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Editorial

The Voices of Teachers and Teacher Educatos (VTEE) is back after a long time with a spirit that has freshness and carries the rich fragrance of its heritage and tradition. It was delayed due to unforeseen circumstances. This issue is a special issue on teaching-learning of Mathematics. The tradition of mathematics in India goes back to the beginning of the formulation of the discipline. It has risen and ebbed and the journey is marked by periods of vigorous activity and new directions. In recent years, the name of Srinivasa Ramanujam is enough to make all heads bow in reverence and respect to the mind and the spirit that he carried for mathematics. This issue is dedicated to him even though it does not carry any article on him or about him. Almost all the articles in this issue are on mathematics teaching-learning. It also carries two contributions that are not directly linked to mathematics but have been with the editors for a long time and required to be shared.

The VTTE is fortunate to have teachers, teacher educators, and researchers contributing and sharing their analysis and discussions of their experiences. Even a break has not dented the enthusiasm and support of the readers and the contributors.

The richness and the diversities of ideas that, the issue shares, indicate the commitment and the versatility that exists on ground. While each of the contributions is valuable in itself, it also reflects diversities in the perspectives and reaffirms the principles focussed on in the National Curriculum Framework (NCF)-2005 as well as Position Paper of the National Focus Group on Mathematics Teaching. The journal will give priority to the Voices of those teachers who rarely find opportunities to report their work. Any reflection on the school and the classroom carries the perspective and the lens of the person and has the stamp of his/her personality.

India is characterized by diversities. However, its multiple realities have an underlying common thread that is to be identified and respected. Often these diversities and their genesis are in conflict with the 'convenient' formulations of truth that gain ground realities. Any effort to appreciate the nuances would have to critique the 'perceptions' as well as the 'opinions'. Mathematics, inspite of its deep embeddedness and roots, remains a revered and feared area. The fear is manifested not just in Indian classrooms, but in most classrooms of the world. This issue of Voices carries experiences, explorations and views on mathematics and its teaching and learning from a variety of practitioners.

The first article by R. Ramanujam reflects on the trajectory of transition from the concrete and the direct experiences to the abstract ideas. He walks us through another experience of generalising and abstracting and in a subtle way demonstrates the universal ability in humans to build abstractions of mathematics. The article shows that how making these transitions is helped by the facilitator who remains aware and shows positive attitude towards the learners and their environment. He points out that in learning mathematics there are many such transitions and the learners must be helped in this process. It is those learners who fail to make the transition get left behind. There is thus a need to articulate and share these transitional stages so that learners can be scaffolded. The article has hidden in it many ideas that are at the core of the position paper on Teaching of mathematics mentioned earlier.

The issue carries contributions dealing with what mathematics teaching is about and the materials that would enable learning more effectively. Dewan points out that the material and/or methods have to be directed by the purpose. Emphasising that mathematics by nature is abstract and deals with abstract entities, relations between them and operations on the entities assume significance. He further argues that the materials and concrete models of experiences are temporary and the learner must throw away these crutches and deal with the abstractions. He points out that the concrete and the abstract are spiral in nature. What is abstract for the early primary becomes concrete for the next as the learners transit to the higher stages of abstraction. He underlines the use of materials with care and avoidance of over-dependence on them for both the teachers and the learners. In another article, Subramanium points out that learning of mathematics includes making sense of its use in asking and answering questions in real situations. He emphasizes on meaning making, starting with experienced situations, allowing students to explore their own ways of solving problems and only then helping them access the powerful generalised ideas and methods. These two papers and the paper by Ramanujam indicate the need to recognise that there are transitions that have to be made by the learners for going to generalised numbers and then from arithmetic to algebra and so on.

In her article, Haneet focuses on the critical ability needed by the facilitator to make transitions possible. She argues that without conceptual understanding and an ability to mathematise, teachers can not help the learners. She suggests the need to engage teachers in the act of thinking mathematically. She further argues for constructively challenging teachers' existing mathematical cognition through tasks that require thinking, reasoning and making conceptual connections.

In a similar vein Utpal suggests that the non-recognition of this critical ability and the tendency to force memorisation and short cuts place stress and burden on children. This results into children not able to learn mathematics in subsequent years. His article, therefore, points out the danger of spoon-feeding leaners and helping them somehow tide over the present assessment. He also argues that this can not change unless the teachers who teach children at the primary level themselves have a better understanding of mathematics. The paper by Goswami focuses on children's errors to understand their current knowledge. She argues that if the teachers analyse the errors of the students, it helps them assess the learning and the strategies they are using. This would help them choose a more appropriate strategy. This analysis is possible easily provided the teacher makes the effort and is familiar with the concepts and their path of development.

The spectrum of this issue also includes the contributions from two teachers, Shehnaaz and Mukesh, who have spoken about their attempts to do mathematics differently in their classrooms. The exploration of Mukesh shows how teacher can be excited about mathematics and learn from the questions asked by the students. Shehnaaz points out the importance of textbooks, what they reflect and the effect they have on the teacher. Good materials can excite and challenge the teacher and the other just makes him/her follow procedures and get bored.

The classroom experience of Aaloka also shows the joy that can imbue a mathematics classroom. A sensible use of materials and an open exploratory pedagogical classroom helps building the climate and learning of mathematics considerably. Materials are not the ends but the means and an attitude of curiosity, exploration with an understanding about mathematics in the teacher/facilitator

can make learning possible and reduce the fear of mathematics. Yashwendra brings out the complexity of teaching situations in a school where children are not regular. The gradual building of dialogue by allowing children to think and formulate ideas makes not only the mathematics classroom interesting but also shows that children can deal with abstract and do not have to be flummoxed by letter numbers.

Vijayan reports a survey about the teachers' understanding of what is done in the classroom and what they think they need by way of capacity building. This is in the light of the NCF 2005 and the Pedagogy –Content-Knowledge (PCK). The paper by Sanjay Gulati is on the use of ICT in Mathematics. Sanjay argues for use of flexible and free ICT tools like Geo-Gebra that are available in many languages and leads us through some steps as to how it can be done. The last paper, titled 'From Kothari Commission to Contemporary System of School Education', analyses and critiques the role of parents in education and links it to the present day education policies. A book review of Toto Chaan is also reported in the journal.

We also share information about recent initiatives on Mathematics Education as the focus of interactions among students, teachers and teacher educators. This includes the National Conference on Mathematics Education organised by RIE, Bhubhneshwar and about the Ganit Saptah that is to be held by all RIEs and other institutions. The third is a report about voluntary forums of teachers interacting around mathematics.

Editorial Committee