1946 Pandit Jawaharlal Nehru used the phrase 'scientific temper'. He introduced and defined the phrase 'scientific temper' in his book *Discovery of India*, and also popularised it by repeatedly using it in his speeches. According to him, the scientific approach, the adventurous and yet critical temper of science, the search for truth and new knowledge, the refusal to accept anything without testing and trial, the capacity to change previous conclusions in the face of new evidence, the reliance on observed fact and not on pre-conceived theory, the hard discipline of the mind is very much needed. All the above points are necessary, not merely for the application of science but for life itself and the solution of its many problems (Nehru 1946).

The genesis and development of the idea of the scientific temper is connected to ideas expressed earlier by Charles Darwin, in his words:

"[F]reedom of thought is best promoted by the gradual illumination of men's minds, which follows from the advance of science."

Charles Darwin

The spirit of inquiry and the acceptance of the right to question and be questioned are fundamental to Scientific Temper. It calls upon one to ask the 'how', the 'what', and the 'why' of an object, event or phenomenon. It further calls upon one to exercise the right to question, provided of course, the questioning of an existing theory, hypothesis or statement or social situation is done in accordance with the scientific method and is not merely a bare assertion of one's belief (Haksar, P.N., Ramanna, R. and Bhargava, P.M. (1981).

Notably during the 42nd Constitutional Ammendment Act, 1976 for the Indian Constitution an Article 51A was inserted, which makes provisions for the fundamental duties prescribed for citizens of India. This Article has a point which declares the role of Scientific temper in the following way: "It shall be the duty of every citizen of India to develop the scientific temper, humanism and the spirit of inquiry and reform." (Article 51A, The Constitution of India)

Statement on Scientific Temper, 1981

The Nehru Centre, Bombay issued a document titled 'A Statement on Scientific Temper' on 19 July 1981, which was signed by a group of eminent intellectuals, scientists and academicians. P.N. Haksar hoped that the statement would succeed in generating a nationwide discussion and also '[G]enerate a movement for the much needed second renaissance' in the country (Statement on Scientific Temper, 1992:185) (Mahanti, 2013).

The Statement articulated a notion of scientific temper at the heart of which was the method of science. The scientific method was the essence of all human knowledge, cross-cutting the natural sciences and social sciences. Its fundamental feature was 'the spirit of enquiry and acceptance of the right to question and be questioned' (Statement on Scientific Temper, 1992:192-93). Viewing knowledge as open ended and evolving, the statement unequivocally noted that Scientific Temper was incompatible with theological and metaphysical beliefs. While science was

universal, religions and dogmas are divisive (Mahanti, 2013).

The Statement evoked strong responses, both positive and negative, in certain circles of academia (Chadha, 2005; Prasad, 1982; Popli 2003). A number of articles and letters were published in two magazines viz., *Mainstream* and *Secular Democracy*. Asish Nandy issued a counter-statement entitled 'A Counter Statement on Humanistic Temper' and he declared 'The ultimate logic of scientific temper is the vulgar contempt for the common man it exudes' (Nanda, 2003:207).

Scientific Temper Statement Revisited-2011: The Palampur Declaration

In 2011, an attempt was made to revisit the 1981 Statement of Scientific Temper. The document prepared and adopted during the national consultation is known as the 'Scientific Temper Statement Revisited-2011: The Palampur Declaration'. This was later revalidated in an international conference on scientific temper organised by the four premier agencies of the Government of India viz., Council of Scientific and Industrial Research-National Institute of Science Communication and Information Resources (CSIR-NISCAIR), National Council of Science Museums (NCSM), National Council for Science and Technology Communication (NCSTC) and Vigyan Prasar in January 2012 in New Delhi.

The Palampur Declaration begins by reiterating the notion of Scientific Temper, the Statement underlines the fact that science has made it possible to understand life, mind and universe without taking recourse to supernatural and revealed knowledge. Moreover, scientific knowledge is universal (Mahanti, 2013). The Palampur Declaration does not abandon practical and useful traditional knowledge simply because it is traditional. "The pace of technological intrusion, without essential back-up support of scientific knowledge base, introduces cultural and social distortions within traditional cognitive structures. Lack of effort in providing the necessary complementary scientific knowledge base to the population at large is consolidating these distortions resulting in the erosion of democratic structures. Moreover, technology-driven modernisation creates a cognitive gap due to loss of traditional knowledge, which is being filled in by reiligiosity in new forms" (Scientific Temper Statement: Palampur Declaration, 2011) (Mahanti, 2013).

'Science', 'Scientific Literacy' and 'Scientific Temper' in different Curricular Documents, Post-independence

1. Scientific Policy Resolution (SPR), 1958

The Indian Parliament adopted the Scientific Policy Resolution (SPR) of 1958, which enunciated the principles on which the growth of science and technology would be based. The SPR-1958 asserted that the Government of India visualised modern science and technology as the chief instrument for social transformation. The dominating feature of the contemporary world is the intense cultivation of science on a large scale, and its application to meet a country's requirements. For the first time in the human history known to us, the people living in countries advanced in Science got the opportunity of working on their standard of living and social and cultural amenities, which once was confined to a very small privileged minority of the population. It is only through the scientific approach and method and the use of scientific knowledge that reasonable material and cultural amenities and services

can be provided for every member of the community (SPR, 1958).

The document 'Science and Technology Policy 2003' of the Government of India urges the it its own way and intends to ensure that the message of science reaches every citizen of India, man or woman, young or old, so that we can advance scientific temper, and emerge as a progressive and enlightened society, and make it possible for all our people to participate fully in the development of science and technology and its application for the welfare of mankind. It further emphasises that only this way science and technology will be fully integrated with all spheres of national activity. (Science and Technology Policy, 2003)

In 1964, a Society for the Promotion of Scientific Temper (SPST) was launched. Its sole objective was to promote scientific temper in the society. However, the Society did not survive long. Bhargava and Chakrabarti wrote: 'The Society for the Promotion of Scientific Temper died a natural death: this chapter on development of scientific temper in the country was closed but many lessons were learnt from it, one of them being that scientific temper was an important ingredient of any recipe for not only social and economic but also scientific and technological advancement of our country'(Bhargava and Chakrabarti, 2010:26-29).

2. National Policy on Education 1968

The National Policy of 1968 marked a significant step in the history of education in post-independence India. It aimed to promote national progress, a sense of common citizenship and culture, and to strengthen national integration. It laid stress on the need for a radical reconstruction of the education system, to improve its quality at all stages, and gave much greater attention to science and technology, the cultivation of moral values and a closer relation between education and the life of the people (NPE, 1986: p.2). On the basis of the report and recommendations of the Education Commission (1964–1966), the then government announced the first National Policy on Education in 1968, which called for a "radical restructuring" and equalise educational opportunities in order to achieve national integration and greater cultural and economic development.

This policy has very strong views about 'Science Education and Research'; it states "With a view to accelerating the growth of the national economy, science education and research should receive high priority. Science and mathematics should be an integral part of general education till the end of the school stage." (NPE, 1968)

3. National Policy on Education, 1986

The National Policy on Education came in 1986, according to this policy among the essence and roles of education; one of the important points is that 'Education has an acculturating role. It refines sensitivities and perceptions that contribute to national cohesion, a scientific temper and independence of mind and spirit - thus furthering the goals of socialism, secularism and democracy enshrined in our Constitution.' (NPE, 1986: p.4)

It further states that the National System of Education will be based on a national curricular framework which contains a common core along with other components that are flexible. The common core will include the history of India's freedom movement, the constitutional obligations and other content essential to nurture national identity. These elements will cut across subject areas and will be designed to

promote values such as India's common cultural heritage, egalitarianism, democracy and secularism, equality of the sexes, protection of the environment, removal of social barriers, observance of the small family norm and inculcation of the scientific temper. In addition to all this educational programmes will be carried on in strict conformity with secular values (NPE, 1986: p.25).

Discussing about Science Education, the policy document stated its intentions that Science education will be strengthened so as to develop in the child well defined abilities and values such as the spirit of Inquiry, creativity, objectivity, the courage to question, and an aesthetic sensibility. Science education programmes will be designed to enable the learner to acquire problem solving and decision making skills and to discover the relationship of science with health, agriculture, industry and other aspects of daily life. All the efforts should be made for bringing-in those who have been deprived from science education, due to not being the part of formal education system (NPE, 1986: p.29).

4. NCF, 1975 (The Curriculum for the Ten Year School: A Framework, 1975)

The Curriculum for the Ten Year School: A Framework, brought out by NCERT in 1975, attempted to give concrete shape to the recommendations of the Education Commission and also to the Resolution on National Policy of Education-1968. It represents the first attempt to restructure and reorient the content and processes of school education based on a National Curriculum Framework (NCESE, 1988: p.2).

The subject of Science was quoted as the integral part of the curriculum up to Class X. The teaching of Science was recommended to be upgraded and the curriculum continually renewed which moved towards giving the children modern knowledge, develop their curiosity, teach them the scientific method of inquiry and prepare them for competent participation in a changing society and culture, increasingly dependent on a rational outlook leading to better utilization of Science and Technology (NCF, 1975: p.4).

Among the major objectives of education of Children one of them was to develop 'techniracy', which parallels to 'literacy', 'numeracy', etc. To do so the child should learn the method of inquiry in Science. This can strenthen their thought process and enable them to start appreciating Science and Technology in the life and world around them (NCF, 1975: p.11).

The curriculum also focuses on developing in the students the competence to apply their knowledge to the solution of the problems around them. They should have an understanding of the technological processes in agriculture and industry in use in their surroundings. They should be able to contribute meaningfully to environmental conservation, the reduction of pollution, the development of proper nutrition and health and hygiene in the community and their (NCF, 1975: p.13).

The above excerpts very well reflect that in the NCF, 1975, the subject of Science was treated very importantly, the direct usage of 'Scientific temper' or 'Scientific literacy' was not evident but the attributes which combine to constitute the same were emphasised a lot.

5. NCESE, 1988 (National Curriculum for Elementary and Secondary Education: A Framework, 1988)

The subject Science has got a very prominent place in this framework, the subject starts as a part of Environmental Studies at the primary

stage and is starts as a part of Science from the upper primary upto secondary stage. This document states that Science should be treated as one of the curricular areas that plays a decisive role in equipping the learner in understanding, interpreting and dealing with various things and phenomena around them in a more scientific way. Education in science should aim at developing well defined abilities in all the three domains which are cognitive, affective and psychomotor domains which are reflected in spirit of inquiry, creativity, objectivity, the courage to question and aesthetic sensibility. (NCESE, 1988: pp. 24-25)

This document very properly has a section on 'Inculcation of the Scientific Temper' in its very first chapter, which is believed to be the stating of the acceptance in its basic form the word 'Scientific temper'. The part is reproduced verbatim here in after:

The curriculum at the school stage should help the individual in developing scientific temper and rational outlook which are characterised by a not-taken-for-granted attitude. The role of education in refining sensitivities and perceptions that contribute to scientific temper and independence of mind has been well recognised. The curriculum should develop in the pupil well defined abilities and values such as the spirit of inquiry, objectivity and the courage to question. There is a need to design various educational programmes in such a way that they would enable the learner to acquire problem solving and decision making skills. The emphasis of curriculum at different stages of school education, therefore, should be on developing in every pupil of qualities such as open mindedness, commitment to free inquiry, a habit of seeking more evidence before arriving at conclusions and a readiness to revise assumptions and hypotheses based on fresh evidence coming to light, all directed to the inculcation of the scientific temper. In teaching of various subjects it is important to keep in mind the interdisciplinary nature of the current scientific researches happening in the present scenario. Interdisciplinary and less segregation in teaching of various subjects seem to emerge as significant both in the context of our efforts to provide a broad-based education at the school stage and to prevent overcrowding of the school curriculum (NCESE, 1988: p.9).

6. NCFSE, 2000 (National Curriculum Framework for School Education, 2000)

The curriculum framework of 1988 gave much emphasis on improving science education in schools, but that was not sufficient. There were many more reforms needed to strengthen the system. The National Curriculum Framework for School Education, 2000 was more focussed towards inculcating, intrinsic values, cultural heritage, ethos, international brotherhood and emotional intelligence, etc. Still it stresses on developing 'scientific temper'. The document for example states that the school curriculum has to help generate and promote among learners scientific temper which includes spirit of enquiry, problem-solving, courage to question and objectivity. This will lead to elimination of obscurantism, superstition and fatalism, and at the same time it will sustain and emphasise the indigenous knowledge ingrained in the Indian tradition (NCFSE, 2000: p. 40). This is marked that in this curriculum framework teaching the subject of Science was given very much importance at all levels of school education.

7. NCF, 2005 (National Curriculum Framework, 2005)

Among the NCFs the NCF 2005 being

the recent, is currently as the means of providing guiding principles for developing any curriculum throughout the country. NCF 2005 states that a curriculum should connect knowledge to life outside school. It should ensure that learning is shifted away from rote methods. There should be the enrichment of the curriculum to provide a base for the overall development of children rather than making them textbook-centric. The NCF also aims to make examinations more flexible and integrated into classroom life. The broader aim of the NCF includes the nurturing of overriding identity informed by caring concerns within the democratic policy of the country.

According to NCF (2005) the teaching of Science should be recast so that it enables children to examine and analyse everyday experiences. Through various activities, involving outdoor projects concerns and issues pertaining to environment must be addressed across subject areas. Some of the information and understanding flowing from such projects could contribute to the elaboration of a publicly accessible, transparent data base of India's environment, which would in turn become a most valuable educational resource. This will develop in students critical thinking and problem solving abilities. Moreover, if well planned, many of these student projects could lead to knowledge generation.

While talking about Scientific literacy we cannot forego 'Scientific Temper'. Spread of Scientific Temper in society is much more improtant than the spread of Science or technology. It is an attitude of mind which calls for a particular outlook and pattern of behaviour. It is of universal applicability and has to permeate through our society as the dominant value system powerfully influencing the way we think and approach our problems which can be political, social, economic, cultural and educational.

Scientific Temper involves the acceptance, amongst others, of the following premises:

a. The method of Science provides a viable method of acquiring knowledge.

b. Human problems can be understood and solved in terms of knowledge gained through the application of the method of Science.

c. The fullest use of the method of Science in everyday life and in every aspect of human endeavour from ethics to politics and economics- is essential for ensuring human survival and progress.

d. People should accept knowledge gained through the application of the method of Science as the closest approximation to truth at that time, and question what is incompatible with such knowledge; and that one should from time to time re-examine the basic foundations of contemporary knowledge.

The National Curriculum Framework 2005 is designed to transform India's Educational System and incorporate a child centered system that promotes joyful learning among students. It emphasises that curricula, syllabi and textbook should enable teachers in organising the classroom experience as per the needs of all students and the learning environment. Such child centric education is meant to help in reducing students stress.

The NCF 2005 states at many places that Science is a dynamic and evolving discipline, and it is propeled by human curiosity and desire to see patterns in meaningful relations. Science should nurture curiosity and creativity, particularly in relationship to the environment. Science content transacted by the teacher should be understandable to the students, be placed in the context of children's environment to help them understand the practical application of concepts

and not just theoretical understanding, it should enable children to examine and analyse everyday experiences, create awareness on environmental concerns. Science teaching should convey significant aspects of scientific content at appropriate level; engage the child in learning the process of acquiring and validating scientific knowledge. All this shows that Science teaching and learning has got special mention in the NCF 2005 document, but on the same time the term 'scientific literacy' is not directly mentioned in the document. In the position paper of the National Focus Group on 'teaching of Science' this term is discussed only at one place. This situation is disturbing and needs a concentrated effort for providing more emphasis on it. The NCF 2005 document suggests the steps like, using teaching methods such as experimentation, group activities, field trips, excursions, etc.; attempting discussions with co-teachers and students, participating in surveys, organization of data; and display of students' work in schools and in community as a help in the development of scientific literacy in the students.

According to the Position Paper of National Focus Group on 'Teaching of Science' (p.11) one of the aims of Science Education is to cultivate 'scientific temper'- objectivity, critical thinking and freedom from fear and prejudice. In the same document at another instance (p. 28) it is stated that Science learning should be used as an instrument of social change to reduce the socio-economic divide. It should help to fight feelings and issues like prejudice, gender, caste, religion and region. Science education ought to empower students to question the social beliefs, notions and practices that keep social integrity alive (NFG on Teaching of Science, NCF, 2005).

8. NCFTE, 2009 (National Curriculum Framework for Teacher Education: Toward Preparing Professional and Humane Teacher, 2009)

Focussing on carving the teacher's personality, in being humane to the learners, the NCFTE, 2009 was developed. It has a bearing on transforming the very dynamics of teacher education per se. Two significant developments particularly, the National Curriculum Framework 2005 and the Right of Children to Free and Compulsory Education Act 2009 as well as the fundamental tenets enshrined in the Constitution of India have guided the development of this Framework. This document has given due importance to the teaching and learning process of Science, at many places it talks about the teacher training of Science teachers for making them well equipped with perfect pedagogical practices of teaching Science.

Concluding Remarks

Development of scientific literacy and scientific temper constitute the backbone of an ideal Science curriculum. The journey of Science as a part of curriculum and its necessary attributes assimilated in the veins of the generations is quite a journey. The present National Curriculum Framework 2005 is designed to transform India's Educational System and incorporate a child centered system that promotes joyful learning among students. Science is a dynamic and evolving discipline, and it propels human curiosity and desire to see patterns in meaningful relations. Science should nurture curiosity and creativity, particularly in relationship to the environment. In today's context when India is on the verge of getting its New Educational Policy which will follow the development of the new National Curriculum Framework, it is

very important to review the existing version in order to ascertain that all the gaps are filled while developing its new version especially in terms of development of scientific temper and scientific literacy.

References

- Bhargava P M and Chakrabarti C (2010). *Angels, Devil and Science: A Collection of Articles on Scientific Temper*, National Book Trust, New Delhi, India.
- Chadha G (2005). Towards an Informed Science Criticism: The Debate on Science in Post-Independence India, in *The Making of Identity in Contemporary India*, Ganesh K & Thakkar U (Eds.), Sage Publications India Pvt. Ltd., New Delhi.
- Darwin, Charles. "Darwin Correspondence Project". Darwin, C. R. to Aveling, E. B. 13 Oct 1880. Retrieved 29 August 2013.
- Dawson, V. & Venville, G. J. (2009). High-school students' informal reasoning and argumentation about biotechnology: An indicator of scientific literacy? *International Journal of Science Education*, 31(11), 1421-1445.
- Haksar, P.N., Ramanna, R. and Bhargava, P.M. (1981). A Statement on Scientific Temper, the Nehru Centre, Mumbai.
- Khan, A. (2015). "Scientific Literacy Among Elementary Level Students: An Important Objective of Science Education,", *Right to Education: Access and Quality*, Editors: Mohd Rizwan and A.K. Mantry, pp. 34 - 41, Ankur Publication, New Delhi, ISBN 978-81-93165-11-9.
- Khan, A. (2015). "Development of Scientific Literacy at Elementary Level", *Awadh International Journal of Information Technology and Education (AIJITE)*, a peer reviewed, refereed journal, Volume 4, Issue 1, pp. 25-31, ISSN: 2277-8985 published by Alfa Publications, New Delhi.
- Khan, A. and Abdullah, S. (2015). "Development of Scientific Literacy and Objectives of Teaching Science at Elementary Level', *Proceedings of State Seminar on the Changing Contours of Secondary Education – Issues and Challenges* on 17th March 2015, organized by YUVA Cell, SCERT, Delhi, pp. 9 -12, ISBN No. 978-81-930249-2-8 published by SCERT Delhi.
- Khan, A. (2015). "Awareness and Understanding of Concepts from Daily Life Science as an Aspect of Scientific Literacy among Elementary Level Students: A Pilot Study" in *Ideal Journal of Education*, Vol V, August 2015, published by IIMT, Karkardooma, New Delhi-92, pp. 169- 177, ISSN: 2277-8497.
- Mahanti, Subodh (2013). "A Perspective on Scientific Temper in India". *Journal of Scientific Temper*. 1 (1): 46–62.
- Ministry of National Education (2006). Ilkogretim Fen ve Teknoloji Dersi (6, 7 ve 8. Siniflar) ogretim programı [In Turkish]. Ankara.
- Nanda M (2003). The Battle for Scientific Temper in India's New Social Movements, in *Prophets Facing Backward: Postmodern Critiques of Science and Hindu Nationalism in India*, New Brunswick, NJ: Rutgers University Press.
- Nandy, A. (1982). *Science for Unafraid, Mainstream*, pp. 17-20, New Delhi.
- National Policy on Education (1986). In Sharma R.C. (2010), *Modern Science Teaching*, 6th ed., New Delhi: Dhanpat Rai Publishing Company.
- Nayar, D.P. (1989). *Towards a National System of Education: Educational Development in India*: *1937-1951*, Mittal Publications, New Delhi.
- NCERT (2005). *National Curriculum Framework 2005*, National Council of Educational Research and Training, New Delhi.

- NCERT (2000). *National Curriculum Framework for School Education, 2000*, National Council of Educational Research and Training, New Delhi.
- NCERT (1988). *National Curriculum for Elementary and Secondary Education: A Framework, 1988*, National Council of Educational Research and Training, New Delhi.
- NCERT (1975). *The Curriculum for Ten Year School: A Framework, 1975*, National Council of Educational Research and Training, New Delhi.
- NCERT (2005). *Position Paper of the National Focus Group on Teaching of Science*, NCF- 2005, National Council of Educational Research and Training, New Delhi.
- Nehru J L (1946) Reprinted (1981). *The Discovery of India*, Jawaharlal Nehru Memorial Fund & Oxford University Press, New Delhi.
- Nehru, Jawaharlal (1989). *The Discovery of India* (Centenary ed.). Oxford: University Press. p. 513.
- Poonam Batra (2005). Voice and Agency of Teachers: Missing Link in National Curriculum Framework 2005, *Economic and Political Weekly*, pp 4347-4356.
- Popli, R. (2003). Scientific Temper: An Issue above Ideologies, *Indian Journal of Science Communication*, Vol. 2, No. 1.
- Prasad, R. (1982). The Debate on Scientific Temper, *Social Scientist*, Vol.10, No.1:56-60.
- Raza, G., Singh, S. and Kumar, P.V.S. (2012). Public Understanding of Science: Glimpses of the Past and Roads Ahead, in *Science Communication in the World: Practices, Theories and Trends*, edited by Bernard Schiele, Michel Claessens, Shunke Shi, pp. 139 - 150, Springer, New York.
- Shulman, L. (1987). Knowledge and Teaching: Foundations of the New Reform, *Harward Educational Review*, (1) 1-22, cited in John Sikula, et al. (eds.), (1996).
- Science and Technology Policy (2003). Department of Science and Technology, Government of India, New Delhi.
- Scientific Policy Resolution (1958). Reprinted for the Department of Science and Technology, Government of India, New Delhi.
- Scientific Temper Statement Revisited: The Palampur Declaration (2011). http://st.niscair.res.in/node/56.
- Statement on Scientific Temper: The Educators in Need of Education, (June 1992) authored by the Madras Group of the Patriotic People for Science and Technology, *PPST Bulletins*, No. 23.
- *The Constitution of India*, Government of India.
- *The Hindu* (2005-09-22). Scientific temper and the argumentative Indian. Chennai, India: Retrieved 2007-09-25.

Weblinks

- https://indiankanoon.org/doc/867010/
- http://mhrd.gov.in/sites/upload_files/mhrd/files/document-reports/NPE-1968.pdf
- http://www.ncert.nic.in/oth_anoun/npe86.pdf
- http://www.ncert.nic.in/oth_anoun/NCESE_1988.pdf
- http://www.ncert.nic.in/oth_anoun/NCF_10_Year_School_eng.pdf
- http://www.ncert.nic.in/oth_anoun/NCF_2000_Eng.pdf
- http://www.ncert.nic.in/rightside/links/pdf/framework/english/nf2005.pdf
- http://www.ncert.nic.in/new_ncert/ncert/rightside/links/pdf/focus_group/science.pdf

- http://ncte-india.org/ncte_new/pdf/NCFTE_2010.pdf
- Raza, Singh, Kumar, Nayak, 2008 (Retrieved on 6/11/2017): http://www.nistads.res.in/indiasnt2008/t3infrastructure/t3inf14.htm
- http://www.mkgandhi.org/voiceoftruth/basiceducation.htm
- http://pragati.nationalinterest.in/2014/05/attributes-of-scientific-temper/
- http://pragati.nationalinterest.in/2014/05/a-statement-on-scientific-temper/
- http://el.doccentre.info/eldoc1/setdev/810725mns1B.pdf
- http://www.thehindu.com/opinion/lead/tampering-with-scientific-temper/article6673585.ece
- https://en.wikipedia.org/wiki/Scientific_literacy
- http://www.ncert.nic.in/departments/nie/desm/publication/pdf/phy_sci_PartII.pdf

Haneet Gandhi,
Hriday Kant Dewan,
Alprata Ahuja
haneetgandhi@gmail.com

Searching for Didactical Negotiations in Mathematics Textbooks

Abstract

This article offers guidelines for an objective, systematic review of mathematics textbooks for their didactical dispositions. Based on the recommendations of the Position Paper of the National Focus Group on Teaching of Mathematics brought out by the NCERT 2006, two categories for such an analysis have been proposed. In the first category the pedagogical aspects specific for building the disciplinary understanding of mathematics have been enumerated, while the second category suggest analyzing the approaches that textbooks adopt for handling the socio-psychological concerns related to the child.

Introduction

Undoubtedly, textbooks are and will remain to be the most influential instruments of education, in schools and otherwise. Textbooks reflect a Nation's vision and foundation on its education and so to some extent, they could be called as official sources of knowledge. A textbook inspires students and teachers to pursue the subject ahead. In many ways, the text gives the foundational perspective towards the nature of the subject.

In our country where teaching resources are limited, textbooks become the sole representer of the subject. In mathematics, especially, textbooks are often revered for being an esteemed source of knowledge and the expectations are centred on cultivating and strengthening a strong mathematical base, preserving the mathematical knowledge. Mathematics textbooks are deemed to provide an expertise on the subject matter, providing a sense of security to both teachers and students. For many, a mathematics textbook enjoy the status of a holy book, to be followed unquestioned.

A commonly held belief related to the nature of mathematics is of it being static, built on an edifice of knowledge accumulated over years. While the nature of the school mathematics content may be old, the processes of doing mathematics are dynamic and evolving. These two contradictory situations, of what is to be known and how to make it known, is expected to be communicated through a textbook. In other words, textbooks not only serve as sources for building students' knowledge, they also provide guidelines for teachers on what to teach and how to do so. Thus, along with the content knowledge, a textbook also contains didactical information that guides the acts of teaching and learning. The knowledge present in the textbooks have to be communicated to the user and this encompasses the didactical aspect of the textbooks. The way a textbook is written reflects on the didactical position it assumes. For

example, if the didactical position while framing a textbook is that mathematical knowledge has to be 'taught' and that it can only be learned by repeatedly working on similar problems, it is likely the textbook will contain a large number of routine questions to be practiced. Thus, the didactical aspects present in the book (may be, subtly) are significant in transmitting the meaning of the discipline. For a resource that is valued so much, it is imperative to analyse it objectively to understand how it conveys the meaning of the discipline and what didactical positions does it take to express the dispositions related to the discipline.

In this article, we propose a compilation of didactical aspects, categorised in two dimensions that may serve as a reference while framing guidelines for developing or revising upper primary mathematics textbooks. This work is aimed to serve as a guide for a systematic review of a mathematics textbook for their pedagogical inputs.

Methodological Approaches for Conducting Textbook Analysis

Textbooks analysis has been an unexplored and under-represented area, and doing one in mathematics is a farfetched idea. Commonly, the responsibility of conducting textbooks analysis is taken up by the institutes and organisations involved in textbook development such as NCERTs and SCERTs. This exercise, termed as a revision exercise, is usually done periodically by the textbook developers with an intent of re-looking at the text for any factual, numerical or procedural gaps and errors. The focus is on eliminating errors, distortions, and printing mistakes that could have gone in inadvertently. In all such exercises, one would, typically, be looking for mistakes and gaps to be rectified in future editions.

The above-stated type of textbook analysis is essential but it serves only a functional aspect as its scope is limited to determining the authenticity and appropriateness of a text. A textbook serves a rather wider and profound objective than being merely functional. Since it a medium via which the educational goals are mediated by the teachers to students, it is important that the analysis of textbooks is also done with respect to the curriculum goals. A research-based outlook will perhaps help in such a crucial review of textbooks.

While conducting textbook analysis research, one can record findings quantitatively or qualitatively. In a quantitative approach, one would enumerate the themes and measure the frequency of appearance of a particular term, phrase or text. For example, to analyse the preferred communicative style of the authors, a count of commonly occurring instructional phrases such as 'elaborate', 'prove', 'answer' may be looked at and enumerated. A quantitative analysis may also involve how much (or how little) a particular topic, idea, concept has been covered. One may say, quantitative approaches will ascertain the breadth of coverage in the textbook. Qualitative approach, on the other hand, ascertains depth over breadth. It is concerned about the way in which an information has been presented.

Varied qualitative approaches have been used to analyse mathematics textbooks. Hermeneutic analysis was used by Schubring (1987) to uncover the hidden meanings and messages in the textbooks from a historical perspective. The linguistic analysis examines the nature of the phrases, words, terminology used to communicate between the authors and the textbook users. In most of the studies based on linguistic analysis, mathematical word

problems are studied for their levels of difficulty in reading, comprehending and translating in mathematical symbolism. Gerofsky's (1996) work is one such example where linguistics structures of the word problems were studied as a genre of conceptual objects. A discourse analytic framework illuminates the relationship between the author and the reader. Herbel-Eisenmann (2007) and his colleagues (2007) uncovered how textbooks position readers and their relationship with others. Weinberg & Wiesner (2011) followed a similar approach of reader-oriented theory to express if the text assumes readers as active participants in constructing meaning while reading it. Micheal Apple propounded the critical analysis framework to expose the politics of knowledge and social inequalities in the textbooks through his various papers (some for reference are Apple, 1992; Apple & Cristian-Smith, 1991). At times, as part of this exercise, aspects related to inclusiveness, gender neutrality, biases for any particular social or political views are also checked. Thus, such an analysis could be considered as a corrective measure rather than being suggestive. One of the most commonly found research framework for analysing mathematics books is the content analysis. It is primarily concerned with representation or under-representation of a content area in the book. A content analysis of textbook unearths the intentions of the authors or book writing committee and examines which information or topics have been valued, taken for granted or dropped out considering unimportant. It is related to issues of what does the text actually cover? Does it do so sufficiently? Which topics are included and which have been omitted? And why? How have the topics been sequenced? It focuses on issues of how various mathematical content areas are handled in the textbooks, the spread of the content matter in a book or across the books (for illustration, Pickle, 2012; Reys et al. 1996; Stylianides, 2009) and comparing the depth and spread of one or more than one area across countries (see for example, Fan and Zhu, 2007; Harries and Sutherland, 1999). Along with the content, a textbook also expresses the ways of teaching mathematics and this is termed as didactical analysis. Didactics is related to the processes of teaching and is thus subject specific. It tries to answer how the textbooks convey the essence of learning the subject. This type of analysis is concerned about knowing the disciplinary perspectives, its processes and structures as delivered through the textbooks. It helps to identify exactly how the nature of the discipline has been communicated. In short, the didactic analysis of mathematics textbooks would deal with the pedagogic approaches and strategies suggestive for teaching of mathematics while the content analysis would examine the mathematical text itself.

In this paper, we share a framework that delineates the didactic concerns expressed in the Position Paper of the National Focus Group on the Teaching of Mathematics, (NCERT, 2006) and offer their representation in the mathematics textbooks.

Textbook Analysis for Didactical Concerns

Our current mathematics books are based on the recommendations stated in the Position Paper of the National Focus Group on the Teaching of Mathematics, NCERT, 2006. The paper took a deep cognisance of most of the problems that impede effective teaching and put forward a vision for learning the subject. The vision was loud and

clear "to mathematise the child's mind". A most crucial element that links this envisioned objective to implementable terms in the classrooms are the mathematics textbooks. Since the position paper has been instrumental in guiding the textbooks and bringing in a newer perspective on learning and teaching of the subject, it is imperative we look at our mathematics textbooks to analyse how effectively they have been able to interpret the intentions of the curriculum. Have the textbooks been able to meet the didactical recommendations of the curriculum?

Based on the recommendations of the position paper, the proposed analytical framework is categorised in two categories and within each category we offer guiding points that can be used for evaluation. The first category is related to the pedagogical aspects specific to the discipline of mathematics. It is concerned with the approaches that are adopted for bringing in a disciplinary understanding. Category two offers an analysis of the socio-psychological demands of the child and examines the extent to which these have been handled in the textbook.

Disciplinary Dispositions

To reach a common accord on which acts promote mathematisation in a textbook is a rather difficult task to comprehend. The expectation of the position paper that mathematics must qualitatively modify the world view of the learner requires greater immersion in the context and constant back and forth with it. The extent of relating to life and the concern about narrowing the mathematical object to the presented context challenges the effort to extend the relationship of mathematics with the life of the learner and there is no clear agreement on its form and extent as yet. However, there seems to be a consensus on what must not be encouraged in a mathematics classroom. Surely, acts of mindless memorisation, unconnected contexts, overemphasis on proofs, endorsing only one way of approaching problems and such have to be discouraged. This larger aim must also get reflected in the textbooks.

A fundamental shift has to be made from doing procedural repetitions to forming conceptual understanding. It is to bring an awareness that there can be more than one way of solving a problem and so alternative algorithms and strategies for solving a problem must be encouraged, provided they are rooted logically. Textbooks that offer such opportunities will list more than one procedure of approaching a problem and draw out the similarities among the algorithms, encourage identification of key conceptual ideas upon which the procedures have been formulated. The style or presentation would range from providing semi-closed to complete open-ended procedures. One may also find problems that have a scope for many different correct solutions.

A textbook that provides ready-made proofs will indeed close avenues for children to grapple and learn. On the other hand, textbooks following an inquiry generating mode offer spaces for building arguments, logical connections, reasoning and encouraging different ideas. Fundamental to such initiations is providing open texts for building logical arguments, without the fear of being correct or incorrect. Some of the ways for encouraging proof creation is by asking for verification of statements and readers' explanations on their verification processes. A conscious effort must be made to bring out the differences between verification and proof. Some simple, easy to understand proofs could be used to make the reader aware of what proof means.

Ample opportunities for children to observe patterns and make generalisations are a must. Along with these, spaces for identifying exceptions to generalisations and for extending the patterns to new situations encourage self-verification. The text could be written in a form that encourages children to explore the mathematical ideas, make conjectures and then move on to check the validity of the observations.

No rote learning but understanding and articulating in own words. In all aspects, it should be noted that mathematics should be presented as an emerging subject that has provisions for exploration and creation rather than following old, and often convoluted problems that hold their edifice on un-understood processes. The acts of doing mathematics also follow the style of writing the text. The communication style used in the textbook reflects on how the authors have positioned themselves and the reader in the acts of doing mathematics. Rather than following an authoritative approach, giving one suggestion to be followed by all, a discursive mode must be followed that presents alternatives and different interpretations

Children have to grapple with mathematical objects, concepts and the interrelationships among them, they must therefore engage in making meaning of definitions. For this, therefore care must be taken to not state the definitions in their purest formal form, but to let children articulate the idea in their own words. A scope of peer interaction, discussion, exchange of ideas helps children to derive invariant properties and thus form their own definitions. There would be an expectation that the children would verbalise their understanding, generalizations, and formulations of concepts to propose and improve their definitions. To do this they must be required to and encouraged to use their understandings in varied contexts including non-classroom or text-book directed ones too. This would strengthen and deepen their relationships with them. It may be pointed out that these self-articulations must arise from a conceptual framework that are aligned to and consistent with the mathematical objects as normatively understood. And for each learner the body of the constructed understanding and articulation need to be consistent within itself as well. Given the varied experiences, expectations and dispositions of the learners this is not easy to construct in a classroom and even more difficult to reflect in a textbook.

The position paper iterates that for long formal problem solving as a process of mathematical thinking has been misunderstood. It has been confined to solving textbook exercises and sadly "textbook problems reduce solutions to knowledge of specific tricks, of no validity outside the lesson where they are located" (NCERT, 2006 p.2). To make problem solving a mathematically involving exercise encourage using abstraction, quantification, analogy, case analysis, reduction to simpler situations, guess and verificational modes. These didactical aspects are important factors in promoting problem solving skills. Textbooks that follow an open writing style, providing scope for sharing of different strategies of solving problems will help achieve this goal. Text should draw analogies from earlier learnt ideas and contexts. Concomitant to problem solving is problem posing. "Mathematics also provides an opportunity to make up interesting problems, and create new dialogues thereby" (NCERT, 2006, p. 2) Textbooks rarely provide opportunities for children to form their own problems.

Creating new problems, modifying existing problems, looking for invariant and varying conditions in a problem open avenues for making one's own mathematics. A 'if-not-this, then what' is one of the efficient strategies that may be adopted in textbooks to systematically generate newer problems. Providing scope for generating problems not only inculcates a feeling of ownership but also initiates an inquiry mode in the classroom wherein children can share their posed problems and form deductions. In textbooks, opportunities to pose problems could be provided by giving open-problems, asking for identification of variant and invariant conditions in a problem and making modifications in them. Illustrating ill-structured problems for correction, providing answers and asking students to generate problem situations are some of the other ways that open windows to children's thinking.

Heuristics or rule of thumb become handy when exact answers or route to solutions is unknown. A quick glance at the textbooks would reveal if the book recognises this aspect of reaching the answers. Do the book illustrates examples where we may not look for an exact answer but seek for a closet possible answer? Are there spaces in the book where a child has to choose best possible solution among a set of possible solutions and then provide justification of the choice? A book that ensures these invites clarity of thought and an understanding when and how a mathematical technique is to be used.

"Visualisation and representation are again skills unaddressed outside mathematics curriculum, and hence mathematics needs to develop these far more consciously than is done now" (NCERT, 2006 p. 10). To meet this envisioned target, books must provide spaces for children to elucidate the underlying mathematical idea of a problem and express it in various forms such as words, pictures, symbols etc. Multiple representations of a problem induces a sense of familiarity and thus a profound understanding. Indeed, visualization aids in the processing of information and thus multiple representations of a situation in the form of pictures, images, diagrams, symbols support in thinking and developing advance understanding.

Socio-psychological Intentions

Matching the text with the social, cognitive and mathematical level of the reader is an important aspect of a good book. The entire material should be immersed in and emerge from the amalgamation of three contexts related to the child- social, cognitive and mathematical. The features that may influence this include language, nature of descriptions and examples, inclusion or lack of illustrations, visuals to illustrate a point, stories and other interesting texts and contexts. Contexts given in word situations or otherwise must be in close relation to the worlds of the children. Examples must be drawn from the child's daily activities that involve mathematical negotiations. Explanation, examples, and questions must emphasize on meaning-making, starting with experienced situations, allowing students to relate them to their respective contexts and explore their own ways of solving problems. It must be seen whether there are sufficient, meaningful and accessible spaces in the book through which a child can learn by doing, getting actively involved in the process of constructing a mathematical idea. Making connections, within mathematics, between mathematics and other subjects of study ensures relevance.

The textbook must also expect that the teachers would formulate many contextual and contextually needed

problems matching the experience and needs of the children of the class.

The emphasis in the designing of the material should be on using a language that the child can and would be expected to understand herself and would be required to work upon in a group. The teacher to only provide support and facilitation. Diversity among children suggests a greater space in the text book for the teacher and children to bring in their own particular context. The linkage that each learner has to built and her own particular nature of conceptual formulations suggests providing multiple entry points. A spiraling program to compensate for the specific hierarchical sequence and linked conceptual framework that mathematics also has much more than other disciplines. And to enable mathematisation, textbook needs to allow the teacher help children to link up to other aspects in their life and to make newer connections with it to interact with the world around more effectively.

A text-book thus needs to not only provide the space to the teacher to explore with the children and be creative in building discourses and problem sets but it must indicate to her the need to have children explore and be creative as well. The gentle nudge can be in the form of suggestions, illustrations of children engaged in a mathematics classroom to illustrate possible ways etc and it can be hard wired in to the way the problem sets are designed and the specific requirement that teachers set new problems and that the students must think of some new problems and that students are to articulate and write their understanding and even their own definition. And all this can be put in to the end of the chapter and in between exercises. The suggestive assessment criteria and examples are also important ways of nudging the process and clarifying the fundamental purpose of assessment to be of providing aid to learning.

Concluding Remarks

We hope these guidelines will prove to be helpful in the developing and revision stages of mathematics textbooks as these can be used as effective tools for initiating a rational debate on the pedagogical positions that become part of any mathematics textbook. The guidelines will serve to be functional, implementable and valuable for reference as they could be taken for a quick, but profound overview of the different didactical aspects that must be taken into account in a mathematics textbook deemed to promote mathematical thinking.

Finally, we conclude on a note that accentuates the role of an effective teacher as being crucial. No matter how elaborate a textbook maybe, it would inevitably lack in personification. Being based on a hypothetical audience that assumes the role of teachers, students, classrooms and resources, textbooks are certain to be pseudo-contextualized and pseudo-personalised (Kang & Kilpatrick, 1992). The task of facilitating a profound understanding, of making knowledge decontextualized and re-personalized would always be the responsibility of the teacher (ibid). Textbooks are written with the intention to guide teachers on the content. They give explanations and exercises as examples to be done and serve as mere guidelines and so must not be mistaken for being exhaustive. While the text book may also try to build in the image of requiring, filling in and colouring by the teachers and the children, it is up to a teacher to use the text as a springboard for promoting mathematical arguments and thoughts, offering opportunities for mathematisation. And this when the text book does not specifically seek such an input.

References

- Apple, M.W. (1992). Do the Standards Go Far Enough? Power, Policy, and Practice in Mathematics Education. *Journal for Research in Mathematics Education.* 23(5), pp. 412-431.
- Apple, M.W., & Chirstian-Smith, L.K. (1991). The politics of textbooks. In Micheal W. Apple and Linda K. Chirstian-Smith (Eds), *The Politics of Textbooks*. New York: Routledge.
- Fan, L., & Zhu, Y. (2007). Representation of problem-solving procedures: A comparative look at China, Singapore, and US mathematics textbooks. *Educational Studies in Mathematics*. 66 (1), 61–75.
- Gerofsky, S. (1996). A Linguistic and Narrative View of Word Problems in Mathematics Education. *For the Learning of Mathematics*. 16(2).
- Harries, T., & Sutherland, R. (1999). Primary school mathematics textbooks: An international comparison. In I. Thompson (Ed), *Issues in Teaching Numeracy in Primary Schools* (pp.49-50). Buckingham: Open University Press.
- Herbel-Eisenmann, B.A. (2007). From Intended Curriculum to Written Curriculum: Examining the "Voice" of a Mathematics Textbook. *Journal for Research in Mathematics Education.* 38(4), 344-369.
- Herbel-Eisenmann, B. A., & Wagner, D. (2007). A framework for uncovering the way a textbook may position the mathematics learner. *For the Learning of Mathematics*. 27(2), 8-14.
- Kang, W., & Kilpatrick, J. (1992). Didactic transposition in Mathematics Textbooks. *For the Learning of Mathematics*. 12(1), 2-7.
- Pickle, M. C. C. (2012). Statistical content in middle grades mathematics textbooks. Unpublished doctoral dissertation, University of South Florida, USA.
- National Council for Educational Research and Training (2006).*Position Paper of the National Focus Group on the Teaching of Mathematics*. New Delhi: NCERT.
- Reys, B. J., Reys, R. E., & Koyama, M. (1996). The development of computation in three Japanese primary-grade textbooks. *The Elementary School Journal*, 96(4), 423–437.
- Schubring, G. (1987). On the methodology of analysing historical textbooks: Lacroix as textbook author. *For the Learning of Mathematics*. 1(3).
- Stylianides, G. J. (2009). Reasoning-and-proving in school mathematics textbooks. *Mathematical Thinking and Learning*, 11(4), 258–288.
- Weinberg, A., & Wiesner, E. (2011). Understanding mathematics textbooks through reader-oriented theory. *Educational Studies in Mathematics*.76. 49-63.

Khan Waqaruzzaman
waquqr@gmail.com

कैसे लिखी हमने गणित की पाठ्यपुस्तकें

सार

इस आलेख में यह स्पष्ट करने का प्रयास किया गया है कि पाठ्यपुस्तक लेखन के लिए आवश्यक अंर्तदृष्टि के विकास की प्रक्रिया से गुजरते हुए किस तरह छत्तीसगढ़ में गणित की पाठ्यपुस्तकों के लेखन का कार्य पूर्ण हुआ। इसलिए यह आलेख शिक्षक एवं शिक्षक-प्रशिक्षकों के लिए, अध्ययन-अध्यापन की बेहतर समझ विकसित करने में उपयोगी सिद्ध होगा। हालांकि, किसी भी पाठ्यपुस्तक में सुधार की संभावना बनी रहती है, अतः त्रुटिरहित लेखन या पूर्णता का दावा नहीं किया जा सकता। इसलिए पाठ्यपुस्तक लेखन, एक निरंतर चलने वाली प्रक्रिया मानी जाती है।

पूर्व प्रचलित पाठ्यपुस्तक की तुलना में नवीन पाठ्यपुस्तक का लेखन कार्य नए दृष्टिकोण के साथ किया गया, इसलिए शिक्षकों के बीच इसकी स्वीकार्यता एवं उनके अनुभव के संबंध में कुछ शिक्षकों से चर्चा की गई। यह चर्चा उत्साह जगाने में मददगार सिद्ध हुई। इस लेखन कार्य संबंधित ऐसे ही कुछ अनुभवों का समावेश इस आलेख में किया गया है।

मुझे 2014 में छत्तीसगढ़ में कक्षा 9वीं एवं 10वीं में पढ़ने वाले विद्यार्थियों के लिए नवीन पाठ्यपुस्तक लेखन के लिए राज्य शैक्षिक अनुसंधान एवं प्रशिक्षण परिषद्, छत्तीसगढ़, रायपुर द्वारा चयनित लेखक-दल के सदस्य के रुप में कार्य करने का अवसर मिला। 10 सितम्बर 2014 को परिषद् में आयोजित कार्यशाला के प्रतिभागियों में से लेखकों का चयन किया गया था।

माध्यमिक स्तर पर पाठ्यपुस्तक लेखन के लिए विषय की प्रकृति एवं विषयवस्तु की अपेक्षाकृत गहरी समझ, व्यापक दृष्टिकोण, अध्येता एवं अध्यापक के मनोविज्ञान की अच्छी समझ इत्यादि के संबंध में लेखकों की उन्मुखीकरण की रोचक कार्यशाला में समूह कार्य पर प्रत्येक समूह की खुली तार्किक चर्चा के ने अंर्तदृष्टि विकसित करने में मदद की। पाठ्यपुस्तक लेखन के लिए पाठ्यक्रम के निर्धारण के लिए तत्समय राज्य में प्रचलित कक्षा 9वीं की एस.सी.ईआर.टी की पाठ्यपुस्तक के अलावा एन.सी.ई.आर.टी और विभिन्न राज्यों की प्रचलित पाठ्यपुस्तकों में भी पाठ्यक्रम के विकास का सूक्ष्मता से तुलनात्मक अध्ययन के पश्चात् पाठ्यक्रम की रुपरेखा तैयार कर प्रो. हृदयकांत दीवान के मार्गदर्शन में लेखक दल द्वारा पाठ्यपुस्तक के पाठों का लेखन कार्य किया गया। आलेख में इस प्रक्रिया का वर्णन करने का प्रयास किया गया है। यह लेखन कार्य एस.सी.ई.आर.टी. के तत्कालीन संचालक, विषय समन्वयक एवं लेखक-दल के सदस्यों के अलावा विद्याभवन शिक्षा संदर्भ केन्द्र, सरस्वती शिक्षा संस्थान, छत्तीसगढ़ और अजीम प्रेमजी फाउंडेशन के साथियों के सहयोग के टीम-वर्क के रूप में पूर्ण हुआ।

छत्तीसगढ़ में कक्षा 9वीं एवं 10वीं में पढ़ने वाले विद्यार्थियों के लिए नवीन पाठ्यपुस्तक लेखन के दायित्व का निर्वहन राज्य शैक्षिक अनुसंधान एवं प्रशिक्षण परिषद्, छत्तीसगढ़, रायपुर द्वारा सफलतापूर्वक किया गया। इन विद्यालयों की परीक्षाएँ, छत्तीसगढ़ माध्यमिक शिक्षा मंडल द्वारा आयोजित की जाती हैं।

वर्ष 2014 में मुझे कक्षा 9वीं एवं 10वीं के गणित विषय की पाठ्यपुस्तक लेखन हेतु चयनित लेखक-दल के सदस्य के रुप में कार्य करने का अवसर मिला। इसी वर्ष, इन पाठ्यपुस्तकों का लेखन कराने हेतु प्रतिभागियों की एक दिन की कार्यशाला 10 सितम्बर 2014 को आयोजित की गई थी। इस कार्यशाला में सहभागिता

हेतु प्रदेश के कई शिक्षकों को आमंत्रित किया गया था। सम्मिलित प्रतिभागियों ने आवंटित अध्यायों की खामियों और अच्छाईयों के साथ एक समीक्षा रिपोर्ट तैयार की, जिसमें यह बिन्दु भी सम्मिलित किया गया कि यदि इन अध्यायों का पुर्नलेखन करना हो, तो किन बिन्दुओं को ध्यान में रखना चाहिए। इस कार्यशाला के प्रतिभागियों में से लेखकों का चयन किया गया।

पाठ्यपुस्तक के आधार पर कक्षा में अध्यापन करने की तुलना में पाठ्यपुस्तक लेखन के लिए विषय की प्रकृति एवं विषयवस्तु की अपेक्षाकृत गहरी समझ, व्यापक दृष्टिकोण, अध्येता एवं अध्यापक के मनोविज्ञान की अच्छी समझ इत्यादि का ज्ञान आवश्यक है, जो कि 22 सितंबर से आयोजित की गई लेखकों की उन्मुखीकरण की कार्यशाला से ही स्पष्ट होने लगा था। इस दौरान स्रोत समूह द्वारा दिए गए कुछ समूह कार्यों का मैं उल्लेख करना चाहूँगा, जिससे यह सब और अच्छे से स्पष्ट हो सकता है -

1. 9 वीं में अध्ययनरत् विद्यार्थियों का पूर्व ज्ञान।

2. हम क्यूँ समझते हैं कि सभी विद्यार्थी 10 वीं तक पढ़ें?

3. उन्हें क्या पढ़ना चाहिए? हम कैसे जाँचेंगे कि उन्होंने कुछ सीखा है?

3. किस तरह से पता लगाएँगे कि दिए गए कथन सत्य हैं या असत्य-

क. हिमाचल प्रदेश के मालना गाँव में रहने वाले लोग सिकंदर के वंशज हैं।

ख. परमाणु या अणु के बीच केन्द्रक बहुत छोटा है और उनमें ज्यादातर स्थान खाली होता है।

ग. क्रम से ली गई विषम संख्याओं का योग हमेशा एक पूर्ण वर्ग संख्या होती है।

घ. कुंभ राशि में पैदा होने वाले लोग घुमन्तु होते हैं।

ङ. दिलीप कुमार आज तक के सबसे महान अभिनेता हैं।

च. बांग्ला अथवा अंग्रेजी में कर्ता और क्रिया में सीधा संबंध होता है।

छ. पृथ्वी सूर्य के चक्कर काटती है।

ज. चर्तुभुज के आंतरिक कोणों का योग 360 अंश होता है।

झ. ब्रह्मा ने पूरी सृष्टि एक हफ़्ते में बनाई।

उपर्युक्त समूह कार्य पर प्रत्येक समूह ने आपस में व्यापक चर्चा करने के बाद प्रत्येक लेखक ने अपनी राय बनाई और अपनी प्रस्तुति स्रोत समूह एवं सभी प्रतिभागियों के समक्ष दी, जिसे खुली तार्किक चर्चा के बाद आवश्यक संशोधनों के साथ स्वीकार किया गया। इसके अतिरिक्त राष्ट्रीय पाठ्यचर्या की रुपरेखा 2005 के अध्याय 'ज्ञान और समझ' को समूह में पढ़ने और प्रत्येक अनुच्छेद पर स्रोत समूह के साथ चर्चा करने का अवसर दिया गया। मेरे जैसे लेखक दल के कई लोगों ने तो इसे पहली बार पढ़ा था। इंदिरा गाँधी मुक्त विश्वविद्यालय की पुस्तकों एल.एम.टी और ए.एम.टी. के चयनित अध्यायों जैसे अंकगणित से बीजगणित की ओर, ऋणात्मक संख्याएँ, भाषा का विकास के अध्ययन से भी मदद मिली। इन पठन सामग्रियों के अध्ययन और समूह चर्चा ने पाठ्यपुस्तक लेखन के लिए आवश्यक दृष्टिकोण विकसित करने में सहायता की। इस कार्यशाला के बाद की कार्यशालाओं में लेखक दल के सदस्यों के बीच कई मुद्दों पर विमर्श होते रहे, जिनमें प्रमुख रुप से निम्नलिखित मुद्दे थे-

1. पाठ्यपुस्तक किसके लिए लिखी जा रही है? समावेशी शिक्षा के क्या मायने हैं?
2. पाठ्यपुस्तक में विद्यार्थियों से संवाद की गुँजाईश कैसे बनेगी?
3. पाठ्यपुस्तक किन लक्ष्यों की पूर्ति हेतु तैयार की जानी चाहिए और यह पाठ्यपुस्तक उन्हें कैसे पूरा करेगी?
4. इसमें लेखकदल की चुनौतियाँ, दुविधाएँ और समस्याएँ।

उपर्युक्त गतिविधियों ने लेखक दल की समझ एवं दृष्टिकोण व्यापक करने में मदद की। इसके बाद दल के सभी सदस्यों में यह सहमति बनने लगी थी कि प्रदेश में कक्षा 10वीं तक सामान्य शिक्षा हासिल करने वाले अधिकाँश विद्यार्थी उन परिवारों से आते हैं, जिनके माता-पिता या पालक असंगठित क्षेत्र में कार्यरत हैं। इनकी आवश्यकताएँ और चुनौतियाँ उन विद्यार्थियों से बिल्कुल अलग हैं, जिनके माता-पिता या पालक नौकरीपेशा हैं या व्यापारी। लेखक दल को यह भी ध्यान रखना होगा कि पाठ्यपुस्तक ऐसी

हो, जिससे दिव्याँग अथवा सामाजिक, साँस्कृतिक और आर्थिक भिन्नता के विद्यार्थी भी स्वयं का जुड़ाव महसूस कर सकें।

कक्षा 9वीं की पाठ्यपुस्तक लेखन प्रारंभ करने के लिए पहली आवश्यकता थी-पाठ्यक्रम का निर्धारण करना। तत्समय राज्य में प्रचलित कक्षा 9वीं की एस.सी.ई.आर.टी. की पाठ्यपुस्तक के अलावा आंध्रप्रदेश, उत्तरप्रदेश, मध्यप्रदेश की पाठ्यपुस्तकों का ही नहीं, बल्कि एन.सी.ई.आर.टी. एवं राज्य की 6वीं से 8वीं तक की प्रचलित पाठ्यपुस्तकों में भी पाठ्यक्रम के विकास का सूक्ष्मता से तुलनात्मक अध्ययन लेखक दल द्वारा किया गया। इससे दल के सदस्यों के मस्तिष्क में देश में प्रचलित पाठ्यक्रम की एक रुपरेखा बन गई और प्रदेश के लिए पाठ्यक्रम विकसित करने के लिए एक आधार तैयार हो सका। जब पाठ्यक्रम की रुपरेखा तैयार हो गई, तब इकाईवार पाठों की संख्या एवं उनके नाम समूह चर्चा के बाद तय किए गए। इसके पश्चात् पाठ का ढाँचा तैयार करने की जिम्मेदारी लेखक दल पर थी। ग्रामीण, शहरी, अर्द्ध-शहरी जैसे अलग-अलग परिवेश में अध्यापन करने वाले लेखक दल के शिक्षकों में इस मुद्दे पर सबसे अधिक चर्चाएँ हुई; जिसके बाद बनी सहमति के कुछ प्रमुख बिन्दु निम्नलिखित हैं-

1. पिछली कक्षाओं में अध्ययन की गई पाठ्यसामग्रियों की पुनरावृत्ति, कुछ छोटे-छोटे और अवधारणा पर आधारित प्रश्नों अथवा सरल गतिविधियों के रुप में हो सकती है।
2. पूरी पाठ्यपुस्तक की भाषा सरल रखी जाए। आम बोल-चाल में उपयोग में आने वाले शब्दों के प्रयोग पर विशेष जोर दिया जाये। जहाँ पर पारिभाषिक शब्दावली के प्रयोग के बिना अवधारणाएँ स्पष्ट हो सकती हों, वहाँ पर यथासंभव इनका प्रयोग नहीं किया जाए।
3. परिभाषाएँ सीधे न दी जाएँ, बल्कि यथासंभव पूर्व कक्षा में सीखी गई अवधारणाओं से इनका विकास उदाहरण के माध्यम से किया जाए।
4. जब विद्यार्थी एक-दो अवधारणा या कुछ पारिभाषिक शब्दावली का ज्ञान अर्जित कर लें, तो इसे स्पष्ट करने के लिए कुछ छोटे प्रश्नों का समावेश किया जाए। बाद में इन प्रश्नों को सोचें और चर्चा करें और करके देखें के अंतर्गत रखा पाये।
5. विद्यार्थियों के अभ्यास के लिए निर्मित की गई प्रश्नावली' से पहले, हल किए गए उदाहरण रखने एवं अंत में हमने सीखा के अंर्तगत पाठ का साराँश रखने पर सहमति बनी। लेखक दल द्वारा प्रश्नावली के प्रश्नों के उत्तर तैयार किए गए, जिन्हें उत्तरमाला के रुप में शामिल किया गया।
6. गणित की उपयोगिता समझाने और इसे रुचिकर बनाने के लिए न केवल दैनिक जीवन से जुड़ने वाले उदाहरणों और प्रश्नों का समावेश किया गया, बल्कि विद्यार्थियों को सत्रगत कार्य और परियोजना के अवसर भी उपलब्ध कराए गए।
7. प्रत्येक इकाई के प्रारंभ में संबंधित इकाई का इतिहास शमिल किया गया, ताकि विद्यार्थी इससे परिचित हो सकें।

उपर्युक्त बिन्दुओं को ध्यान में रखते हुए लेखक दल द्वारा पाठ्यपुस्तक के पाठों का लेखन कार्य किया गया। प्रत्येक लेखक ने अपने आवंटित पाठों पर लेखन कार्य पूर्ण करने के बाद समस्त लेखन एवं स्रोत समूह के समक्ष प्रस्तुत किया और समूह के सुझावों के आधार पर आवश्यक परिवर्तन कर पुनः समूह के समक्ष अपना प्रस्तुतीकरण दिया। पाठ में जहाँ पर भी आवश्यकता थी, प्रदेश के परिवेश और प्रदेश की शालाओं में अध्ययनरत् विद्यार्थियों से मिलते-जुलते नाम शामिल किए गए, ताकि विद्यार्थी पाठ्यपुस्तक से सहज रुप से जुड़ सकें। प्रत्येक पाठ तीन से चार बार और कुछ तो शायद इनसे भी अधिक बार, जब इस प्रक्रिया से गुजर चुके, तब टंकण के लिए भेजे गये।

इस पूरी प्रक्रिया के कुछ पहलू आपके साथ साझा कर रहा हूँ। मैंने कक्षा 9वीं की गणित के सरल रेखा और कोण अध्याय का सबसे पहले फ्रेमवर्क तैयार किया। मार्गदर्शक प्रो. हृदयकांत दीवान और लेखक-दल की

सहमति के पश्चात् इस फ्रेमवर्क के अनुसार लेखन का कार्य प्रारंभ किया। ज्यामितीय अवधारणाओं जैसे सरल रेखा, कोण, कोण के प्रकार इत्यादि की पुनरावृत्ति के लिए मैंने पारिभाषिक शब्दावलियों का प्रयोग करते हुए चित्रों के साथ परिभाषाएँ लिखीं। जब इसे लेखक-दल के समक्ष प्रस्तुत किया गया, तो यह महसूस किया गया कि इसमें और नवाचार करने की आवश्यकता है तथा और बेहतर ढंग से रोचक लेखन किया जा सकता है। इसलिए इस पर ब्रेन-स्टार्मिंग करने की आवश्यकता महसूस करते हुए लेखक-दल ने अपने सुझाव दिए। पिछली कक्षाओं की पुनरावृत्ति की आवश्यकता पर लेखक-दल के बीच विशेष रुप से चर्चाएँ हुईं और अंततः यह सहमति बनी कि पाठ के पुनरावृत्ति वाले हिस्से में सामान्य जानकारी के पश्चात् अवधारणा स्पष्ट करने हेतु कुछ छोटे-छोटे प्रश्न दिए जाएँ। इन सुझावों को ध्यान में रखते हुए मैंने साईकिल के पहिए, फ्रेम और इसके विभिन्न भागों का उदाहरण लेकर शिक्षक और सरस्वती नामक छात्रा के साथ वार्तालाप के माध्यम से रेखा और कोण की अवधारणा पर अगला प्रारुप तैयार किया। इस प्रारुप में पहले कक्षा के विद्यार्थी साईकिल का चित्र अपनी कापी पर बनाते, फिर वार्तालाप और उसके बाद इन अवधारणाओं पर कुछ प्रश्न थे। छात्रा का नाम सरस्वती रखने के पीछे मेरा तर्क था कि छत्तीसगढ़ में कक्षा 9 वीं में पढ़ने वाली पात्र लड़कियों को सरकार से निःशुल्क साईकिल मिलती है और इस योजना का नाम सरस्वती साईकिल योजना है। बहरहाल, इस पर भी मार्गदर्षक और लेखक-दल सहमत नहीं हो सके और उन्होंने अपने कुछ बहुमूल्य सुझाव दिए।

मार्गदर्शक और लेखक-दल के साथ लगातार ब्रेन स्टॉर्मिंग (विचार चर्चा) के पश्चात् दैनिक जीवन के कुछ उदाहरणों की आकृतियों के साथ अध्याय का लेखन प्रारंभ किया गया। रेखाखण्ड और इसमें अंकित बिन्दुओं की संख्या में एक रोचक संबंध है, जिसे स्पष्ट करने के लिए टेबल बनाकर गतिविधि तैयार की गई, जिसके कुछ कॉलम विद्यार्थियों की सुविधा के लिए भर कर, दिए गए। फिर इस तालिका में भरे गए आँकड़ों के आधार पर चर्चा करते हुए रोचक परिणाम प्राप्त किया गया। बहुभुज और उनके अंतः कोणों के योग के मध्य संबंध ज्ञात करने के अलावा समांतर रेखा को जब एक तिर्यक रेखा काटे तो बने कोणों में संबंध इत्यादि की स्पष्टता के लिए भी इसी तरह की गतिविधियाँ तैयार की गईं। सोचें और चर्चा करें तथा करके देखें के सवाल बनाते समय यह ध्यान रखा गया कि अवधारण स्पष्ट करने के लिए जहाँ पर भी आवश्यकता महसूस हो, वहाँ पर सवाल दिए जाएँ। जैसे इस पाठ में सरेख बिन्दु पर चर्चा के पश्चात् सोचें एवं चर्चा करें के अंतर्गत सवाल दिया गया है- क्या 3 सरेख बिंदुओं से त्रिभुज बन सकता है? इसी तरह से रेखा और कोण पर चर्चा करते हुए केवल कोणों के नाम बताने के पश्चात् करके देखें के अंतर्गत सवाल दिया गया है- इनमें से प्रत्येक कोण का चित्र बनाइए व कोणों के नाम लिखिए। इस प्रश्न से विद्यार्थियों की पूर्व कक्षा में पढ़ी गई इन अवधारणाओं की पुनरावृत्ति भी हो गई। विषय शिक्षक से यह अपेक्षा की गई है कि वो इन सवालों की गंभीरता समझेंगे और प्रत्येक विद्यार्थी के हल की जाँच ईमानदारी से करेंगे।

अपने उद्देश्य से विषय शिक्षकों को अवगत कराने के लिए लेखक समूह ने शिक्षक के लिए नोट लिखे, जिसे पाठ्यपुस्तक के प्रारंभ में ही 'शिक्षक के लिए दो शब्द' शीर्षक के साथ शामिल किया गया।

कक्षा 9वीं में प्रमेय और सिद्ध करने के लिए उपपत्ति से विद्यार्थी पहली बार परिचित हो रहे हैं। विद्यार्थी कक्षा 8वीं तक की कक्षाओं में, गणितीय कथनों का सत्यापन करते हैं। तत्समय कक्षा 9वीं की प्रचलित पाठ्यपुस्तक में प्रमेय की उपपत्ति दो कॉलम के रुप में दी गई थी। पहले कॉलम में कथन एवं दूसरे कॉलम में संबंधित कथन का कारण उल्लेखित किया गया था। प्रारंभ में लेखक-दल उपपत्ति को इसी प्रारुप में रखना चाहता था। समूह में लगातार खुली चर्चा के पश्चात् गणित की सोपानक्रमिक संरचना और क्रमबद्ध तर्कों के आधार पर उपपत्ति देना स्वीकार कर लिया गया। ज्यामिति की इकाई के कुछ प्रमेय पूर्व-प्रचलित कथन-कारण के कॉलम वाले प्रारुप में भी दिए गए।

जब एक बार अध्याय का टंकण हो गया, तो लेखक-दल के सदस्यों ने कई बार इसे पढ़ा और आवश्यक संशोधन कर त्रुटि-रहित बनाने का प्रयास किया। हालांकि

पाठ्यपुस्तकों में त्रुटियों का चिन्हाँकन एवं सुधार का कार्य एक सतत् प्रक्रिया है।

पाठ्यपुस्तक लेखन की कार्यशालाएँ एस.सी.ई.आर.टी. रायपुर और विद्याभवन शिक्षा संदर्भ केन्द्र, उदयपुर (राजस्थान) में आयोजित की गईं। मुझे उदयपुर में आयोजित 3 कार्यशालाओं में सहभागिता का अवसर मिला। इन कार्यशालाओं में पाठ्यपुस्तक लेखन के अधूरे कार्यों को पूर्ण करने, आवश्यक संषोधन के अलावा इलेस्ट्रेशन, लेआउट डिजाइन की प्रक्रिया सीखने और इन सबमें सहभागिता का अवसर मिला। इन तीनों कार्यशालाओं में हम जितने दिन भी रहे, विद्याभवन के समृद्ध पुस्तकालय का भरपूर उपयोग किया।

पाठ्यपुस्तक बनने के बाद इनके क्षेत्र परीक्षण एवं शिक्षकों की मूल्याँकन पर समझ बनाने के लिए कार्यशालाएँ रायपुर में आयोजित की गईं। चूँकि पूर्व प्रचलित पाठ्यपुस्तक से इस नवसृजित पाठ्यपुस्तक में पाठ्यक्रम का विकास बिल्कुल अलग ढंग से हुआ था, इसलिए कार्यशाला के प्रथम दो दिनों में यह अनुभव किया गया कि कुछ शिक्षक इसे स्वीकार करने में असहज महसूस कर रहे हैं। जैसे-जैसे पाठ्यपुस्तक उन्होंने पढ़ी, उनके संदेह दूर होते गए और उनकी पाठ्यपुस्तक को लेकर सहजता बनने लगी।

9वीं की पाठ्यपुस्तक पूर्ण होने के बाद 10वीं की पाठ्यपुस्तक लेखन का कार्य सितम्बर 2015 में प्रारंभ हुआ। इसमें भी 9वीं की पाठ्यपुस्तक लेखन की ही प्रक्रिया अपनाई गई। अंतर केवल इतना रहा कि टाइपिंग, इलेस्ट्रेशन, लेआउट डिजाइन इत्यादि कार्य, जहाँ 9वीं की पाठ्यपुस्तक का विद्याभवन शिक्षा संदर्भ केन्द्र, उदयपुर में हुआ था, वहीं 10वीं की पाठ्यपुस्तक का कुछ कार्य विद्याभवन शिक्षा संदर्भ केन्द्र, उदयपुर में और शेष कार्य एस.सी.ई.आर.टी., रायपुर में हुआ।

पाठ्यपुस्तक लेखन की इस पूरी प्रक्रिया में एस.सी.ई.आर.टी. के तत्कालीन संचालक की अकादमिक कार्यों की समझ, इन कार्यों के प्रति रुचि एवं सक्रियता देखते ही बनती थी। कई ऐसे अवसर आए, जब हम लोग अध्ययन - चिंतन या समूह में विचार-विमर्श कर रहे होते और किसी की दृष्टि अचानक संचालक महोदय पर पड़ती, तब उनकी उपस्थिति का पता चलता। संचालक महोदय हमारी चर्चाओं में अक्सर शामिल होते, मार्गदर्शन, उत्साहवर्द्धन करते। इस प्रक्रिया से उनका जुड़ाव इतना अधिक था कि उन्हें लेखक-दल के सदस्यों के नाम तक याद थे।

विषय समन्वयक डॉ. सुधीर श्रीवास्तव एवं लेखक-दल के सदस्यों की विषय की अच्छी समझ, भाषा पर पकड़, नवाचार हेतु चिंतन से यह पाठ्यपुस्तक निर्मित की जा सकी।

शिक्षकों के कुछ अनुभव

इस वर्ष अक्टूबर माह के पहले सप्ताह में छत्तीसगढ़ के जशपुर जिला में राष्ट्रीय माध्यमिक शिक्षा अभियान द्वारा आयोजित गणित विषय के शिक्षकों के जिला स्तरीय सेवाकालीन प्रशिक्षण के दौरान कुछ शिक्षकों ने अपने अनुभव साझा किए। श्री हरिशंकर पटेल, व्याख्याता पंचायत, शासकीय कन्या उच्चतर माध्यमिक विद्यालय, कुनकुरी ने बताया कि ''भूमिका बहुत अच्छे से लिखी गई है, जिसे विद्यार्थी पढ़ रहे हैं। इसके पहले तो केवल सूत्र याद करके सीधे प्रश्नावली हल करने लगते थे।'' शासकीय उच्चतर माध्यमिक विद्यालय, लोदाम के व्याख्याता श्री महेश लाल निषाद ने कहा कि ''इस पाठ्यपुस्तक की भाषा बहुत सरल है और विद्यार्थियों को समझ में आ रही है।'' शासकीय उच्चतर माध्यमिक विद्यालय, बिमड़ा की व्याख्याता सुश्री माधुरी हलवाई ने कहा कि ''करके देखें के सवाल कक्षा में हल कराने से विद्यार्थी सवाल स्वयं हल सीख रहे हैं''। शासकीय उच्चतर माध्यमिक विद्यालय, केराडीह के व्याख्याता श्री युधिष्ठिर कैवर्त्य का कहना था कि ''करके देखें के सवाल बनाने से विद्यार्थियों में आत्मविश्वास बढ़ रहा है। उनकी जिज्ञासा भी बढ़ रही है। दिए गए सवालों के अंक बदलकर सवाल देने पर भी कुछ विद्यार्थी सवाल जल्द ही बना लेते हैं।'' शासकीय उच्चतर माध्यमिक विद्यालय, गम्हरिया की व्याख्याता श्रीमती सीमा गुप्ता, शासकीय उच्चतर माध्यमिक विद्यालय, सोनक्यारी के व्याख्याता श्री चंद्रषेखर साहू, शासकीय उच्चतर माध्यमिक विद्यालय, बच्छराँव के

व्याख्याता श्री संतोष कुमार श्रीवास ने बताया कि ''करके देखें और सोचें और चर्चा करें के सवालों से विद्यार्थियों की अवधारणा के संबंध में समझ बन रही है। दैनिक जीवन के उदाहरण से जुड़े सवाल आकर्षित कर रहे हैं। सबसे बड़ी बात तो यह है कि विद्यार्थी सवाल बनाना सीख रहे हैं। गणित के जब सवाल बनने लगते हैं, तब इससे ज्यादा आनंददायक दूसरा विषय नहीं लगता।'' उल्लेखनीय है कि पिछले सत्र यानि 2016-17 से पूरे राज्य में कक्षा 9वीं की नवसृजित पाठ्यपुस्तक प्रचलित हुई है और इस सत्र से कक्षा 10 वीं की।

Tanya Saxsena
tanya.saxena26@gmail.com

Developing General Guidelines for Textbook Writing Process

Abstract

This article talks about Chhattisgarh mathematics textbook writing process for secondary grades. It investigates how the principles and framework of the textbook evolved and their alignment to the NCF-2005. This article begins with the development of common guidelines. Then it focuses how these guidelines are linked with the objective of learning of mathematics at the secondary stage and the content presented in the book. The implication of the principles is highlighted as some of the chapters are added, types of problems, and in various other ways.

Introduction:

Based on the ideas of National Curriculum Framework (NCF) -2005, NCERT, state governments have redesigned/revised their curriculum frameworks, syllabi and textbooks. NCF-2005, recommends that school life must have a connection to the Children out the school. Efforts were made to implement this idea in the textbooks and syllabus. NCERT's Mathematics textbooks of grade 6th to 8th were written in the light of same principles as suggested by NCF. They delineate from the idea of rote learning and provide students opportunities to think and explore the subject.

Similar process was initiated by Chhattisgarh government in 2013. Curriculum and textbooks of all the subjects were revised and textbooks were rewritten. The group consisted of teachers, teacher educators, subjects experts of all the subjects gathered primarily across the state and also from outside the state. They contextualized the principles of textbook and curriculum given in the NCF as per the state needs.

Here, we will first look through the process of development of common guidelines. Then, in particular we will discuss the process of mathematics textbook writing for grade 9th and 10th. In this section, we will focus on mathematics textbook principles and framework development, how they were decided, challenges and decision making process of the team.

Developing General Guidelines for Textbook Writing Process:

The group (people from all the subjects) started to brainstorm with 3 questions:

a. What does a child know when she comes to grade 9 and 10?
b. How does a child learn or build on her knowledge?
c. How this will help a teacher to best assess students' understanding? or How does a teacher can assess child's knowledge and help her to learn the concept?

These three questions were discussed in smaller groups. After a day-long discussion based on experience and their understanding, group developed a rationale for the process and mental structure of the syllabus. It was interesting to note that the ideas emerged after; about adolescent child's understanding, process of child's

learning, assessment, classroom processes were aligned to NCF-2005. Arguments, debates and discussions during this exercise helped the group to start with same idea that was useful further.

The discussion was focused on following points: (i) "In grade 9th and 10th where children reach an adolescent age have an understanding of their surroundings" (ii) They are acquainted to geographical, environmental issues and also have an idea about local governing bodies. Hence, the content has to be written so that they can build on their prior knowledge. (iii) Children at this age do daily life calculations, appreciate shapes and dimensions around. They have good command in first language; also use second language in their peer group. Next issue discussed was, how do children learn? They learn mostly by observation, group discussions, reading things, media, etc. Therefore there should be such opportunities in the textbooks.

Common/large group session was followed by subject-based session. All the groups again thought through similar questions from their subject perspective. And, this task helped the subject groups to develop an outline of subject textbooks. Let us see how things went in mathematics group.

Principles of Mathematics Textbook Process:

What are the features of a good mathematics textbook?

Position paper of the National Focus Group on Curriculum, Syllabus and Textbooks says, it is important for curriculum writers to keep a pace and alignment with the developing technology and changing world. Here the focus shifts from 'selection' and 'organization' of the information to the development of a curriculum that "manifests life in its reality'. Framework of the textbook must reflect this idea of content. Further, as per the position paper, the purpose of doing mathematics at secondary level is to think in abstraction, develop logical thinking, problem solving skills and establish inter concept linkages.

We thought through characteristics of a good mathematics textbook:

The very first principle we discussed: "*Textbook is for children to read and do*". This basic idea has direct implication on the language of the text which has to be simple and easy to understand. Hence, it was decided to avoid complex vocabulary and terms, so that the focus can remain over the concept only. Second, it is also expected that children could relate to the examples and conversations to their surroundings. Therefore, very new concepts must be introduced with appropriate context that scaffolds to the abstraction, structuration and generalization.

In continuation of the above points, textbook must not look text heavy. Illustrations can be added to make the presentation more interesting.

NCF-2005 argues that mathematics curriculum must not limit itself to procedures and algorithm. Rather it has to expand to exercise conceptual depth and capacity of reasoning of the students. To fulfill this, textbook should help students to explore the concepts and articulate definitions in their own words. Focus must not be to memorize the formulas, but to derive the formula. In secondary grades, students come with basic understanding of arithmetic; algebra and geometry. Doing proofs, generalization and to build logical reasoning are amongst major objectives of secondary stage mathematics learning. Therefore, textbooks must have enough scope where students could explore proofs and various aspects of proof construction.

Mathematics is considered as a formal ground of problem solving in the school. Students develop in-depth conceptual understanding when they understand the questions, make mental map of the solution. This process is deemed important while doing mathematics. And therefore, curriculum should offer sufficient room of exploration in answering questions. There has to be various types of questions to practice; not just questions with unique answer. We decided to keep a good mix of questions, so that every student can find challenge while solving those.

It was discussed that not only solving questions is important, but making new questions develops comprehensive understanding of the concept. Hence, textbooks should have opportunities where students can make new questions and solve them with their peer or teachers. Students must be able to articulate and explain the solution. And it is also proven that peer group-discussion fosters learning process. So, the group agreed to have sections where students will do group activity on any concept. These may either be puzzles through which students could explore the concept behind, open ended questions to discuss upon or some small project.

And it is expected that not only students can prove mathematical statements but also can make more such statements with the use of mathematical terms and symbols. Upper primary section onwards, the language of mathematics becomes formal. Students often feel uncomfortable with the use of formal signs, symbols or terms in algebra. And this makes further difficult for them to establish linkages across the different subjects. To address this point, we decided to put such opportunities may be in the form of separate chapters or practice exercises where students could use various symbols and terms, especially while doing proofs.

Many principles, we found are common to those of NCERT Math textbooks from class VI to class VII. This is how above principles were reflected in the textbook.

At secondary stage, students are expected to perceive the structure of mathematics and understand the logical connection of the mathematical statements. That is why doing proofs become significant at this stage. Earlier also we discussed that proofs, rigorous use of formal terms and symbols while writing mathematical statements is a useful tool which mathematics offers. This helps to solve many problems across the subjects. These points brought us to the decision of keeping a separate chapter on mathematical proofs. It consists of proofs from geometry, numbers, and trigonometry to highlight the usefulness of the proofs in different topics. This chapter also unwinds the logics behind the proofs of the propositions they have read in middle grades and with practice problems so that students can get comfortable with formal mathematics language and its significance while writing mathematical statements.

National Curriculum Framework also emphasizes, on mathematisation. It says that students must not follow the algorithm and find the answer in mechanical manner, but they should learn and think through different approaches to the problem and then put them in mathematical form. Students learn the most when they do the problems, discuss or explain them in peer group. That is why the textbook contains the opportunities where they are expected to do the challenging problems, or puzzles together. Further, a new chapter 'Playing with Numbers' was conceptualized where students

find out the possible unknowns in the given set of numerical condition. The idea was to foster abstract thinking by giving them questions.

Another objective of secondary stage mathematics states 'to consolidate the different topics she has learnt'. It is important to link conceptual and procedural knowledge at this stage. One of the ways is to integrate different academic areas is to ask questions which require understanding of more than one topic. Specially, numerical problems in the chapters like ratio-proportions, banking, geometrical constructions, mensuration were made more meaningful and with easy calculations. Apart from this, we also tried to link different chapters. For example, Ratio-proportion was linked in mensuration, similarity and shapes, etc.

While discussing about 3-D structure and solids, it was realized that visualization and representation of solid structures should be discussed again in this grade. Hence, solid net diagrams were repeated with few practice questions followed by a short discussion. In this manner, we built on each other's experiences.

NCF says that the level of visualization and analytical reasoning in geometry needs to be upgraded and it can be done with an appropriate tool of learning. With this idea transformation geometry was added as one chapter in the textbook. Transformation geometry deals with moving or transforming geometrical figures which learners recognize and understand their properties. Hence the chapter has opportunities for investigation of geometrical properties to be done by moving/manipulating the shapes; i.e., by translation, rotation, reflection or dilation. In the chapter while working on transforming figures, students are expected to use the concepts of similarity, symmetry and congruency.

References:

- NCERT (2005). *National Curriculum Framework-2005*, New Delhi
- NCERT (2006). *Position Paper of the National Focus Group on Teaching of Mathematics*, New Delhi.
- SIERT (2016). *Textbook of Mathematics* for Class IX. Chhattisgarh.
- SIERT (2016). *Textbook of Mathematics* for Class X. Chhattisgarh.
- Dewan, H.K. (2011). "*The development of a Mathematics Teacher- An analysis in Context*", Vidya Bhawan Society, Udaipur. (Unpublished)
- Dewan, H.K. (2011). "*Teaching of Mathematics at primary state*". Vidya Bhawan Society , Udaipur. (Unpublished)

Vinay K. Kantha
vinay_kantha@rediffmail.com

Rationale for the Bihar Curriculum Framework and the Process of Drafting: Education for Equity, Harmony and Excellence

Abstract

As a follow up of the National Curriculum Framework-2005, the Bihar Curriculum Framework (BCF)-2006/2008 was brought out. This article narrates the reason behind making of the BCF and also details out the process perspective of BCF which is now a guiding document for the school education in the state of Bihar.

NCERT started designing curriculum frameworks in 1975 and has worked on its periodic redesigns. The lastest one came in 2005, and triggered country-wide debate at the instance of NCERT which supported such efforts. In Bihar, syllabi had been prepared in the nineties, but the idea of a full-fledged curriculum framework was still new. The first round of discussion began after the NCF 2000. Natoinal Curriculum Framework (NCF)-2005 turned out to be even more radical with a paradigm shift from behaviourism to constructivism. Given its uniqueness, both in respect of problems and potential State Council of Educational Research and Training (SCERT), Bihar decided to write a separate curriculum for itself.

It was a great privilege for me to be associated with the first ever exercise in the state to design a curriculum framework. Hitherto such a task was undertaken by the NCERT at the national level only and states were content with writing syllabi, if they must. After a period of hesitation this responsibility was taken up by the SCERT, Bihar and I got the privilege of piloting the committee constituted for the purpose. After a two day workshop in March 2006, it was decided to organize a series of consultations and workshops to prepare a draft Bihar Curriculum Framework. Notwithstanding delays and slippages now and then a wide ranging consultation were made with a large number of people. In these subject experts, and school teachers constituted a majority. Apart from NCF 2005, some of the previous documents and the position papers of National Focus Groups setup during NCF-2005, development exercise were also perused before giving shape to our own ideas on issues. BCF thus was the outcome of a sustained state level consultation, drawing ideas and inspiration from the most recent curriculum related documents available at that point of time.

Curriculum debate is directly linked to the question of quality of education, which assumes greater importance as the system of school education moves further towards the goal of universalisation. Elementary education now has the status of a fundamental right. Programmes like Sarva Shiksha Abhiyan, even if not entirely successful, aim at universal elementary education. A subcommittee of Central Advisory Board on Education (CABE) has

made recommendations for universal secondary education and the idea has entered into the debates on the eleventh plan. A concurrent concern at this juncture is about what we teach in schools and how well do we do it. Debates on curriculum have tended to be more thoughtful and serious as well as contentious in the recent years. Perhaps it is a sign of increasing realization of the importance of school education for democracy.

NCF-2005 was prepared after a long and fairly widespread consultation involving a large number of stakeholders in different walks of life organized in twenty one focus groups, they produced meaningful position papers which were used in the making of this illuminating document. Against this background the first natural question that our committee was expected to answer was the rationale for a state level curriculum framework in view of the existence of NCF.

There are two sets of reasons for which we find this exercise desirable– the first set is valid regardless of the type of national curriculum framework, while there are reasons relating to the specific nature of NCF-2005 that suggest small modifications in the context of Bihar.

From Kothari onwards serious commentators on curriculum have underlined the need for a decentralized approach to curriculum design. Considering the variable range of situations in the schools or their surrounding milieus, Kothari visualized the possibility of several curricula. Krishna Kumar has been critical of the preference of 'mechanical devices retailed by American behaviourists' bypassing humanist agenda of Gandhi,Tagore, Gijubhai and Krishnamurti and local social reality. The options and frame for the design of sets of learning opportunities can not be identical or uniform in a country of the size and diversity as ours. NCF 2005 also clarifies that 'The term National Curriculum Framework is often wrongly construed to mean that an instrument of uniformity is being proposed.' If choices of learning opportunities vary from place to place, so do the patterns of local needs and expectations. After all curriculum is not designed in a social and historical void. Moreover, it is desirable to involve local groups and build their capacities through debates at the local and regional levels.

The second set of reasons relate to the peculiarities of the Bihar situation at this point of time, which justifies a separate curricular framework. In the first chapter of BCF its rationale is explained in following words:

> "*First and foremost, among the reasons, will be the issue of contextual relevance. Bihar may appear to be the microcosm of India in terms of its cultural diversity, yet its cultural specificity ought to reflect in its curriculum. More significantly, the level of urbanization in the state, at just 10.47% (2001 Census), was well below the national average of 27.78% and documents like NCF 2005 seem to be designed with the urban middle class children in mind. The state capital Patna has the largest urban population and yet it is not a metropolis, not to speak of the lesser towns, whose character is not far removed from rural. A substantial number of children intended to be brought within the fold of schools today are first generation learners speaking local dialects which are their home language. The status of infrastructure facilities in the schools is generally poor, which is made worse due to chronic shortage of teachers. Besides the state has its own set of problems including*

floods in the north and violence and strife characterizing social life in many parts especially south Bihar. Feudal characteristics of the society linger on throwing up a different kind of pedagogic challenge. In sum the challenges before curriculum developers in Bihar are in many ways unique and by all means daunting, which call for focused attention on the situation of the state."

One more historical fact, which was hard to ignore was the basic education scheme,or *nayi talim*. Its seeds were sown during the Champaran Satyagraha of 1917. In the initial discussion one group felt that BCF should have a rural framework, but the majority favoured only a full- length chapter on rural curricular framework. This turned out to be the unique feature of BCF 2006/2008.

In addition to the chapter on rural framework and the declared preference for a decentralized approach to curriculum design, yet another attempt for a decentralized approach was the idea of school-level curriculum, for which again a separate chapter was created.

It would be presumptuous to claim that BCF addresses the major pedagogic concerns in the specific context of Bihar and yet, there are distinctive features of this document which were identified and defined after several rounds of discussions with teachers, teacher educators, sensitive citizens and curriculum developers. The most important among these is an independent chapter on Rural Education. As noted above nine out of ten students in Bihar reside in villages and many of them are first generation learners.

As a matter of fact the very approach to curriculum is perceptibly modified in the entire document either with an eye on contextualization or to bring it closer to the realities in the state from the point of view of teachers' opinions, parental expectations and social analysts in the state. In a sense BCF is far less radical in its pedagogic approach than NCF, especially in terms of its avowed theoretical position. BCF takes a more pragmatic view on pedagogy which is more accommodative of prevailing or conventional ideas among teachers or members of community without, of course, settling for status quo.

As part of the country, Bihar shares many concerns taken up in the National Policy on Education. At the same time it has to grapple with its own problems and for that it has to fall back upon its own resources –cultural and social, and devise its own techniques and strategies. There are systemic reforms in the discussion process in the state, e.g., the possibility of introduction of a common school system and several more institutional initiatives are needed which have been outlined in the chapter on systemic reforms.

An idea suggested in Kothari report and impliedly endorsed in NCF has been developed and concretized. It is the idea of schools designing their own curriculum and a separate chapter has been devoted on that. Guided by an underlying premise that actual curriculum takes shape in the real setting of schools care has been taken to give some simple suggestions to the head teachers and teachers to enable them to attempt it in every school. NCF has provided several interesting clues and ideas regarding what can be done in the schools and much of that has been incorporated in the framework that we have evolved and we go one step further by asking teachers to design a school curriculum on their own. If schools actually start doing it, that indeed will

be the beginning of the much needed quality reform in education.

Bihar is in a state of transition– a painful one which may possibly linger for some time more. If this curriculum is of any help to the young learners of today to find resources to negotiate this transition, it will be our highest reward.

References

- Government of India (1966). Report of the Education Commission (1964-66). New Delhi
- NCERT (2005). *National Curriculum Framework-2005*. New Delhi
- SCERT (2008). *Bihar Curriculum Framework*. Patna

N. Upender Reddy
nupender@gmail.com

Textbook Development Process in Andhra Pradesh

Abstract

This paper is about the effort of the State of undivided Andhra Pradesh to develop a curriculum framework document that would be in line with the National Curriculum Framework-2005 along with the position papers of the National Focus Groups developed during NCF-2005 exercise. The State based its efforts towards better syllabi and textbooks along with improved classrooms on the substantial work done earlier on its teacher capacity building and school support systems. The NCF-2005 and the position papers attached with it for the first time laid out in so much detail what was expected and needed from all aspects of the system and spelt out the directions and the focus areas. This encouraged us to use it as an opportunity to analyse what we had done in the light of our needs and situation in the State. We then worked on those ideas with a big team and drew upon our experience and knowledge to make the State Curriculum Framework, position papers and the syllabus. This exercise was followed by textbook writing. The effort to transform educational process was spread over many years and involved a committed amd dedicated effort of the state team with the support of extended team.

Introduction

Appropriate curriculum is one of the important enabling conditions to improve quality of School Education. Curriculum Framework reflects the vision, mission and goals of education in the State without which education will be an aimless, direction less activity. The undivided State of Andhra Pradesh developed a State Curriculum Framework in 2011 and subsequently the syllabus and textbooks to transform the educational process. This effort had stated earlier at the primary and elementary level with the extended support of several state and national institutions as well as resource persons.

The State in this utilised the experience gained during different projects and activities. We discuss the process and the learnings in the followings sections:

The Experiences of Implementing Basic Education Projects in the State:

Many basic education projects have been implemented earlier in Andhra Pradesh, i.e. Andhra Pradesh Primary Education Project (APPEP), District Primary Education Programme (DPEP). Further the programme of Sarva Shiksha Abhiyan (SSA) is being implemented in the state since 2001. The basic focus of these projects was to improve the quality of teaching learning process through teacher support mechanisms including in-service training programmes. Several innovative practices have been undertaken during the programme implementation. These improvement processes were added on to the existing curriculum and textbooks. Prior to the

curricular reforms the textbooks were information oriented and loaded with content. The teachers were expected to develop learning tasks on their own based on content matter given in the textbooks. The curriculum and textbooks did not appropriately support implementation of child centered and activity based approaches. Only few motivated teachers were able to develop learning tasks and implement child centered pedagogy in schools.

1. Alternative Schools and Innovative Pedagogies

Besides, several alternative pedagogic processes like National Child Labour Project Schools (NCLP) have been implemented. Some of the strategies of these alternative schools worked effectively in improving the classroom processes and learning outcomes. Collaboration with several NGOs for implementing quality initiatives viz., Early Language and Mathematics programmes: Bridge courses for the out of school children with alternative pedagogical strategies, production of primers for adult education, etc. have proved the effectiveness of certain pedagogical strategies.

2. Activity Based Learning and Individualized Instruction

The state also developed and implemented self-learning interactive material for early grades (ABL form). These were competency based workbooks. The trialling and use of the workbooks also helped in deepening the understanding of how such materials can be developed and used in and with the textbooks.

3. Learning Enhancement Programme with a Focus to Improve Basic Foundational Skills of Reading, Writing and Arithmetic

The government also recognized the need for active engagement and focus on learning of language in the early grades. These were called Children's Language Improvement Programme (CLIP), Children's Language Acceleration Programme (CLAP). These exercises also developed an understanding of materials and the possibility of their use in textbooks. Seprate programs including basic ideas in mathematics and science were also developed.

It was decided to incorporate the understanding of these practices and innovative strategies of pedagogy into the system through new curriculum and textbooks.

Bringing in the RTE 2009 Perspective

The SCERT was declared as Academic Authority for School Education to take up curricular and evaluation reforms and support the teachers and field functionaries for the effective implementation of curriculum.

The existing classroom process and children engagement is not satisfactory. Though several training programmes have been organized to shift the teaching learning process from traditional, textbook oriented to participatory one and engage children in meaningful learning tasks rather than engaging them in copying information from the textbooks.

SCERT is expected to review school curriculum as a regular activity ensuring the highest standards of rigour. National Policy of Education 1986, National Curriculum Framework 2005 and Right to Free and Compulsory Education Act 2009 assign a special academic role to SCERT in preparing and promoting State Curriculum Framework. The State Government took a decision to take up curricular and evaluation reforms based on NCF-2005 and RTE-2009. Accordingly, the SCERT initiated curricular reforms

starting with development of State Curriculum Framework followed by revision of syllabus and textbooks.

State Curriculum Framework (SCF) Structures

The Government setup a State Advisory Committee (SAC) with 30 members with a Chairperson and Co-Chairpersons. SAC also invited special invitees representing various sections i.e., Teachers, Teacher Educators, Administrators, Public Representatives, NGOs, etc. A State level Steering Committee (SSC) was set up with experts to draft the state curriculum framework. The SAC was supported by 18 State Level Focus Groups, who prepared drafts of 18 well researched Position Papers and a State Curriculum Framework. The draft State Curriculum Framework and Position Papers were kept on the website of SCERT for public comments.

The SCERT then conducted workshops at Regional/ Districts level in the DIETs to discuss the curriculum framework, Position Papers and invited suggestions/ modifications.

- All the suggestions received through e-mails and workshop deliberations, recommendations across different sources were consolidated and placed before the focus groups and steering committee for discussion and incorporated appropriate suggestions and finalized leading to the SCF-2011, Fourteen Position Papers, Syllabus and Academic Standards.
- These documents were approved by the State Advisory Committee.

Curriculum- Key Principles and Key Aspects of Change

We took the following steps based on the SCF 2011.

- Evolved academic standards – class wise and subject wise along with learning indicators.
- Aligned curriculum standards to textbooks, instructions and assessment principles.
- Evolved Comprehensive assessment system with a focus on core state standards/ outcomes with detailed Formative and Summative strategies. We must pointed out that the curricular reforms not only ended with revision of textbooks, but continued. It led to a major shift in the nature of understanding and practices in the following areas:

  Approach to subjects and ways of teaching and learning including classroom process.

  The shift in assessment and academic standard.

  The shift in the role of the teacher, learner and the textbook.

  The shift in the pre-service teacher training.

Formation of Subject- Specific Committees for the Revision of Syllabus and Development of Textbooks from Classes I to X.

Consequent to finalization of State Curriculum Framework and Position Papers, a decision was taken to revise the existing syllabus for all school subjects from classes I to X and revision of textbooks.

State Curriculum Framework and Position Papers formed the basis for the revision of syllabus and textbooks. Subject specific Editorial Boards were constituted with experts from National and State Level who worked earlier with the state in DPEP, SSA, etc. Teacher educators and practicing teachers of the State Resource Group (SRG) and District Resource Group (DRG) were also invited to the committees.

A. Participation of National Level Institutions and Individual Experts in the Textbook Development Process

National Level institutions and individual experts were identified based on their experience of such work across the Nation.

The National Level institutions and NGOs, identified were:

- Vidya Bhavan Society, Udaipur
- Homi Bhabha Centre for Science Education, Mumbai
- Eklavya, Madhya Pradesh
- NCERT, New Delhi
- Regional Institute of English South India (RIESI), Bangalore
- SCERT, Kerala
- English and Foreign Language University (EFLU), Hyderabad
- Hyderabad Central University (HCU), Hyderabad
- State Universities like Osmania University, Kakatiya University, Andhra University, SV University, Dravidian University, etc.

B) Selection of Textbook Writers

An advertisement was placed in the local newspapers seeking teachers application from government and private schools teacher, teacher Educators for becoming textbook writers. The editorial boards of the subjects scrutinized the applications and draft lessons sent by them and finally select the team.

C) Capacity Building of Textbook Writers

The first workshop for the revision process was a capacity building exercise. The areas focused were curriculum mapping, meaning of syllabus, nature of knowledge, how children learn, different types of learning materials, learning tasks, etc. Following this syllabi were developed and subject specific work began.

- Vidya Bhavan Society oriented the textbook development groups in the subjects of Mathematics, Science and Indian languages and guided the entire process of syllabus and textbook development from classes I to X. Certain workshops for these groups have been conducted at Vidya Bhavan Resource Centre duly utilizing their enriched library and other related sources. Several experts from HBCSE, Delhi University, RIESI (Bangalore), EFLU (Hyderabad), NIIT and Osmania University, Eklavya, Vidya Bhavan and SCERT itself participated in the exercise.
- The Eklavya group and NCERT trained the curricular group of Social Studies and guided the entire process of syllabus and textbook development from classes VI to X.
- The Regional Institute of English at Bangalore and SCERT, Kerala trained the curricular group in English and guided the entire process of development of English language textbooks from classes I to X.
- Homi Bhabha Centre for Science Education, Mumbai trained the curricular group in the EVS and guided the process of textbook development of EVS.

D) Steps in Writing the Textbooks

Following steps were followed for the development of textbooks.

- Reading the National Curriculum Framework and State Curriculum Framework by the textbook writers.
- Reading and understanding the Position Paper of the concerned subject by the textbook writers with the editors – Discussion and

deliberations on various terms and concepts.

- Discussion on and understanding of the Academic Standards.
- Analysis of existing textbooks and seeing how far they reflect the nature and objectives of the subject.
- Analysis of the textbooks of NCERT and other States like Chattisgarh, Bihar, Kerala, Tamil Nadu and Gujarat.
- Procured reference books from various libraries including the SCERT library.
- Map the syllabus of particular grade and discuss the unit-wise sub-concepts and chapterisation and detailed concept mapping across grades.
- Discussion on guidelines and principles based on which textbooks need to be developed, design and structure of the unit and approaches in writing the textbooks keeping in view how children learn and participate.
- Discussion on the experiential activities such as experiments, projects, field visits to be incorporated in the textbooks.
- Checking the number of hours required vis-a-vis and the content load.
- Discussion on the balance across content knowledge, skills, attitudes to be represented in the syllabus.
- After this chapters were allocated to the textbook writers in groups. Once the chapter was developed, it was given to other groups for review. After this illustrations, boxes and tables were discussed with the designing computer graphics/team.
- Following this, researchers and field level persons were also invited to read the chapters and interact with the textbook writers and editors.
- The textbook writers then conducted a pilot study in their schools on the chapters written and shared the opinions of students and other teachers in the workshop in the presence of editors and other textbook writers.
- Then the step of page making, designing of the textbooks in all aspects was done and draft chapters were developed for subject teachers from the schools to read and give suggestions.
- The last step was the translation of textbooks in to seven other languages used in the state (that included both Andhra and Telangana) with language and subject experts.
- Then final copies of the textbooks in the form of soft and hard copies were given to the Director, Govt. Textbook Press for technical aspects of editing, font size, textbook size, colour compositions which were sent back to Director, SCERT for improvement.
- Finally textbooks in the form of soft and hard copies were submitted to the Director, Govt. Textbook Press for printing.

Guiding Principles for the Development of Syllabus and Textbooks as per SCF-2011

The following are the key principles used in this exercise:

- Keeping the potential of the child to learn always in focus,
- Respect the systems of knowledge such as languages, children bring to school,
- Connect knowledge to life outside the school; children should not feel

that what they are learning at school has no relevance to their lives,

- Ensure that learning is shifted away from rote methods and the focus should be on interactions, project work, analysis, etc.
- Enrich the curriculum to provide for overall development of children rather than remain textbook centric,
- Make examinations more flexible and integrated into classroom life; more focus on assessment for learning than assessment of learning,
- Promote social constructivism, issue-based curriculum and critical pedagogy across curricular areas,
- Nurture flora and fauna and respect for bio-diversity and social diversity, respect to the work as a part of school curriculum, and
- Locate classroom practices in the languages and cultures of children.

The New Textbooks - Perspectives

- The new textbooks focus on the process of learning duly engaging the learner and reconstruct knowledge as a part of syllabus/ content of learning.
- Textbooks facilitate and promote dynamic engagement of children with the world through observation, feeling, reflecting, acting and sharing.
- Move away from information/ facts orientation and try to locate facts in the process through which they come to be known.
- The curriculum enables the children to find their voice, their creativity to do things, ask questions, to pursue investigations, sharing and integrating their experiences with school knowledge rather than ability to reproduce textual knowledge. Thus, the textbooks reflects active pedagogy.
- The new textbooks provide opportunities to the children to learn in a variety of ways through experience, making and doing things, experimenting, reading, writing, discussion, asking, thinking and reflecting, etc. both individually and with others.

What worked well

The entire process of curriculum development from the development of SCF 2011 to the textbooks has had the following positive signals:

- There is appreciation for the new textbooks in the field.
- The thematic approaches used where each unit has a theme and all the activities are eloborated accordingly is resonating with teachers.
- Space provided for interaction, practice, collaboration and sharing, reading, and referencing has led to energy in the classroom.
- Textbooks are now facilitative of active engagement of children in learning through activities, projects, dialogue and discussions, explorations, case studies, etc.
- The focus on the academic standards during instruction as well as at the time of assessment has helped teachers to see curriculum standards merging with the assessment standards.

Production of Textbooks

Production of textbooks in eight languages become an Hercules task. The textbooks are printed through outsourcing based on a tendering process. The State Government

procures the paper and provides to the printer for printing of textbooks. The textbooks are multi-colour and provided to all children from class I to X studying in schools under Govt. Management and Govt. Aided private schools.

Implementation of the New Curriculum and Textbooks

The curriculum documents i.e., State Curriculum Framework, Position Papers and new textbooks have been placed on the SCERT website for wider circulation. A request was made for feedback on the revised textbooks for further improvement in the subsequent re-printing.

The curriculum framework and position papers have been translated into local languages such as Telugu and Urdu. Syllabus has been developed subject-wise incorporating the guiding principles of textbooks development and transaction, expected academic standards and related teaching learning processes. Useful articles on pedagogy of the subject along with useful website for reference have been included in the syllabus. The state curriculum frame work, subject specific position papers and syllabus books have been printed and provided to school libraries.

All the Teacher Educators working in the DIETs, CTEs and IASEs have been oriented by the SRGs on the curricular reforms with a focus on academic standards. All the Head Masters and teachers of primary, upper primary and high schools have been oriented on the salient features of State Curriculum Framework, Position Papers and on the guiding principles based on which textbooks were developed.

The philosophy and expected strategies for the transaction of the new textbooks have been discussed in the teacher handbooks followed by teacher training. Teacher handbooks have been developed subject-wise separately for primary, upper primary and secondary level duly discussing the quality of classroom transaction with a focus on strategies for children engagement and supporting individual child who are struggling for learning.

Based on the State Curriculum Framework, the state has formulated pupil assessment procedure in the form of continuous and comprehensive evaluation. The focus is on assessment for learning with stress on formative assessment procedures such as projects, experimentation, book review, discussion on contemporary social issues etc. Ban on the nature of questions have been changed with open ended, reasoning and analysis with a focus on developing critical thinking and problem solving, creativity and imagination, communication and collaboration, etc.

The Government has issued orders banning on the use of all types of guides, guide type study material in the schools. Ban on the practices of teachers such as dictating notes and writing ready made answers on blackboard, etc., have improved the time-on-task and whole class activities with active teacher-pupil interaction. Children have to read the lessons, understand and express on their own rather than memorization. The rote learning is discouraged and almost not in practice because of examination reforms.

Issues and Challenges from the Perspective of NCF 2005

The perspective of NCF in implementing constructivist pedagogy is not being understood properly by the teacher educators and as well as other support staff at block and cluster level. The system almost failed in modeling certain class rooms where constructivist pedagogy is being implemented. The

core principles of NCF 2005 and its implications to the teaching practices are not being understood properly. The State is taking concerted steps in making teacher educators/ supervisors and staff of professional support structures of various levels, in understanding the core philosophy of National and State Curriculum Frameworks and its implications to teaching-Wlearning processes, assessment procedures, teacher support mechanisms, etc.

The change in classroom transaction is gradually shifting from information giving mode to children engagement. Though the textbooks have been developed incorporating various activities, projects, inquiry methods to facilitate children in engaging during the curricular transaction, but the spirit is not being percolated and teachers are not on continuous professional development path to understand the philosophy of curriculum and principles based on which the textbooks have been developed.

Other Challenges Faced

- Providing adequate resources for the implementation of new curriculum and textbooks.
- Equipping the textbook writers to produce in tune with the NCF and SCF. A shift from information mode to knowledge.
- How to create more space for children to think and construct their own knowledge?
- Making teachers, field functionaries and other supervisors to understand the curriculum shift and its implications.
- Curriculum transaction reflecting academic standards and developing standard based assessment procedures.
- Teacher preparation – Value addition to the textual material in terms of new examples, activities, questions, etc.
- Resources for teaching new textbooks – Equipping the schools with required teaching learning material to support teaching.
- Augmenting the professional support structures and make it more professionally oriented i.e. DIETs, BRCs, CRCs and line department officers, i.e. DEO, BEO.
- The challenge of on job support to the teachers as a follow up of trainings and orientation for effective implementation of new curriculum.
- Parallel structures for the same cause of improvement of quality of School Education i.e. SCERT, SSA, RMSA and District Collectors etc., working in isolation.
- Normative support to the SCERT from MHRD.
- Issue of decentralization and capacity building down the districts and sub-district level.

What did the Team Learn in the Process of Undertaking Curricular Reforms?

The state has formulated state core groups, subject specific resource groups and involved them in the development of State Curriculum Framework and position papers. The teams continued till the development of textbooks. The same teams have developed teacher handbooks and acted as State Resource Group members and oriented District level Subject Specific Resource Groups to undertake teacher training subsequently at sub-district level. The core team and subject specific teams are being continued since 2010 i.e., beginning of undertaking curricular reforms. The teams have been

continuously in interaction with Editors and experts from National level during development of curriculum framework, position papers and textbooks. The sustainability of subject specific resource groups across 10 years from DPEP period i.e., 1998 onwards is the greatest advantage for the State for the implementation of curriculum reforms in its real spirit and subsequent reforms in the areas of assessments, examinations, implementation of co-curricular activities, etc.

There were much discussions on the existing practices of writing lesson plans, teacher reflections, teaching learning process among the core group and subject specific groups. The existing practices of writing lesson plans, teaching learning process has been transformed duly reflecting the pedagogical renewal processes and made these meaningful and easy to practice.

Web References

- https://mvfindia.in/wp-content/uploads/2014/07/ABF-Impact-Assessment-of-the-Quality-Improvement-in-Primary-Education-Programme.pdf
- http://www.andhraspider.com/resources/3202-Education-changes-at-primary-level-Andhra-Pradesh.aspx

Note: This was written in 2013 before the bifurcation of Andhra Pradesh into Telangana and Andhra Pradesh.

नमिता
neerujp@gmail.com

श्री विष्णु शर्मा तथा श्री नारायण पण्डित के कथा-ग्रन्थों की शैक्षिक उपयोगिता

संसार के प्रत्येक देश में शिक्षा प्रणाली उस राष्ट्र के भावी नागरिकों व निर्माताओं को अपनी राष्ट्रीय संस्कृति, धर्म व सभ्यता के विकास, संरक्षण व प्रचार और प्रसार के लिए तैयार करती है तथा उस राष्ट्र के लोगों की सामाजिक, आर्थिक, नैतिक, धार्मिक व राजनैतिक आवश्यकताओं व समस्याओं का यथासंभव समाधान देती है।

वर्तमान काल में शिक्षा के क्षेत्र में भी निरन्तर प्रगति हो रही है, यह हर्ष का विषय है। अनेक कला-कौशलों के विकास के साथ-साथ मनोविज्ञान और तकनीकी के विविध प्रयोगों द्वारा शिक्षा को अधिकाधिक वैज्ञानिक बनाने का सतत प्रयास चल रहा है तथा सफलता भी मिल रही है। सब कुछ होते हुए भी समाज में द्वेष, अराजकता, पापाचार आदि असामाजिक कृत्य मन में बड़ा क्षोभ बढ़ाते है।

भारतीय शिक्षा, मनुष्य के शारीरिक, मानसिक, बौद्धिक और आध्यात्मिक शक्तियों का संतुलित विकास करके उसके स्वभाव में परिवर्तन करती है। इस प्रकार शिक्षा हमें इस योग्य बनाती है कि हम समाज के लिए उपयोगी नागरिक बन सकें। यह अप्रत्यक्ष रूप से इहलोक एवं परलोक दोनों में हमारी सहायता करती है।

भारतीय विचारधारा की समृद्धता निर्विवाद है- ''सा विद्या या विमुक्तये'' को लक्ष्य बनाकर शिक्षा नियोजित की जाती थी। यहाँ शिक्षा का लक्ष्य चारों पुरूषार्थ की प्राप्ति माना पाता रहा है। शिक्षा का कार्य है मस्तिष्क को इस योग्य बनाना कि वह चिरन्तन सत्य को पहचान सके, उसके साथ एकरूप हो सके और उसे अभिव्यक्त कर सके। स्वामी विवेकानन्द के अनुसार- ''शिक्षा व्यक्ति में अन्तर्निहित पूर्णता का विकास है।'' अतः कह सकते हैं कि भारतीय विचारधारा के अनुसार शिक्षा मनुष्य के शारीरिक, मानसिक, बौद्धिक व आध्यात्मिक शक्तियों का संतुलित विकास करके उसके स्वभाव में परिवर्तन करती है।

श्री विष्णु शर्मा द्वारा रचित 'पन्चतन्त्रश्' एवं श्री नारायण पण्डित द्वारा लिखित 'हितोपदेश' केवल भारत के ही नहीं, अपितु विश्व के अनूठे कथा-ग्रन्थ हैं। जहां पन्चतन्त्र, बाइबिल के पश्चात संसार का सर्वाधिक प्रचलित कथा-ग्रन्थ माना गया है, वहीं हितोपदेश को संस्कृत विद्यामंदिर के द्वारस्थान के रूप में सम्मानित किया गया है। इन दोनों ही कथा-ग्रन्थों में विविध कथाओं की योजना करके उनमें कौतूहल एवं मनोरंजन के साथ नीति-उपदेश का अद्भुत मिश्रण प्रस्तुत किया गया है। कथाकारों ने बुद्धिपूर्वक व्यवहार को मानव-जीवन का सर्वोपरि आदर्श मानकर चतुराई एवं बुद्धि से परिपूर्ण कहानियों के द्वारा अत्यन्त बाल-शिक्षा-उपयोगी रूप में प्रस्तुत करने का प्रशंसनीय प्रयास किया है।

पन्चतन्त्र एवं हितापदेश, दोनों ही ग्रंथों का मूल आधार शिक्षा है। विद्वान् लेखकों ने पशु-पक्षियों की एवं मानवपरक छोटी-छोटी कहानियों के सुन्दरतम कलेवर में सामाजिक, व्यवहारपरक, राजनीतिपरक, सदाचारमूलक एवं लोकनीति-विषयक शिक्षा को प्रस्तुत करते हुए इन्हें शिक्षा के कोष के रूप में प्रस्तुत किया है। ये महानतम ग्रंथ शिक्षापरक वैशिष्ट्य से मूर्खों को भी व्यवहारकुशल, सदाचार-सम्पन्न एवं नीतिपटु बनाने वाले हैं, जैसा कि श्री विष्णु शर्मा द्वारा राजा अमरकीर्ति के पुत्रों के वर्णन से स्पष्ट होता है।

समाज एवं शिक्षा-शास्त्रियों के सामने यह ज्वलन्त प्रश्न है कि शिक्षा की इतनी प्रगति के बावजूद विद्यार्थियों में व्याप्त हिंसा, अशान्ति, अनैतिकता एवं चारित्रिक पतन को दूर कर बालक में व्यावहारिक व नैतिक ज्ञान को

अन्तःकरण की गहराई तक कैसे पहुंचाया जाए? पं. विष्णु शर्मा विरचित कथा-साहित्य पन्चतन्त्र तथा श्रीनारायण पण्डित द्वारा विरचित हितापदेश इस प्रश्न का उत्तर देते हैं; क्योंकि पन्चतन्त्र एवं हितापदेश में वर्णित प्रेरणाप्रद एवं बालोपयोगी शिक्षा में मानव-जीवन के प्रत्येक क्षेत्र के लिए प्रकाश स्तम्भस्वरूप हैं।

यतः पन्चतन्त्र तथा हितोपदेश में प्रयुक्त शिक्षण-विधियॉं, शिक्षण-सूत्र व शिक्षा में किये गये नवीन प्रयोग समाज के लिए विभिन्न समस्याओं का उत्तर देने में समर्थ हैं। अतः वर्तमान समाज में व्याप्त विसंगतियों का समाधान करने के लिए पन्चतन्त्र तथा हितोपदेश की कथाओं में वर्णित बाल मनोविज्ञान व शिक्षण सिद्धांतों को वर्तमान शिक्षा-प्रणाली में लागू करना अत्यन्त आवश्यक है। गिज्जू भाई ने भी ऐसी विचारधारा का समर्थन किया है। अन्य चिन्तक भी बालकों को सम्पूर्ण समाज-व्यवस्था का केन्द्र-बिन्दु मानते हैं तथा बाल्यावस्था के संस्कार को सम्पूर्ण जीवन की नींव के रूप में स्वीकार करते हैं।

आज हमारे समाज और देश में सबसे बड़ा संकट मानवीय चरित्र का है। प्रायः व्यक्ति के आचरण में नैतिकता का अभाव दृष्टिगोचर होता है। अतः मानव मूल्यों में अवमूल्यन हो रहा है तथा अनैतिकता का बाहुल्य है। इस सम्बन्ध में पं. जवाहर लाल नेहरू ने सन् 1959 में आजाद स्मृति व्याख्यान देते हुए कहा था, ''हम मौलिक सिद्धांतों को भी भूल नहीं सकते जिसके कारण अनन्तकाल से भारत की विशेषता व मजबूती रही है। औद्योगिक प्रगति की ओर हम पूरी ताकत व निष्ठा के साथ आगे बढ़ें, पर साथ ही स्मरण रहे कि भौतिक उपलब्धियॉं विना करूणा, सहनशीलता एवं विवेक, राख में मिल जायेगी। "

उक्त परिस्थिति में पन्चतन्त्र तथा हितापदेश जो बच्चों की नैतिक शिक्षा से ओत-प्रोत हैं। बच्चों के लिए प्रत्युत सम्पूर्ण समाज के लिए उपयोगी हो सकते हैं। इस सम्बन्ध में नारायण पण्डित ने सचेत करते हुए कहा है कि व्यक्ति को पठन-पाठन एवं जीवन के कार्यों में अतिलोभ से पृथक रहना चाहिए; क्योंकि लोभ से आसक्त होकर वेद ज्ञानी, शास्त्रवेत्ता तथा संशय निवारक पुरूष भी कष्ट का अनुभव करते हैं-

''सुमहान्त्यपि शास्त्राणि, धारयन्तो बहुश्रुताः।
छेत्तारः संशयानां च, क्लिश्यन्ते लोभमोहिताः।।[1]

इसी प्रकार से पन्चतन्त्र में भी लेखक ने लोभ को कष्टकारी बताते हुए वृद्ध व्याघ्र तथा लोभ से आक्रान्त पथिक का उदाहरण उद्धृत किया है-

''कड्कणस्य तु लोभेन, मग्नः पड्कें सुदुस्तरे।
वृद्धव्याघ्रेण सम्प्राप्तः, पथिकः स मृतो यथा।।''[2]

बच्चे के जीवन पर सत्संगति का विशेष प्रभाव पड़ता है। सत्संगति के प्रभाव को दोनों ही ग्रन्थकारों ने मानव के जीवन- भरण-पोषण में बहुत ही उपयोगी निर्दिष्ट किया है। उन्होंने बताया है कि जो सज्जन व्यक्ति होते हैं, वे भी असत्संगति के प्रभाव से सद्मार्ग से असद्मार्ग की ओर प्रेरित हो जाते हैं। इस सम्बन्ध में पन्चतन्त्रकार ने दुर्जन के प्रभाव से प्रभावित होकर भीष्म जैसे विवेकी सत्पुरूष एवं ज्ञानवान योद्धा का भी प्रभावित होना वर्णित किया है-

''असतां सङ्गदोषेण, साधवो यान्ति विक्रियाम्।
दुर्योधन प्रसङ्गेन, भीष्मो गोहरणे गतः।।''[3]

तात्पर्य यह है कि जो व्यक्ति सज्जन होते हैं, वे हमेशा सज्जन रहेंगे, यह आवश्यक नहीं है; क्योंकि भीष्म पितामह जैसे सज्जन और श्रेष्ठ पुरूष भी दुर्योधन के सम्पर्क में रहने के कारण एक बार राजा विराट् की गाय चुराने के लिए भ्रमित हो गये थे। इसलिए मानव को सर्वदा सत्पुरूष की सङ्गति का आश्रय ग्रहण करना चाहिए। यह कोमल बुद्धिधारक बच्चों के लिए सद्मार्ग पर हमेशा चलते रहने के लिए विशेष प्रेरणाप्रद कथन है; क्योंकि हितोपदेशकार की मान्यता है कि सत्सङ्गति के प्रभाव से जो गुण बुद्धिमान और गुणी व्यक्तियों के साथ गुण रूप में होते हैं, वे ही गुण बुरे व्यक्तियों के सम्पर्क में आकर दोष रूप में परिवर्तित हो जाते हैं। जिस प्रकार से नदियों का जल आस्वाद्य योग्य होता है, वही जल जब समुद्र में मिल जाता है, तो अपेय हो जाता है। इसलिए दोनों ही ग्रन्थकारों के सन्देश बच्चों को निरन्तर सद्गुणीयों के साथ रहने की प्रेरणा देने के लिए बहुत उपयोगी हैं।

''गुणा गुणज्ञेषु गुणा भवन्ति,
ते निर्गुणं प्राप्य भवन्ति दोषाः।

आस्वाद्यतोयाः प्रभवन्ति नद्यः,
समुद्रमासाद्य भवन्त्यपेयाः।।''[4]

दोनों ही ग्रन्थकारों के विचार, बच्चों को निरन्तर परिश्रम और प्रयासरत रखने के लिए नितान्त उपयोगी हैं। दोनों का ही विचार है कि व्यक्ति को भाग्य के भरोसे अपने कर्तव्य-मार्ग से कभी भी पृथक् नहीं होना चाहिए; क्योंकि उद्योगी पुरूष को ही अपने उद्देश्य की प्राप्ति होती है।जो व्यक्ति भाग्य के भरोसे रहते हैं, वे कभी भी जीवन में सफलता प्राप्त नहीं कर सकते। नारायण पण्डित का कथन है-

उद्योगिनं सततमत्र समेति लक्ष्मी-
दैवं हि दैवमिति कापुरूषा वदन्ति।
दैवं निहत्य कुरू पोरूषमात्मशक्त्या,
यत्ने कृते यदि न सिद्धयति कोडत्र दोषः।।[5]

परिश्रम के इसी महत्व को श्री विष्णु शर्मा जी न्यून अन्तर से इस प्रकार कहते हैं। उद्योगिनं पुरूषसिंहमुपैति लक्ष्मी-

दैवेन देयमिति का पुरूषा वदन्ति।
दैवं निहत्य कुरू पोरूषमात्मशक्त्या,
यत्ने कृते यदि न सिध्यति कोडत्र दोषः।।[6]

दोनों ही ग्रन्थकारों के ग्रन्थ बच्चों के लिए बहुत ही उपयोगी है;क्योंकि एक बार व्यक्ति में दुर्गण आ जाने पर उनका निवारण करना बहुत ही कठिन होता है। जिस प्रकार से सर्प के स्वभावतः विषधारक होने के कारण उस दोष को उन्हें दूध पिलाने से भी विषरूपी दोष की निवृत्ति नहीं की जा सकती है। जैसा कि हितोपदेशकार ने कहा है कि-

''पयः पानं भुजङ्गानां, केवलं विषवर्धनम्।
उपदेशो हि मूर्खाणां, प्रकोपाय न शान्तये।।''[7]

इस सम्बन्ध में श्री विष्णु शर्मा का मत है कि बच्चे का स्वभाव और बुद्धि सरल और स्वच्छ होने के कारण यदि कोई कृत्रिम दोष आ भी जाता है, तो उनको सद्शिक्षा, सद्उपदेश तथा सद्विचारों के द्वारा दूर किया जा सकता है-

''कृत्रिमं नाशमभ्येति वैरं द्राक्कत्रिमैर्गुणैः।
प्राणदानं विना वैरं सहजं याति न क्षयम्।।[8]

दोनों ही ग्रन्थ बच्चों के कोमल, सहज और निर्मल मन, बुद्धि को सद्विचारों, सद्भावों व सद्गुणों से आप्लावित करने के लिए उपयोगी शिक्षा प्रदान करते हैं तथा व्यक्ति के संकुचित, स्वार्थी एवं स्वहित को त्यागकर ''सर्वजन सुखाय व सर्वजन हिताय'' की भावना से न केवल परिवार को, न केवल प्रदेश को, न केवल देश को प्रत्युत पूरे संसार को कुटुम्ब के रूप में मान कर प्रेरणा प्रदान करते हैं। जिस प्रकार एक राष्ट्रभक्त न केवल एक व्यक्ति की, न केवल एक समाज की, न केवल एक प्रदेश की, न केवल एक देश की बल्कि पूरे विश्व की उन्नति की इच्छा करता है, उसी प्रकार ये ग्रन्थ पूरे विश्व को एक कुटुम्ब के रूप में मानकर पूरे विश्व में सुख, शांति, समरसता, सद्भाव और विकास के लिए प्रेरित करने में बहुत उपयोगी हैं। जैसा कि कहा गया है कि-

''अयं निजः परोवेति, गणना लघुचेतसाम्।
उदारचरितानां तु, वसुधैव कुटुम्बकम्।।''[9]

निष्कर्ष रूप में कहा जा सकता है कि श्री विष्णु शर्मा द्वारा रचित पन्चतन्त्र तथा श्री नारायण पण्डित द्वारा रचित हितापदेश संस्कृत-कथा-साहित्य-आकाश-ज्ञान-गंगा के देदीप्यमान एवं जाज्वल्यमान दो नक्षत्र हैं क्योंकि जिस प्रकार से रवि-किरण निर्मल एवं स्वच्छ, स्फटिक मणि में प्रवेश कर मणि को प्रकाशित एवं स्वानुरूप करने में समर्थ होती है, उसी प्रकार से बहुश्रुत एवं बहुप्रसिद्ध इन दोनों कथाग्रंथों के अपने सरल, सरस, सहज, रोचकपूर्ण कौतूहल-गर्भित, सारगर्भित एवं शिक्षाप्रद व नीति-सम्पन्न कथा-कथानक, विचार-शून्य-अविज्ञात-उद्देश्य तथा स्वच्छ एवं साफ स्लेट के समान छल-प्रपन्च एवं कलुषताविहित बालकों के बुद्धिपटल को अपनी प्राकृतिक, सर्व-सुलभ एवं सर्वग्राहीय कथन, विचार एवं भावों के द्वारा उनको विभिन्न अज्ञानजनित लोभ, असत् सङ्गति, असंतोष पूर्णजीवनयापन, कर्तव्यज्ञान-शून्यता, आलस्य आदि दुर्गुणों का परिहार करते हुए उनमें वित्त के सदुपयोग सत्सङ्गति, विवेकपूर्ण जीवन-यापन, सन्तोष एवं शान्तिपूर्ण दैनिक व्यवहार कर्तव्य के प्रति सचेत एवं उद्देश्य प्राप्ति हेतु सतत परिश्रम एवं प्रयत्नशीलता तथा समय के सदुपयोग आदि गुणों के ज्ञानालोक से प्रकाशित करने में पूर्णरूपेण समर्थ एवं सक्षम है।

कारण स्पष्ट है कि सामान्य रूप से शिक्षा का उद्देश्य बच्चे को उस-उस ज्ञान की सीमित जानकारी देना अथवा उस-उस विविध ज्ञान से अवगत कराना होता है जिस-जिस ज्ञान को उसने अभी तक पढ़कर तथा सुनकर अधिगत नहीं किया है। किन्तु पन्चतन्त्र तथा हितोपदेश नामक कथा-ग्रन्थ, वेद, उपनिषद, पुराण, महाभारत, रामायण एवं गीता के अथाह गम्भीर, गूढ़ एवं दुरूह वचनामृतों को समुद्र मंथन के समान मथकर सरल एवं सरस कहानी रूप कथनामृतों द्वारा सरल, सरस एवं बोधगम्य बनाकर अपार व असीमित ज्ञान गंगा में अवगाहन करने में असमर्थ सुकोमल बुद्धिधारक पाठकों को इतनी सरलता, सरसता व सहजता से उनका रसपान करा देते हैं कि वे इन सरल, सरस तथा व्याव्हारिक कहानियों को श्रवण तथा पठन करने के पश्चात चिन्तन एवं मनन करते हुए निदिध्यासन रूप व्यवाहारिक व्यवहार में परिणत करने के लिए स्वतः प्रेरित हो जाते हैं। वास्तव में यही शिक्षा की वास्तविक उपयोगिता है जिस कसौटी पर ये दोनों ग्रंथ खरे उतरते हैं। शिक्षा के क्षेत्र में सुप्रसिद्ध शिक्षाविद् 'स्किन' नामक विद्वान भी शिक्षा की सार्थकता एवं उपयोगिता, बच्चे की बुद्धि में उस-उस विभिन्न ज्ञान को अवधारित कराकर उसे व्यावहारिक रूप में परिणत करने में विश्वास करते हैं। शिक्षा विषयक इसी प्रकार का अभिप्राय स्पष्ट करते हुए वे कहते हैं-

''शिक्षा का उद्देश्य व्यक्तियों को यह सिखाना है कि वे वह व्यवहार करें, जो व्यवहार वे नहीं करते हैं।''अतः इन दोनों ग्रन्थों में सन्निहित शिक्षा की उपयोगिता एकदेशीय, एकस्थानीय अथवा एकवर्गविशेषीय नहीं है, प्रत्युत ज्ञानामृत आप्लावित इन ग्रंथों में प्राप्त शिक्षा सर्वस्थानीय सर्वदेशीय, सर्वजनीन तथा सर्ववर्गीय होने के कारण पूर्व में भी यह उपयोगी थी , वर्तमान समय में भी उपयोगी है तथा भविष्य में भी उपयोगी ही नहीं बल्कि महोउपयोगी बनी रहेगी।

सन्दर्भ ग्रन्थ सूची

1. शर्मा सरोज (2007). *शिक्षा के दार्शनिक एवं समाजशास्त्रीय आधार*, साहित्य प्रकाशन
2. *हितोपदेश* : मित्रलाभ, पृष्ठ-24, सम्पादक-आचार्य वादनारायण, वाणी प्रकाशन, नई दिल्ली, 2011
3. *हितोपदेश* : मित्रलाभ, पृष्ठ-19, सम्पादक-आचार्य वादनारायण, वाणी प्रकाशन, नई दिल्ली, 2011
4. मेहरोत्तरा आर.आर., अग्रवाल ए.के., गांगुली एस. (1990), *नेहरू, मैन अमन्ग मेन*, मित्तल प्रकाशन, नई दिल्ली
5. *पन्चतन्त्र* : मित्रभेद, श्लोक-274, श्री विष्णु शर्मा, चौखम्भा विद्या भवन, वाराणसी-1, 1968
6. *हितोपदेश* : प्रस्ताविका, पृष्ठ-15, सम्पादक-आचार्य वादनारायण, वाणी प्रकाशन, नई दिल्ली, 2011
7. *पन्चतन्त्र* : मित्रभेद, श्लोक-217, श्री विष्णु शर्मा, चौखम्भा विद्या भवन, वाराणसी-1, 1968
8. *हितोपदेश* : प्रस्ताविका, पृष्ठ-12, सम्पादक-आचार्य वादनारायण, वाणी प्रकाशन, नई दिल्ली, 2011
9. *हितोपदेश* : विग्रह, पृष्ठ-154, सम्पादक-आचार्य वादनारायण, वाणी प्रकाशन, नई दिल्ली, 2011
10. *पन्चतन्त्र* : मित्रसम्प्राप्ति, श्लोक-32, श्री विष्णु शर्मा, चौखम्भा विद्या भवन, वाराणसी-1, 1968
11. *हितोपदेश* : मित्रलाभ, पृष्ठ-39, सम्पादक-आचार्य वादनारायण, वाणी प्रकाशन, नई दिल्ली, 2011
12. आर.एन. शर्मा एवं आर.के. शर्मा (2006), *एडवान्सड एजूकेशनल साइकोलॉजी*, अटलांटिक पब्लिशर एण्ड डिस्ट्रीब्यूटरस, पृष्ठ संख्या 13.

भूपेन्द्र सिंह
bsinghedu@vmou.ac.in
डॉ. पतंजलि मिश्र
pmishra@vmou@ac.in

सवाल पूछने का सवाल

सार

स्थानीय परिवेश केवल भौतिक अथवा प्राकृतिक नहीं होता, बल्कि सामाजिक और सांस्कृतिक भी होता है। प्रत्येक बच्चे की स्वयं की अपनी विचार-प्रक्रिया होती है। लेकिन बच्चे के कक्षा में पूछने पर प्रतिबन्ध लगाने से उसकी प्रतिभा का दमन किया जाना एक भविष्य को दिशाविहीन करने जैसा है। एक विद्यालय के लिए यह आवश्यक है कि वह बच्चे की इस विचार-प्रक्रिया को सुने और उससे उत्पन्न विचारधारा को उन्नत बनाने के लिए हर सम्भव प्रयास करे। चूँकि प्रत्येक बच्चा एक भिन्न समुदाय, संस्कृति और परिवेश से आता है और उसके पास उसके परिवेश से जुड़ी हुई लोक-कथाएं, लोकगीत, चुटकुले, कहानियाँ, कलाएँ और सन्दर्भ प्रसंग होते हैं, इनसे बहु-सांस्कृतिक वातावरण को समृद्ध बनाने में मदद मिल सकती है और चुप्पी की संस्कृति को बढ़ावा देने वाले तत्वों पर लगाम लगाई जा सकती है। इस लेख में बच्चे के कक्षा में सवाल पूछने से लेकर अपनी बात रखने को दबाने के विभिन्न कारकों और उसके निवारण के बारे में चर्चा की गई है।

मुख्य शब्द: चुप्पी की संस्कृति, बहु-सांस्कृतिक वातावरण, राष्ट्रीय पाठ्यचर्या की रूपरेखा-2005 (एन.सी.एफ.-2005), शिक्षक शिक्षा पर राष्ट्रीय पाठ्यचर्या ढाँचा (एन.सी.एफ.टी.ई.-2009)

19वीं शताब्दी तक बालिकाओं की कम बोलने, कम लोगों से सम्पर्क रखने और मित्र न बनाने की स्थिति इस बात की ओर संकेत करती नज़र आती है कि चुप्पी की संस्कृति न तो नयी है, न अपरिचित न ही इसका आधुनिकता से कोई सीधा सम्बन्ध है। यह तो सभ्यताओं के विकास के साथ ही या यों कहें कि विचारों को सीमित (न कि उनका परिमार्जन) करने के साथ ही उत्पन्न हुई है। यहाँ परिमार्जन शब्द का उपयोग इसीलिए नहीं किया गया है क्योंकि परिमार्जन शब्द अपनी गुणवत्ता और उसके निरन्तर उर्ध्वगामी विकास का परिचायक है। दुनियाभर के देशों ने अपनी-अपनी शिक्षा पद्धतियाँ और शिक्षा तन्त्र विकसित कर लिए हैं। परन्तु कहीं न कहीं सभी के लक्ष्य और उद्देश्य समान ही हैं। आज ब्रिटेन की शिक्षा का मूलमन्त्र यह है कि 15-16 वर्ष तक के बच्चे का इतना विकास हो जाये कि वह अकेला पूरी दुनिया में घूम सके (शर्मा, 2014, p.72) और स्वयं के लिए आजीविका की व्यवस्था कर सके।

आमतौर पर अध्यापकों को अपनी-अपनी कक्षाओं में बच्चों के 'दुराग्रही' होने को लेकर विचार-विमर्श करते देखा जा सकता है। वैसे मेरे हिसाब से 'दुराग्रही' होना बुरी बात नहीं। यदि बच्चा इस बात की ज़िद किये बैठा है कि आज उसका पढ़ने का मन नहीं है, तो वैसे हमें उन शिक्षकों से भी कोई नाराजगी नहीं होनी चाहिए, क्योंकि वे भी बच्चे की हठधर्मिता को अपनी नाक का सवाल समझने की भूल जो कर बैठते हैं। इस निहायत जायज़ विविध प्रकारों से व्यक्त ज़िद को कई सिद्धांतों और नियमों से दमन करने के कारण चुप्पी की संस्कृति का जन्म होता है। "किताबी ज्ञान को दोहराने की क्षमता के विकास के बजाय पाठ्यचर्या बच्चों को इतना सक्षम बनाए कि वे अपनी आवाज ढूँढ सकें, अपनी उत्सुकता का पोषण कर सकें, स्वयं करें, सवाल पूछें....." (एन.सी.एफ., 2005, p.15)। मेरे मित्र की छ: वर्ष की बिटिया कई बार ऐसे सवाल मेरे मित्र से पूछ लेती है, जिसका उत्तर शायद दुनिया भर के वैज्ञानिकों के पास भी नहीं। सटीक तो

नहीं लेकिन उसकी जिज्ञासा से संवाद करने के लिए उन्हें कई वैज्ञानिकों का दिमाग लगाना पड़ता है। हर शिक्षक को यह ध्यान रखना चाहिए कि उसकी कक्षा में आने से पूर्व भी बच्चों के पास परिवार और अभिभावकों से मिले कुछ अनुभव तो होंगे ही। हालांकि तथ्य यह भी है कि अधिकतर अभिभावक भी बच्चों को लोगों के सम्पर्क में आने से रोकते-टोकते हैं। कक्षा में बच्चों के दुराग्रही होने अथवा चुप्पी साधने को साधारण रूप में नहीं लिया जाना चाहिए। शिक्षकों को इन दोनों स्थितियों से निपटने के लिए पहले अपने ज्ञान को व्यावहारिकता की प्रयोगशाला में परख कर ही किसी निर्णय पर पहुँचना चाहिए।

जवाब ग़लत होने का डर

प्रसिद्द कहावत है कि दूध का जला छाछ भी फूँक-फूँक कर पीता है। लेकिन आज के अभिभावक बालक को सामान्य ग़लती भी नहीं करने देते। यही ग़लत होने का डर बालकों को पूछने से रोकने का एक महत्वपूर्ण कारण है। एक बार मेरे एक मित्र की बेटी, जो कक्षा बारह में अध्ययनरत थी, ने मेरे मित्र से, अपनी सहेलियों के साथ मसूरी और नैनीताल घूमने जाने के लिए अनुमति मांग ली। प्रश्न के ख़त्म होते-होते, न कहने के साथ ही जितने प्रवचन मेरे मित्र के मुख से निकले बयां नहीं किया जा सकता। सामान्यत: कुछ भी ग़लत होने या अनहोनी होने का डर बालकों को चुप रहने के लिए बाध्य करता है। दुनियाभर की कक्षा में भी अक्सर यही होता है, यदि कभी न बोलने वाला बालक भूलवश कुछ भी पूछ ले तो शिक्षक उसकी बात को तवज्जो देने की बजाय, मौनव्रत का तोड़ना बताकर मज़ाक बनाने लगते हैं। लेकिन शायद वे शिक्षक अनायास ही ये भूल कर रहे होते हैं कि ऐसे एक बार (अथवा असल में तो बार-बार) रोकने, टोकने और मज़ाक बनाने से यह मौन-व्रत जीवन भर की चुप्पी को बढ़ावा दे रहा है। एक बार की गई ग़लती और उसके लिए मिली सज़ा जीवन के लिए सौ सबक देकर जाती है, ऐसा सोचकर बालक प्रश्न करना या कुछ भी पूछना ही छोड़ देते हैं। कई बार कक्षाओं में अध्यापक प्रश्न पूछने के लिए कहता है साथ में वो यह भी कहता है कि यदि पाठ में कुछ न समझ में आये तो आप बार- बार पूछें लेकिन यदि कोई विद्यार्थी एक बार से ज़्यादा बार पूछने का साहस जुटाता है तो अध्यापक उसे झिड़क देता है कि पूरी कक्षा को तो समझ में आ गया, एक तुम ही ऐसे हो जो मूर्ख हो जिसे एक छोटी सी बात नहीं समझ में आ रही है।

ब्रिटेन के प्रसिद्द अख़बार 'द टेलीग्राफ' में 28 मार्च 2013 को छपे एक शोध लेख के अनुसार प्रतिदिन औसतन 300 से अधिक सवाल बच्चे अपनी माँ से पूछ लेते हैं। उनमें भी बेटियां सर्वाधिक सवाल करती हैं। माता की तरह एक शिक्षक को भी सहनशील होने की आवश्यकता है। विद्यार्थियों की टिप्पणी को अनसुनी करने और चुप्पी को सख्ती से कक्षा में लागू करने की बजाय अगर शिक्षक विद्यार्थियों को चर्चा के लिए प्रोत्साहित करें तो पाएंगे कि कक्षा जीवंत बन गई है और शिक्षण पूर्वानुमय और नीरस नहीं रह जाती है, बल्कि वह मानसिक अंत:क्रिया का रोमांच स्थल बन जाती है। इस तरह का वातावरण हर आयु के बच्चे में आत्मबल और आत्म-विश्वास का विकास करेगा। इससे आगे चलकर अधिगम बेहतर बनेगा (एन.सी.एफ., 2005, pp.92-93)। प्रश्न कोई भी हो बालक की जिज्ञासा से संवाद किया जाना चाहिए। प्रश्न ग़लत है तो ये बताना कि प्रश्न इस कारण से ग़लत है और यदि सही है तो उसका उत्तर देना, दोनों परिस्थितियां बालक को प्रश्न पूछने के लिए प्रेरित करेंगी।

पूछने और न पूछने का द्वंद्व

1996 में डेलर्स कमीशन की रिपोर्ट का सुझाव था कि शिक्षा चार स्तम्भों पर टिकी हुई है जिनका अभिप्राय है कि शिक्षा, ज्ञान लेने के लिए (Learning to Know), उपयोग के लिए (Learning to Do), अपने अस्तित्व के लिए (Learning to Be) और सहचर्य पूर्ण जीवन जीना सीखने (Learning to Live Together) के लिए होनी चाहिए। इधर भारतीय ज्ञान परम्परा में ज्ञात आश्रम व्यवस्था या फिर उससे भी पहले से वसुधैव कुटुम्बकम की शिक्षा दी जाती रही है। अतः आज के शिक्षक को बच्चे को पूछने के लिए प्रेरित करने के लिए अपनी ही प्राचीन ज्ञान परम्परा की जड़ों में झाँकने की जरुरत हैं। जब कोई बालक शिक्षक से अपना प्रश्न पूछता है तो उसका अपनी बात को कहने का ढंग वाक्-चातुर्य बन जाता

है (दवे, p.3)। अतः वाक्-चातुर्य का ज्ञान देने के लिए बच्चे को बोलने की स्वतन्त्रता, बालक के ग़लत उत्तरों को स्वीकार कर सही का ज्ञान कराने का धैर्य, स्पष्टवादिता का अभिवादन और टोकने की प्रवृत्ति को छोड़ना होगा। आज आवश्यकता है "सह नाववतु सह नौ भुनक्तु सहवीर्यं करवावहै, तेजस्वि नावधीतमस्तु मा विद्विषावहै (शर्मा एंड शर्मा, 2017, p.24)" को पुनः दोहराने की। जिसका अर्थ है कि हे ईश्वर, हम शिष्य और आचार्य दोनों एक-दूसरे की रक्षा करें। हम दोनों साथ-साथ ज्ञान का अर्जन करें। हम दोनों का तेज साथ-साथ बढे। हम दोनों कभी भी एक-दूसरे के प्रति द्वेष न रखें। इस प्रकार की परम्परा से शिक्षक और शिष्य के सम्बन्धों में घनिष्ठता आएगी और पूछने व बताने के माध्यम से विचारों में प्रमाणिकता आएगी।

क्या मेरा प्रश्न करना सही होगा ?

मुझे याद है जब मेरे पड़ोस में रहने वाला रोहन 10वीं कक्षा में था। उसकी कक्षा के लगभग सभी बच्चे गणित, विज्ञान और अंग्रेजी विषय का ट्यूशन लिया करते थे। बस वह, उनसे अलग था और इसका हर्जाना उसे उसकी कक्षा में भी भुगतना पड़ता था। वह जब भी कोई सवाल गणित, विज्ञान और अंग्रेजी के कालांश में पूछने की जुर्रत करता तो लगभग सभी निगाहें उसकी तरफ ऐसे होती थीं, जैसे दुनिया के सभी आश्चर्य उस अकेले में ही देखे जा सकते हों। लगभग हर बार उसके प्रश्न को ग़लत बताने अथवा ये कहकर टालने की कोशिश होती थी कि पिछले पाठ को तुमने ठीक ढंग से नहीं पढ़ा, या फलां सूत्र, फलां सिद्धांत तो तुम्हें पता ही नहीं है। उससे भी महत्त्वपूर्ण तो ये था कि ट्यूशन करने वाले बच्चों के पास कभी कोई प्रश्न ही नहीं होता था। आधुनिकता व प्रतिष्ठा के प्रश्न की होड़ में अभिभावक और ज्यादा कमाने की लालसा में शिक्षक बच्चों के मस्तिष्क के सोच सकने की क्षमताओं पर ताला लगाने में इस कदर लगे हुए हैं कि बच्चा बाहर की दुनिया, समाज, समुदाय और अब तो अन्य पारिवारिक सदस्यों से कुछ व्यवहारिक ज्ञान नहीं ले पा रहा है। यही बच्चों के मनोबल को गिराने और उस पर चुप्पी की मोहर लगाने के कारण हैं। यदि बच्चा ज्ञान लेकर ही जन्म लेता तो इन विद्यालयों और शिक्षकों की जरुरत ही क्या थी? अतः प्रश्न कोई भी हो लेकिन शिक्षक को यह मानना चाहिए कि बच्चे को उस प्रश्न से सम्बंधित कुछ नहीं आता और यह उसकी जिम्मेदारी है कि उस प्रश्न सम्बंधित सभी संप्रत्ययों को वो ठीक तरीके से विद्यार्थी को समझाएं। तभी वह अच्छा शिक्षण कर पाने में सक्षम होगा। एक शिक्षक को बच्चों के प्रश्नों को समझना, प्राकृतिक और सामाजिक घटनाओं के प्रति उनका दृष्टिकोण एवं टिप्पणियां, सीखने के प्रति बच्चों का अवधान (Attention), पूर्व-अवधारणाओं और ज्ञान के प्रति नज़रिया, आदि की पहचान करने में बालक के साथ संलग्न होने की जरुरत है। इस संलग्नता से शिक्षक को यह भी समझने में सहायता मिलेगी कि शिक्षा रेखीय प्रक्रिया नहीं बल्कि सर्पिलाकार प्रक्रिया है और इस प्रक्रिया से असंलग्नता को शिक्षक, अधिगम के सिद्धांतों के विभिन्न परिप्रेक्ष्यों में असफल होने से महसूस कर सकता है (एन.सी.एफ.टी.ई., 2009, p.28)।

भय की कक्षा से संवाद का मंच

बच्चे जब विद्यालय में प्रवेश लेते हैं तो उन्हें ये पता नहीं होता कि वहाँ क्या होता होगा। क्या घर जैसा माहौल मिलेगा या कुछ और। यदि भारतीय ज्ञान परम्परा की जड़ों को देखें तो पाते हैं कि खुली हवादार जगह, घने वृक्षों के बीच, नदियों के किनारे चलती कक्षा का आभास और स्नेहपूर्ण व्यावहारिक संवाद का दृश्य उभर कर आता है। पिता और शिक्षक में अन्तर ही नहीं पता चल पाता कि ज्ञान पिता, पुत्रों को दे रहा है या शिक्षक अपने शिष्यों को। तो फिर आज ऐसा क्या हो गया? अतः शिक्षकों को अपनी कक्षाओं को ऐसी जगह बना देनी चाहिए जहाँ किसी चलते हुए पाठ के दौरान बच्चे खुल कर प्रश्न पूछ पाएँ, और अपने सहपाठियों और शिक्षक के साथ संवाद कर पाएँ। जब तक वे अपने अनुभव नहीं बताते, अपनी शंकाओं को दूर नहीं करते, सवाल नहीं करते, वे सीखने की प्रक्रिया का हिस्सा नहीं बन पाएँगे (एन.सी.एफ., 2005, p.92)। स्नेह बालकों के लिए स्वयं से और दूसरों से खुलकर विचारों के आदान-प्रदान का मार्ग प्रशस्त करने में सहायक है। कभी-कभी विचारों अथवा स्वयं की बात के असफल होने का डर भी बालकों में प्रश्न पूछने में बाधक होता है। अतः असफल होने के बहुतेरे उदाहरण

जैसे लियोनार्डो-द-विन्ची अपने बचपन में अक्षरों तक को नहीं बना पाते थे, अल्बर्ट आइन्स्टीन बचपन में पढ़ने में कमजोर थे, एडिसन ने बल्ब के आविष्कार से पहले 1000 बार से भी ज्यादा असफल प्रयास किए थे, आदि पहले असफल होने और प्रयास से सफ़लता प्राप्त करने के लिए बताए जा सकते हैं।

एक शिक्षक या एक शिक्षा का चिकित्सक

चिकित्सक वह जो किसी व्यक्ति की शारीरिक व्याधियों की पहचान करके उससे मुक्ति दिलाता है। देखा जाये तो कहीं न कहीं यही कार्य शिक्षक का भी है, अन्तर सिर्फ इतना सा है कि शिक्षा को हम सजीव नहीं मानते, लेकिन शिक्षक भी चिकित्सा करता है ये बात अलग है कि उसके रोगी को विद्यार्थी के रूप में जाना जाता है (शिबले, 2010)। एक बालक को सिखाने के लिए प्रेरित करने हेतु शिक्षक बार-बार कक्षा में दोहराता है कि कुछ समझ नहीं आता है तो मुझसे पूछो और बालक भी यही समझते हैं की गुरूजी के पास हर प्रश्न (जिसे चिकित्सक की भाषा में मर्ज कहा जाता है) का जवाब होता है। वैसे एक शिक्षक भी तो बालकों की समस्याओं का निदान (Diagnosis) करता है और आवश्यकतानुसार उपचारात्मक शिक्षण (Remedial Teaching) भी। अतः एक शिक्षक को चिकित्सक की तरह बालकों को प्रश्न करने के लिए प्रेरित करने और उसकी समस्या का समाधान करने का हर सम्भव प्रयास करने की कोशिश करनी चाहिए। किंग्स et. al. (2016) के अनुसार शरीर भगवान का मन्दिर है। अतः अपनी कक्षा के बालकों के वृद्धि और विकास के लिए शिक्षक को एक चिकित्सक (सीसीईआई, 2008) और अन्य कई भूमिकाएं (एन.सी.एफ.टी.ई.,2009, p.36) निभाने के लिए तैयार होने की जरुरत है।

हुनर को दबाने की कोशिश बनाम भाषा

भाषा को परिभाषित करते समय उसकी उपयोगिता (विचारने, महसूस करने और प्रतिक्रिया करने) को भूलकर उसे केवल सम्प्रेषण का माध्यम मान लेने (कुमार, 1994, p.1) की भूल बिल्कुल एक बालक को कक्षा में या परिवार में कुछ भी पूछने से पहले ही उसे यह कहकर चुप करा देने की है कि तुम्हें कुछ नहीं आता। इससे भी परे कभी-कभी कुछ विशेष योग्यता वाले शिक्षक बालकों के पूछने पर चुप्पी लगाने के लिए, ज्ञान की प्रथम सीढ़ी जिसे भाषा कहते हैं. को भी ऊँचे और नीचे होने का दर्जा देकर बालकों पर बोलने के लिए शब्दों का स्वयं के द्वारा चयन करने पर ही अंकुश लगा देते हैं (बरबियाना स्कूल के आठ बच्चे, 1996) जबकि सत्यता यह है कि बच्चों में भाषा की जन्मजात क्षमता होती है। हम रोजमर्रा के अनुभवों से जानते हैं कि.ज्यादातर बच्चे, स्कूल की शिक्षा की शुरुआत से पहले ही भाषा की जटिलताओं और नियमों को आत्मसात कर पूर्ण भाषिक क्षमता रखते हैं (एन.सी.एफ., 2005, p.41)। यहाँ तक कि भिन्न प्रतिभा वाले बच्चे, जो बोल नहीं पाते वे भी अपनी अभिव्यक्ति के लिए उतने ही जटिल वैकल्पिक संकेतों और प्रतीकों का विकास कर लेते हैं (एन.सी.एफ., 2005, p.41)। अतः एक शिक्षक को चाहिए कि वह बालक की भाषायी क्षमताओं को पहचाने (एन.सी.एफ., 2005, p.41) जिससे बालकों का स्वयं और अपनी सांस्कृतिक जड़ों के प्रति विश्वास बढेगा। इसके अतिरिक्त शिक्षक भाषा सम्बन्धी अक्षमता को दूर करने के लिए मानक संकेत अथवा मानक भाषा अपनाए। अच्छा होगा यदि शिक्षक बालक की घरेलू भाषा (ओं) (एन.सी.एफ., 2005, p.42) में ही शिक्षण कराए एवं कक्षा में बहु-भाषी वातावरण तैयार करें। कई बार शिक्षकों की भी यह समस्या रहती है कि वे अन्य भाषा से आये शब्दों को समझ नहीं पाते हैं, ऐसे में स्वयं की कमी को स्वीकार न कर पाने के कारण भी बच्चों के हुनर को दबाने की कोशिश की जाती है। सही शिक्षक को यह जानने का प्रयास करना चाहिए कि प्रश्न बच्चे के मस्तिष्क में क्यों, और कैसे, आया। शिक्षक यदि प्रश्न की उत्पत्ति की तह तक जा सकने की योग्यता और क्षमता रखता है तो उसे वह करना चाहिए। शिक्षक यदि अपने में सुकरात बनने की क्षमता उत्पन्न करे तो उसे कई प्लेटो और मिल जायेंगे।

सभ्य (?) स्कूल: ऊँची आवाज में बात करने की मनाही

सुबह-सुबह किसी चौराहे पर खड़े हो जाइये, रंग-बिरंगी तितलियों जैसे विभिन्न रंगों के विद्यालय गणवेश में

सराबोर होकर नन्हें-नन्हें बच्चों को खिलखिलाते हुए स्कूल जाते देखते ही बनता है कि भविष्य ऐसा ही होना चाहिए। लेकिन स्कूल की चार-दीवारी के बीच पहुँच कर यह खिलखिलाहट ग़ायब भी होने लगती है जब उनकी पूछने की क्षमताओं पर अंकुश लगा कर चुप बैठे रहने को कहा जाता है। भाग-दौड़ के खेलों पर प्रतिबन्ध लगा दिया जाता है क्योंकि सभ्य लोगों के लिए यह बच्चों का हुडदंग मचाना कहलाता है यदि खुलकर जरा बच्चे जोर से हँसने भी लग जांए तो वह भी असभ्य ही है। बच्चों को सभ्य बनाने की होड़ में अभिभावक भी चुप्पी साध लेते हैं। ऐसे में बच्चे का मनोबल बढ़ाने वाले दोनों पक्षों से जब निराशा हाथ लगती है तो बच्चा अपने प्रश्नों को पूछने की हिम्मत ही नहीं जुटा पाता। यहीं से उसे लगने लगता है कि कक्षा में हमेशा चुप बैठे रहना ही सभ्यता और अनुशासन है। कक्षा में चुप्पी बनाए रखने से संबंधित जो नियम होते हैं जैसे- एक बार में एक ही बच्चा बोले या तभी बोलो जब सही उत्तर पता हो, इस तरह के नियम समानता और बराबर अवसर देने के मूल्यों को कमज़ोर बनाते हैं और उन्हें क्षति पहुँचाते हैं। ऐसे नियम उन प्रक्रियाओं को भी हतोत्साहित करते हैं जो बच्चों की सीखने की प्रक्रिया में अंतर्निहित होती हैं और सहपाठियों में समुदाय की भावना को विकसित होने से भी रोकते हैं (एन.सी.ई.आर.टी., 2005, pp.92-98)। किसी ने कभी पक्षियों को तो विद्यालय जाते नहीं देखा फिर कैसे वे अपने हुनर में माहिर होते हैं। अतः बच्चों को चार-दीवारी से बाहर खुले मैदानों में प्रकृति का अनुशासन सीखने की स्वतंत्रता देने की ज़रूरत है। खुले आसमान के नीचे पुरज़ोर चिल्लाने की आज़ादी दो, फिर देखो कैसे विकास के मधुर सुर निकलते हैं।

देखभाल बनाम निजता का दमन

आजकल दोपहर को भोजन के अवकाश में भी शिक्षक को कक्षा छोड़ने की मनाही होती है, बच्चे एक साथ बैठकर अपनी मर्जी से किसी के साथ अगर खाना भी चाहें तो नहीं खा सकते। शाला पूर्व शिक्षा और देखभाल की यह मांग है कि छोटे-छोटे बच्चों की उचित देखभाल हो, उनके सर्वांगीण विकास के लिए पर्याप्त अवसर और अनुभव दिए जाएँ। सर्वांगीण विकास में शारीरिक, मानसिक, सामाजिक, भावनात्मक विकास और विद्यालय के लिए तैयारी शामिल हैं (एन.सी.एफ., 2005, p.74)। एक तरफ विद्यालयों में अनुशासन और देखभाल के नाम पर औपचारिकता पूरी करने के साथ निजता और समानता के अधिकार को छीना जा रहा है तो दूसरी तरफ सरकारी कार्यक्रमों में दी जाने वाली सेवाओं में गुणवत्ता की नज़र से बहुत भिन्नता है और ज्यादातर वह निम्न कोटि की ही हैं। अधिकांश बच्चों को विशेषकर ग़रीब और समाज के हाशिये पर रहने वाले बच्चों को प्रारम्भिक देखभाल के दायरे में शामिल नहीं किया जाता और अक्सर उन्हें उनके हाल पर ही छोड़ दिया जाता है (एन.सी.एफ., 2005, p.75)। अतः प्रारम्भिक बाल्यावस्था शिक्षा एवं देखभाल की पाठ्यचर्या के ढांचे और शिक्षाशास्त्र को इस सर्वांगीण परिप्रेक्ष्य पर आधारित होने की ज़रुरत है जिसमें विकास के विभिन्न क्षेत्रों में, प्रत्येक स्तर पर बच्चों के लक्षणों और अनुभवों के अर्थों में उनकी अधिगम की जरूरतों को ध्यान में रखा जाए (एन.सी.एफ., 2005, p.74)।

आपस में नहीं मुझ से पूछो

भाषा हो या विज्ञान किसी भी कक्षा के शिक्षक को यह कतई नागवार गुजरता है जब बच्चे एक-दूसरे को कुछ सिखाने के लिए भी आपस में बात करते हैं अकसर कक्षा में शिक्षक को यह कहते देखा जा सकता है कि आपस में नहीं मुझसे पूछो। ऐसी स्थिति में बालक के ज्ञान को खुलकर सामने आने का अवसर ही नहीं मिल पता है और भय के कारण वह भविष्य में कभी भी किसी बात को अपने सहपाठियों से कहने में संकोच करने लगता है, इससे भी कक्षा में चुप्पी की संस्कृति को बढ़ावा मिलने लगता है। एक शिक्षक को शिक्षाशास्त्र का विशेषज्ञ होने के नाते यह समझ होनी ही चाहिए कि तर्क, समानता और वैयक्तिक स्वायत्तता की अवधारणाएं आपस में गहनता से जुड़ी हुई हैं (एन.सी.एफ., 2005, p.32)। एक नवाचारी शिक्षक को यह समझने की जरुरत है कि समान सामुदायिक भावना के साथ प्रक्रियाओं का हिस्सा बनकर सीखने के लिए सभी बच्चों को शामिल किया जाना अति-आवश्यक है (दीवान एंड दीवान, 2016)। ऐसे में आपस में नहीं मुझ से पूछो के बजाय, खुली और

स्वस्थ विचारधारा अपनाने के अतिरिक्त उनके आपस के विचारों को खुला मंच प्रदान करना चाहिए। इसके लिए समूह परिचर्चा, द्वन्द्व परिचर्चा, कक्षा-कक्षा/समूह के मध्य अन्ताक्षरी प्रतियोगिता, अधिक प्रश्न पूछने पर पुरस्कार आदि के तरीके अपनाने चाहिए।

उदाहरण से खुशनुमा माहौल बनाने की कला एवं प्रश्न पूछने की प्रेरणा

हमें बच्चों को विद्यालय में क्यों पढ़ाना चाहिए, जैसे प्रश्न के लिए प्रत्येक की सामान्य अनुक्रिया यही रहती है कि उसे एक अच्छा नागरिक बनाना है (दीवान, 2010) लेकिन यह भी एक मानी हुई बात है कि बच्चों में सीखने और अपने आस-पास की दुनिया को समझने की स्वाभाविक इच्छा होती है। इसलिए शुरुआती वर्षों में अधिगम बच्चों की अभिरुचियों और प्राथमिकताओं के मुताबिक होना चाहिए और बच्चों के अनुभवों में संदर्भित होना चाहिए, न कि औपचारिक रूप से बनाया हुआ (एन.सी.ई.आर.टी., 2005, p.74)। एक शिक्षक को बिना संकोच भाषाई धर्मवाद और भाषाई जातिवाद से मुक्त होकर, मातृभाषा की स्वतन्त्रता के साथ, आज श्रेष्ठतम बनाने की आबो-हवा में जबरदस्ती भाषा को थोपने से बचकर व्यावहारिक उदाहरणों के द्वारा कक्षा के वातावरण को खुशनुमा बनाने की कला विकसित करनी चाहिए। उदाहरण के लिए यदि गणित विषय में BODMAS का नियम पढ़ाने के लिए "पहले का को काटिए, पीछे भागा हार। ता पीछे ऋण-धन यही भिन्न व्यवहार" से भी समझाया जा सकता है। कुछ पुराने उदाहरणों से जैसे "बरसो राम धड़ाके से, बुढ़िया मर गई फ़ाके से" का भी सहारा लिया जा सकता है।

निष्कर्ष

प्रश्न न पूछने का जितना हर्जाना भारतीय सभ्यताओं और समाज ने भरा है उतना किसी और ने नहीं। इस बात का दंश हमेशा से रहा है कि भारतीय ज्ञान की जड़ें मजबूत तो बहुत हैं लेकिन उन तक पहुंचा नहीं जा सकता क्योंकि सामर्थ्य होने के बावजूद हमें उनके किसी छोर का पता जो नहीं है। जो ज्ञान था वो जानने वालों के साथ ही चला गया। हो सकता है यदि सवाल करने की किसी ने हिम्मत उठाई होती तो दुनिया भर के आविष्कारी पेटेन्टों में से ज़्यादातर हमारे ही नाम होते। वैसे आज के उभरते हुए परिप्रेक्ष्य में बच्चों की क्षमताओं, आचारों-विचारों, व्यवहारों और आकांक्षाओं को लेकर कोई एक मानक पूरी तरह से सटीक कार्य करने में सक्षम नहीं हो सकता। क्योंकि सामाजिक, सांस्कृतिक, आर्थिक रूप से भिन्न पृष्ठभूमियों से आने के कारण विभिन्नताएं विद्यमान रहती हैं। ऐसे में वैश्विक रूप से कोई नयी शिक्षा पद्धति विकसित करने की जरुरत नहीं हैं, बल्कि मौजूदा शिक्षा पद्धतियों को परिमार्जित करके उनमें वर्तमान सन्दर्भ के गुण समावेशित करने की आवश्यकता है। आज जरुरत है तो नियमों में बदलाव करने की और बालकों को स्व-अनुशासन सिखाने की ताकि आन्तरिक रूप से बालक को प्रेरित किया जा सके। प्रताड़ित करके बालक को विरोधी और विद्रोही बनाने के बजाय बार-बार प्रश्न करने जैसा दुराग्रही बनाना ज्यादा अच्छा है।

सन्दर्भ

1. चाइल्ड केयर एजुकेशन इंस्टिट्यूट (सीसीईआई) (2008). टीचर्स रोल्स एंड रेस्पोंसिबिलिटीज. टीचर एनरिच्मेंट ट्रेनिंग सोल्यूशन, 3 (8), ऑनलाइन. रिट्रीव सितम्बर 2, 2017, फ्रॉम http://www.cceionline.com/newsletters/August_08.html
2. एन.सी.ई.आर.टी. (2005). *राष्ट्रीय पाठ्यचर्या की रूपरेखा – 2005*. नयी दिल्ली: एन.सी.ई.आर.टी.
3. एन.सी.टी.ई. (2009). *शिक्षक शिक्षा के लिए राष्ट्रीय पाठ्यचर्या की रूपरेखा – 2009*. नयी दिल्ली
4. किंग्स, एस.वी., बर्गेस, इ.ओ., अकिन्येला, एम., काउंट-स्प्रिग्स, एम. एंड पार्कर, एन. (2016). *योर बॉडी इज गोड्स टेम्पल. रिसर्च ऑन एजिंग*, 27(4), 420-446. doi:10.1177/0164027505276315

5. कुमार, कृष्ण (1994). *द चाइल्ड्स लैंग्वेज एंड द टीचर : ए हैंडबुक*. नयी दिल्ली, नेशनल बुक ट्रस्ट, भारत.
6. टीचर्स डे 2017: अनट्रेंड टीचर्स गेट टू इयर्स टू क्वालीफाई एनआईओएस डी.एल.एड. ओर बी.एल.एड. (2017, सितम्बर 4). एनडीटीवी. रिट्रीव सितम्बर 4, 2017, फ्रॉम http://www.ndtv.com/education/teachers-day-2017-untrained-teachers-get-two-years-to-qualify-nios-d-el-ed-or-b-el-ed-1745945
7. डेलर्स, जेक्स (1996). *लर्निंग: द ट्रेजर विदिन*. पेरिस: यूनेस्को.
8. दवे, रमेश (2010). *शिक्षा में नव चिन्तन*. भोपाल: मध्यप्रदेश हिन्दी ग्रन्थ अकादमी.
9. दीवान, एच. के. (अगस्त, 2010). *वैक्सिंग क्वुएस्तिओन ऑफ़ सोशल साइंस*. रिट्रीव फ्रॉम https://www.researchgate.net/publication/308200675_Vexing_questions_of_Social_Science
10. दीवान, एच. के. एंड दीवान, एस. (सितम्बर, 2016). पूअर लर्निंग अमंग सोशियली मर्जिनलाइज्ड़ चिल्ड्रन सोशिओ-कल्चरल फैक्टर्स एंड चेलेन्जेज़ रिट्रीव फ्रॉम https://www.researchgate.net/publication/308038984_Poor_Learning_among_Socially_Marginalised_Children_Socio-_Cultural_Factors_and_Challenges
11. बारबियाना स्कूल के आठ बच्चे (1996). *अध्यापक के नाम पत्र*. (सरला मोहनलाल, अनुवादक) नयी दिल्ली: ग्रन्थ शिल्पी (इंडिया) प्राइवेट लिमिटेड. [यह इटली के एक ग्रामीण अंचल में बसे बारबियाना समुदाय के आठ बच्चों द्वारा, उनके स्वयं के अनुभवों को व्यक्त करने के लिए लिखी पुस्तक है, जिसका सरल हिन्दी अनुवाद सरला मोहनलाल ने किया है].
12. मदर आस्क्ड नियरली 300 क्वेश्चन्स अ डे, स्टडी फाइंड्स. (2013, मार्च 28). *द टेलीग्राफ*. रिट्रीव सितम्बर 01, 2017, फ्रॉम http://www.telegraph.co.uk/news/uknews/9959026/Mothers-asked-nearly-300-questions-a-day-study-finds.html
13. शर्मा, प्रेमपाल (2014). शिक्षा के सरोकार. नयी दिल्ली: सस्ता साहित्य मंडल प्रकाशन.
14. शर्मा, सी. बी., एंड शर्मा, पी. के. (2017). *सा विद्या या विमुक्तये*. नयी दिल्ली: कौटिल्य प्रकाशन.
15. शिबले, आइक (2010, मार्च 09). *द टीचर एज जनरल प्रैक्टिशनर* रिट्रीव सितम्बर 2, 2017, फ्रॉम https://www.facultyfocus.com/articles/teaching-careers/the-teacher-as-general-practitioner/

Pooja Singal
poojasingal1985@gmail.com

Language, Multilingualism and Education: The Interplay

Abstract

This Paper titled 'Languages, Multilingualism and Education: explores the role of language in teaching learning situation. She has highlighted the fact that language learning should be embedded in the socio-cultural environment of the child and multilingualism should be used as a resource to bridge the gap between home language and the school language. She has also highlighted the fact that literacy originates from the oral language of the child and in the absence of the child's voice it is not possible.

I often ask my learners to reflect on 'What is Language', by asking them to try translating this sentence in to English- ***"Yeh Paani Jhoota hai"*** and almost never, they are able to provide the correct expression in English reflecting the rich cultural connotation this sentence has. It is an example through which we are able to grasp an understanding of the uniqueness of each language with its structural, social, cultural and political embeddedness.

Language is one of the most intriguing aspect of human behavior. It not only functions as the medium of communication for us, but also with the help of language, the reality of the social world gets constructed. Language is a highly organized, systematic means of representing experience, and as such, it assists us to organize all other ways of representing (Britton, 1970).

Children come to school with a rich repertoire of their home language, unique with personalized expressions, cultural markers and contextualized understanding of words. At home, they can maneuver their tone and sentences to meet their various demands as per situations. The very nature of language as an arbitrary symbolic system of representation presents to the teacher the possibility of using it for non-conventional, reflective practices in the class. A language text by way of a strong narrative, can become a potential site for transformation and analytical stance. However, the multilingual character of India lends certain complexity to the educational context here. A country where language changes after every ten miles, where there are almost 165 mother tongues, sadly uses only 33 languages as the medium of instruction to impart education to its primary kids.

In this article, I would attempt to highlight the 'role' of language in the formative years of a child, how it is 'constitutive' of a child's socio-cultural reality, and yet, in a country which abounds in languages, how the language of teaching acts to 'dissociate' rather than connect the knowledge of the outside world from the local milieu of the child. I would examine the role of the language of instruction in primary classes in the development of early literacy skills among learners and, finally, would suggest what teachers

can do to explore the vast resource that the multilingual character of India presents. The article draws mainly from my experiences of observing teaching learning in elementary classrooms in MCD and NDMC schools in Delhi.

Child's Language

When a child starts going to school, he/she already has a rich repertoire of his/her home language. Not only is he/she able to communicate with ease in that language, it helps in forming his/her 'perception' about the world. It is with the help of his/her home language, that a child 'comes to know' his/her surroundings, is able to 'direct' his/her own understanding and shape his/her attitudes and values. The home language of a child shapes the child's personality, because, the child lives and grows up in the environment that language creates. It fulfills the child's emotional and intellectual needs. By the time children enter school, most of them have already acquired remarkable mastery over the basic structures of their mother tongue. They not only know how to use language for a large number of transactions, but also know the importance of adjusting one's language to different contexts and audiences i.e., they acquire the capacity of keeping their linguistic systems separate and, of course, mix them in legitimate ways when they wish to Social-constructivist theorists Piaget and Vygotsky have underlined the importance of language in the cognitive development of the children (Kumar, 2004).

India is a land of many languages; there are about 1652 mother tongues as per 1961 census and 22 languages scheduled in the VIII list of the constitution. People in India display 'translanguaging' with ease, i.e. people have the ability to negotiate multiple interaction events in multiple languages. However, the multilingual character of India lends a certain complexity to the educational context here. There exists a hierarchy among languages in a layered manner. From the point of view of the science of language, there is no difference between what is variously called standard language, pure language, dialect, variety, etc. In spite of the fact that all languages as abstract systems or subsystems are equal, the complex ways in which history, economics, sociology, and politics interact with language, some languages become more prestigious than others and become more associated with socio-political power. It is generally the language of the elite that acquires power in society and becomes the standard language.

In principle, it is absolutely possible to do anything in any language, including advanced research in the humanities, the social sciences and the sciences. It is also important to remember that standard is not a fixed constant. Within the domains of power, it keeps changing its locus: Braj, Bhojpuri, Maithili are not now considered dialects of Hindi.

Language Teaching Scenario

At school, a child is confronted with an alien atmosphere. He encounters a school language which is very different from his own home language. Gradually, it starts settling in the mind of the child that his own home language is not sophisticated and efficient enough to carry out different functions at school. There are direct and indirect indicators from the teachers and from the general linguistic environment of the school that the home language of the child is linguistically challenged to deal with the knowledge disseminated in the school. It is an underdeveloped language, and not the 'standard language' of the text books.

The fact that children are taught all the school subjects in a standard language places a substantial constraint on their ability to relate school knowledge with everyday experiences. The out of school world in which they spend the greater part of their day is constructed by a language quite different from the one in which their conceptual repertoire of school knowledge has been developed. A wide gap develops between the language used in the wider social milieu and the language in which they receive the formal knowledge of school subject.

This problem of rift between the home language and the school language is deepened when the 'other' language that a learner has to make his own happens to be English. It is unfortunate to observe that the control and grasp that a person has over spoken English is now seen as the marker of one's intellect. English is also the language of tertiary education system in India, and is linked to economic and social prosperity. Every year, we observe a growing demand for English medium schools owing to its importance in securing jobs later on. As a result, we see a very wide spectrum of English Language Teaching scenario in India. In the ethos of private English medium schools, any tendency that some children might show for using their mother tongue is expressly curbed, often by means of punishment. The limited exposure they get to their mother tongue is in that one period allocated to teach the language as a school subject.

On the other hand, are the state run government schools which offer English only as a subject while maintaining regional language as the medium of instruction. Seemingly, these schools maintain a multilingual environment in the spirit of Three Language Formula (proposed by Kothari Commission in 1964-66, reiterated by National Policy on Education 1968 & 1986), but, the multilingual capacity of the students are hardly developed or utilized here. Various factors contribute to this- Teachers own perspective, motivation and competence in using multiple languages, specially English, shortage of requisite exposure to reading materials in multiple languages for students, lack of innovative pedagogy to introduce and make necessary arrangements for acquisition of languages other than the regional or mother tongue and so on. Teaching of English also happens in a technical fashion, without addressing the aesthetic sensibility that literature can develop. Many a times, even the functional competence to 'use' English for real authentic purposes is not developed in students. Continuously, these school students find themselves at a loss while competing with their English medium pass out counterparts because of the common perception that they may not have the requisite skills, knowledge and smartness that English would have lend them. In a study conducted at IIT Patna, it was found that there are about 20 languages spoken by students across IIT Patna, almost every student at the institute is multilingual, however, the dominance of English as a medium of instruction at IIT Patna results in students dropping out from the course and performing poorly. Students with a rich linguistic heritage are systematically forced to go through a situation that brings down their performance (Kumar & Nilu, 2013).

The case of children speaking minority languages is even more poignant. Right to Education Act (2009) mandates equal access to education to all the children from 6 to 14 years of age. Providing access to school is not enough, access to knowledge becomes possible only when

education is provided in the language which is understood emotionally and intellectually by the child. Article 350A of the Constitution mandates that "it shall be the endeavor of every state and every local authority within the state to provide adequate facilities for instruction in mother tongue at the primary stage of education to children belonging to linguistic minority groups" (Vanishree, 2011). Many minority or tribal languages do not have a written script, that is why, many diverse ethnic languages spoken by tribal groups are often clubbed under one major regional language of the state. For example, in the case of Hindi, about 20 languages, which have been grouped under Hindi, had more than one million speakers each in 1991. Within the classroom, this translates into the reality of several children with "Hindi" as their mother tongue, in fact not being able to understand the "Hindi" of the curricular transaction (Jhingran, 2005). This implies that many children enter school with a language and dialect different from that of the school.

Language and Literacy

Literacy is the ability to read and write with comprehension. In the words of Paulo Freire "Reading the world always precedes reading the word, and reading the word implies continually reading the world" (Freire and Macedo, 1987). Freire establishes a dialogic relationship between words and World. Literacy is not mere decoding, it is getting to know the import of written word by making it alive through the lived experience of the children by connecting it with the language of their dreams, their play and their fears. Their oral expressions should become the building block of literacy. Quite clearly, literacy development takes place from oral language development to written forms of expressions. However, "the rigid curriculum, the premium placed by the system on standard language, the devaluation of the child's home language, the tendency to treat the child as *'tabula rasa'* discounting the rich understanding of oral language and other competencies the child brings to the classroom, the perception of multilinguality in the classroom as an obstacle to the teaching of language and literacy rather than as a resource, the primacy of the textbook over the child's lived experience and the absence of the child's voice in the classroom—all serve to alienate the child from the process of engaging with literacy as a meaningful process" (CARE India, 2016). In the absence of their own language being used for communication, learners fail to make the sense of the curricular material. Learners suffer emotional and cognitive dissociation from the classroom interaction and are neither able to participate fully nor are able to make any sense of curricular material. The burden of incomprehension is the reason for a large number of students making an exit from school prematurely. The findings of ASER suggest that 54% of the students surveyed are unable to decode a second-grade text in fifth-grade. Although the report focuses on rural areas, according to ASER (2013), the trends apply to the urban areas as well (ASER 2013).

Making a Case for Multilingual Pedagogy

When in our country the objectives of language teaching are defined as sustaining and enhancing the degree of bilingualism and multilinguistic awareness that children have, schools consciously facilitate home language displacement, when their first task should be to relate the home language to the school language. Some studies (Sehgal, 1983) have shown that children who study through the mother tongue

medium do not suffer any disadvantage, linguistic or scholastic, when they compete with their English medium counterparts. Based on the empirical study of 78 children in the 15-17 year age groups, Gupta (1995) argued that 'two years of mother tongue medium in the initial stages immensely aids the child's acquiring better linguistic proficiency both in the mother tongue and the second language. A smooth transition from the home language to the school language in terms of discourse can be ensured if the mother tongue is the medium of instruction. "Several recent studies have also shown that there is a highly positive correlation between bilingualism, cognitive flexibility, and scholastic achievement. Bilingual children not only have control over several languages, but they are also academically more creative and socially more tolerant. The wide range of linguistic repertoire that they control equips them to negotiate different social situations more efficiently (NCERT 2005). Noam Chomsky's proposition of Universal Grammar also supports the idea that a child can learn as many languages with ease as he is exposed to in his social-cultural environment (Chomsky, 1986). A groundbreaking study from Ethiopia, where the language policy ensured multilingual education with eight years of compulsory mother tongue education in the primary classes, the study of Amharic as the national second language and English as a foreign language, has important implications for Multilingual countries like India. The study consolidates the theory that the students who with longer mother tongue instruction followed by a transition to English have higher achievement levels particularly in Mathematics and Science and students who learn three languages have higher level of academic achievement than those who learn two languages, particularly in Mathematics and Science (Heugh, 2013).

Recent research in this area have established how this multilinguality can be used as a resource, a teaching strategy and a goal. Researchers like Agnihotri argue for a pedagogy rooted in multilinguality even for teaching of English "that would ensure the emergence of a society that is marked not only for its happiness and peace, but also for its justice, equality, liberty and care for others. It should also be a society that encourages rationality and respect for diversity (Agnihotri, 2010).

As we can see from the above discussion, that the mother tongue of the child is the most important resource that can be used to initiate the process of formal learning in schools. Imagine the vast resource that goes wasted collectively in a class in the form of different experiences recorded in diverse languages that the learners speak. In a country, where multilingualism is a norm, rather than an exception, it is time to exploit the potential of Multilingualism as a resource. We would now briefly see **'What Teachers can do'** in real classroom scenarios to cater to facilitate learning in a linguistically heterogeneous class:

Know your learners: Many a times, we don't realize the diversity that is present in our class and limit our teaching to the interest of a few students. It would be worthwhile to conduct a linguistic survey of your class right at the beginning to make your classes culturally and linguistically relevant. The survey would enable you to become more sensitive to the needs of the students who may not even want to acknowledge their language due to negative stereotype attached to it. Involving the students in the survey would also make them sensitive to differences in accents and styles of speaking that some of their classmates

may exhibit due to different linguistic backgrounds.

Listen to them: Languages are learnt best when learners feel emotionally at ease in the class. Krashen argues for keeping a check on emotional state of the children or keeping the affective filter low in the class for maximum language learning to occur (Lightbown and Spada, 1999). Allowing learners to speak freely and spontaneously in their own language has its own benefits. Many teachers across nations have reported how they observed the free flow of ideas out of class by reticent students happening not in the standard language of the class, but in the home language of the child. Allow these communication to occur in your own class too. It can very well become the starting point for teaching them to communicate in 'target' language.

Build on what they know: While total 'immersion' in the target language is considered to be a necessary condition for language learning by a number of researchers, the initial few classes can be organized in such a way that learners can co-relate the target language with their own language. Krashen points out that while concurrent translation is not effective, the use of two languages in the classes can be done in such a way as to provide comprehensible input in the target language, using the first language to provide background information (Krashen, 1985).

Follow Multilingual Practices in your own Class: Exhibiting multilingual competence in class is a good idea to create an ethos of respect for all languages. Along with 'translanguaging', creating a multilingual print environment in class would give the necessary concrete exposure to learners. Creating a bilingual word wall, labeling common objects in the classroom in multiple languages would help in building the verbal repertoire of the learners. Asking learners to collect and bring reading materials in their home languages and making them a part of reading corner, from where, 'a pair and share' reading activity can be conducted, would result in collaborative learning. Once motivated, learners can do a compare and contrast task between the features of written expressions of various languages, thus, arriving at the meta-linguistic awareness of languages.

As teachers it is utmost important to understand the nexus between language, multilingualism and education. A classroom where learners voices are heard and respected, where practices rooted in the multilingualism are incorporated, where culturally relevant teaching materials are used, is bound to create citizens who would be able to participate meaningfully and in an empowered manner in a democratic country like India.

References

- Agnihotri, R.K. (2010). *Multilinguality and the Teaching of English in India*. EFL, 1 (1), 1-13.
- *Annual Status of Education Report (Rural)* (2013). Retrieved from http://img.asercentre.org/docs/Publications/ASER%20Reports/ASER_2013/ASER2013_report%20sections/aser2013fullreportenglish.pdf.
- Britton, J. (1970). *Language and Learning. London*: Penguine Press
- CARE India. (2016). *Early Language and Literacy in India*. A position Paper. Retrieved from https://www.careindia.org/sites/default/files/ELL%20India%20%28revised%20pdf%29.pdf

- Chomsky, N. (1986). *Knowledge of Language*. New York: Prager.
- Freire, P., & Macedo, D. (1987). *Literacy*: *Reading the Word and the World*. London: Routledge & Kegan Paul.
- Gupta, A. (1995). *Medium of instruction in a bilingual context.* In Agnihotri, R.K. and Khanna, A.L. ed. RAL 4, New Delhi: Sage, 201-211.
- Heugh, K. (2013). Multilingual Education and Literacy: Research from Sub-Saharan Africa. *Language and Language Teaching*, 1 (1), 5-9.
- Jhingran, D. (2005). *Language disadvantage*: *The Learning Challenge in Primary Education.* New Delhi: S.B. Nangia APH.
- Kumar, K. (2004). *Child's Language and the Teacher*. New Delhi: National Book Trust.
- Kumar, R. & Nilu. (2013). Multilinguality in Academic Institutes in India. *Language and Language Teaching*, 1 (1), 1-4.
- Krashen, S.D. (1985). *The Input Hypothesis: Issues and Implications*. New York: Longman
- Lightbown, P.M. and Spada, N. (1999). *How Languages are Learned*. Oxford: Oxford University Press.
- NCERT (2005). *National Focus Group on Teaching of Indian Languages.* Position Paper.
- Sehgal, A. (1983). A socio-linguistic study of the spoken English of the Delhi elite. M.Phil. Thesis. University of Delhi, Delhi.
- Vanishree, V. M. (2011). Provision for linguistic diversity and linguistic minorities in India. *Language in India*, 11(2). Retrieved from: http://www.languageinindia.com/feb2011/vanishreemastersfinal.pdf

रजनी
ritudwi@gmail.com

जीवन में भाषा का उपयोग

सार

इस लेख में मैंने विभिन्न अहम दस्तावेजों में भाषा और भाषा शिक्षण को लेकर क्या नजरिया प्रस्तुत हुआ है उसकी एक झलक देने का प्रयास किया है| कोशिश यह रही है कि इन नज़रियों के बारे में मुख्य बातें आ जाएँ| जाहिर है इसमें बहुत से और पहलू व बारीकियां हैं, जिन्हें हम इसमें शामिल नहीं कर सकते। यह सिर्फ मुख्य मसलों को रखने का प्रयास है जिससे हम अधिक से अधिक बातचीत कर पाएँ, एक दूसरे के विचारों से रूबरू हो पाए, नये विचारों को जोड़ पाए उन्हें संशोधित कर पाएँ व कुछ और आगे बढ़ पाए| साथ ही साथ यह भी जानने समझने की कोशिश करें कि भाषायी पाठयचर्या के विमर्श में भाषा की बदलती समझ की झलक कैसे-कैसे दिखती है। जाहिर है कि यह सभी प्रयासों को शामिल नहीं करता है किन्तु राष्ट्र में नीति स्तर पर हुए परिवर्तनों की झलक देकर यह भी इंगित करता है कि अलग अलग लोग इसके बारे में अलग-अलग ढंग से सोचते हैं। उनके लिए कौन से प्रयास और उनमें क्या महत्वपूर्ण है या भी अलग-अलग है। मैंने यहां शिक्षकों की धारणाओं व आज की भाषायी कक्षा के उदाहरण भी नहीं दिए हैं पर वे भी यही दिखाते हैं कि फर्क भाषा क्या से लेकर उसे सीखने के मकसद, सिखाने के उद्देश्य व सीखने (कुछ लोग इसे सिखाना कहेंगे) के ढंग तक जाता है। इस सब के अलोक में भाषा शिक्षण के लिए आगे की राह क्या हो यह सोचना होगा।

(इस लेख का कुछ हिस्सा अज़ीम प्रेमजी द्वारा मई 2017 में आयोजित सेमिनार में प्रस्तुत पेपर " भाषा शिक्षण: शिक्षकों की तैयारी" रजनी द्विवेदी से लिया गया है)

परिचय

हम सभी अपने जीवन में भाषा का उपयोग करते हैं : स्वयं से बातचीत करने में और दूसरों से भी। खेलना, मजाक करना , काम की योजना बनाना, काम के लिए किसी को निर्देश देना, कल्पना की उड़ान भरना, इतिहास को जानना, नया इतिहास रचना, और भी बहुत से कार्य हैं जो हम भाषा के बिना कर ही नहीं सकते। हम यह भी जानते हैं कि विषयों और अवधारणाओं को सीखने में ही नहीं बल्कि नये विषयों, नयी अवधारणाओं को रचने, मौजूद विषयों और अवधारणाओं को संशोधित करने उनमें कुछ जोड़ने, इनमें भी भाषा की भूमिका बहुत खास है। भाषा हमारी जिंदगी का एक अहम हिस्सा है लेकिन जैसा कि जीन एचिंनसन व अन्य कई भी अब कहते हैं कि भाषा हमारे लिए इतनी सहज है कि हम यह सोच ही नहीं पाते कि यह हमारे लिये कितनी महत्वपूर्ण है।

छोटे बच्चे बड़ी सहजता के साथ भाषा सीखना शुरू करते हैं। स्कूल जाने से पहले ही अपनी भाषा/ भाषाओं पर उनका अच्छा नियंत्रण हो चुका होता है, वे अपनी भाषा की ध्वनियों को पहचानते हैं, शब्दों को पहचानते हैं, शब्द भण्डार भी वृहद हो चुका होता है वे शब्दों का, वाक्यों का सही सन्दर्भों में प्रयोग भी करना जान चुके होते हैं व करते भी हैं, लेकिन फिर भी स्कूलों में बच्चों को भाषा सिखाना मुश्किल होता है ? प्रश्न यह है कि क्यों अधिकांश स्कूलों की यही उलझन रहती है कि इतने साल पढ़ने के बाद भी बच्चे भाषा नहीं सीख पा रहे/ पाते। वैसे तो भाषायी क्षमता के आकलन के लिए बहुत अच्छे साधन भी उपलब्ध नहीं हैं, किन्तु जिनकी चर्चा है और जो व्यापक स्तर पर उद्धृत किए जाते हैं उनमें एक 'असर' की रिपोर्ट है। असर के अध्ययन का दायरा यद्यपि बहुत सीमित है और उसके भाषायी क्षमता के आकलन के ढंग में कई कमियां भी हैं फिर भी उसके अवलोकनों पर दृष्टि डालने से चिन्ताजनक परिस्थिति तो सामने आ ही जाती है। 'असर 2014' के अनुसार "कक्षा दो में एक तिहाई बच्चे ऐसे हैं जो वर्ण भी नहीं पहचान पातें और यह संख्या पिछले कुछ सालों में

बढ़ी ही है घटी नहीं, इसी तरह कक्षा पांच में लगभग 50% बच्चे ऐसे हैं जो कक्षा दो के स्तर का टेक्स्ट भी नहीं पढ़ पाते।" (अनूदित) सिन्हा के अनुसार "स्कूल में समझकर पढ़ना महत्वपूर्ण है क्यों कि समझकर पढ़ना सीखना हरेक विषय में सफलता पूर्वक ज्ञान निर्माण करने के लिए जरुरी है" (हो वि पत्रिका अंक 14, 1983, प्राशिका 1994, सिन्हा 2012)। "भाषा पढ़ाने वाले शिक्षक की महत्ता की भूमिका की गंभीरता तो इस बात से जाहिर हो जाती है कि एक तो भाषा पूरी पाठ्यचर्या में विद्यमान होती है और दूसरे भाषा ज्ञान सामाजिक संबंधों को कई स्तरों पर मजबूत करती है।" (भारतीय भाषाओं का शिक्षा पर बने राष्ट्रीय फोकस ग्रुप का पोजीशन पेपर, एन.सी.ई.आर.टी., 2006) दूसरे शब्दों में यदि बच्चे भाषा नहीं सीखेंगे तो ना केवल उन्हें विषयों को, उनकी अवधारणाओं को, उनकी बारीकियों को सीखने में कठिनाई होगी बल्कि सामाजिक रूप से भी वे पिछड़ जायेंगे अतः शिक्षक की भाषा व भाषा शिक्षण की समझ व उसकी तैयारी कक्षा में बेहतर भाषा शिक्षण के लिए अनिवार्य हो जाती है।

विभिन्न शोधों, उनके निष्कर्षों, विभिन्न चर्चाओं व विमर्शों, दस्तावेजों तथा नीतियों में भाषा और उसके शिक्षण के बारे में तथा इस सम्बन्ध में सेवापूर्व व सेवारत प्रशिक्षणों के अन्तर्गत कदम उठाने की बहुत सी बातें होती रहती हैं। हालाँकि ज़मीनी स्तर पर ये कदम किस प्रकार क्रियान्वयित हो पाते हैं, हो पातें भी हैं अथवा नहीं यह एक अलग ही विषय है| इस पर्चे में कुछ प्रमुख दस्तावेजों में भाषा शिक्षण के बारे में क्या कहा गया है इस बारे में बातचीत है और यह समझने का प्रयास है भाषा की समझ में किस तरह का विस्तार हुआ है | अंत में इस बारें में बातचीत है कि यह सब होने के बावजूद आज भी भाषा की कक्षाएं इतनी बेरंग क्यों हैं ?

शिक्षा नीति – 1968

शिक्षा नीति में बिंदु चार के अंतर्गत भाषाओं के विकास के बारे में बात की गयी है | इस बिंदु के उप बिंदुओं को पढ़ने पर प्रतीत होता है कि सभी भाषाओं को बराबर जगह दी गयी है और सभी भाषाओं के विकास के बारे में बात की गयी है लेकिन थोड़ा गहराई से पढ़ने पर लगता है कि वास्तव में इसमें भाषा को लेकर कोई ठोस बात नहीं कही गयी है | जैसे उपबिंदु 3 (a), क्षेत्रीय भाषा, के अंतर्गत नीति कहती है कि "शिक्षा और संस्कृति के विकास के लिए भारतीय भाषाओं और साहित्य का उर्जावान विकास एक जरुरी शर्त है | जब तक यह नहीं होगा लोगों की सृजनात्मक ऊर्जा बाहर नहीं आयेगी, शिक्षा के मानकों में बेहतरी नही होगी और लोगों में ज्ञान का प्रसार नहीं होगा और बौद्धिक समाज और आम जनता के बीच खाई बनी रहेगी यदि चौड़ी नहीं होगी तो" .. (अनूदित) और आगे यह कि इस हेतु प्राथमिक व सेकंडरी स्तर पर क्षेत्रीय भाषाओं के शिक्षण और महाविद्यालयों में भी इन भाषाओं को अनुदेशन का माध्यम बनाने हेतु जल्द से जल्द प्रयास किये जाने को निर्देशित भी करती है |

लेकिन पूरे दस्तावेज में कहीं यह स्पष्ट नहीं है कि क्षेत्रीय भाषा का क्या तात्पर्य है? क्या क्षेत्रीय भाषा के अंतर्गत राज्यों की राज्यभाषा ही आयेगी अथवा, राज्य के अलग अलग जिलों में बोली जाने वाली भाषाएँ भी इसमें सम्मिलित होंगी और वे भाषाएँ भी सम्मिलित होंगी जो इन जिलों के अलग अलग हिस्सों में बोली जाती हैं? प्राथमिक स्तर पर क्षेत्रीय भाषा में शिक्षण हो और ऐसा सेकंडरी तथा महाविद्यालय स्तर तक करने के प्रयत्न किये जाएँ, इसका तात्पर्य क्या यह है कि उस क्षेत्र के सभी बच्चों की शिक्षा एक क्षेत्रीय भाषा में ही होगी, या फिर यह कि हर बच्चे की क्षेत्रीय भाषा के अनुसार शिक्षण संस्थान होंगे | अब यह हम सब जानते हैं कि ऐसा कतई जरुरी नहीं कि क्षेत्रीय भाषा हर बच्चे की मातृभाषा हो |

यह हिंदी को आगे ले जाने और एक लिंक भाषा के रूप में विकसित करने और अहिन्दीभाषी राज्यों में हिंदी महाविद्यालयों की स्थापना पर जोर देती है जिसका तात्पर्य यह हो सकता है कि क्षेत्रीय भाषा भी पढ़ाई का माध्यम हो सकती है और हिंदी भी अथवा यह कि उच्च कक्षाओं में तो हिंदी ही पढ़ाई का माध्यम होगी, या फिर यह कि क्षेत्रीय भाषा व हिंदी भाषा दोनों विषयों के रूप में पढ़ाई जायेगी और माध्यम की भाषा हिंदी ही होगी | |

नीति विभिन्न उदेश्यों के मद्देनज़र हिंदी, संस्कृत व अंग्रेजी के विकास की भी बात करती है लेकिन भाषा के

विकास की बात के केंद्र में है सांस्कृतिक एकीकरण (हिंदी एक लिंक भाषा के रूप में, संस्कृत के सांस्कृतिक एकता में योगदान को देखते हुये), विज्ञान और तकनीकी विकास (अंग्रेजी सीखने से देश बाकी दुनिया के साथ कदम मिलकर चल सकें बिंदु ३ (य)) और आर्थिक विकास|

कुल मिलाकर जमीनी स्तर पर यह विचार कैसे क्रियान्वित होंगे, माध्यम की भाषा क्या होगी, इस बारे में कोई स्पष्टता नहीं है। भाषा से सम्बंधित महत्वपूर्ण पहलु यथा भाषा ज्ञान रचने की बुनियाद, भाषा एक जन्मजात क्षमता, भाषा और बौद्धिक विकास,भाषा और सोच, भाषा और बराबरी, भाषा समाज और सत्ता से सम्बंधित मुद्दे इसमें कहीं परिलक्षित नहीं होते |

पाठ्यचर्या की रूपरेखा1975- एवं1988

एन.सी.ई.आर.टी. द्वारा 1975 में विकसित दस वर्षीय विद्यालयी शिक्षा के लिए पाठ्यचर्या की रूपरेखा ने भी सांस्कृतिक एकता बनाए रखने के उद्देश्य से त्रिभाषा सूत्र को अपनाने की बात को ही दोहराया, दस्तावेज ने अलग अलग स्तरों पर (प्राथमिक, माध्यमिक, सेकेंडरी) अलग अलग भाषाएँ पढ़ाने की बात करते हुये यह स्पष्ट करने का प्रयास किया कि त्रिभाषा सूत्र किस तरह लागू हो सकता है हालांकि इस दस्तावेज में भी भाषाई परिप्रेक्ष्य की कोई बात नहीं थी महज निर्देशित किया गया था कि ऐसा होना चाहिए। आगे आने वाले दस्तावेजों आरंभिक और माध्यमिक शिक्षा के लिए राष्ट्रीय पाठ्यचर्या: एक रूपरेखा, 1988 में भी त्रिभाषा सूत्र पर ज़ोर दिया गया, कुछ अन्य बातों को भी रेखांकित किया गया जैसे कि " भाषा सीखना बच्चे के लिए ना केवल खुद के प्रयोजनों के लिए महत्वपूर्ण है बल्कि यह इसलिए भी महत्वपूर्ण है क्यों कि यह अन्य विषयों को सीखने, उसके सामजिक, भावनात्मक व संज्ञानात्मक विकास को भी प्रभावित करता है।" (एन.सी.ई.आर.टी., 1988, पेज 20).. यह कहता है कि "भाषा सीखने का प्रभाव अन्य विषयों के सीखने पर भी पड़ता है अतः भाषा शिक्षण को शिक्षा प्रक्रिया में एक केंद्रीय स्थान मिलना चाहिए... भाषा शिक्षा को सीखने वालों में शुरुआत से ही स्वतंत्र सोच को बढ़ावा देने वाले एक औजार की तरह देखा जाना चाहिए।" (एन.सी.ई.आर.टी., 1988 पेज 20) इसने भाषा शिक्षण में पाठ्यपुस्तकों के अलावा अन्य पुस्तकों की भूमिका की महत्ता का भी ज़िक्र किया। यह निर्देशित करता है कि "प्राथमिक कक्षाओं में एक ही भाषा पढ़ायी जायेगी मातृभाषा/ क्षेत्रीय भाषा" (एन.सी.ई.आर.टी. 1988 पेज 19) लेकिन आगे यह कहता है कि "यदि आदिवासी बच्चों की अपनी कोई बोलचाल की भाषा है तो कक्षा एक व दो में उन्हें उनकी मातृभाषा का उपयोग करते हुये मौखिक रूप से पढ़ाया जा सकता है। साथ ही इन बच्चों को क्षेत्रीय भाषा भी सिखानी होगी क्यों कि आगे जाकर यही अनुदेशन का माध्यम बनेगी" (एन. सी. ई. एस. ई. 1988 पेज 20) और इस तरह मातृभाषा की बात को एक तरह से दरकिनार भी कर देता है। लगभग ऐसी ही कुछ बातों का जिक्र स्कूली शिक्षा के लिए राष्ट्रीय पाठ्यचर्या की रूपरेखा 2000 भी करती है। लेकिन इन सुझावों की तह में क्या सिद्धांत और क्या तथ्य हैं, इसकी कोई बात नहीं हुई है। इसका कोई खुलासा नहीं है कि क्यों प्राथमिक कक्षा में मातृभाषा से ही शुरुआत हो। यह शुरूआत अन्य भाषाओं से क्यों नहीं होनी चाहिए, ऐसा होने से क्या परेशानी हो सकती है/ हो रही है। भाषा सीखने और अन्य विषयों को सीखने में क्या सम्बन्ध है?, इत्यादि।

न्यूनतम अधिगम स्तर (एम. एल. एल)

एम एल एल दस्तावेज मूलतः शिक्षा नीति, 1986 का अनुसरण करते हुये बनाया गया था| शिक्षा नीति, 1986 के अनुसार हर स्तर के लिये न्यूनतम अधिगम स्तर तय किया जाना चाहिए, और इसके पीछे यह सोच थी कि शिक्षकों को यह नहीं पता होता कि उन्हें कक्षा में क्या करवाना है, यदि स्तरवार बच्चों को क्या सीखना है, ये बता दिया जाय तो उन्हें कक्षा हेतु विभिन्न गतिविधियाँ सोचने में मदद मिलेगी।

वैसे भाषा/ओं के स्कूल में वजूद और सीखने सिखाने में भूमिका व भाषा शिक्षण इस सम्बन्ध में कोई बात नहीं कही गयी| हालाँकि दिये गये बिंदु जो कुछेक ही हैं उनमे यह जरूर परिलक्षित होता है कि भाषाई विविधता है और

इसे बरक़रार रखने के लिये कुछ प्रयासों की जरुरत है, लेकिन यह भी बहुत संजीदगी से कहा गया हो ऐसा नहीं प्रतीत होता|

यदि एम एल एल दस्तावेज में भाषा सीखने–सिखाने के नज़रिए की बात करें तो यह भाषायी क्षमता तो 9 उप क्षमताओं में बांटता हैं यथा; सुनना, बोलना, पढ़ना, लिखना, पढ़े और सुने विचारों को समझना, स्व अधिगम, व्यवहारिक व्याकरण,भाषा प्रयोग और शब्दों पर अधिकार| हर एक क्षमता को पुनः कक्षा के स्तर को ध्यान में रखते हुये अन्य उप क्षमताओं में बांटा गया है| जैसे कक्षा एक में बोलने की क्षमता में यह सम्मिलित है: सरल वाक्यों को दोहराना,सरल कविताओं गीतों को समूह में हाव भाव के साथ गाना, सरल यानि हाँ ना के प्रश्नों के उत्तर दे पाना, और सरल सवाल पूछ पाना| हालांकि दस्तावेज यह कहता है कि ऊपर वर्णित भाषाई क्षमताओं को अलग नहीं किया जा सकता लेकिन फिर यह भी कहता है कि आकलन के लिये इन्हें इस प्रकार से विभाजित करना ही होगा ताकि शिक्षकों को यह पता चल सके कि हर कक्षा में बच्चे कम से कम क्या सीखें? दूसरे शब्दों में कक्षा एक के अंत में आते आते बच्चे बोलने की क्षमता में ये आउटपुट दे पाएँ | बाकी अन्य क्षमताओं को भी इसी तरह विभाजित किया गया है|

इसमें कई समस्याएं हैं, पहली समस्या तो यह कि इसमें बच्चे की भाषा सीखने की क्षमताओं पर ही प्रश्न हैं, वह यह कि बच्चा एक समृद्ध भाषाई वातावरण मिलने पर न केवल भाषा व भाषा की कई बारीकियां बिना किसी सजग प्रयास के सीख लेता है, दूसरा ऐसा स्पष्ट प्रतीत होता है कि दस्वावेज यह मानता है कि भाषाई क्षमतायें दिये गये क्रम में ही बच्चे में विकसित होगी कक्षा पहली में कुछ, फिर दूसरी में कुछ और फिर प्रत्येक कक्षा में भी पहले क्या सीखेगा व बाद में क्या यह भी दस्तावेज बताता है, हम जानते है कि सीखने का कोई रेखिक क्रम नहीं होता, कोई बच्चा पहले क्या सीखेगा क्या नहीं मोटे तौर पर इस बारे में कुछ कयास लगाया जा सकता है लेकिन वह वही सीखेगा जो आपने या किसी और ने तय कर लिया है ऐसा नही होता|

हम यह भी भली भाँती जानते हैं बच्चा भाषा टुकड़ों टुकड़ों में व चरण दर चरण नहीं सीखता बल्कि समग्रता में सीखता है| हमें भले ही यह लगे कि वह एक एक कर के शब्द सीख रहा है लेकिन बच्चा जानता है कि वह एक शब्द जो उसने किसी समय विशेष पर सीखा है वह किस रूप में उसके लिये समग्र है|

तीसरा यह जरुरी नहीं है कि बच्चा वही सीखे जो आप सिखाना चाहते हैं, आप उसे कविता बोलने को कहे तो वह गीत भी बोल सकता है, वह अर्थहीन ध्वनियों की तुकबंदी भी कर सकता है, वह ऐसी कविता भी बोल सकता है जो आपको उसके स्तर के लिये कठिन प्रतीत होती हो, और ऐसा भी हो सकता है कि वह उस वक्त कुछ भी ना बोले जब आप उससे बुलवाना चाहे, कविता की दो पंक्तिया भी बोल सकता है और भी कई संभावनाएं हो सकती हैं, पर उन संभावनाओं की जगह नहीं है|

चौथा, इसकी अपेक्षाएं शिक्षक व बच्चों के सम्बन्ध को एक तरह से मृत सा कर देती है जैसे शिक्षक का काम है बच्चे से दिया गया आउटपुट निकलवाना, वह बस इसी दिशा में काम करे, अपने लक्ष्य से भटके नहीं | और लक्ष्यों की पूर्ति में कक्षा में भाषा सिखाने का एक ऐसा कृत्रिम फ्रेमवर्क बन जाता है जो रोज़मर्रा की ज़िंदगी से दूर असहज सा होता है| और इसी कृत्रिम फ्रेमवर्क में आता है बच्चे को ऐसा इनपुट देना कि निर्धारित आउटपुट सुनिश्चित हो पाए| इस वजह से बच्चे हर स्तर पर कोम्प्रेहेंसिव भाषायी इनपुट से वंचित ही रह जाते हैं |

जबकी भाषा सीखने में कोम्प्रेहेंसिव इनपुट की भूमिका महत्वपूर्ण है, और कोई इनपुट कोम्प्रेहेंसिव कब होगा यह पहले से ही तय नहीं किया जा सकता, यह तो सीखने सिखाने वाले के बीच अन्तः क्रिया पर बहुत निर्भर करता है| क्यों कि तभी सिखाने वाला जान सकता है कि सीखने वाले के पास किस किस तरह के अनुभव हैं उसकी क्या रूचियाँ है, उसकी क्या संस्कृति है इत्यादि जिन के आधार पर उसके लिये नये अनुभवों को गढा जाना चाहिए|

संक्षिप्त में, एम एल एल दस्तावेज में प्रयास तो यह था कि शिक्षकों को अपनी कक्षा हेतु लक्ष्यों को निर्धारित करने

में मदद मिले लेकिन इस फ्रेमवर्क में अन्य कई महत्वपूर्ण बिंदुओं, विशेषकर बच्चे की सीखने की क्षमताओं, सीखने की रूचियों, सीखने में समाज व संस्कृति की भूमिका, शिक्षक छात्र संबंधों, कक्षा कक्ष प्रक्रियाओं में सहजता, भाषा औरउसकी प्रकृति, भाषा, इंसान और पहचान इत्यादि के बारे में नहीं सोचा गया|

प्राथमिक शिक्षा कार्यक्रम (प्राशिका)

इस दस्तावेज का यहाँ जिक्र करना कुछ वजहों से महत्वपूर्ण है – पहली वजह यह कि यह दस्तावेज भी लगभग उसी दौरान विकसित किया गया था जब कि एम एल एल दस्तावेज बन रहा था और एम एल एल समिति को इससे संबंधित दस्तावेजों की न सिर्फ जानकारी थी पर यह उन्हें उपलब्ध भी थे। किन्तु शुरूआती शब्दावली के बाद(या शायद शुरू से ही) इस दस्तावेज में भाषा सीखने सिखाने की जो समझ परिलक्षित होती है वह एम एल एल दस्तावेज से बहुत ही अलग है। एक अन्तर तो यह ही है कि इसमें भाषा सीखना–सिखाने को, सीखने–सिखाने की व्यापक समझ के अंतर्गत लिया गया है दूसरे शब्दों में बच्चों के सीखने की प्रक्रिया, बच्चों के सीखने की क्षमता, बच्चों की सामाजिक व सांस्कृतिक पृष्ठभूमि, शिक्षक छात्र सम्बन्ध इत्यादि सब की भी सीखने में, (किसी भी चीज को, विषय को, अवधारणा को) अहम भूमिका होती है इसे बड़े ही सपष्ट शब्दों में बताया गया है। जैसे दस्तावेज कहता है कि "शिक्षकों और बच्चे के बीच संवाद में यह दबाव होता है कि गुरुजी की भाषा बच्चे समझें। लेकिन इस पाठ्यक्रम में माना गया है कि अध्यापक को शुरू से ही बच्च्चों की भाषाएँ सीखनी चाहिए| इसी से वह बच्चे की बात को समझ पायेगा| और उसे अपनी बात पहुंचा पायेगा| इसी प्रक्रिया में धीरे- धीरे बच्चा उसकी बात समझने लगेगा। मुख्य बात यह है कि बच्चे सीखते तभी हैं जब वह उस प्रक्रिया में सक्रिय हों| सिर्फ बैठकर सुनने से या सुना हुआ दोहराने से सीखना नहीं होता| यह सक्रियता तभी होगी जब बच्चों की भाषा शिक्षक समझेगा और इस्तेमाल करेगा|"

दस्तावेज आगे उदाहरण देते हुये कहता है कि किसी एक चीज को सीखने के लिये बच्चों को एक ही अनुभव को बार बार दोहराने की नहीं वरन अलग अलग अनुभवों की जरुरत होती है और बच्चों की जरुरत के अनुसार अनुभव बुनने की शिक्षक के पास स्वतन्त्रता होनी चाहिए| यह एम एल एल से इस मायने में भी अलग है कि यह सु,बो,प,लि (अर्थात सुनना, बोलना, लिखना, पढना) को क्रमिक रूप से ग्राहय नहीं मानता। और इन्हें समझने व अभिव्यक्ति के दायरे में ही रखता है। अत: उसके लिए सुना हुआ वाक्य याद करके दोहराना अथवा नकल करके लिखना भाषा सीखने के हिस्से नहीं हैं।

दस्तावेज यह भी मानता है कि भाषा एक चरण दर चरण व टुकड़ों टुकड़ों में चलने वाली प्रक्रिया नहीं है कि जब जो सीखना है उसका अनुभव दे दिया जाये, बल्कि यह एक समग्र प्रक्रिया है, अतः बच्चों को भाषा को सुनने के, अभिव्यक्त करने के यानी उसका अधिक से अधिक उपयोग करने के मौके दिये जाने चाहिए तभी धीरे धीरे उस भाषा पर अपना अधिकार बना पाएंगे| इस दस्तावेज से जुडा पाठ्यक्रम भी भाषा के प्रति एक फर्क दृष्टि स्पष्टतः प्रस्तुत करता है। इसके अनुसार भाषायी क्षमता इन्सान होने का महत्वपूर्ण आधार है। यह मात्र एक विषय नहीं वरन हमारे वज़ुद की रचनाकार है। पहचान का प्रश्न, सोचने, कल्पना करने, अवधारणाओं को समझने व गढ़ने में भाषा का अनिवार्य योगदान है। इस लिए इसके अनुसार भाषा सिखाने की जिम्मेदारी सिर्फ भाषा शिक्षक की नहीं वरन सभी शिक्षकों की है।[8]

यह दस्तावेज, जैसा कि ऊपर ज़िक्र किया गया है 1990 के आसपास बन चुका था और भाषा के बारें में और सीखने –सिखाने के बारे में बहुत सी अहम बाते इसमे रखीं गई और बड़े ही सहज ढंग से व उदाहरणों के साथ लेकिन इस दस्तावेज को नज़रअंदाज किया गया और आगे आने वाले दस्तावेजों, अधिगम के न्यूनतम स्तर (एम् एल एल) और यहाँ तक कि पाठ्यचर्या की रूपरेखा 2000 में भी इन्हें नहीं शामिल किया गया।

राष्ट्रीय पाठ्यचर्या की रूपरेखा-2005

भाषा व भाषा शिक्षण के बारें में बहुत विस्तार से चर्चा है। यह चर्चा हमें भाषा व भाषा शिक्षण के बारें में एक परिप्रेक्ष्य तो देती ही है और भाषा व भाषा शिक्षण के प्रति

जो नजरिया चला आ रहा था, (और कई संस्थानों में : स्कूल, शिक्षक प्रशिक्षण संस्थान, राजकीय शिक्षा संस्थान इत्यादि में अब भी मौजूद है) उस नजरिये पर पुनः सोचने को बाध्य करती है, और भाषा सम्बंधित प्रचलित रूढ़ीयों को तोड़ने में मदद करती है।

दस्तावेज रेखांकित करता है कि हर बच्चे में भाषा सीखने की एक सहजात क्षमता होती है और जैसे जैसे वह बड़ा होता है वह अपने घर की, अपने आस - पास की भाषा बिना किसी सजग प्रयास के सीख लेता है | एक तीन –चार साल का बच्चा अपनी भाषा को जानता है और वह उसका धारा प्रवाह उपयोग करने में सक्षम भी होता है| यानी स्कूल में जब बच्चा प्रवेश लेता है तो उसके पास अपनी भाषा का पूरा तंत्र जो अन्य किसी भाषा तंत्र जितना ही जटिल है उस पर पूरा अधिकार होता है जैसा कि पहले भी ज़िक्र किया है, उसके पास ध्वनियों, उनको उच्चारित करने, ध्वनियाँ किस क्रम में व्यवस्थित हो सकती है किस क्रम में नहीं, शब्द, शब्दों के अर्थ, वाक्य, वाक्य संरचना इन सभी के बारें में समझ होती है। वह अपनी उस भाषा में लोगों से बात करने की क्षमता, किसी चीज का विवरण देने की क्षमता,अपनी बात को अभिव्यक्त करने की क्षमता भी रखता है। वह भाषा का प्रयोग करके अवधारणाएं बनाना, उनको समझना, विकसित करना यह सब भी जानता है | बच्चे द्वारा अर्जित यह यह ज्ञान बहुत महत्वपूर्ण होता है क्यों कि यही ज्ञान वह जो आगे सीखता है, इसकी बुनियाद बनता है।

इसीलिए दस्तावेज स्पष्ट रूप से कहता है कि शिक्षण बच्चे की मातृभाषा में ही होना चहिये | भाषा ज्ञान के सृजन हेतु एक आवश्यक बुनियादी क्षमता है, यदि मातृभाषा में शिक्षण होगा तो यह बच्चे को ज्ञान को सहज रूप से हासिल करने में भी मदद करेगा | आप समझ सकते हैं कि किसी नयी अवधारणा को किसी नयी भाषा में सीखना कितना मुश्किल हो सकता है | इस स्थिति में पहले हासिल किया ज्ञान में मदद नहीं कर सकता| मातृभाषा में शिक्षण बच्चों को उनके द्वारा ही हासिल किये ज्ञान को उपयोग करने का मौका देता है, जिससे ज्ञान पाठ्यपुस्तकों से बाहर निकलकर बच्चों के जीवन का भी हिस्सा बन सकेगा, बच्चों को चीजों को रटने से मुक्ति मिलेगी |

भाषा इंसान की अस्मिता, सांस्कृतिक जड़ों, विचार प्रक्रिया से गहराई से जुड़ी है | कक्षा में बच्चों की भाषा का तिरस्कार एक तरह से उस ज्ञान का और ज्ञान तंत्र का तिरस्कार है जो बच्चों के पास है, वह ज्ञान जो उन्होंने अपने परिवारजनों, दोस्तों, सम्बन्धियों, अपने समाज के साथ अन्तःक्रिया करते हुये बनाया है | यह ना केवल बच्चों के स्वयं के प्रति विश्वास को कमजोर करता है पर साथ ही उनकी सामाजिक व सांस्कृतिक जड़ों को भी कमजोर करता है | कक्षा में बच्चों की भाषा को जगह देने से उनका अपनी क्षमताओं में विश्वास बढ़ेगा और वे अपने समाज व संस्कृति को समझ व सराह भी पायेंगे जिससे उनका आत्मविश्वास भी बढ़ेगा | एन सी एफ के अनुसार "बच्चे की घरेलू भाषाएँ ही स्कूल में शिक्षण का माध्यम होनी चाहिए.. अगर स्कूल में उच्चतर स्तर पर बच्चों की घरेलू भाषाओं में शिक्षण की व्यवस्था ना हो तो प्राथमिक स्तर की स्कूली शिक्षा अवश्य घरेलू भाषाओं के माध्यम से दी जाय"। (एन.सी.ई.आर.टी. 2005, पृ. 42) उन विद्यार्थियों के लिए अधिक से अधिक अवसर हो जो अपनी मातृभाषा में पढ़ना चाहते हैं,....चाहे विद्यार्थियों की संख्या कम हो फिर भी अपनी भाषा में पढ़ने के मौके होने चाहिए। (एन.सी.ई.आर.टी. पृ., 76)

दस्तावेज द्वि/बहुभाषिकता को बढ़ावा देने की बात करता है और इस सन्दर्भ में चर्चा भी करता है कि बहुभाषिकता एक समस्या नहीं बल्कि एक संसाधन है| हालाँकि व्यावहारिक रूप से बहुभाषिकता को लागू करने के लिए हर स्तर पर बहुत तैयारी की आवश्यकता है लेकिन यह तो अब काफी स्पष्ट है कि बहुभाषिकता एक ऐसा संसाधन है जो ना केवल बच्चों को भाषा/ओं की बारीकियों को समझने में मदद करता है बल्कि उनको विश्वास मजबूत करता है कि वे जाने पहचाने माहौल में है और सुरक्षित हैं और यही विश्वास उनको कक्षा में सक्रिय भागीदारी करने, शिक्षक व अन्य बच्चों के साथ एक मजबूत व संवेदनशील रिश्ता बनाने में भी मदद करता है| हम यह भली भाँति जानते हैं की ये सभी सीखने – सिखाने कि प्रक्रिया के महत्वपूर्ण पहलू हैं। स्कूल का उदेश्य बच्चों को हर वक्त टोक टोक कर शुद्ध भाषा सिखाने का प्रयास

करना नहीं है, बल्कि यह समझते हुये कि गलतियाँ उनके अधिगम का हिस्सा है उन्हें अधिक से अधिक ऐसे मौके उपलब्ध करवाना हैं, जहाँ बच्चे भाषा से सहज अन्तः क्रिया कर सकें इस तरह वे स्वयं ही धीरे धीरे शुद्ध व मानक भाषा सीख लेंगे। यह उपयुक्त पाठ्यपुस्तकों व पुस्तकालय की उपलब्धता कक्षा में भयमुक्त वातावरण बनाने की, कवितायेँ व कहानियों के कक्षा में अधिकाधिक उपयोग किये जाने की जरुरत पर भी बल देता है | दस्तावेज कहता है कि भाषा पूरी पाठ्यचर्या में विद्यमान है यह भाषा में मूल्यांकन की प्रक्रिया, गलतियों को किस नजरिये से देखा जाय, सीखने सीखने की सामग्री व गतिविधियां कैसी हो इन सब बिंदुओं पर भी प्रकाश डालता है।

भारतीय भाषाओं का शिक्षण पोजीशन पेपर का दस्तावेज ऊपर वर्णित सभी बिंदुओं को थोड़ा और विस्तार देता है और भाषा, शिक्षा, इंसान व समाज के रिश्ते के विभिन्न पहलुओं के बारे में चर्चा करते हुये इन बिंदुओं को समझने की एक दिशा देता है। इस पोजीशन पेपर में भाषा, भाषा की संरचना, मातृभाषा, बहुभाषिता, भाषा और लिपि, भाषा और इंसान का रिश्ता, भाषा और समाज का रिश्ता, भाषा व सत्ता, एक भाषा का अन्य भाषा पर वर्चस्व, भाषा की शुद्धता व मानकीकरण, भाषा व व्याकरण, भाषा का वैज्ञानिक अध्ययन, भाषा व सोच, भाषा शिक्षण, बच्चों की भाषा सीखने की क्षमता, शिक्षकों की तैयारी आदि सम्मिलित हैं| यह शिक्षकों में इन सभी बिंदुओं की समझ हो और इस हेतु उपयुक्त प्रशिक्षण कार्यक्रम बनाए जाय इसकी सिफारिश करता है

हालाँकि यह सब हो कैसे पायेगा, इस हेतु पूरे तंत्र में कहाँ व क्या परिवर्तन करने होंगे, जो इस सोच को पोषित करेंगे, और क्रियान्वित करने में मददगार होगें इस बारें में विस्तृत चर्चा इस दस्तावेज में नहीं हैं। जैसे एक अध्यापक मातृभाषा शिक्षण की अहमियत को समझे, बहुभाषिकता को समझे, बच्चों की भाषा सीखने की सहज क्षमता से क्या तात्पर्य है यह समझे व फिर अपनी कक्षा में बच्चों के साथ भाषा शिक्षण हेतु उपयुक्त गतिविधियां चुन पाए, इस हेतु अध्यापक तैयारी किस तरह की होगी, सन्दर्भ सामग्री कहाँ से आयेगी? प्रशिक्षकों की तैयारी कैसे होगी इन प्रश्नों के बारें में खास चर्चा नहीं है। आज भाषा के शिक्षण में सामान्य कक्षाओं में व शिक्षकों के मन में प्रमुख विचारों का जायजा लेने पर हम NCF 2005 के व उससे जुडे दस्तावेज़ों की सोच को अनुपस्थित पाते हैं तो यह सवाल जरूर उठता है कि इसके पीछे क्या कारण हैं और कैसे प्रयासों की जरूरत है जो इस स्थिति को बदल सकें।'

सन्दर्भ

एन.सी.ई.आर.टी. (2009), भारतीय भाषाओं में शिक्षण पर बने राष्ट्रीय फोकस ग्रुप का पोजीशन पेपर, नयी दिल्ली

एन.सी.ई.आर.टी. (2005), *राष्ट्रीय पाठ्यचर्या की रूपरेखा*, नयी दिल्ली

प्राशिका पाठ्यक्रम, एकलव्य,भोपाल (अप्रकाशित)

Dewan H.K., What does Language Teaching Means? Sewa Mandir News *letter*, Udaipur.

Dwivedi R. Nagda S.S. (2009), What do Teachers think of Language Teaching, *Learning Curve,* issue XIII, October, 2009.

वेब सन्दर्भ

1. ASER(2014) http://img.asercentre.org/docs/Publications/ASER%20Reports/ASER%202014/fullaser2014mainreport_1.pdf
2. भाषा व भाषा शिक्षण: कुछ विचार, एच के दीवान, रमाकांत अग्निहोत्री, होशंगाबाद विज्ञानं बुलेटिन https://www.eklavya.in/pdfs/archives/vigyan_bulletin/Hoshangabad_Vigyan_Bulletin_issue_14.pdf
3. NPE (1968) http://mhrd.gov.in/sites/upload_files/mhrd/files/document-reports/NPE-1968.pdf

4. NCESE (1988) http://www.ncert.nic.in/oth_anoun/NCESE_1988.pdf
5. NCF for 10 year School (1975) http://www.ncert.nic.in/oth_anoun/NCF_10_Year_School_eng.pdf
6. NCF SE (2000) http://www.ncert.nic.in/oth_anoun/NCF_2000_Eng.pdf`

अनुराधा जैन
anuradha.jain@azimpremjifoundation.org

प्राथमिक कक्षाओं मे भाषा शिक्षण एवं अध्यापक की भूमिका: अनुभव का सफरनामा

सार

यह पर्चा बच्चो के साथ अन्त:क्रिया में प्राप्त अनुभवों का विश्लेषण है। अलग जगह पर और अलग-अलग तरह के बच्चों के साथ हुए अनुभव यही दिखाते है कि भाषा सीखने में सवांद के महती भूमिका है। इस सवांद के आधार पर शिक्षक को चितंन- मनन कर उसके आधार पर कुछ लचीले क्रम में प्रक्रियायों का संचालन करना सीखने को प्रखर बनाएगा। इसमें कुछ गतिविधियों के व आंकलन के ढंग के संदर्भ में भी कुछ सुझाव दिए गए हैं, जो शिक्षकों के लिए उपयोगी हो सकते हैं।

बच्चों के साथ काम करते समय कई तरह के उदाहरण सामने आते है। ये उदाहरण शिक्षक को आत्म-अवलोकन एवं चिंतन के अवसर प्रदान करते हैं। जिसके माध्यम से अध्यापक सीखने-सिखाने की प्रक्रियाओ मे अपनी भूमिका तय कर पाता है। कुछ उदाहरण है-

शिवा टीचर-

कई दिनों तक नौ साल के नन्हे अरमान को चित्र बनाते हुए नए शब्द लिखते हुए देख रही थी। मुझसे रोज दो कागज ले जाता था। एक दिन मैंने पूछ ही लिया, क्या बात है, अरमान आजकल तो तुम रोज नए-नए शब्द लिखकर उनके चित्र बनाकर लाते हो। तुम इतना सब कैसे सीख रहे हो? अरमान ने कहा - शिवा मेरा पक्का दोस्त है, हम दोनों एक-सा चित्र बनाते है, फिर उनके नाम लिखते हैं। आपकी तरह वह भी मुझे पढना लिखना सिखाता है। क्या वह भी मेरा टीचर है? मैंने, कहा हो सकता है, अगर तुमको लगता है तो, शिवा और अरमान कक्षा तीसरी मे पढ़ते हैं। अरमान के लिए शिवा उसका पक्का दोस्त भी हैं, और शिवा टीचर भी है। इस तरह की दोस्ती कई और बच्चों में भी दिखी।

बच्चों की सरकार-

कक्षा तीसरी में बच्चों से चर्चा के दौरान, बच्चों से एक पेचीदा सवाल पूछा गया- कि यदि बच्चों की सरकार बने और आप उसमें रहें तो आप क्या काम करवाओगे, कई तरह के जबाब बच्चों ने दिए, गरीब बच्चों के लिए स्कूल खुलवाना, बच्चों को उनके अधिकार दिलवाना, देश से कालाधन खत्म करना, इत्यादि। धनेषा ने जबाब दिया कि वह स्कूल मे डिज़ाईन बनवाएगी, जिनमे कविताएँ हो, सुन्दर चित्र हो। क्यूँकि सुन्दर स्कूल अच्छा लगता हैं। चित्र हम देख सकते हैं, कविताएँ हम पढ़ सकते है।

मानसी की चित्रों की दुनिया:

कक्षा तीसरी की मानसी की दुनिया बड़ी रंगबिरंगी है। वह कई चित्र बनाती है एवं शादी के कार्ड, मोती, आदि चीजों को बड़े सलीके से संयोजित करती है। उसने अख़बारो के चित्र काटकर, चीजों के चित्र बनाकर लेबिलिंग के माध्यम से भाषा के साथ अपना रिश्ता कायम किया।

1. बच्चों के सीखने मे शिक्षक की भूमिका

तीनों उदाहरण तीन बच्चों के सीखने के अलग-अलग तरीकों को परिलक्षित करते है। पहला उदाहरण इस ओर इशारा करता है, कि बच्चे अपने दोस्तों की मद्द से सीखने का रास्ता आसान बना लेतें हैं। दूसरे उदाहरण में बच्ची विद्यालय को संवाद विहिन सख्त अनुशासन मे बँधे केवल भवन के रूप मे नही देखती वरन् वह भौतिक संवाद के अवसर तलाश रही है। तीसरे उदाहरण में बच्ची अपनी ही दुनिया मे मग्न रहकर अपने तरीके से सीख रही

है। इन उदाहरणों से एक बात स्पष्ट है, कि बच्चे सीखने के रास्ते खुद ही तलाश लेते हैं। इन प्रक्रियाओं मे शिक्षक एक उत्प्रेरक की तरह कार्य करते हैं, जो बच्चों के अनुभवों को समृद्ध बनातें हैं एवं समझ के स्तरों को विकसित करने मे मदद करते हैं। इस प्रकार के उदाहरण शिक्षक के समक्ष तभी आ सकतें हैं, जब वह बच्चों को स्वच्छंद रूप से अपनी बात रखने के अवसर दें, बच्चों और शिक्षक के बीच एक दोस्ताना रिश्ता हो, बच्चों के बीच शिक्षक की सकारात्मक छवि हो और जो बच्चों के बालमन को समझने के लिए तत्पर हो। संभवतः इसके लिए शिक्षकों को बच्चों की आपसी दोस्ती एवं रचनात्मक अभिव्यक्ति को खुलेपन और संयम के साथ कक्षा मे स्थान देना चाहिए। जिससे प्रक्रियाओं को प्रभावी तौर पर सुनिश्चत किया जा सके। इन आधारों पर यदि भाषा-शिक्षण के कार्य को प्रक्रिया के रूप मे डालकर देखा जाए तो इस प्रकार के कुछ चरण सामने आते है-

2. बच्चों के भाषा सीखने की प्रक्रिया में चरण

अ. संवाद को सहज एवं प्रभावी प्रक्रिया के तौर पर अपनाना- बच्चा परिवेश से सीखता है, यह एक प्रतिस्थापित तथ्य है। परिवेश मे कई समाजिक समीकरण काम करते हैं। शिक्षा में सिर्फ़ विषयों के शिक्षण की बात नही की गई, बल्कि इसमे चिंतनशील संवेदी नागरिक बनाने पर भी जोर दिया गया है। समाज मे लोकतांत्रिक मूल्यों के विरोधाभास भी मौजूद हैं, जिनकी उसके समाज मे गहरी पैठ है जैसे जातिगत भेदभाव का मसला, इत्यादि। बच्चे भी इन्ही मान्यताओं के साथ विद्यालय आते हैं। शिक्षक संवाद के माध्यम से जान पाता है कि किस तरह के विचार उसे प्रेरित करते हैं। उन प्रेरित विचारों पर सवाल खड़े करना एवं स्वयं तर्क निर्माण करते हुए निर्णय ले पाने की क्षमता का विकास बच्चों मे संवाद के माध्यम से शिक्षक कर पाता है। यह संवाद की परिपाटी सिर्फ शिक्षक और बच्चों तक सीमित नही है। इसमे बच्चों के आपस के संवाद भी शामिल हैं। उनकी दोस्ती एवं दोस्तों से सीखना भी शामिल है। दोस्तों से बातचीत करना भी एक तरह का समाजीकरण है। जो बच्चे के सीखने की प्रक्रिया का हिस्सा है। सामाजिक वार्तालाप (इंटरेक्शन) से सीखने की प्रक्रिया का उल्लेख वायगोस्तकी द्वारा दिए गए सीखने के सिद्धांतो मे भी मिलता हैं। जिसकी झलक राष्ट्रीय पाठ्यचर्या की रूपरेखा-2005 मे भी दिखती हैं। संवाद की संस्कृति कक्षा-कक्ष में पाठ्यचर्या तक सीमित ना हो बल्कि अनौपचारिक तौर पर भी संवाद हो ताकि बच्चों के बारे मे जानकारियॉ मिल सकें।

ब. संवाद के बिंदुओ पर अवलोकन एवं चिंतन- बच्चों के साथ हो रहे संवाद का सिर्फ होकर गुज़र जाना काफ़ी नही होता। शिक्षक का डायरी मे उनको दर्ज करना, उनका अवलोकन करना एवं उन पर गंभीरता से विचार करना भी प्रक्रिया का जरूरी हिस्सा है। ताकि विचारों को एक दिशा में पिरोकर देखा जा सके। उदाहरण के लिए कक्षा तीन मे शुभम् के पिताजी की स्टेशनरी की दुकान है, इसी प्रकार सानिया के पापा की मिठाईयों की दुकान है, दिव्यांश के मम्मी एंव पापा छपाई का काम करते है। इन सारी बातों को क्या विषय से जोड़ा जा सकता हैं। किन तरीकों से इन जानकारियों को शामिल किया जाना है? विषय की अपेक्षित दक्षताओं को हासिल करने मे बच्चें की सार्मथ्यताओं का प्रयोग कैसे किया जा सकता है? निरंतर चिंतन एवं आत्म-अवलोकन से प्रक्रियाओं पर विचार करके उन्हे ज्यादा प्रभावी बनाया जा सकता है।

स. सीखने की प्रक्रियाओ का निर्धारण एवं क्रियान्वयन- भाषा में ध्वनियों के अमूर्त पैटन की खास व्यवस्था है। जिसका अपना महत्व होता है। परन्तु भाषा सीखने के लिए भाषा के साथ बच्चों का जुड़ाव भी होना चाहिए। भाषा के साथ जुड़ाव तभी होगा, जब विषय-वस्तु बच्चों के अनुकूल हो एवं भाषा की समझ विकसित करने के तरीके सहज एवं प्राकृतिक हों।

प्रक्रियाओं मे संवाद एवं अवलोकन से निकाली गयी बातों को भी शामिल करके बच्चों को भाषा से जोड़ा जा सकता हैं। प्रक्रियाओं के क्रियान्वयन से पूर्व एक खाका हो, जिसमें कुछ स्पष्ट उद्देश्य हो, कार्यविधियाँ हों जो बच्चों के अनुकूल हों और मोटे तौर पर यह भी शामिल हो कि हम किन अपेक्षित दक्षताओं को विकसित करने के लिए प्रक्रियाएँ अपना रहें हैं। जिसके आधार पर कार्ययोजना बनायी जा सके, जिसमे लचीलापन भी हो। कार्यविधियों मे बच्चों की रूचियों जैसे चित्र बनाना, अभिनय करना, लेखन अपनी स्वयं की किताब बनाना, आदि को अवधारणाओं के निर्माण करने मे शामिल किया जा सकता है। प्रक्रियाओं के क्रियान्वयन से पूर्व यह सुनिश्चित करना बेहतर होता है, कि उस विद्यालय मे बच्चों के साथ कौन-सी गतिविधि करवाना उचित होगा। उदाहरण के तौर पर साँगानेर के बच्चों को रंगाई-छपाई की अच्छी जानकारी है, समृद्धि बाजार है, आस-पास कई मंदिर व कुछ मदरसे है। साँगानेर के बच्चों के लिए, दुकान के सामानों की सूची बनवाना, आस-पास कौन-कौन सी दुकाने है, उनके नाम लिखवाना, किस प्रकार के त्यौहार, डिग्गी यात्रा आदि को शामिल किया जा सकता हैं। कुछ और भी गतिविधियाँ की जा सकती हैं जैसे- मिड-डे मील के अनुभवों, घर के अनुभवों को शामिल करना, सामान्य चर्चाओं की बातों का ब्लैकबोंड पर लिखना, ताकि बच्चे मौखिक भाषा को लिखित भाषा के रूप में सार्थकता के साथ ग्रहण कर सकें।

3. **भाषा शिक्षण के तरीको का निर्धारण-** सीखने के तरीकों का चुनाव ऐसे होना चाहिए कि बच्चों का उत्साह बना रहे। काम की शुरूवात कहानियों, बालगीत एवं सामान्य विषयों पर चर्चा से की जा सकती है। कृष्ण कुमार जी की पुस्तक 'बच्चे की भाषा और शिक्षक' मे सुझाया गया है कि किस प्रकार की कहानियों पर बच्चों के साथ काम किया जाना चाहिए। बच्चों की रूचियों को समझना जैसे अक्सर बच्चों को चित्र बनाने मे खासी रूचि होती है और वह चित्रों के माध्यम से अर्थ निर्माण का प्रयास भी करते हैं। उनकी इस रूचि को समझते हुए उनको भाषा से जोडने का प्रयास किया जाए तो परिणाम बेहतर हो सकते हैं। जैसे कि बनाए चित्रों की व्याख्या, अपने पंसदीदा खेल के बारे मे लिखना, चित्रों को बनाना एंव उनके नाम लिखना। यांत्रिक तरीके से कई बच्चे वर्णमाला नही सीख पाते, बच्चों की मद्द के लिए वर्णमाला के चार टुकड़े ब्लैकबोंड (श्यामपट्ट) के ऊपर चिपकाये जा सकते हैं एवं मात्राओं को भी एक जगह चार्ट के रूप मे चिपकाया जा सकता है, इस तरीके का संदर्भ भी कृष्ण कुमार जी की पुस्तक 'बच्चे की भाषा और शिक्षक' में हैं। अरमान नौ साल का बच्चा है, कुछ प्रयासों के साथ उसने अक्षर पहचानना एंव सरल शब्दों को लिखना सीख लिया। गृहकार्य मे भी शब्दो एंव वर्णों की पहचान के लिए चित्रों का सहारा लिया।

पुस्तकालय का भी प्रभावी तरीके से प्रयोग किया जा सकता हैं। कक्षा को दो समूहों मे बाँटकर पुस्तकालय की गतिविधि को ठीक तरीके से किया जा सकता है। सरल किताबों को पुस्तकालय की सूची मे शामिल किया जा सकता है। एकलव्य प्रकाशन की किताबें 'अक्कड़-बक्कड़', 'एक दो दस', 'बिल्लीं बोले म्याँऊ' जैसी सरल एंव कम शब्दों वाली कविताओं की किताबें शुरूआती पाठको में सार्थक रूप में पढने की आदत को विकसित करती है। कुछ बच्चों के लिए दिंगतर की भाषा श्रृंखला जैसे 'सफेद हाथी', 'मूँछे हो तो बुद्धुराम जैसी' आदि का प्रयोग किया जा सकता है इसमें NCERT की Barkha का भी उल्लेख किया जा सकता है। किताबों की सीमित संख्या मे आपसी सहयोग से बच्चें किताबो को साझा करके पुस्तकालय का उपयोग कर सकते है।

4. **आंकलन की प्रक्रियाए-** आंकलन सिर्फ औपचारिक लिखित तौर पर ही नही वरन् अनऔपचारिक माध्यमों से भी किया जा सकता है। बच्चों के व्यवहार से भी कई बाते जानी जा सकती है, जैसे जिन बच्चों को लिखना या पढ़ना आ जाता है, वह बार-बार लिखने एवं पढ़ने का अभ्यास करते हुए दिख जाते हैं। अभिभावकों से बात करने से भी पता चलता है कि बच्चा सीख पा रहा है या नहीं। दैनिक रूप से बच्चों के कार्यो का अवलोकन भी आंकलन का हिस्सा हो सकता हैं। गृहकार्य मे क्या कर पा रहा है एवं क्या नही इसमें भी आंकलन मद्द करता है, और फिर उसके लिए आगे की योजना बनाने में भी। अवकाश के दिनों के लिए कुछ कागजों की खाली किताब बना सकतें हैं और बच्चों से कह सकते हैं, कि छुट्टिया के बाद अपनी किताब दिखाना। कुछ बच्चें सिर्फ चित्र बनाते है, कुछ चित्र के साथ लेबलिंग करते हैं, कुछ कविता भी लिख पाते हैं, और कुछ बच्चे अपने अनुभव लिख पाते हैं। इससे एक अनुमान लगाया जा सकता है कि किस बच्चे के साथ कौन-सी दक्षताओं पर कार्य करना हैं।

विमर्श

एक शिक्षक द्वारा शुरूआती दिनो मे औपचारिक तौर पर पढ़ाने के बजाए, बच्चों के साथ एक दोस्ताना माहौल बनाने एवं उनके परिवेशीय परिपेक्ष्यों को समझने के लिए समय दिया जाना चाहिए। बच्चों के साथ, शिक्षक को भी बच्चों के साथ सहज होने का समय दिया जा सकता है, ताकि वह अपने शिक्षण के उद्देश्य एंव प्रक्रियाओ को तय कर सके। सीमाओ मे सहजता के साथ सीखना एंव सिखाना चुनौतीपूर्ण है। कुछ प्रश्न ज़हन मे रह जाते हैं शिक्षक बच्चो के साथ अपनी छवि का निर्माण क्यों करे और कैसे करे? शिक्षक की सकरात्मक छवि बच्चो के सीखने की प्रक्रिया को कैसे सहज बनाती है? कैसे वह अपनी शिक्षण विधियों मे शिक्षा के लक्ष्यों को शामिल कर सके? सीखना और सिखाना, दोनों में से किसको प्राथमिकता दी जानी चाहिए? इन प्रश्नों मे जबाब शिक्षक अपने अनुभव से ही जान पाता है।

सफर के साथी

1. एन.सी.ई.आर.टी.(2005), *राष्ट्रीय पाठ्यचर्या की रूपरेखा-2005*, नई दिल्ली
2. एकलव्य एवं दिगन्तर की पुस्तकें
3. मुस्कान संस्था के विडियो

वेब लिंक्स

- http://www.hindibookspdf.com/divaswapna-by-gijubhai-badheka-hindi-book-pdf-download/
- https://archive.org/details/BachcheKiBhashaAurAdhyapak-EkNirdeshika
- http://www.ncert.nic.in/departments/nie/dee/publication/pdf/padhne_ki_samajh.pdf

धनंजय कुमार
dhananjay.kumar@azimpremjifoundation.org

तीसरी भाषा (संस्कृत) के अध्ययन-अध्यापन प्रक्रिया के दौरान आने वाली चुनौतियाँ

सार

यह लेख त्रिभाषा फार्मूले के संदर्भ में कक्षा ६ व ७ में पढ़ाई जा रही संस्कृत भाषा की कक्षाओं के अनुभवों के आधार पर लिखा गया हैं। हमारे अवलोकन के अनुसार इन कक्षाओं में न तो विद्यार्थियों कोई रूचि लेतें हैं और ना ही संस्कृात की शिक्षा को कोई महत्व देतें हैं। लेकिन यदि एक शिक्षक अपने काम के अवलोकन के बाद पढ़ाने के तरीके को बदल कर सीखने वालों की भागीदारी बढ़ाने के लिए सरल संवाद और नाटक जैसी प्रक्रियाएं करे और कई तरह के समूहों में इस तरह के काम के मौके उन्हे दे, तो विद्यार्थी धीरे-धीरे कक्षा में रूचि लेने लगते है। निष्कर्ष यह है कि समान क्षमता सीखने वाले बच्चे जोड़ों में अच्छा काम करते हैं। इससे कक्षा में भागीदारी बढ़ती हैं, ऐसा हो पाए इसमें शिक्षक को बच्चों की पृष्ठ भूमि के प्रति सतर्क और संवेदनशील होना चाहिए और उसके आधार पर कक्षा की रचना करनी चाहिए।

भारत में राष्ट्रीय एवं सांस्कृतिक एकजुटता को बनाए रखने के लिए स्कूली व्यवस्था में त्रिभाषा सूत्र को लागू किया गया है। जिसके तहत उत्तर एवं मध्य भारत के विद्यालयों में दक्षिण भारत की किसी एक भाषा या क्लासिकल भाषा संस्कृत को पढ़ाया जाता है। स्कूलों में विद्यार्थियों का तीसरी भाषा से सीधा जुड़ाव नहीं होता है खासकर उन बच्चों को जो पहली पीढ़ी के अध्येता हैं। तीसरी भाषा का समुदाय के साथ सीधा जुड़ाव और उपयोग न होने के कारण बच्चों के साथ शिक्षक को काम करना काफी चुनौतीपूर्ण होता है। खासकर उन बच्चों के साथ जो पहली पीढ़ी के पढ़ने वाले हैं। ये बच्चे कक्षा की गतिविधियों में प्रायः शांत होकर बैठे रहते हैं या फिर किसी दूसरे काम में व्यस्त रहते हैं। कक्षा ६ और ७ में अध्यापन के प्रारंभ में हमने देखा कि कुछ ही बच्चे तीसरी भाषा के अघ्ययन अध्यापन की इस प्रक्रिया में सक्रिय होकर भाग ले रहे थे। शेष बच्चे लगभग मान चुके थे कि इस विषय को पढ़ना मेरे वश की बात नहीं है। कक्षा में वे लोग अधिकांश समय शांत रहना पसंद करते थे। जो शांत न होते वे अन्य काम करते जैसे– खिड़की के बाहर देखना, कलम से डेस्क को खटखटाना, आदि। चूंकि सभी बच्चों के लिए संस्कृत भाषा से यह पहला परिचय था इसलिए उस भाषा में समझ का स्तर सभी के लिए लगभग समान था। जो बच्चे कक्षा में भाग नहीं लेते थे उनका बार–बार ध्यान आकर्षित कराना पड़ता था। कुछ क्षण के लिए वे कक्षा में ध्यान भी देते थे लेकिन उनकी सहभागिता ज्यादा समय तक संभव नहीं हो पाती। कुछ बच्चे कक्षा में इस प्रकार शांत बैठे रहते मानों वे सभी बातचीत को समझ रहे हों। लेकिन जब शिक्षक के द्वारा उनसे संबन्धित प्रश्न पूछे जाते तो वे मौन प्रतिक्रिया देते। इस तरह से पूरी कक्षा में (६०%) मौन की स्थिति थी, जो किसी भी शिक्षक के लिए बेहद चिंताजनक बात हैं।

इस समस्या को समझने के लिए हम दूसरे विषय के कक्षा शिक्षकों के साथ और बच्चों के साथ बैठे। यहाँ पर भी हमने यही पाया कि जो बच्चे संस्कृत विषय में सक्रिय होकर भाग लेते थे, वही इन विषयों में भी भाग ले रहे थे। सामाजिक विज्ञान और हिन्दी विषयों में कुछ बच्चों की हिस्सेदारी जरूर अधिक थी लेकिन अँग्रेजी, विज्ञान और गणित में स्थिति संस्कृत जैसी थी। हमने ऐसा कर उन बच्चों को पहचाना जो सभी विषयों की कक्षाओं में हिस्सेदारी नहीं कर पा रहे थे।

भाषा को सीखने में भाषा के प्रति अभिप्रेरणा की महत्वपूर्ण भूमिका होती है। इसके लिए हमने उनकी व्यक्तिगत रूचि को समझने का प्रयास किया। जो बच्चे सक्रिय होकर भाग नहीं लेते थे, उनका शौक बकरी पालना, कुत्ता पालना, मछली पकड़ना और पेड़ पर चढ़ना आदि था और वे विद्यार्थी जो कक्षा में थोड़ा बहुत सक्रिय रूप से भाग लेते वे बैंक में काम करना, बड़ा आदमी बनना, अधिक पैसा कमाने का शौक रखते थे। जब शिक्षक के द्वारा विद्यार्थियों से यह पूछा गया कि आप इस भाषा को क्यों पढ़ना चाहते हैं, तब अधिकांश बच्चों का जबाब था कि चूंकि यह पाठ्यक्रम में शामिल है इसलिए इस भाषा को पढ़ेंगे। इसका तात्पर्य था कि इस भाषा को सीखने के लिए उनका अभिप्रेरणा स्तर केवल कक्षा तक सीमित था।

शिक्षक के द्वारा अपनी शिक्षण विधि, पाठ्यपुस्तक और कक्षा-कक्ष गतिविधि एवं प्रबंधन को समझने का प्रयास किया गया। शिक्षक के द्वारा स्वंय की शिक्षण विधि के अवलोकन करने पर ज्ञात हुआ कि शैली वही पुरानी है जिसमें परंपरागत तरीके से व्याकरण शिक्षण एवं अनुवाद विधि के द्वारा पढ़ाया जाता रहा है। इस विधि से कुछ विद्यार्थी तो समझ पा रहे थे लेकिन अधिकांश बच्चों के लिए सीखना एक बड़ी चुनौती थी। अधिकांश बच्चे न समझने के कारण चुप रहते थे और धीरे धीरे उनका इस विषय से मोहभंग होना प्रारंभ हो गया। उदाहरण के लिए जब हमने बालक शब्द के रूप को सातों विभक्ति में बताया तो तीस विद्यार्थियों की कक्षा में मात्र पाँच विद्यार्थी इसको समझे। बारह विद्यार्थी इस रूप को रट गए और शेष तेरह न तो समझ पाये और न ही रट सकने में समर्थ हुए। इसी प्रकार जब हमने धातु रूप को तीनों लकारों में इस विधि से पढ़ाया तो परिणाम इसी प्रकार का आया। कुछ ही बच्चे समझ रहे थे, शेष बच्चे रट रहे थे। जब परिणाम ठीक ठाक प्राप्त नहीं हुआ तो शिक्षक ने शिक्षण विधि में बदलाव किया। अब परंपरागत तरीके से रूप को समझने के बजाय हमने वाक्यों में इसको प्रयोग किया। जैसे– किसी कहानी से किसी खास विभक्ति और लकार को बच्चों के साथ समझाया। इसमे पहले की तुलना में विद्यार्थियों की रूचि भी बढ़ी और इसमें अधिक संख्या में वे शामिल भी हुए। उन्होंने इस पाठ को पढ़ने के बाद इस विषय पर आपस में चर्चा की और इसपर एक नाटक तैयार कर प्रस्तुति की। यहाँ पर उन्होंने नाटक के संवाद को अपने मन से तैयार कर प्रस्तुत किया। नाटक को तैयार करने से सभी बच्चों को इसमे रोल मिला जिससे सभी की रुचि इसमें बढ़ी। स्वंय उसमे हिस्सा लेने से उनके अभिप्रेरणा का स्तर बढ़ा और आगे वे स्वयं उसमें भाग लेने लगे। साथ ही कुछ संवाद बोलने से उनमें आत्मविश्वास भी जगा जिसके कारण वे इस भाषा का प्रयोग और अधिक करने लगे। नाटक के साथ साथ कविता एवं सूक्तियों पर समूह में विभक्त कर उनको काम करने के लिए दिया गया जिसमें उनको कविता के अर्थ को समझना, उसको अपनी लय में वाचन करना और प्रस्तुति देना शामिल था। इस काम में सभी की हिस्सेदारी होती थी।

शिक्षण विधि में परिवर्तन के साथ शिक्षक ने पाठ्य पुस्तक को समझने का प्रयास किया। छत्तीसगढ़ में संस्कृत विषय की पाठ्यपुस्तक में शामिल अधिकांश अध्याय उनके परिवेश से जुड़े हुए नहीं थे। अध्याय में शामिल विषय धार्मिक स्थान, तीर्थ स्थल, सदाचार और नीतिपरक शिक्षा से संबन्धित थे। इन सभी विषयों से विद्यार्थियों का प्रत्यक्ष जुड़ाव नहीं था। पाठ में शामिल अध्याय के लेख लंबे थे और उनके वाक्य भी लंबे लंबे और बेहद पेचीदा थे।व्याकरण के दृष्टिकोण से भी पाठ इतने जटिल थे जो विद्यार्थी की उम्र के स्तर के अनुकूल नहीं थे। जैसे– संस्कृत भाषा में तीनों लिंगो के अनुसार वाक्यों के लिए अलग अलग शब्द प्रयुक्त होते हैं। इन सभी को समझना एक विद्यार्थी के लिए मुश्किल दिख रहा था, इसलिए हमने इसके स्थान पर छोटी छोटी और मनोरंजक कहानियों का चयन किया। इन कहानियों के वाक्य छोटे होते थे और उनकी वाक्य संरचना भी जटिल नहीं थी। उनके परिवेश और अनुभव को व्यक्त करने का इन कहानियों में पर्याप्त अवसर था। इसके साथ ही शिक्षक के द्वारा उनको हिन्दी भाषा और अँग्रेजी के शब्दों को इस्तेमाल करने को कहा गया। जैसे– "सः छात्रावासे निवसति" की जगह पर "सः हास्टले रहती" जैसे वाक्यों का प्रयोग विद्यार्थियों के द्वारा किया जाने लगा। इसका परिणाम यह हुआ की

सभी विद्यार्थियों को कक्षा की प्रक्रिया में शामिल होने का अवसर मिला। जो विद्यार्थी कक्षा में शांत बैठते थे अब उनकी सहभागिता कक्षा में इस कारण से काफी बढ़ गयी। इसी प्रकार उन्हें लिखने के लिए भी अपने जीवन से जुड़ी हुई छोटी छोटी घटनाओं, अपने विचारों आदि को बताने के अवसर प्रदान किये गये। इस सब को वे सहजता से लिख पातें थे।

कक्षा में सभी विद्यार्थियों की समान रूप से हिस्सेदारी काफी महत्वपूर्ण होती है। जैसा कि हमने प्रारंभ में कक्षा में पाया था, कुछ ही बच्चों की हिस्सेदारी इसमें संभव हो रही थी। शिक्षक के द्वारा पूछे गए प्रश्नों का उत्तर चार–पाँच विद्यार्थी ही बार-बार त्वरित गति से देते थे, इससे अन्य विद्यार्थियों को सोचने का समय भी नहीं मिलता। इस समस्या से बचने के लिए हमने कक्षा में पाँच-छः समूहों का निर्माण किया और त्वरित उत्तर देने वाले विद्यार्थी में से एक एक को पांचों समूह में रखा। सभी समूहों को अलग-अलग कार्य प्रदान किये गये। प्रारंभ में समूह में यह देखने को मिला कि जो विद्यार्थी त्वरित गति से काम को करते थे, वही विद्यार्थी यहाँ पर भी कार्य को कर देते। समूह के अन्य लोगो की कार्य में भागीदारी कम होती। फिर शिक्षक के द्वारा प्रत्येक समूह को तीन प्रकार से कार्य करने को कहा गया, जैसे– एक विद्यार्थी चर्चा के बिन्दुओं को नोट करेंगें, एक विद्यार्थी बड़े समूह में प्रस्तुतीकरण देगा। जो विद्यार्थी त्वरित उत्तर देते थे उनको समूह कार्य के संचालन की जिम्मेदारी दी गयी। फिर भी प्रत्येक समूह में एक दो विद्यार्थी ऐसे होते थे, जिनकी भागीदारी अभी भी कम थी। इसके लिए शिक्षक ने अब दूसरे काम को दो-दो विद्यार्थियों की जोड़ी बनाकर दिया। जोड़ी बनाते समय इतना ध्यान रखा गया कि जोड़ी उन्हीं दो के बीच हो जो कक्षा में भागीदारी बिलकुल नहीं करते। इससे उनको काम करने की आदत पड़ी, क्योंकि उनको भी समय पर काम को सौंपना था। हालांकि उनके लिए सवालों के कठिनता स्तर को काफी कम रखा गया। कभी–कभी जोड़ी का निर्माण शीघ्र गति से काम करने वाले और समय लेकर काम करने वाले लोगों को मिलाकर किया गया, लेकिन यहाँ पर भी वही विद्यार्थी मुखर होते जो काम को शीघ्र गति से करते थे। इसके साथ ही उनमें ज्यादा जानने की भावना भी उभरने लगी। दूसरी तरफ समय लेकर काम करने वाले विद्यार्थियों में हीनता का भाव बोध उत्पन्न होने लगा। लेकिन समान स्तर के जोड़ी निर्माण से सबको समान काम करने का अवसर मिलता था। साथ ही शिक्षक के पास समय लेकर काम करने वाली जोड़ी के पास मदद करने के लिए पर्याप्त अवसर भी मिल पा रहा था। इस प्रकार यहाँ पर तीन स्तर पर काम को सम्पन्न किया जाता। पहला बड़े समूह और शिक्षक के बीच अंर्तसंवाद होता था, दूसरा छोटे छोटे समूह का निर्माण और तीसरा जोड़ी स्तर पर काम किया जाता था। इस प्रक्रिया में सभी विद्यार्थियों की समान हिस्सेदारी होती थी। इस प्रक्रिया का परिणाम यह निकला कि जहां पर प्रारम्भ में कक्षा में कुछ ही बच्चे सक्रिय होकर भाग ले रहे थे वहीं अब सारे विद्यार्थियों की समान रूप से सहभागिता हो रही थी। साथ ही सभी को एक दूसरे से सीखने का अवसर मिल रहा था। इसमें सभी बच्चों की अपनी अपनी ज़िम्मेदारी थी जिसका निर्वहन करने के लिए सारे विद्यार्थी तैयार रहते थे।

इस प्रकार से शिक्षक के द्वारा विद्याथियों की सामाजिक, पारिवारिक और शैक्षणिक पृष्ठभूमि को समझते हुए उनके साथ कुछ गतिविधियां की गयी जो उनके अनुकूल और स्तरानुरूप थी। इसके माध्यम से कक्षा के अधिकांश विद्यार्थियों की रूचि विषय में पढ़ने की तरफ हुई। इस दौरान हमने पाया कि किसी भी कक्षा में विषय को पढ़ाने के पहले विद्यार्थियों के पारिवारिक और सामाजिक पृष्ठभूमि को समझना एक शिक्षक के लिए बहुत जरूरी होता है। वर्तमान समय में कक्षा में सभी वर्ग के बच्चे पढ़ते हैं। जो विद्यार्थी पहली पीढ़ी के अध्येता है उनके सीखने पर उनके परिवार का असर थोड़ा जरूर पड़ता है, लेकिन शिक्षक यदि थोड़ा भी सचेत होकर उन विद्यार्थियों के लिए प्रयास करे तो बदलाव निश्चित ही संभव है। इस दौरान हमने यह भी महसूस किया कि जो बच्चे विषय के अध्ययन में थोड़ा समय ले रहे थे वे अन्य गतिविधियों में काफी आगे थे। एक शिक्षक के लिए यह जरूरी है कि बच्चों की रुचि और विषय की प्रकृति को समझते हुए कक्षा में ऐसी गतिविधि को जा सके जो

सभी बच्चों के लिए अनुकूल हो। इस अध्ययन में हमने पाया की बच्चों के किसी विषय को सीखने में अभिप्रेरणा की महत्वपूर्ण भूमिका होती है, और इसे बनाए रखने में परिवार के सदस्यों से ज्यादा जिम्मेदारी एक शिक्षक की होती है।

संदर्भ

1. एन.सी.ई.आर.टी.(2005), *राष्ट्रीय पाठ्यचर्या की रूपरेखा-2005*, नई दिल्ली
2. एन.सी.ई.आर.टी.(2006), *भारतीय भाषाओं का शिक्षण, राष्ट्रीय फोकस समूह का पोजीशन पेपर*, नई दिल्ली
3. सुसांत गुणतिलक (2000), *पंगु मस्तिष्क: शिक्षा पर औपनिवेशिक संस्कृति का दबाव*, ग्रन्थ शिल्पी

जय शंकर चौबे
jay.chaubey@azimpremjifoundation.org

जरुरी है बच्चों से बातचीत

सार

बातचीत एक ज़रिया है जिसके माध्यम से बच्चों की कल्पनाओं और सोच को विस्तार दिया जा सकता है। बातचीत से बच्चों को अभिव्यक्ति के मौके तो मिलते हीं हैं साथ ही उनके अन्दर एक आत्मविश्वास भी बढ़ता है। पढ़ने-लिखने के लिए भी एक ज़मीन तैयार होती है। बच्चों के पूर्व अनुभवों को कक्षा में तवज्जो मिलने पर सीखने की गुंजाईश काफी बढ़ जाती है। सीखने का एक सरल सा मतलब यह भी होता है कि उनके अनुभवों का विस्तार हो

यह निर्विवाद सत्य है कि भाषा का ज्ञान मौखिक उच्चारित भाषा से ही प्रारम्भ होता है और बच्चा इसे सुनकर, बोलकर सीखता है। हम अपने दैनिक जीवन में मौखिक भाषा का ही अधिकाधिक प्रयोग करते हैं। स्कूली दिनचर्या में प्रवेश के समय एक बच्चे के पास मौखिक भाषा के रूप में एक अनुभव जनित पूंजी होती है। यानि यह स्पष्ट है कि भाषा शिक्षण की कक्षा में बातचीत की प्रक्रियाओं पर ध्यान देना होगा ताकि बच्चे सही व विवेकपूर्ण रूप से सुन सकें और प्रभावी रूप से अपनी बात रख सकें। बातचीत पढ़ना-लिखना सीखने के बुनियादी कौशलों को आधार देती है, साथ ही हमारे सोचने के तरीकों में भी धार लाती है।

हम सब अपने दैनिक जीवन में बातचीत करते रहते हैं। बातचीत के जरिये हम एक दूसरे को जानने समझने की कोशिश करते हैं। शैशवावस्था के दौरान अधिगम का एक महत्वपूर्ण ज़रिया होता है, बातचीत। यहाँ हम बच्चों के साथ भाषा की कक्षा में होने वाली बातचीत की प्रक्रियाओं व इसकी जरूरतों को रखने की कोशिश करेंगें।

कक्षा में बातचीत के उद्देश्य:

कक्षा में औपचारिक बातचीत का मतलब किसी निश्चित उद्देश्य के साथ बातचीत करना होता है।

- बातचीत के जरिये हम बच्चों को अभिव्यक्ति के मौके देते हैं इससे उनके अन्दर एक आत्मविश्वास बढ़ता है साथ ही पढ़ना-लिखना, सीखने के लिए एक ज़मीन भी तैयार होती है।
- बातचीत के जरिये बच्चों में पढ़ने-लिखने के स्वस्थ कौशल के विकास की गुंजाईश उभरती है।
- धीरे-धीरे इस बातचीत से लेखन भी विकसित होता है।
- इससे शिक्षक व बच्चे के बीच की दूरी कम होती है। शिक्षक–विद्यार्थी के रिश्ते को यदि मधुर व मजबूत बनाना है तो कक्षा में बातचीत एक आवश्यक प्रक्रिया के रूप दिखाई देती है।
- इससे शिक्षक को बच्चों के बारे में नज़दीक से जानने के मौके मिलते हैं।
- बातचीत आकलन का एक अच्छा टूल (उपकरण) भी है। यानी बातचीत के दौरान सामने वाले की प्रतिक्रिया से उसके सोचने समझने के बारे में पता चलता है। उसके विचार का स्तर एवं सोचने की दिशा क्या है? वह बातचीत के अंश को कैसे रिलेट कर रहा है इत्यादि।

बातचीत के बारे में मान्यताएं :

शिक्षक साथियों से बातचीत के दौरान अक्सर सुनने को मिलता है कि बातचीत तो बच्चे आपस में करते ही रहते हैं। जरुरत है ध्यान से पढाई करने की। अक्सर बातचीत को शोरगुल या गप का पर्याय माना जाता है। शायद इसीलिए कक्षाओं में 'बातचीत' को तवज्जो नहीं मिल पाती है। दूसरी ओर, बातचीत के बारे में ऐसी मान्यताए हैं कि बच्चों में सुनने–बोलने की दक्षता प्राकृतिक रूप से मौजूद

है। इस पर काम करने या ध्यान देने की जरुरत नहीं है। यह स्वतः विकसित होती रहेगी।

ऐसा आभास होता है कि हम आस-पास की चीजों के विषय में निर्णयात्मक तरीके अपनाने के आदी हैं। कई बार यह भी लगता है कि चीजों को सही रूप में उभारने के लिए बच्चों के समक्ष सही सवाल रखना जरुरी होता है। यह किसी चीज को समझने में या बातचीत को आगे बढ़ाने में मददगार होता है। हम अक्सर पारिभाषिक शब्दावली या मानकात्मक अर्थ की कसौटी पर खरा उतरने पर ज्यादा जोर देते हैं। इससे भी कक्षा में बातचीत को उचित स्थान नहीं मिल पाता है। जब शिक्षक भाषा सिखाने की बात करते हैं तो पढ़ना-लिखना सिखाना यानि प्रतीकों की पहचान या प्रतीकों/लिपि को लिखने का अभ्यास एक मुख्य चुनौती के रूप में उभर कर सामने आता है। सरकारी स्कूल हों या तथाकथित अच्छे स्कूल की उपाधि प्राप्त प्राइवेट स्कूल, बातचीत की औपचारिक प्रक्रिया कक्षा शिक्षण में शामिल कम ही दिखती है।

हमें यह देखना होगा कि कक्षा में बच्चों के साथ बातचीत और अन्य परिवेश में होने वाली बातचीत में थोड़ा फर्क है। कक्षा के बाहर होने वाली बातचीत अनौपचारिक होती है। इसमें सामान्यतः एक तरह की बातचीत में दूसरी बात भी शामिल होती रहती है। एक विषयवस्तु पर व्यवस्थित बातचीत कम हो पाती है। पर इसकी भी अपने आप में महत्ता है। यदि हम सहजता के साथ अपने आसपास में आपस में होने वाली बातचीत का अवलोकन करें या मिसाल के तौर पर साहित्य में जैसे 'ईदगाह कहानी में हामिद और उसके दोस्तों के बीच होने वाला वार्तालाप' इसके बेहतर उदाहरण के रूप में मिल सकते हैं। दूसरी तरफ कक्षा में बातचीत का मतलब भाषा शिक्षण की दृष्टि से एक व्यवस्थित एवं सायास प्रयास से है। इसमें किसी एक विषयवस्तु पर या विषयवस्तु के ज़रिये भाषा शिक्षण के कौशलों को विकसित करने का प्रयास करते हैं। सांकेतिक उदाहरण के तौर पर आगे उदाहरण संख्या दो देखी जा सकती है। इस उदाहरण में कहानी सुनाकर बातचीत करना साथ में चित्र बनाने और पढ़ने-लिखने के मौके देने का सायास प्रयास दिखता है।

कक्षा में बातचीत की झलक

उदहारण एक, प्रार्थना सभा के बाद बच्चे दौड़ कर या लाइनों में अपनी-अपनी कक्षा में प्रवेश करते हैं। दोनों ही स्थितियों में बच्चे खुश व उत्साहित नजर आ रहे हैं। बच्चों के चेहरे पर बचपन की चमक साफ दिख रही है। लगभग सभी स्कूलों की तरह यहाँ भी भाषा (हिन्दी) कक्षा शिक्षण पहले पीरियड से ही शुरू होता है। एक कक्ष में 16 बच्चे मौजूद हैं। कक्षा पहली–दूसरी में बोर्ड पर लिखे अक्षर पहचानने व लिखने का काम शुरू होता है। दूसरे कक्ष में तीसरी, चौथी व पाँचवीं के 15 बच्चे एक साथ बैठे हैं। इन कक्षाओं में तीसरी कक्षा की भाषा पाठ्यपुस्तक से इमला लेखन करवाया गया और बाद में अपनी–अपनी पाठ्यपुस्तक में दिए अभ्यास कार्य में दिए प्रश्नों के उत्तर लिखने का काम बच्चों को दिया गया।

कक्षा एक में अक्सर बच्चों के शोरगुल के बीच कई बार एक ही आवाज सुनाई देती है। 'बच्चों... शांत हो जाओ'..., अच्छे बच्चे कैसे होते है? फिर सभी बच्चे अपने-अपने मुंह पर अंगुली रखते हैं, कक्षा में कुछ देर तक सन्नाटा छा जाता है। बच्चे अपनी-अपनी कॉपी निकालते हैं। ब्लैक बोर्ड पर कुछ अक्षर/शब्द लिखने का काम होता है। फिर कुछ शोर होता है। पुनः बच्चों को शांत होने के लिए कहा जाता है। फिर बच्चे अपनी कापी में लिखते हैं। लिखे हुए को जांचा जाता है। इसके बाद शिक्षिका द्वारा एक कविता भी करवाई जाती है।

शुरूआती कक्षाओं में लिखना सिखाने पर ज्यादा ज़ोर होता है। फिर भी यह किसी न किसी रूप में चुनौती बना रहता है। ऐसा क्यों होता है? कहीं पढ़ना-लिखना सीखने में मददगार 'बातचीत' की प्रक्रिया को कक्षा में नज़रअंदाज़ तो नहीं कर दिया जाता। आगे बातचीत में यह भी आया कि कभी कभार कविताओं या कहानियों को बच्चों या शिक्षकों द्वारा कक्षा में सुनाने का काम तो किया जाता है पर इस पर पर्याप्त बातचीत नहीं हो पाती है।

उदाहरण दो –कक्षा एक व दो में कुल 21 बच्चे हैं। शिक्षिका ने लालू और पीलू की कहानी सुनाकर उस पर बातचीत की। *'लालू और पीलू' एक मुर्गी व उसके दो चूजों की कहानी है। जिसमें उसका एक चूज़ा (बच्चा)*

जिसका नाम लालू है उसे लाल चीज़ें बहुत पसंद हैं। एक दिन वह मिर्च के पौधे पर लगी लाल मिर्च खा लेता है। मिर्च खाने के बाद जैसा कि आमतौर पर सबके साथ होता है, लालू की भी जीभ जलने लगी। लालू रोने लगा। लालू की मुर्गी माँ दौड़ी आई। उसका भाई पीलू भी घर की ओर भागा और घर में से वह पीले-पीले गुड़ का टुकड़ा ले आया। लालू ने झट से गुड़ खाया और उसकी जलन ठीक हो गयी। अंत में जैसे सभी माँए अपने बच्चे को सीने से लगा लेती है उसी तरह मुर्गी माँ ने भी लालू और पीलू को बहुत प्यार दिया।

इस कहानी पर बातचीत के कुछ अंश इस प्रकार से हैं ..

शिक्षिका : कहानी कैसी लगी ?

बच्चे : अच्छी ईईई

शिक्षिका : कहानी में कौन-कौन थे ?

बच्चे : लालू और पीलू , और मुर्गी,

शिक्षिका: मुर्गी कितने लोगों ने देखी है?

बच्चे : 8 बच्चों ने हाथ खड़े किये।

एक बच्चा : मेरे घर पर आठ मुर्गे हैं। जब कोई लेने आता है तो पापा उसे बेच देते हैं। एक लाल मुर्गा भी है। पापा को इसे बेचने को मना किया है। जब उसे पकड़ने जाता हूँ तो वह कूं-कूं करके दौड़ता है। उसके साथ दौड़ने में मज़ा आता है ...

शिक्षिका: लालू को खाने में क्या पसंद था ?

बच्चे: लाल चीज़े

शिक्षिका: लाल रंग की खाने की और क्या चीज़ हो सकती है ?

बच्चे: सेब, टमाटर, गाजर, अनार, तरबूज़, मिर्च, लीची, बालूशाही, मोतीचूर के लड्डू, कुल्फ़ी, आइसक्रीम, जामुन, गुलाब जामुन, प्याज, बेर, स्ट्राबेरी, जलेबी, इमरती, मक्का, इमली

शिक्षिका: पीले रंग की खाने की चीज़ का नाम बताइए जो आपको पसंद है?

बच्चे: संतरा, आम, केला, लड्डू, टॉफी, नमकीन, बिस्कुट, अंगूर, पपीता, पराठा

शिक्षिका: क्या कभी आपको भी मिर्च खाने के बाद जलन हुई है? यदि है हाँ, तो आपने क्या किया था?

बच्चे: कई बच्चों नें हाथ उठाये और अपने–अपने अनुभव सुनाने लगे। कई बच्चे बोले कि मैम, पानी पी लिया, चीनी खाई, मम्मी नें दो कौर और खाना खिला दिया और ठीक हो गया ..इत्यादि।

शिक्षिका बच्चों द्वारा बताये नामों को सलीके से बोर्ड पर लिखती गयी। शिक्षिका ने इन खाने वाले चीजों पर बाद में भी बात की। कहानी से जुड़ी अपनी पसंद का चित्र बनाने को कहा।

ऐसे कम अवसर मिलते हैं, जहाँ कक्षा में ऐसी बातचीत हो जो पारिवारिक बातचीत का सीधा विस्तार होती हो। ज़ाहिर है दूसरे उदाहरण में बातचीत के पुट दिख रहे हैं।

सुनने–सुनाने के मौके/ गतिविधियाँ

बातचीत के लिए जरुरी है सुनना। सुनना भी एक ध्यान क्रिया है जिसे धैर्य के साथ करना होता है। कक्षाओं में यह देखा गया कि जो बच्चा ध्यान से सुन रहा था वह शिक्षिका के साथ बातचीत में भी शामिल हो रहा था। इसलिए ऐसा लगता है कि यदि हम सुनेगें तो उस बात में या उस विचार के साथ संलिप्त भी होंगे। बशर्ते कि केवल निष्क्रिय श्रोता बनकर न सुनना पड़े। सुनना सिर्फ बच्चों के लिए हीं जरुरी नहीं है बल्कि बड़ों के लिए भी जरुरी है। सुनने का धैर्य हम बड़ों में भी कम होता है। यही कारण है कि जब किसी कार्यशाला में हमें सुनने की जरुरत पड़ती है यानी लगातार एंगेज होंना होता है तो हम उस विचार के साथ एंगेज नहीं हो पाते। क्योंकि इस तरह की बातचीत की प्रक्रिया में शामिल होने के पूर्व अनुभव कम होते हैं।

बातचीत का मतलब सुनना और उस पर सोच कर अपनी प्रतिक्रिया ज़ाहिर करना है। कक्षा में यह देखा गया है कि जो शिक्षक बच्चों के साथ पाठ्यपुस्तक के अलावा भी बातचीत करते हैं, उन कक्षाओं में शिक्षक व बच्चों के बीच एक आत्मीय सम्बन्ध की झलक दिखती है। यदि हम चाहतें हैं कि बच्चों को अभिव्यक्ति के भरपूर मौके मिलें और उनमें एक आत्मविश्वास भी जगे, तो भाषा की कक्षा में कविता/कहानी सुनाना, उस पर बातचीत करना या बच्चों के अनुभवों को सुनने के साथ आस-पास की घटनाओं पर अपनी बात रखने के मौके देना, जरूरी है। कुछ गतिशील

भाव युक्त चित्र हों जिस पर पर्याप्त बातचीत की हों। बाल साहित्य को पढ़ने के मौके दिए पायें। कभी किताब पढ़ कर खुद सुनाना उस पर बातचीत करना इत्यादि मौके भी हमें ढूढ़ने होंगे। इसके लिए शुरूआती कक्षाओं में बातचीत का एक पीरियड भी बनाया जा सकता है। इससे बच्चों को और नज़दीक से जानने समझने का मौका मिलता है और उसके अनुरूप कक्षा में नए क्रियाकलापों को सम्पादित करने में मदद मिलती है|

निष्कर्ष:

इस बात पर भी ध्यान दिया जा सकता है कि स्कूल आने के पूर्व किसी भी बच्चे के अधिगम का महत्वपूर्ण ज़रिया 'बातचीत' होती है। कक्षा शिक्षण में आगे के सफ़र में इसे आधार कैसे बनाया जाय? इस पर विचार करने की ज़रुरत है। बातचीत करके ही बातचीत करना भी सीखते हैं, सोचना भी सीखते हैं। चीजें ऐसी क्यों हैं ? या किसी समस्या का समाधान कैसे होगा इस बात को भी बातचीत के जरिये सहजता से उभारा जा सकता है या समझा जा सकता है। इससे बच्चों की जिज्ञासाओं को भी तवज्जो मिलती है। कक्षा में ऐसी गतिविधियों का आयोजन हो जो 'अनुभव से अधिगम' की प्रक्रिया पर आधारित हों। बातचीत के दौरान बच्चों को अपने अनुभवों को रखने के मौके मिल रहे हों। यदि बच्चों के अनुभवों का इस्तेमाल उनके सीखने में हो यानि उनकी सोच के विस्तार करने में हो तो ज्यादा कारगर व स्वाभाविक अधिगम की संभावना रहती है।

संदर्भ

1. बिटन जेम्स (2006). *भाषा और अधिगम*, ग्रंथ शिल्पी प्रकाशन, दिल्ली
2. एन.सी.ई.आर.टी. (2007). *आकलन स्त्रोत पुस्तक, नई दिल्ली*

Beena Anil

pbeenanil@gmail.com

Teachers' Tasks are the Change Makers in an ESL Classroom – Are you Ready?

Abstract

Teacher's self development programmes have become an essential component for teachers through which prospective teachers gain and prune their knowledge about teaching pedagogy and get practical exposure to convert a normal classroom into experience filled classroom for learners. All teachers have the competence to classes but how many of them can engage with the learners along with their teaching becomes a million dollar question. On the job experiences and continuous learning prepare teachers to contribute for the betterment of learners especially for primary school students. This paper focuses on the importance of teachers' self evaluation approaches to design activities that can be used in the classroom to cater to the need of the English as a second language (ESL) learning community.

1. Introduction

Teachers' impact on student academic achievement is filtered with the significant challenges prevalent in the classroom. The challenges determine the present condition of teachers who are fazed of the exam-mark syndrome. Teachers should be motivated to get a valued based educational outcome in the classroom. Teachers understand their complexities in their job and they should be prepared well before entering the classroom –especially to make a change in the life of each student. The self evaluation process of understanding students and the use of tasks in the classroom from both students and teachers perspective will leave behind a change in students' life.

English as a second language in India enriches one's own language, it enables us to have easy access to modern knowledge and helps us maintain contact and exchange ideas among ourselves within the country and with other countries across the world. English can be taught and learnt in the classroom if teachers use effective teaching methods which include understanding the classroom behavior, relationship between teacher and students, students and students and the level of motivation required in the classroom. These essentialities in the classroom will develop good learning and teaching atmosphere for both teacher and student respectively.

Teachers are important in the classroom and the real success of teachers is the considerable development in the performance of each student day by day. Developing countries like India, propose many steps to bring innovative teaching methods in the classroom by training teachers at all levels. Teaching English as a second language in the classroom needs a lot of focus as learners are apprehensive while learning the language. It is in the hands of the teachers to instill confidence among young learners to learn English confidently, by the way of introducing and designing tasks in the classroom. Task is an important tool for

teachers and it helps them to evaluate students' interest and introspective approach of learning the language effectively.

New methodologies which emphasis the four language skills should be introduced at all the level of school education. These methodologies should make students to acquire and learn the language in various enjoyable ways.

Another aspect to be noted is the need to change the attitudes of a few teachers towards teaching English as a subject. They should understand that English is not only a subject to be memorized but it is a skill to be developed and used by students in various real and reel contexts. This notion will aid them to accompany them by their preparedness to employ new methodologies, approaches and techniques for imparting the four skills in the classroom.

This paper focuses on how learner-centered concept can be applied by introducing tasks and activities in the English learning classroom. This concept will make students to acquire language skills effectively by discovering themselves autonomously.

2. Literature Review

Second language learner interact constructively with the learning environment, both internal (Murphy 1989) and external (Stern 1983). The external environment could be considered to be the learning atmosphere. The internal environment includes the learner's knowledge about language, including cognitive experiential level, belief and values, affective states, cultural background that contribute to language learning as a 'hermeneutical' experience (Murphy 1989). Teachers are the backbone of the classroom and they can design various interesting tasks to make learning interesting for students. In the present era, technology aids teachers to top up their imaginative skills with visual effect. "Media materials can lend authenticity into the class, reinforcing the relationship between the language classroom and the outside world" (Brinton 2001:461). Froehlich (1999) affirms the positive effects of visuals on people, which is also true of present learners:

'Most people prefer and respond more favorably to visual stimuli than to sound only. The learning process today is characterized by being informed and entertained simultaneously through a combination of complementary, easily absorbable signals to our senses… Foreign language education nowadays has to be fun.' (pp. 150-151).

Nunan presumably agrees that tasks are the unit of language teaching as he has called them the ‗central curriculum planning tool' (Nunan 2004: 113). Verdugo and Belmonte (2007) promoted effective listening skills through visual, interactive and reiterative nature of digital stories. Emery (2013) suggests that many current teachers of second language learners have had little substantial overall repertoire of classroom activities that are appropriate for teaching English as a second language. The technology assisted teaching should aim to promote both higher order skills and lower order skills (Scrivener 2007).This paper will help teachers to understand the use of tasks and how they can be used in the classroom to teach English to second language learners.

Task based approach is different from oral-situational and notional-functional approaches, and this approach is not specified to teach the language forms and its related meanings, instead it is taught through 'tasks'. Skehan (1996) defines a task as 'an activity in which: meaning is primary; there is some sort

of relationship to the real world; task completion has some priority; and the assessment of task performance is in terms of task outcome'. Tasks can make teachers and students to believe that language can be learnt through practice and exposure to the language. Krashen (1981) proposed that learners would acquire language when they are exposed to 'comprehensible input' and are motivated to attend to the input. Long (1996) has argued that acquisition is best served when learners participate in the negotiation of meaning (i.e. the process by which two or more interlocutors identify and then attempt to resolve a communication breakdown. However, negotiation of meaning may or may not result in mutual understanding). He also suggested that task-based teaching creates opportunities for learners to 'focus on form' and constitute them to acquire the language.

Other researchers (e.g. Ellis 2003) have suggested that task-based learning is needed to ensure the development of inherent knowledge. Thus, this approach to teaching has gained momentum on a variety of theoretical perspectives. Howatt (1984) has termed it as a 'strong communicative approach'. This approach aims learners to involve and expose to the language so as to involve them in communication in varied situations.

Task based learning (TBL) provides a logical structure that allows students to learn language through tasks. Task based language teaching and learning was originally inspired by Prabhu (1987) in Bangalore, Southern India. It began as a research for teaching English to students in India, for whom English was a second language regardless of the fact that English is an official language used in India for public purposes.

Richard and Rogers (2001:224) have stated that 'language learning is believed to depend on engrossing students not simply in 'comprehensible input' but tasks make them to negotiate meaning and keep in naturalistic and meaningful communication'. This claim strengthens the arguement that task-based language teaching (TBLT) is an approach that distinguishes tasks as the main constituent of the teaching/learning process, allowing the center of the process to be on the task, explanaining the pressure that usually lies on the language itself, letting young learners use the language to communicate and perform the task. Willis and Willis (2001) have argued that task-based language teaching (TBLT) is naturally resulted from the communicative language teaching movement because it is based on similar principles. Beale (2002) has also recommended that Communicative Language Teaching has been an influence in second language teaching for many decades. He emphasizes the importance of communication in the process of learning a language.

Willis (1996) has explained, TBLT should not be considered as mere tasks; on the other side, it should be observed as the core part of a structure to assist researchers and teachers systematize their lesson planning and teaching. This structure consists of three elements: the pre-task, the task cycle and the language focus, which is briefly presented here.

The pre-task phase occurs when the teacher is selecting the topic and the task itself. At this stage, the teacher will introduce the language needed for the task. The type of activities that can be done in this part of the structure vary widely, from recordings of other students while performing the task, power point presentations, written texts to audio stories. All of the above mentioned, intend to, as Willis and Willis (2007) have explained to allow

learners to feel prepared for the task particularly as far as language needed is concerned. The task cycle phases are divided into three sections – the task, planning and report. Learners, in pairs or groups, engage in a task. The task cycle gives learners the chance to use the language, as the teacher only observes the task performed by the learners.

The learners exchange their results and findings with their classmates, as a result a good rapport and opportunity is created to exchange their ideas in their second language. It is during the task cycle that three important conditions for learning a language are set – "exposure, use and motivation" (Willis 1996:40). By this, learners will experience the language as a whole and can develop their language knowledge process. The language focus is the last part of the structure. For the language focus, teachers may record the performance of the learners on the mobile for further development of the communicative skills of their wards. In task based activities, teachers are considered as facilitators for learners in the language learning process. For many decades, the support behind using tasks in the classroom is not meant to learn only the language, but also applied to develop other mechanisms like competence, performance, motivation, attitude, societal responsibility socializing ability, etc.,

3. General Reasons for Introducing Task Based Language Learning

Tasks are helpful as a negotiated syllabus for both teacher and student and also help them to built a healthy interaction. Tasks are very clearly a bonding structure between the teacher and students. Tasks are essential because they

- are the reflection of oneself and others
- mirror the society and the real world
- are the part of syllabus to develop LSRW of the learners
- are learner centric with many value added benefits
- are helpful to explore and observe the situation and learning process in an SLA condition
- make learners to analysis their power of knowing and understanding
- create a mutual understanding between the teacher and students and student with each student
- help learners to have a collaborative learning
- develop active participation even from introvert students

There is no single methodology to teach students especially English as a second language in the classroom. Introducing tasks in the classroom that are laced with real world activities help students to take up social responsibilities and develop their essential LSRW skills. Activities should be interactive in the classroom as they make students to think, write, speak and listen to other students for a better learning atmosphere. This paper focuses on how tasks are helpful for students to use in the language learning and teaching process in the classroom. The researcher conducted a study by using the self- designed tasks with the primary level students as a part of this research.

4. Significance of the Study

The study is conducted to address the importance of tasks in second language learning classroom and it offers an insight into an expanding and interesting conceptualization of English language learning behavior of primary level students. It also offers the possibility of identifying tasks

after examining the level of students' interest, motivation and observation of the surroundings. It is imperative for teachers to update their understanding according to the students' milieu as they are exposed vastly.

The main objective of this research study is to examine the relationship between learning and performing tasks. The study aims to throw light on the English learning aspects of students through tasks and the study addresses one important research question which is

How tasks aid the English language learners to learn English as a second language at the primary school level

5. Research Design

This study employed quantitative and qualitative approaches involving classroom observations, and questionnaires. Observations,and questionnaire were used with the aim of seeking answer to the above research question:

5.1.Research Methodology and Sampling

Fifty respondents were taken for the study from a semi-urban school, Kanchipuram, Tamil Nadu. All the respondents were from Class VIII and they could write and read English as a subject but none of them was confident to use English as a language. The purpose and significance of selecting this school is that this institution is situated on the outskirt of the city and it houses 85% first generation learners. Classroom language enhancing tasks, and questionnaire were used to find out the use of tasks in learning English as a second language in the classroom.

5.2.Classroom Language Enhancing Tasks

The researcher conducted this study with a period of two months with the help of the English teachers employed at the school. Before the distribution of tasks, the respondents were given proper instruction and made the respondents to be comfortable in the classroom. The teachers helped the researcher to make students understand the process of learning English as a skill and not as a subject. The researcher used the following tasks in the classroom and understood that the tasks reaped a good dividend on the respondents' front.

5.2.1.Task in Pairs or Groups

Teachers can decide whether students should work in pair or group or individual performance in the classroom. Tasks help students to learn English in a motivational and experimental way. The researcher has listed a few tasks that help teachers to modify or improvise according to the structure of the classroom.

5.2.2.Find your Pair

- select pictures from newspaper or magazine that have conceptual implication
- cut all the pictures into two pieces and mix them in a bowl
- Instruct each student to take one piece of a picture from the bowl
- After taking half of a picture of their choice, tell them to move around the class to find the other pair of their possessed picture.
- While searching for the other piece of picture, the searcher should ask questions starting with Why, how, what, which, do , can, etc.
- This task helps students to develop questionable skill explicitly.

5.2.3.Fair the Pair

- Teacher should write the name of animals, places or birds on two cards.

- Make pair cards as much as possible
- shuffle all the cards and instruct each student to take one card each
- Instruct each student to write two sentences about the select card
- After writing two sentences about the card, instruct students to move around the classroom to find his/ her partner with similar card
- Once students find their pairs they will discuss with each other about the sentences they have written
- They collaborate their points and be ready to narrate the item on the paired card for a minute

5.2.4.Toss the Ball

- ASR students to form a circle and ask for a volunteer to hold a ball
- Tell students that they play the game of antonyms.
- Now ask the volunteer to say a word 'friend' and then toss it to someone else in the circle
- This someone should answer 'enemy or foe' and toss the ball to another person with another word like 'happy'
- If the ball is missed or the answer is wrong, just go back to the last person who did catch the ball with the correct answer or get help from other students in the circle.

5.2.5.Ease the Tense

- Teacher should divide the class into group of two each
- Use a projector or a card with words denoting tenses (decide present tense or past tense for the first round)
- Two students of a team should stand but not facing each other
- One student of the team should view the projector screen and the other member should be facing the opposite side
- Time can be set. Within one minute ten (present tense) words should be called out by the student who is facing the screen. One after another the partner should give the past tense of each word within the stipulated time
- The team which gets the highest score is declared the winner.

5.2.6. A Word at a Time

- This task helps students to develop pronunciation and vocabulary
- The preparation of the task is 5 – 10 minutes
- File commander on a Smartphone can be used to perform this task
- The teacher can record five words every day with the synonym of the each word
- The recorded words can be sent to the group that is created by the teacher on social media with private settings
- The teacher can instruct students to copy the words
- Teacher can instruct students to keep these words as their parent/ own mobile caller tune
- After a month of practice, students can list out the words to the teacher with correct pronunciation and meaning
- This task will enhance the observational skill of the students
- It will help to improve students' pronunciation and lexical skill

5.2.7.Direct the Movie

This task is interesting but will take

few hours for the teacher or student to make as it requires a Smartphone and movie maker application. The visual impact makes students to involve in learning in a different way.

- The teacher can take photos with concepts on her/his mobile phone.
- After taking required photos, the photos should be arranged and connected in a meaning sequence.
- The teacher can instruct students to interpret the movie in their own way i.e., humorously or socially
- This task helps students to develop their creativity and observational skills
- It will improve their interpretational skill by analysing the movie
- The sentence formation capacity will be improved and teacher's assistance will scaffold their ability to narrate the movie

5.3. Observation of the Tasks

The respondents performed all the tasks with interest and curiosity. The researcher observed the respondents individually and maintained a reflective dairy to understand their progress. The frequency of occurrence of the strategies shows that cognitive 'contextualization' and memorization were the most frequently used strategies in connection with the acquisition of vocabulary. The distribution of cognitive factors (resourcing, repetition, interference) shows that apart from 'being active', formal practice, were high for learning English as a second language at middle school level. Meta cognitive factors show that monitoring others and planning were high in the learning process. The researcher was surprised that a considerable proportion of the respondents could display atleast one of the language skills successfully. A few respondents took longer time to understand and imbibe the concept of the tasks. However, difference in performing time is not necessarily a disadvantage, since research has shown that such difficulties are normal and that with sufficient help from the teacher, students could improve their performing and learning skills. Only 3 respondents expressed their opinion off record that they found tasks to be obstacles to learn English in the classroom. The other respondents felt that tasks could be their stress buster and filled with a fun quotient.

The researcher observed that the respondents were emboldened to learn experiment, ask questions, interact, think, accept, socialize, and create while they perform the tasks with their classmates in the classroom. Further the researcher observed that the respondents were

- Focused on the process rather than the result
- Engaged in their act and were determined to interact with their group mates
- Observed others to communicate with their existing knowledge of vocabulary and meaning
- Able to connect to the real situation and express their notion on various social issues especially while performing the task 'Direct a Movie'.
- Clear about their level of understanding the tasks and the level of difficult to be eroded by seeking help from their counterparts

5.4. Distribution of Questionnaire

After making respondents to perform the self-designed tasks, the researcher distributed a questionnaire (to the same set of 50 respondents) with a five-point Likert scale to understand students' perspective in using tasks in the

classroom.. The questionnaire helped the researcher to find out the mentality of the respondents regarding tasks with survey statements by selecting SDA (strongly do not agree), DA (do not agree), N (neutral), A (agree) and SA (strongly agree). The questionnaire was piloted to ensure that the language was easy to understand for the respondents. The researcher cleared the doubts of the respondents, whenever they required.

The questionnaire consisted of 10 questions. The result of the responses was analyzed and presented here. A five point Likert Scale was used to analyze the score of the respondents.

Table 1: Using tasks in English learning classroom

Item	No	SDA	DA	N	A	SA
Using tasks is helpful in learning English in the classroom	50				7	43
Teacher should create innovative tasks for students to think and express their ideas in english	50			5	10	35
Teacher should have affinity while designing tasks	50				6	44
Tasks should be performed to improve thinking and creative language skills	50			5	10	35
I gain confidence to speak in English when I perform the task successfully.	50			3	10	37
Interesting and relevant tasks will allow me to think widely	50				4	46
Tasks should be focused on varied issues and topics not only related to subject.	50	10	10	07		23
Critical thinking and conceptual related tasks are helpful to develop the thinking process in ESL	50	2	1	2	10	35
Media is helpful to develop English and making me to think widely	50				6	44

This section highlights that the respondents' attitude towards usage of tasks in the classroom was appreciative.

5.5. Analysis of the Questionnaire

The 50 respondents answered the questionnaire after performing a series of tasks. This group, the experimental group, aimed to find out the effective factors of using tasks at the middle school level. The respondents were allowed to think, raise questions, find solutions, and analyze external information that helped them to create a reflective thinking. Reflective thinking facilitated the respondents to develop their basic language skills. The tasks helped the respondents to enhance their learning abilities and competency in language generation. It is evident that school students are capable of developing their critical thinking within the appropriate context, and capable to engage in complicated and complex

processes while performing the tasks. Students wanted their teachers to motivate them and encourage them while using English in the classroom. Teachers are seen as facilitators, coordinating all factors involved in the learning process. Teachers should function as guides and act as feedback providers in order to help the learners to improve their self-assessment ability.

The analysis of the questionnaire has proved that media has become an autonomous learning tool and helped the respondents to adapt to this learning process. The data analysis of the questionnaire has proved that in the present world, mobile and internet has helped this generation students to learn language skills.

6.Recommendation

Teachers are aware that technology is important in making good learning atmosphere and improvised intervention outcomes. Despite this awareness, they know that in the absence of technology, it is possible to work collaboratively and innovatively to inspire the young learners for improving the assessment and intervention practices.

Integrating technology in the class room required different approaches, though the role of teachers is getting changed time by time. Tasks are helpful for imparting education for all level of students. The exchange of ideas and discussion should be encouraged between teacher and students, as a result, a revolutionary approach towards the learning process will happen which will lead to curiosity of learning among learners.

7.Conclusion

Authentic tasks help students to have interaction and develop confidence for learning the language. Teachers can create a well equipped learning atmosphere by designing tasks according to the ability and interest of students. To create a holistic education, teachers are the torch bearers who have uniqueness, subtle thinking, flexibility and a mission to attain success along with their students.

References

- Beale, J. (2002). Is communicative language teaching a thing of the Past? *Babel*. 37(1): pp 12-16.
- Brinton, D. M. (2001). The use of media in language teaching. In Celce-Murcia, M. (Ed.), *Teaching English as a Second or Foreign Language* (pp. 459-475). Boston, MA: Heinle and Heinle
- Ellis, R. (2003). *Task-based language Learning and Teaching*. Oxford: Oxford UniversityPress.
- Emery, H. (2013). *A Global Study of Primary English Teacher, Qualifications: Training and Career Development*. dondon: British Council.
- Froehlich, J. (1999). Language lab - Multimedialab - Future lab. In Hogan-Brun, G. & Jung, U. O. H. (Ed.), *Media, Multimedia Omnimedia* (pp. 149-155). Peter Language Publishers, Frankfurt.
- Howatt, A.P.R. (1984). *A History of English Language Teaching*. Oxford: OUP.
- Krashen, S. (1981). *Second Language Acquisition and Second Language Learning*. Pergamon, Oxford, 1981.
- Long, M.H. (1996).“The role of the linguistic environment in second language acquisition”. *Handbook of Second Language Acquisition*. Eds W.C. Ritchie & T.K.Bhatia, Academic Press, San Diego, CA.

- Murphy, J.M. (1989). Listening in a second language: Hermeneutics and inner speech. *TESOL Canada Journal*. 6(2), 27-44.
- Nunan, D. (2004). *Task-based Language Teaching*. Cambridge, Cambridge University Press.
- Prabhu, N. (1987). *Second Language Pedagogy: A Perspective*. Oxford University Press,Oxford.
- Richards, J. & Rodgers, T. (2001). *Approaches and Methods in Language Teaching*. Cambridge: Cambridge University Press.
- Scrivener, J. (2007). *Learning Teaching* (2nd edn). London: Macmillan.
- Skehan, P. (1996). A Framework for the Implementation of Task-based instruction. *Applied Linguistics*, 17, 38-62.
- Stern, H.H. (1983) *Fundamental Concepts of Language Teaching*. Oxford: Oxford University Press.
- Verdugo, D.R. and Belmonte, I.A. (2007). Using digital stories to improve listening comprehension with Spanish young learners of English. *Language Learning and Technology*, 11 (1): 87-101
- Willis, J. (1996). "A Framework for Task-based learning". *Longman Handbooks for Language Teachers*. Longman.
- Willis, D. & Willis, J. (2001) "Task-based language learning". In Carter, R. and D. Nunan (eds), *The Cambridge Guide to Teaching English to Speakers of other Languages*. Cambridge: Cambridge University Press.
- Willis, D & Willis, J. (2007). *Doing Task-based Teaching*, Oxford: Oxford University Press.

Workshop Report*

'Towards an Inclusive Classroom: Challenges and Possibilities'

The Department of Education (CIE), University of Delhi under the aegis of MHRD-IASE organized a one-day workshop 'Towards an Inclusive Classroom: Challenges and Possibilities' on Tuesday, 21st February 2017. The workshop provided a common platform to in-service teachers and research scholars working in the area of inclusion. The 86th constitutional amendment made education a fundamental right in 2002. Its legal mandate specifying modalities for implementation was enforced through the Right to Education (RTE) Act 2009. This shifted the onus to educate learners from all backgrounds with diverse abilities legally onto the school. A 25% reservation for the children from weaker sections and disadvantaged groups was mandated in the private schools as well. This requires the schools to include of each child not only in terms of providing physical space but meeting her specific individual needs through curricular experiences through inclusive pedagogy.

The workshop envisioned a dialogical interaction on issues of policy to praxis with respect to inclusion. Educators/ experts engaged with policy related issues, developing resources with an inclusive perspective and working with children with different abilities participated. The presenters shared and discussed their experiences, pedagogical insights, materials and resources using several hands-on minds-on activities to make an inclusive classrooms. The workshop had 30 participants and was organized in sessions.

Setting the Stage Prof. Nalini Juneja (Head, Department of School & Non-Formal Education) NUEPA spoke on "The RTE: Challenges and Possibilities for An Inclusive Classroom". She reviewed the background that led to the creation of the act and pointed out that earlier education was placed in the directive principles of state policy (it was a guideline, not a law or rule) and was not a fundamental right. It was later included as a fundamental right making it justiciable and a compulsion on state till elementary education.The 86th constitutional amendment was adopted in 2002 with a major concern regarding the financial burden. The Centrally Sponsored Scheme, Sarva Shiksha Abhiyaan (SSA) included some of the recommendations of the amendment. The amendment yet was not a legal mandate. It was only in 2010 that the RTE Act came into being. The RTE is a framework legislation and each state must make its own rules from a set of model rules developed as a template. For example, for Economically Weaker Section (EWS) quota, under broad directions, states can decide their way of implementation. The legal language of the law 'state may endeavour' to 'state shall provide to all children of 6- 14 years in such manner in which state by law determine' left a lot for the state to decide. She flagged the issue of non-inclusion of children of 0-6 years in the act.She gave a chapter wise introduction to the Act and explained the terminology. Specific parts of the act such as, quality of the teacher, norms for schools, social reform function, child protection function, statutory role

of civil society and removal of exams and oppression due to it, were read together and discussed.

The next session on Encouraging 'Reading' Amongst Learners in Inclusive Settings for Inclusion, had Prof. Anupam Ahuja talking about story reading as an inclusive process. This required accessiblity in terms of comprehension and scope for imagining the story or what is being read. She spoke about the significance of story books for introducing reading and cutting across the age of the listeners everyone enjoyed them. She emphasised the NCERT resolve to make common reading material accessible to all children. NCERT wants that no child is blamed for not reading due to lack of good reading materials. For this Barkha series has been specially formulated for classes I and II. 'Barkha Series' and other books of the series were circulated amongst the participants. She added that the aim of the Department of Education of Groups with Special Needs in NCERT is to prepare 'textbooks for all' irrespective of any particular disability. The vision of the group developing inclusive materials was to create universally usable by all children with or without special abilities. She also said that for visually impaired students, audio of the books in different languages are also available to engage them in stories. Listening to a story however, did not ensure an experience of reading a book for these children. Workshops focussed on specific disability groups provided insights for the adaptations for the 'Barkha series'; a graded series with forty books over five themes. The adapted books had the same page numbers, illustrations and so on, to keep the book. The adapted books were available in both digital and print versions. She demonstrated the generic features of the adapted books using the same story book in adapted versions of the story book 'ChupanChupai' (a colloquial name for the game Hide and Seek).

The session of Dr.Geet Oberoi was on " Engagement with the classrooms process: learning disabilities & classroom ramifications". She spoke about the management of learning disabilities & strategies for teachers to use in classrooms. Various kinds of specific learning disabilities including ADHD were discussed. She emphasized that the point was not to label them but to figure out their difficulty. The responsibility for supporting children with ADHD was with the special educators since regular teachers can not be sufficiently prepared for it through B.Ed. Program. Teachers however, should also have a sense of the needs and the ability to identify the child at risk so as to seek the help of psychologists. Many reasons for children's failure in the schools emerged from the responses of the participants. She emphasised the fact that how every child was unique, different and had his/her own learning style. She also stated that whatever she had achieved in her life was because she had ADHD as she could do multiple things at one time. In schools, we've to concentrate on only one thing and according to her that was the one reason for failure of these children in school as children with ADHD find it very boring and problematic to engage with only one thing (their learning style was also different!).

Using a video of a "Normal" and an "ADHD" child doing the same daily chores, she showed that child with ADHD seemed to be very active, restless and seemed less then the age whereas the child (considered as "normal") was looked depressed (these were the views of the participants on the video). This participants to challenge their

own ideas of 'normality' and reflect on expectations from themselves and from children. She analysed how school fails to accommodate diversity amongst learners leading to fault finding and labelling of children. She critically discussed the evaluation system and pointed out that measuring a few abilities in a limited time ignores other capacities children have. Discussing the presumed relation of the concept of 'IQ' with various disabilities, she referred to Albert Einstein. In the context of "Education for all" classroom management could be understood as intervention and accommodation. To explain accommodation and why it was not unfair for other students, she conducted a simple activity. She asked participants wearing glasses to take them off for a while & try to read the phrases which were on the wall (ppts). Some could read but many could not. She then said, "When you put them on, can you read more than everybody else can read- NO? Can you read over the wall -NO? With spectacles you have just gone to the level of what everybody else can do in the classroom, this is what accommodation is! From where we are, we are allowing them the level that everybody else is at!"

The next session was on "Engaging with modifications and strategies for visually impaired learners evolving inclusive classroom practices and processes " by Dr Preeti Khanna. She pointed out that inclusion meant creating effective classrooms where diversity could be addressed. She said blindness referred to a diverse group that includes low vision, total blindness, or glaucoma (Glaucoma is damage to the optic nerve that gets worse over time. She showed tactile materials that can be used as a resource for blind Students and said that these tactile materials are helpful for all not just blind students. They help in understanding concepts of geography and mathematics. Such resources were made from locally available materials. Pointing out that lack of mobility leads a blind child to less experience, to less friends, to poor cognitive development and that leads to low socio-economic status and low mobility making a vicious cycle. To involve students in concepts the range of experiences to stimulate the mind must increase. They should be given all those experiences that other children get.

The next session by Dr. Seema Bali, Vice Principal, St. Mary's School was on "Living Life Queen-size: Decoding the Ability in Disability". She started by pointing out that inclusion means inclusion in all spheres and not just academics. It should get reflected in day to day activities. She shared the story of Appala and Hiranya; her students who were twin sisters both diagnosed with cerebral palsy and emphasised that there was ability in every disability and we must shift the focus towards ability rather than emphasizing on disability. She discussed challenges of an inclusive school beginning from identification to convincing the parents. She related insightful anecdotes from the lives of Hiranya and another student Rahul who was diagnosed as learning disabled. A group activity to find workable answers to some situations evoked a lot of animated discussion.

The last session Reflecting on Our Own Classrooms: Teachers' Commentaries had school teachers share their experiences and the inclusive strategies being used in their classrooms. Interesting examples were presented leading to a lot of empathetic comments. In conclusion although the focus of each session was different, yet their were common threads like diversity amongst learners, understanding/ acknowledging as well as encouraging the unique abilities of each learner and

the creative capacities of the school as well as of the teachers in meeting the special needs of each child. This can be done with an inclusive approach towards pedagogy, materials and classroom management.

**The Report is Contributed by Yukti Sharma (ygosain@yahoo.co.in)*

Indian Acadmy of Sciences, Bangaluru

Report of a

Discussion Meeting on School Education

The scientific community, as with the rest of the civil society, is concerned about the state of the education system in the country. The three national academies of science viz., Indian National Science Academy (Delhi), National Academy of Sciences of India (Allahabad) and Indian Academy of Sciences, Bengaluru representing collective voice of this community have taken several initiatives to enhance the quality of science education. The initiatives include those addressing problems of post graduate education and more recently also undergraduate science education.This was due to the realization that many students embarking on research were not adequately equipped for it by their Bachelor or Masters degrees. We also noticed that many students entering colleges– especially from economically and socially backward communities do not get schooling that prepares them for advanced learning. It is possible– that a lot of good talent is lost due the inadequacies of our school system. School education is a vast area and with formidable problems leads to diffidence for academies to enter. Nevertheless, it was felt that the academies need to take an interest in school education too, especially in the context of the move towards a revision of education policy. Further, at this level, viewing learning through a separation of sciences and humanities is not meaningful; mathematics and science education in schools should also not be seen only in terms of skills and examination performance. The Science Academies are thus concerned with learning at the school level as a whole, not just the learning of science subjects.

As a first step, the academies organized a 'Discussion Meeting' on school education to discuss the current state of our school education system (covering several aspects) and obtain ideas for improvement. The participation in the meeting was by invitation, mostly school teachers from all over the country with some educators having experience of schools and teacher. Half a dozen were to be Fellows of the science academies. Teacher participants were to submit papers on the conference themes.

The 'Discussion Meeting' was held in Bangaluru at the Raman Research Institute during 18-20 August 2017. There were 40 school teachers and 20 other participants. The Indian Academy of Sciences provided stay and boarding for the participants and hosted several meetings of the Organizing Committee.

The discussions were held over 5 sessions, each covering a specific aspect of school education. There was a panel for each session which ensured that the focus was on the specific topic assigned to the session. In a departure from convention, the teachers spoke the first and then the panellists spoke, reacting to the issues raised from the floor. The participants were then given an opportunity to intervene again. The enthusiastic participation of the teachers made the sessions lively and the general impression was that the teachers found the meeting enjoyable. Many teachers shared that they had

learned a lot from the meeting and were happy to have been a part of the discussion.

The report presented here gives a gist of the discussions and the (necessarily) broad recommendations (from the discussions) aimed at revamping our system of school education. The report is in five sections. Each section contains observations and recommendations of the panel for that session.

ROLE OF THE STATE IN EDUCATION

OBSERVATIONS	RECOMMENDATIONS
1.1.The freedom movement articulated a vision of compulsory and entirely free school education for all children in independent India. Mahatma Gandhi offered a vision of education that integrates work and education. True universalization of education has not been realised despite the enactment of the Right to Education Act. An overwhelming majority of the marginalised and oppressed sections of society do not have access to social advancement through education, as all indicators demonstrate.	1.1Every child of school age should be in school, and there should be no compromise in providing equitable education for all, from pre-school to completion of higher secondary school education. The policy of 'No Detention' should be continued at least until Class 8 as at present. Inclusion of the marginalised sections of society has to be prioritised in all policies. Social protection for the vulnerable requires not only free access but in goods and services as well, and in the case of Disabled children, special means of access.
1.2. State expenditure on education has to be perceived in terms of ensuring the democratic right of every child to become a participant in nation building with dignity. India's expenditure on education remains miniscule as a percentage of the GDP, and the argument that the country is too poor to provide quality education for all is specious.	1.2. A strong publicly funded education system is necessary for providing equitable education of good quality. Therefore, realising the right to education requires manifold increase in state expenditure on education.
3. After education moved to the concurrent list, there has been increasing centralisation. As a result, States have tended to withdraw from their responsibilities, and in some cases education has become a confrontation of State vs Centre. The autonomy of states as well as participation of civil society is essential for diversity and robustness of the system.	3. Healthy and equal partnership between the Centre and the states, as well as the State and the Civil Society, is essential for education and hence an atmosphere of critical thinking and free speech needs nurturing. We need to develop strategies that build collective ownership and participation.
4. The trend towards privatisation in education must be resisted by strengthening the public funded education system. Even in a scenario where enrolment in government schools is going down, there are some who are doing well and reversing the tide, attracting children from private schools back to them. Authenticating and sharing data on the status of schools, teachers and children is essential.	4. The strengthening of government schools is a top priority. Examples should be made of government schools that function well by way of recognition and support. The Kendriya Vidyalaya system has proven to be good, and may be replicated all over the country (at the state level).
5. The state cannot withdraw from its responsibility of providing education to its children, leaving it to parents and market forces. A large percentage of private schools are unregulated and offer abysmal quality	5. Regulation of all schools is a government responsibility; on the other hand, autonomy in management and administration needs to be provided to schools that are based on sound educational principles. The country

of education, whereas regulation ends up as interference in the autonomy of small alternative schools that offer a high quality of education.	needs a diversity of schools and multiplicity of educational experiments.
6. There are insufficient numbers of qualified teachers in the country, especially in the north-east. The teaching profession is not attractive enough, primarily in terms of the working conditions of the teacher, and a decline in respect for the profession.	6. Providing adequate number of qualified teachers is the responsibility of the state. The section of the RTE Act that allows teachers to be used for non- school government duties (such as census) should be deleted. A 'Teachers Service' may be considered, with emoluments, service conditions, in- service training and prestige like those of the civil services. A legal framework is needed that protects, encourages, supports and motivates teachers, and strengthens their relationship with society.

CURRICULUM AND PEDAGOGY

OBSERVATIONS	RECOMMENDATIONS
1. The National and State Curricular Frameworks (NCF/SCFs) are critical and well-drafted. However, the change visualised in them for an enjoyable schooling for children has not translated into reality. Pedagogy is not considered in its full complexity, including aspects such as nature of the learner, nature of content, goals of education, and so on.	1. NCF and SCFs should provide the broad framework, so that curricula can be contextualised, and schools and teachers enabled to use their initiative and abilities to co-create appropriate curricula for their learners. We need thinking teachers and classrooms to generate thinking citizens.
2. A more expansive conceptualisation of what curriculum subsumes is required. Its hidden but deeply significant aspects gravely impact the classroom environment and quality of learning of each individual in it.	2. The curriculum needs to focus on relating knowledge to the children's lived experiences, and on relating the world of work and education. Classrooms must provide the space for children and teachers to exercise their agency.
3. The diversity that characterises the composition of a school, in terms of the socio cultural background of the students, poses a tremendous challenge for the teachers. The failure of the curriculum to factor this in, as well as issues such as the reservation of seats from the EWS, not being able to give children with disabilities (CWD) the support they require, and multilingualism, are among real issues to be dealt with.	3. Enhancing sensitivity to important social issues and re-examining and re- constructing of attitudes and even developing attitudes in teachers conducive to the goals of education must be components of Teacher Education Curricula. (This needs to be seen in conjunction with Point 7)
4. Teachers, administrators and certifying bodies have a traditional notion of assessment and evaluation, interposed with the changed ways recommended by the NCF/SCFs. For example, CCE in practice has become a huge bugbear, in contradiction to what it is actually meant to be.	4. Evaluation should be internal to the curriculum, determined by curricular objectives and pedagogy. Evaluation norms and procedures should be worked out by curricular agencies like SCERT and NCERT and not by certifying boards like CBSE/ ICSE. The CCE should be strengthened. This will create a greater space for teacher to track and support the learning of each child.

	For inclusion and diversity in evaluation, the objectives of evaluation should be tailored to the needs and abilities of students. This is particularly relevant in the case of children with disabilities.
5. The current syllabus for 'classical subjects', whether in humanities or sciences, is overloaded.	5. Curriculum load on current subjects needs to be reduced. More time must be given for the arts, sports and community/productive work
6. Science, Social Studies and languages are not taught in an integrated manner keeping in mind the children's experiences. Textbooks do not reflect this, and most teachers and children follow the textbooks closely.	6. Textbooks must be written to allow for the integration of various subjects till class X.
7. There are deep inadequacies in teacher education curricula. Curriculum frameworks for teacher education are usually framed much after the corresponding NCF/SCFs. Further, the need for a large number of trained teachers after the advent of the RTE Act has been met by greater privatisation of the teacher education sector. This has led to a problem of quality of the people joining the teaching and teacher education professions. Regulatory bodies are not able to ensure quality of curricular transaction.	7. Teacher Education Curriculum should factor in the personal, social and professional development of potential teachers, and find expression in in- service programmes as well. NCF and NCFTE should come out simultaneously, and should complement each other. The Open and Distance Learning (ODL) mode has been used for developing a large number of in-service teachers, and has the potential to do much more for updating/developing teacher educators too. However, the quality of mentors and the mentioning assessment, feedback and support process in this model must be addressed. The Administrative chain needs to be continuously updated/trained to allow, and nurture, teachers and teacher educators to use their initiative (agency).

TEACHER AND SOCIETY

OBSERVATIONS	RECOMMENDATIONS
1. Teachers have a low self and social image. They feel oppressed and confused about their role and their status. The community, administration and even children rarely consider teachers as role models, worthy of respect. Teachers are considered to be 'shirkers' and referred to in a variety of derogatory terms, as distortions of the word "teacher or master". Even well-intentioned people and processes threaten the notion, profession and role of the teacher. Systemic failure is attributed to teachers. The collapse of the school and the role of the teacher in it has become a vicious cycle.	1. The highest priority in plans for building a new India should be education. The teacher is a yard stick by which we measure the achievement and aspiration of the nation. The status of a teacher reflects the society; "no people can rise above the level of its teacher community". The role of a teacher expected by the community and society must be aligned with the role provided by governance and administration. It must be in accordance with the commitments made in the preamble to the Constitution of India, and acts and policies based on it. The role has to be placed in the context of education for a democratic society that requires questioning, dialogue and empathy-imbued freedom.

2. There are contradictory expectations, ideas and statements about their role. On the one hand, they are to be the builders of society's ethics, educating children to join a democratic country as per the Indian constitution. On the other hand, they have all kinds of work assigned to them. They are kept out of school for too long with no scope and time to fulfil the wider educative agenda, or even the needs of their students. They are expected to just facilitate student performance in terms of marks in exams, often using short-cuts. The role of a teacher as envisaged in the RTE is narrow and mechanical, and does not reflect a clear way to build the respect and self-respect of teachers.	2. Teachers must be free to fully engage in the work of teaching. They should not be given administrative tasks in the school or asked to work on government programmes not related to the work of teaching. Teachers have to be in the classrooms and engaged with the children in teaching and learning. All other tasks, even census or election work, should be taken away. Section 27 of the RTE must be amended to forbid their being engaged for purposes other than teaching children. Teaching is not only facilitation, it is not only collaboration and cooperation with children, but it is the entire ambit of engagements that would help learning. Teachers need to be seen as promoters, regulators and planners of their schools in a collective process.
3. The general impression is that anyone can teach, the best do not come to teaching and those who come cannot be made to do better. Teachers are the butt of everyone's comments and advice, many of whom have never taught in a school, and yet dictate and direct what they should do. The extreme stratification adds to this feeling.	3.These perceptions must be altered by impartial, rigorous selection processes, well-designed and properly conducted preparation mechanisms, and an increased awareness of the complexity of the role of the teacher. Selection Processes must acquire the status of civil services examinations. Alternative mechanisms of teacher pre- service training and certification can be considered while on job, even as young university graduates with enthusiasm and capability are selected in rigorous processes. Autonomous professional bodies of teachers should be set up to define standards, eventually providing certification of both teachers and schools. These bodies should cut across categories of teachers and build a systematic platform of interaction between teachers at primary, secondary and tertiary levels. These could also include interested academicians and retired teachers.
4. There is a lack of appropriate governance and administration to give teachers a sense of security of being in a profession, and no attention is given to their personal and motivational needs, for example through opportunities for learning. The placements in strata of the government and private school teaching community appear arbitrary. Stratification destroys the seriousness and gravity of their role. It rankles much more as it occurs even within a School of the public system. Teachers are even governed by different rules and administrative bodies. In the private schools teachers are hired arbitrarily with no service rules and conditions, and fired if they cannot ensure success. The challenge is that this is becoming the 'go to' direction even in the public system.	4. The mechanism for governance and administration must strive to preserve and enhance their motivation, professional pride, aspiration to improve and learn more. They should be given enough freedom (structured autonomy) to take innovative steps. They must have the opportunity and time to fulfil requirements of all dimensions of their work, including their own learning. This must not be implemented as forced action research diktats, or cluster meetings merely to Transact exchange of data and get fresh instructions. Mechanisms must be set up for peer support and peer monitoring, to scaffold, orient, counsel and motivate each other, perhaps in small groups. Teachers must receive appropriate wages and be assured good working conditions.

5. A false hierarchy exists between primary, secondary and senior secondary sectors of the education system, amplified by the system of training requirements and promotions.	5. Promotions should stay within each teaching sector, i.e., primary, secondary and senior secondary, rather than between sectors. Teachers must have options and paths for personal and career growth. Lateral entry into higher education courses linked to their areas, as well as inclusion as candidates in other roles including senior school or colleges, must be made available. Wages for the primary school teacher must be in accordance with her significant and difficult role, fixed in accordance with wages of the university professors and administrative officers.
6. Schools do not provide teachers the atmosphere such that they can eliminate ignorance and prejudices in their students. They are not able to create the space for addressing the fault lines in our society.	6. Teachers must inculcate in their wards a sense of fairness, compassion and zero tolerance of corruption, divisive prejudies and other fault lies that affect our society and a sense of humour as well. Teacher must take care of child completely and motivate them in overcoming "I cannot do" attitude. For this the teacher needs to have a working ambience that has the same feeling. She must have flexibility and space to create and adapt to the situation, as well as the opportunity to grow professionally and prepare herself for the next day.

HUMANITIES AND SCIENCE IN SOCIETY

OBSERVATIONS	RECOMMENDATIONS
1. Social science, humanities and science subjects are taught without a deeper understanding of the purpose of these areas in society.	1. Teaching of various disciplines needs to be understood through a philosophical and sociological perspective. For example, a good social science perspective will enable us to understand and analyse structures that support and privilege, inequality and exclusion. This would give us a better perspective to begin to address these issues more seriously both inside and outside the classroom and the school.
2. The universalization of education has brought in children who are amongst the most marginalized both socially and economically. This is an important change which has potential of a transformative change in the country. It has yet had a huge impact on the system that has not been seriously addressed. Teachers are entering classrooms unprepared for the needs of their students. We need to nurture the growth of sensitive, compassionate and knowledgeable teachers who can work for the advancement of these children.	2. Pre-service and in-service teachers need strong components of sensitisation to the history, contexts and needs of children in their classes, as well as a longer term vision for their future than merely a board exam pass Certificate. "Sociological literacy" can help them develop this sensitivity.

3. More generally, social science education needs to address, at different stages of schooling, issues of identity that children grapple with in their lives. In Indian reality, these relate to religion, community, caste, class, gender, language, and so on, and affect how children perceive their place in society. Students from relatively privileged sections of society need to be sensitised to the ground realities of deprivation and marginalisation that exist in the country, and their teachers are the ones to do this. One problem is that the humanities and social science subjects are too heavily content-based. The content is also often contested and controversial, as these disciplines, unlike the sciences, are less likely to invite wide consensus. Therefore, these disciplines are not respected as ways of building critical and clear thinking. This mindset is reflected in poor state of Funding for higher education in the social sciences.	3. Humanities education should shift toward the process of creating knowledge in the humanities— training in the intellectual tools and frameworks that characterise thinking in these disciplines—along with a reduced quantum of facts and information. The sensitive and often contested nature of particular descriptions and narratives must be handled with care and compassion. It is the duty of academia to critique society, and critical discourse and dialogue needs to be an integral part of all learning. More funding should be available to support higher studies in social sciences and humanities.
4. Despite decades of work on the philosophy and sociology of science, school level science is taught as if value-neutral, and STEM teaching is focused solely on the advancement of industry and employability.	4. Teaching of the sciences should include history, context and the values inherent in these areas. The purpose of science teaching should be to emphasise key concepts and facts and their inter connections, and to develop a sense of the process by which these were reached. Rote- and technique-based instructions geared to success in board and competitive exams, do not serve these purposes. To allow for the exploration described above, the overall syllabus load across all subjects must be reduced, following the dictum that 'less is more'.
5. Many areas of study and work nowadays require a cross-disciplinary approach, but there is rigid compartmentalisation of disciplines in school, as well as rigid streaming in the plus-two.	5. Some training for teachers in how to take on interdisciplinary project-based learning, with ideas from other countries and alternative schools in India. The plus-two can be re-designed to ensure that all students continue to have some balance in exposure to humanities and science. Schools can build in opportunities for their own teachers to speak across disciplines and share understanding.
6. History and Geography as currently taught in our schools concentrate on the Indo-Gangetic Plain along with material pertaining to the state or region in which the school is located. The North East in particular is neglected	6. The teaching of history and geography can be a vehicle to promote national integration and elimination of prejudices. Therefore, school boards should ensure that adequate attention is given to all regions/states.

TECHNOLOGY IN EDUCATION

OBSERVATIONS	RECOMMENDATIONS
1. Technology in education refers to all uses of technology and not ICT alone. We need to transform education so that students grow up to be not mere consumers of technology but also participate in its creation.	1. Technology in education must not be reduced to the use of ICT. Technology in all forms (including those involving physical materials in nature) is needed to develop a healthy attitude to technology.
2. The actual potential of technology lies in its use to develop students' thinking and to introduce them to processes which cannot be done in the absence of technology. If properly used, technology can significantly impact Teaching and learning of most school subjects.	2. Curriculum, pedagogy and textbooks should be redesigned to exploit the power of technology for open-ended exploration, experimenting, visualization and inquiry-based Learning. We can consciously include Technology enabled tasks in classrooms.
3. Teachers generally have no training in the use of technology creatively in the classroom, nor can they assess technology critically from a pedagogic perspective.	3. In-service teacher preparation and nurture programs must be designed to help them use technology wisely when needed.
4.No technology can ever replace the teacher, and videos accessed remotely cannot substitute teachers.	4. Such efforts should not be promoted and/ or supported.
5. Use of high technology for teaching and learning can lead to commercialization, and there is danger that vendors would decide what technology is used in schools.	5. Educators need to be empowered to become technology assessors.
6. Digital technology can be addictive and great care has to be exercised in its use on an everyday basis in classrooms.	6. The emotional health of children needs to be prioritised in all policy planning for the use of digital media and Internet in schools.
7. High technology can potentially widen and deepen social and economic disparities. In our society characterized by inequality, digital technology can add another dimension of educational inequality.	7. Recognizing the challenges of access and equity, we emphasize the use of open source software, resources in Indian languages and on translation. Open educational resources are critical to overcome in equality. Systems need to be set up to ensure access to technology somewhat equitably for all children.
8. Large scale use of e-resources in schools will inevitably lead to large amounts e-waste.	8.The ecological implications of digital technology in classrooms needs careful consideration.
9. ICT curriculum and syllabus is in need of clear goals and definitions.	9. Three broad goals are recommended: ICT literacy, integration of ICT into the teaching learning of various subjects and creation of software resources.

Organising Committee for the Discussion Meeting on School Education

CHAIR- M S Raghunathan

National Centre for Mathematics,
Indian Institute of Technology Bombay, Mumbai

MEMBERS

Hriday Kant Dewan, Azim Premji University, Bengaluru

Gadadhar Misra, Indian Institute of Science, Bangalore

Kamala Mukunda, Centre for Learning, Bangalore

Rajaram Nityanada, Azim Premji University, Bengaluru

Neeraja Raghavan, Thinking Teacher, Bangalore

R Ramanujam, Institute of Mathematical Sciences, Chennai

Bhaba Kumar Sarma, Indian Institute of Technology, Guwahati

Parvin Sinclair, Indira Gandhi National Open University, Delhi

N Maheshchandra, Indian Academy of Sciences, Bengaluru

National Conference on 'Branding of Government Schools'

(27-28 March 2018)

School education in India is one of the largest systems in the world serving a huge population of around 260 million children falling in the age group of 6-18 years with the help of around 10 million teachers. The system is broadly categorized into three sub-systems i.e., Government, Government-aided and Private. Government schools are further categorised into centrally funded schools and state government funded. Centrally funded schools majorly include KendriyaVidyalayas(KVs) and NavodayaVidyalayas(NVs)which have already gained reputation in the society as far as quality of education is concerned. However, major chunk of state government run schools figure low in status.

Although still majority of students in India are going to government schools, migration from government schools to private schools is on the rise. There are many factors behind this. The draft report of the CABE Sub-Committee on Devising Pathways for Improving Government Schools (2016) includes some of the factors as: Negative perceptions and image, absence of showcasing, etc.There may be many more reasons such as parental aspirations about their child's education, and also the ways school systems address the contemporary needs of the society.

This issue of decreasing enrolment in government schools needs our immediate attention, reflection and substantial action. In this regard, to explore multiple perspectives on school education in India and also various ways to improve public education gradually making government school a brand in the country, NCERT is conducting a **National Conference on 'Branding of Government Schools' from 27-28 March 2018.**

The Conference will provide a platform for mutual sharing of concerns, perspectives, experiences and initiatives of individuals and institutions (government and non-government organisations) towards improving government school system. This will help in drawing roadmap for collaborating our efforts towards improving government school system.

The **two-day** conference will deliberate upon the following themes:

Themes of the Conference: Initiatives for Improving Government Schools in India relating to:

- Classroom Processes and Management
- Learning resources including ICT
- Assessment, Evaluation and Monitoring
- Teacher-student relationship
- Social recognition of teachers
- School –community relationship
- School governance and Leadership style
- Systemic factors such as availability of teachers, funds, infrastructure, etc.
- Researches on the perceptions of teachers, parents and students about government schools

Papers are invited on the above themes from the researchers, teacher educators,educational administrators and teachers.

Guidelines for the authors:

- Paper may be sent in English or Hindi.
- Word limit of a paper shall not exceed 5000 words. Paper shall be written in simple language including proper references wherever required. Images and pictures if included shall be clear also referring a source from where these are drawn. Diagram or line drawings must be supplied separately, numbered neatly for identification and their position in the text clearly indicated. Tables may be given as part of the text.
- Manuscripts of the paper in English must be typed in Times New Roman -12 pt., double space.
- Manuscripts of the paper in Hindi must be typed Unicode-12 pt. double space.
- An abstract of the paper in not more than 150 words must be sent alongwith each manuscript.
- References need to be listed at the end of the paper, in alphabetical order.
- Papers may be sent on email address: dcsncert2016@gmail.com or dr.arora1997@gmail.com
- In case of any difficulty in sending the paper through email, the same may be sent in CD or in hard copy to the Head, Department of Curriculum Studies, Room No. 210, CIET, NCERT, Sri Aurobindo Marg, New Delhi-110016,.
- Papers received will be selected on basis of their relevance w.r.to the objectives of the conference, elaboration of theme, novelty, originality in ideas, implications for the education system, etc. Clear and simple language, research base, suggested readings, proper referencing will also be important criteria for the selection of the paper.
- **The last date of submission of full paper is 2nd March 2018(Friday).**

विज्ञान और विज्ञान शिक्षा संगोष्ठी

भारतीय विज्ञान शिक्षा एवं अनुसंधान संस्थान मोहाली तथा अज़ीम प्रेमजी विश्वविद्यालय, बेंगलूरू द्वारा विज्ञान शिक्षा पर एक संगोष्ठी आयोजित की जा रही है- संगोष्ठी का विषय है- **विज्ञान और विज्ञान शिक्षा** और यह अक्टूबर, 2018 में मोहाली में होगी।

गोष्ठी का लक्ष्य भारतीय भाषाओं में आकादमिक विमर्श को बढ़ावा देना है। आप जानते भी होंगे कि पिछले कुछ दशकों में स्कूली शिक्षा कि सिद्धांत और व्यवहार पर व्यवस्थित अकादमिक चर्चा के लिए देश के कई विश्वविद्यालयों में एम.ए. (शिक्षा) के पाठ्यक्रम शुरू किये गए हैं। ये पाठ्यक्रम शिक्षक-शिक्षा के पाठ्यकर्मो से हैं और भारत के नागरिक समाज में शिक्षा पर चल रही वयापक चर्चा को व्यवस्थित अकादमिक रूप देने के उद्देश्य से शुरू किये गए हैं। टाटा सामाजिक अध्ययन संसथान, मुंबई; आंबेडकर विश्वविद्यालय दिल्ली और जामिआ मिलिआ इस्लामिया विश्वविद्यालय, दिल्ली समेत अनेक विश्वविद्यालयों में इस तरह के पाठ्यक्रम कई वर्षो से चल रहे हैं। अज़ीम प्रेमीजी विश्वविद्यालय ने भी इस दिशा में कदम बढ़ाये हैं और यहाँ भी एम.ए. (शिक्षा) का पाठ्यक्रम पिछले चार-पांच वर्षो से चल रहा हैं।

जहाँ हमारा यह विश्वास कि इस तरह के पाठ्यक्रम पाठ्यक्रमों के सचांलन से स्कूली शिक्षा से जुड़े मुद्दों पर नागरिक समाज में सजगता आएगी, वहीं यह स्पष्ट हैं कि इन कार्यक्रमों कि गुणवत्ता बढ़ाने तथा इन्हें और अधिक समावेशी बनाने के लिए इनको भारतीय भाषाओं में भी आंरभ करने का लक्ष्य रखना जरुरी हैं।

इसके लिए यह आवश्यक लगता हैं कि भारतीय भाषाओं में विमर्श व ज्ञान-निर्माण हो व साथ ही अकादमिक साहित्य कि रचना भी हो। इस दिशा में एक छोटी पहलक़दमी हैं ऐसी संगोष्ठियों का आयोजन जिनमे प्रस्तुत किये जाने वाले पर्चे भारतीय भाषाओं में हो व उन पर विमर्श भी भारतीय भाषाओं में ही हो। अज़ीम प्रेमीजी विश्वविधालय ने अन्य सहभागियों के साथ मिलकर ऐसी संगोष्ठियों के आयोजन कि आंरभ की हैं।

पहेली संगोष्ठी हिंदी में मई, 2017 में अंबेडकर विश्वविद्यालय दिल्ली के साथ मिलकर दिल्ली में आयोजित की गई थी। इस संगोष्ठी का विषय था स्कूली शिक्षा के बदलते परिदृश्य में अध्यापन - कर्म की रूपरेखा।

इसी विषय पर मार्च, 2018 में मैसूर विश्वविद्यालय के साथ मिलकर भाषा में दूसरी संगोष्ठी का आयोजन मैसूर में किया जा रहा हैं।

'विज्ञान और विज्ञान शिक्षा' विषय पर प्रस्तावित संगोष्ठी इस क्रम में तीसरी हैं। संगोष्ठी का आधार पत्र अज़ीम प्रेमीजी विश्वविद्यालय की वेबसाइट- azimpremjiuniversity.edu.in पर के अंतरगत हिंदी और पंजाबी में उपलब्ध हैं।

आपसे अनुरोध हैं कि 'विज्ञान और विज्ञान शिक्षा ' विषय पर आप अपने अनुभव, शोध, अध्ययन आदि हिंदी अथवा पंजाबी में एक पर्चे के रूप में लिखकर संगोष्ठी में भाग लें। आपके इस योगदान ए शिक्षा पर चल रहे व्यापक नागरिक को सुदृण बनाने में हमें मदद मिलेगी। पर्चा जमा काने कि तिथि तथा संगोष्ठी में शामिल होने आदि का विस्तृत विवरण आधार- पत्र में दिया गया हैं।

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING