

**A report of  
BESTM webinar  
(Teachers' presentation of research projects)**

**CESME, HBCSE  
(Under PMMMNMTT scheme of MHRD)**

**Date: June 10-11, 2020**



**Homi Bhabha Centre for Science Education  
Tata Institute of Fundamental Research  
June 2020**

**Summary:**

The Centre of Excellence in Science and Mathematics Education (CESME, HBCSE) set up in May 2019 under the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT) scheme of the Ministry of Education (MoE) has a major teacher fellowship programme termed Building Educators for Science, Technology and Mathematics (BESTM).

The BESTM teacher fellowship programme is an academic leadership programme in Science, Technology and Mathematics (STEM) education. The programme is aimed at presenting the best contemporary ideas and scholarship in the field of STEM education to teachers and teacher educators. For the academic year 2019-2020, twenty-five teachers/teacher educators were chosen for this fellowship scheme through a nationwide selection process. The selected teachers and teacher educators had diverse backgrounds and were involved in science/mathematics education at school or undergraduate levels. The fellowship programme includes 2 contact periods separated by a distance mode, spread over one academic year.

See <https://cesme.hbcse.tifr.res.in/teacher-fellowship-scheme>

The first contact period had a 2-week course work, followed by interactions of the teacher fellows with their mentors to crystallize their ideas of action research projects to undertake. The teacher fellows were expected to work at their local levels on these projects and to visit HBCSE during April-May 2020, for the completion and final submission of their project reports. Due to the COVID 19 pandemic and the resultant lockdown, the teacher fellows could not visit HBCSE in person in May-2020. However, a 2-day online webinar (June 10<sup>th</sup> and 11<sup>th</sup> 2020) was arranged whereby the BESTM teacher fellows presented the status of their project work and get inputs on their reports. The webinar was attended by all the teacher fellows as well as all the mentors guiding the projects and also by various other staff members of HBCSE. The feedback received by each presenter was aimed to help in the analyses of data as well as for writing the final reports. Of the total 25 BESTM teacher fellows, 21 fellows made presentations in this webinar and briefly presented a summary of their work for around 15-20 minutes. The details of the webinar are given below. The completed project reports received post webinar are uploaded on the CESME website after their assessment by respective mentors:

<https://cesme.hbcse.tifr.res.in/teacher-fellowship-scheme/projects/>

## Details of the BESTM webinar, Day 1: 10<sup>th</sup> June, 2020

1	<p><b>Name:</b> Vinay Babu Ramesh; <b>Institution:</b> Prayoga Education Research Centre, Bengaluru;</p> <p><b>Project title:</b> <i>Exploring the students' conceptual understanding of redox reactions and electrochemical cell at the macro, micro and symbolic levels of representations using the Predict-Observe-Explain (POE) approach</i></p> <p><b>Mentor:</b> Savita Ladage</p>
2	<p><b>Name:</b> Meenu Rani; <b>Institution:</b> GSSS K.K., Punjab</p> <p><b>Project title:</b> <i>Introducing scientific method at school level biology laboratory to promote science learning and experimental skills among school students</i></p> <p><b>Mentor:</b> Anuttama Kulkarni</p>
3	<p><b>Name:</b> Sandip Dutta; <b>Institution:</b> JNV Changlang</p> <p><b>Project title:</b> <i>Introducing scientific method of doing laboratory experiments through POE strategy to higher secondary students of JNV Changlang, Arunachal Pradesh</i></p> <p><b>Mentor:</b> Anuttama Kulkarni</p>
4	<p><b>Name:</b> Vimal Kumar; <b>Institution:</b> St. Thomas College, Thrissur, Kerala</p> <p><b>Project title:</b> <i>Introducing misconceptions research and concept inventories to teachers</i></p> <p><b>Mentor:</b> K. K. Mashood</p>
5	<p><b>Name:</b> Snehal Choudhary; <b>Institution:</b> Abasaheb Garware College, Pune, Maharashtra</p> <p><b>Project title:</b> <i>Probing the Impact of the medium of instruction on student responses to Force Concept Inventory (FCI)</i></p> <p><b>Mentors:</b> Praveen Pathak &amp; K. K. Mashood</p>
6	<p><b>Name:</b> Manju Chauhan; <b>Institution:</b> Air Force Golden Jubilee School, Subroto Park, Delhi</p> <p><b>Project title:</b> <i>An exploratory &amp; longitudinal study on grade 9 students' conceptions about light and diagrammatic representations</i></p> <p><b>Mentors:</b> Sugra Chunawala &amp; N.D. Deshmukh</p>
7	<p><b>Name:</b> Sreeja V; <b>Institution:</b> Poorna Learning Centre, Sathnur village, Bangalore</p> <p><b>Project title:</b> <i>Making invisible visible</i></p> <p><b>Mentor:</b> G. Nagarjuna</p>
8	<p><b>Name:</b> Bharath A.J.; <b>Institution:</b> Young innovators Educational Services, Bengaluru</p> <p><b>Project title:</b> <i>Exploring multidisciplinary learning in project-based learning context</i></p> <p><b>Mentor:</b> G. Nagarjuna</p>
9	<p><b>Name:</b> Dr. Kalpana Maski; <b>Institution:</b> Regional Institute of Education, Bhopal</p> <p><b>Project title:</b> <i>Effectiveness of computer-based simulations on conceptual understanding of thermodynamical processes in higher secondary students at Demonstration Multipurpose School, Bhopal</i></p> <p><b>Mentor:</b> G. Nagarjuna</p>
10	<p><b>Name:</b> William Doyle; <b>Institution:</b> JNV Mahe, Kerala</p> <p><b>Project title:</b> <i>Effectiveness of computer-based simulations on conceptual understanding of thermodynamical processes in Higher Secondary students at JNV, Mahe</i></p> <p><b>Mentor:</b> G. Nagarjuna</p>

## Details of the BESTM webinar, Day 2: 11<sup>th</sup> June, 2020

1	<p><b>Name:</b> Mayur Gaikwad; <b>Institution:</b> Elphinstone College, Mumbai</p> <p><b>Project title:</b> <i>Studying students' conceptual understanding of evolution through the role of online/offline lab discourse in collaborative learning environment</i></p> <p><b>Mentor:</b> Meena Kharatmal</p>
2	<p><b>Name:</b> Dr. Sudhir Verma; <b>Institution:</b> Deen Dayal Upadhyaya College, University of Delhi</p> <p><b>Project title:</b> Exploring students' conceptions about natural selection at Undergraduate Level</p> <p><b>Mentor:</b> Meena Kharatmal</p>
3	<p><b>Name:</b> Pravin Dattatraya Shinde; <b>Institution:</b> Z.P.P.S Jarewadi, Patoda, Beed, Maharashtra</p> <p><b>Project title:</b> <i>To study the impact of low-cost study material in teaching of science</i></p> <p><b>Mentors:</b> P. K. Joshi &amp; Prakash Nawale</p>
4	<p><b>Name:</b> Sanjay Sharma; <b>Institution:</b> SCERT Uttar Pradesh, Lucknow</p> <p><b>Project title:</b> <i>Investigating teacher perception of derivations in physics as a mathematical modelling activity</i></p> <p><b>Mentor:</b> K. K. Mashood</p>
5	<p><b>Name:</b> Muhammed Rafeek E. K.; <b>Institution:</b> G.H.S.S, Vattenad, Palakkad, Kerala</p> <p><b>Project title:</b> <i>Technology-enabled Physics Laboratory at Higher Secondary Level</i></p> <p><b>Mentor:</b> Shirish Pathare</p>
6	<p><b>Name:</b> Pushpanjali Bhagat; <b>Institution:</b> Formerly JNV, Najochak, Naranpur, Punjab</p> <p><b>Project title:</b> <i>Language of textbook in pedagogic discourse of science: A study of science textbook of grade 7 for linguistically diverse classroom</i></p> <p><b>Mentors:</b> Sugra Chunawala &amp; N.D. Deshmukh</p>
7	<p><b>Name:</b> Abhaya Kumar Kar; <b>Institution:</b> ASPIRE, Sukinda, Jajpur, Odisha</p> <p><b>Project title:</b> <i>Understanding mathematics in the context of the Munda and the Santhal Tribes</i></p> <p><b>Mentor:</b> Aaloka Kanhere</p>
8	<p><b>Name:</b> Arun Bais; <b>Institution:</b> DIET, Hingoli, Maharashtra</p> <p><b>Project title:</b> <i>'Video Samuh': A place for development of professional skills</i></p> <p><b>Mentor:</b> Shweta Naik</p>
9	<p><b>Name:</b> Preeti Nanda; <b>Institution:</b> Sarvodaya Vidyalaya Sector-6, Rohini, Delhi</p> <p><b>Project title:</b> <i>Pedagogical Content Knowledge (PCK) in teaching basic geometry topics at the upper primary level</i></p> <p><b>Mentor:</b> Shweta Naik</p>
10	<p><b>Name:</b> Harshada Salunkhe; <b>Institution:</b> Maharashtra Night School, Tilak Nagar, Mumbai.</p> <p><b>Project title:</b> <i>Meaning making of volume and total surface area formulas of cube and cuboid</i></p> <p><b>Mentor:</b> Shweta Naik</p>
11	<p><b>Name:</b> Ankita Chaturvedi; <b>Institution:</b> Sagar Public School, Rohit Nagar, Bhopal (M.P.)</p> <p><b>Project title:</b> <i>A study of teachers' and students' perception of the use of activity-based science kit for grade VI</i></p> <p><b>Mentors:</b> Sugra Chunawala &amp; N.D. Deshmukh</p>