Early School Mathematics Programme

DEE, NCERT, New Delhi

Minutes of advisory group meeting held on 18th March 2016 at Room No. 421, DEE, NCERT, New Delhi.

The following officials attended the meeting:

S.No.	Name	Institution/ organisation	Status
1	Prof. Amitabha Mukherjee	University of Delhi, Delhi	Member
2	Prof. Dharam Prakash	Retd. Prof. NCERT	Member
3	Ms. Usha Menon	Jodo Gyan, Delhi	Member
4	Mr. Sandeep Diwakar	Azim Premji Foundation, Bhopal	Member
5	Ms. Harsh Kumari	Basic School, CIE, University of Delhi	Member
6	Mr. Mukesh Malviya	Assistant Teacher, Govt. M.S. Pahawari, M.P.	Member
7	Prof. K. M. Gupta	Sr. Consultant, QMT, DEE, NCERT	Special Invitee
8	Dr. Usha Sharma	Coordinator ELP, DEE, NCERT	Special Invitee
9	Ms. Anchal Arora	Consultant, ESMP, DEE, NCERT	Special Invitee
10	Ms. Pinky Singh	Teacher Fellow, ESMP, DEE, NCERT	Special Invitee
11	Ms. Chhavi Kataria	Teacher Fellow, ESMP, DEE, NCERT	Special Invitee
12	Prof. A. K. Rajput	Coordinator ESMP, DEE, NCERT	Convener

The meeting began by a formal welcome by Prof. Anup K. Rajput, Head, DEE and convener of the ESMP advisory group. This was followed by a round of self introduction by the members.

Prof. A.K. Rajput, Head, DEE, NCERT at the outset shared about the '*padhe bharat badhe bharat programme*' taken up by GoI in 2014 under which Early Literacy Programme (ELP) and Early School Mathematics Programmes (ESMP), of SSA were visualised. He apprised the group on the implementation of various ESMP activities in the year 2015-16. This included the

development of Mathematics Learning Kit (MLK) and its Hindi and English user manual along with the training of master resource persons in 10 different states, drafting of Hindi version of the Early Mathematics Teachers' Resource Book and the textbook review exercise taken up for reviewing Class I and II mathematics textbooks of 9 states. He expressed issues like poor participation by states, lack of training among teachers and teacher educators on the learning needs of young learners as challenges in ensuring quality in early school mathematics. The Mathematics Learning Kit was applauded by the group members as a concrete learning material which can be easily taken to classrooms and if used appropriately can help improve the classroom discourse and mathematics learning. Ms. Harsh Kumari suggested it to be made essential for states. However, the other members held a reservation about it given the possibility of 'Kit' becoming 'the' material to teach and a lament for those who cannot afford it. The need for extending the training of master trainers at state level on MLK to other states (not covered till now) was agreed upon. The executive summary and findings of the mathematics class I and II textbooks review of 9 different states was also shared. The group advised to continue the same exercise for other states as well.

Discussing the Mathematics Learning Kit User's Manual, Ms. Harsh Kumari suggested that the training manual should be updated time to time including upcoming researches so that the teachers and teacher educators can be updated with new knowledge and encouraged to do the same themselves. The group appreciated the idea but also expressed apprehension of falling into the trap of telling than letting teachers explore. Prof. A. K. Rajput shared how this material was to initiate a discourse with key resource persons and teachers and give them an idea on the ways effective teaching-learning of mathematics at early school can take place. He specified how the manual is suggestive in nature where teachers can adopt/adapt the activities according to the learners' local context. The language is suggestive than prescriptive. Responding to the concern, it was mentioned that the journals brought out by the department titled the 'Primary Teacher' and '*Prathmik Shikshak*' provide a platform to teachers to share their classroom insights, some small research they may have taken or their own experiences as students. The members also raised their concern on the way CCE is being implemented. They questioned the use of a prescriptive checklist and grading over elaborative feedback to enhance learners' learning.

Prof. A. K. Rajput shared the activity done under the programme on development of a source book for teachers and parents on teaching-learning of mathematics in a joyous manner. A draft has been prepared in association with teachers and experts from both mathematics and language education titled , ‘ Joy in Mathematics’. Mr. Mukesh Malviya seconded the idea. Referring to the *Barkha* Series developed in the literacy programe, he suggested for a similar initiative on developing small booklets having story weaved in some lively context to develop conceptual understanding of mathematics among learners. Prof. Amitabha Mukherjee shared his own experience of such an attempt where he experienced the force or deliberation to teach the mathematics often gets prominent. Prof. A. K. Rajput shared how the earlier draft on the source book has to be discarded given the same reason and is being reworked on the similar lines suggested by the member. Mr. Mukesh Malviya also shared the need to develop a reference list mentioned the textbooks, story books useful for early grades. Responding to this Prof. Usha Sharma shared about the list uploaded by ELP on NCERT website which includes stories and activity books on mathematics as well.

The members taking the meeting forward discussed on the new programmes which can be taken up under the project. Mr. Sandeep Diwakar suggested the idea of compiling sourceful articles and materials thematically in form of small booklets. This would increase the dessimination of the already available material to a wider population. Prof. Usha Sharma and Prof. A. K. Rajput seconded the idea.

Ms. Usha Menon, expressed the need to revise learning indicators and develop a tool on curriculum expectations. This can give a greater freedom to intervene and guide teachers on what needs to be done. Prof. Amitabha Mukherjee refereeing to the case of SSA Programme Evaluation shared how the data in certain states showed a negative growth. He wondered if it was the consequence of the tools used for the evaluation. The process skills are often missed out in the assessment processes. Prof Dharam Prakash supported the idea and the possibility of developing a tool or document in support. Ms. Harsh Kumari also reiterated the need for some process based assessment tools which can help sharing the progress with parents. She pointed out to the sociological factors like socio-econtomic backround, parental support in child’s learning etc. that often are not taken care of while teaching-learning and assessing learners. A prescriptive

way of evaluation of learners becomes all the more discriminating when the sociological factors are not taken care of.

Prof. Rajput then shared about the new programme on evaluation of Early Mathematics Programme and Activities taken up by state of Punjab and Meghalaya under SSA. Evaluating the state programme in relation to its intended objectives, pedagogical intervention and achievement of learners were discussed. Ms. Usha Menon suggested to study the problems faced in implementation of the programme as well. The other programmes which could be taken by the ESMP were on assessing the effectiveness of various teaching-learning strategies in early mathematical concepts and to study the effectiveness of continuous support and intervention provided in school(s) to aid mathematics achievement in early grades by adopting it/them. The advisory group members suggested that various teaching-learning strategies designed for developing early mathematical concepts as suggested in the research literature can be identified, adapted/adopted and implemented to assess the effectiveness of the designed teaching-learning strategies on students learning and understanding of mathematics. Documentation of the tested strategies for wider dissemination to various stakeholders, also be taken up under the activity. In the second programmme the idea would be to intervene in one or two schools, adopt them in a holistic way, provide material and resources related to early mathematics and hand-holding to teachers and other stakeholders of the school. Guidance would be provided for assessment and pedagogical intervention to track the academic progress of the child also. To analyse the impact of the intervention, it was suggested to use the NAS survey. However, Prof. Amitabha Mukherjee, expressed his concern over the inability of NAS tools in bringing out the process skills and capabilities students may have acquired given the intervention. Echoing the concern over assessment, Prof. Rajput shared how the learning indicators/outcomes developed have been interpreted by states like Uttrakhand in a prescriptive way, by clearly charting out what the child needs to attain by the end of the given class. He expressed his concern on the lack of research backing in mathematics education in India.

Later Prof. Dharam Prakash highlighted the need for organizing a National meet in December 2016 where the various states like Tamil Nadu, Meghalaya, Punjab Rajasthan, Haryana who have taken some initiative in the field of Early mathematics can come and exhibit their work which can be a useful and encouraging opportunity for other states to learn from each other's

experiences. The national meet would include activities like invited talks, panel discussions, state presentations, display of the material developed by different states and NGOs, poster presentations etc.

The group members recommended the following activities which can be followed up/ taken up by ESMP during 2016-17:

- Finalisation of the Hindi and Urdu version of Early Mathematics Teachers' Resource Book.
- Support to States and UTs: Capacity building of teacher educators on pedagogy of early mathematics and Mathematics Learning Kit at BRC level.
- Promotion of activities of ESMP : National Meet and Advisory group meetings.
- Development of a video manual of mathematics learning kit.
- Finalisation of a source book 'Joy in mathematics' for teachers on early school mathematics
- Supply of Mathematics learning Kit to states and UTs.
- Programme evaluation of Early Mathematics Programme and Activities taken up by state of Punjab under SSA.
- Programme evaluation of Early Mathematics Programme and Activities taken up by state of Meghalaya under SSA.
- Assessing the effectiveness of various teaching-learning strategies in early mathematical concepts.
- Study the effectiveness of continuous support and intervention provided in school(s) to aid mathematics achievement in early grades by adopting it/them.

This was followed by a vote of thanks by Prof. A. K. Rajput to the participating advisory members with an end note on increasing the frequency of the times the advisory meet and discuss on the issues.