

Culture of Innovation in Our Schools

10 September 2021

Rapporteur: Prof. Aparna Pandey, DESS, NCERT

Introduction

The National Education Policy 2020 (NEP 2020) envisions providing quality education and equitable access in a sustainable manner to all learners. During the last one year, schools have adopted many innovative practices to ensure continuity of education at all levels to all learners in the prevailing COVID 2019 pandemic. NEP 2020 lays great emphasis on holistic development of learners. Keeping this in view there is a need to reorient and revamp all aspects of curriculum and pedagogy. Experiential learning including hands-on learning, arts-integrated, sports-integrated and story-telling-based pedagogy need to be adopted in schools in different subject areas according to the appropriate age groups. Moreover, specific sets of skills and values across domains need to be identified for integration and incorporation at each stage of school education and a culture of innovation needs to be developed to help children learn to innovate and ask questions. As part of the Shikshak Parv programme, the webinar on “Culture of Innovation in Our Schools” was organized on 10 September 2021.

Session Highlights

Dr. Abhay Jere, Chief Innovation Officer, Ministry of Education and the chairperson of the session welcomed all the dignitaries, officials from Ministry of Education, NCERT, CBSE, teachers and principals across the country for the session on ‘Culture of Innovation in Our Schools’. He wished everyone on the occasion of Ganesh Chaturthi, which in his opinion symbolizes creativity, intellectual integrity, learning and knowledge. He remarked that there could not be a better day to hold this webinar on innovation, start-ups and entrepreneurship. In tune with the emphasis that NEP 2020 lays on innovation, there is a need to establish a culture of ideas and innovation. He added that ideas need to be generated which will have global impact. Therefore, educational institutions require a tectonic shift and youngsters need should be encouraged to think out of the box. He hopes that eventually their ideas can be taken forward and converted into projects or prototypes that will lead to job creation. He commented that the need of the hour is to create a generation of job creators and not job

seekers. Dr. Jere then introduced the co-chair, presenter and speakers of the webinar and delineated the format of the webinar.

Dr. Jere invited co-chair Dr. Arunabh Singh, Director, Nehru World School for opening remarks. Dr. Singh began his presentation by sharing the story of a child studying in the primary class learning the concept of demand and supply through real life experiences, whereas according to the curriculum, this concept is being taught in schools at the middle stage. He then elaborated on the programme at his school - *Start-up Super Stars!* – where every child of class I has to run a business on his/her own. However, he pointed out that the focus is not on running the business, but on generating their own idea. Students submit the business idea, discuss among themselves and come back with prototype or service. During this process, students work in teams and learn about the value of money, meaning of profit and loss, etc. He highlighted that one of the main objectives of the programme is to instil curiosity among the learners. Due to the success of programme, it has been renewed year after year at the school. According to Dr. Singh any innovation is truly successful when it is scalable. As co-chair, he requested all the speakers that while discussing the successful practices adopted in their respective schools or organisations, they focus on how these ideas can be implemented in other parts of the country. Dr. Jere thanked Dr. Singh for his exciting presentation and showed keen interest in discussing ideas with him after the webinar.

Dr. Jere requested Ms. Rupa Chakravorty, Director, Sun City Group of Schools, Gurugram, Haryana to share how she implements design thinking ideas and problem-solving concepts in her school. Ms. Chakravorty's began the presentation by quoting Sanskrit *shlok* which means “the world is ever evolving”. She further elaborated that change is fundamental to growth; and curiosity survives in education. She highlighted the unique methodology of the school ‘ASK to ASK-U. Further, the world’s first Multiple Intelligence learning hub has been integrated in the admission process and is an integral part of the pedagogy at Suncity school. She added that it provides the method, validity and scope for learning to the learners. She stated that projects, storytelling, vocabulary building, dramatization and educational trips are some of the techniques that are used by the faculty to expose the children to the various types and forms of intelligence and enable them to explore their own pathways to different kinds of learning.

Ms. Chakravorty elaborated that Suncity School believes that the appropriate situational learning can reveal the right aspects of the child’s personality and help develop many forms

of intelligence. She showcased art integrated activity in different subject areas such as natural sciences, social sciences, language and mathematics. She added that the Suncity School embeds some other practices to help students build their transversal competencies: such as review of semester wise syllabus by students of classes VI, VII and VIII, compiling question papers for half yearly and annual examinations by students and peer teaching. She informed the viewers that some books have also been written by students of Suncity school during the lockdown period. She ended her presentation by outlining the challenges the school faced and assured all that they can be overcome and the changes suggested in NEP 2020 can be implemented. Dr. Jere appreciated the presentation made by Ms. Chakravorty and thanked her for highlighting the role of curiosity. He stated that there is a need to change the goal post and invited the next speaker Mr. Manish Jain, IIT Gandhinagar to make his presentation in this direction.

Mr. Jain began the presentation with images of labs of Centre for Creative Learning at Sabarmati, Ahmedabad. He mentioned that when opportunities like hands-on activities are given to children, they become enthusiastic and want to do something and their eyes glow with joy. Further, teachers should work to make students curious to know more and ask questions. He emphasized that teachers and schools should create situations where students are compelled to think. The content should be interdisciplinary and related to real life. He showed images and videos where teachers and children were playing with simple hand-made toys and pieces of paper and enjoying themselves and learning. He explained that such simple toys can be used to help children comprehend the basic concepts of science and mathematics. He also showed some toys which have been developed in the lab. He said that the basic concepts can be learnt from objects related to our daily life, for example the concept of parabola may be learnt during javelin throw. He emphasised that things which are related to our daily life hold the potential to nurture creativity among children. He concluded his presentation by reiterating that there is a need to bring back the glow of joy in the eyes of children if we have to promote innovations. Dr. Jere appreciated Mr. Jain's presentation and requested the institutes interested in implementing the strategies shared in his presentation to get in touch with Mr. Jain for further information.

Dr. Jere requested Mr. Santosh Kumar Tarak, Assistant Teacher, Government Primary School Shuklabhat, Mainpur Block, Chhattisgarh, to share his experiences regarding innovation in education. Mr. Tarak made a presentation on the initiatives taken by his school

during the Lockdown period to stimulate the learners. At the outset, they formed the Professional Learning Community (PLC) and organised an orientation programme for teachers who were members of PLC. He added that every month PLC set five goals to achieve. Since students of all classes were studying together in Mohalla classes, therefore a Big Book was created in which information about their environment was included through visuals, folk tales and stories. He further said that *Anganaa me Shikha* or Education in the Courtyard was started in the village. Under this programme mothers were given the responsibility to teach their children using different materials available at home. Moreover, under the Amarite project, the emphasis was on improving the writing skills of students. Students were asked to draw sketches and neighbourhood maps, etc. He mentioned that the assignments under this project were given during the distribution of dry ration to the students.

Mr. Tarak informed the viewers that they also developed teaching learning materials by using junk. Under Print Rich Village project, contents related to language, science, maths etc. were written on walls of the houses. This helped parents to motivate their children to enhance their reading skills. He suggested that the same methodologies may be implemented in other parts of the country as well to reach out to large number of students. Dr. Jere thanked Mr. Tarak for his presentation and state that he was certain that teachers across the country will learn from his rich experience, especially in primary education. He requested Mr. Anil Pradhan, Founder, Young Tinker Academy and Navonmesh Prasar Foundation to present.

Mr. Anil Pradhan presented on the topic “From Indian Villages to NASA” where he shared the story from Odisha’s village to selection in NASA Human Exploration Rover Challenge (HERC). He started the presentation by saying that the focal point of innovation is students, teachers and then administrators at the grassroots level. Sharing his experience, he stated that that the innovative tasks were started in an island village in Odisha. He showcased the initiatives taken by his organisation in Odisha and how the same may be implemented by others. He appreciated the earlier presenters of the session who have been involved in similar kind of work in other parts of the country. He remarked that one cannot reach the pinnacle easily, for that there is a need to work consistently every day and gradually change may be visible in the system. They tried to inculcate interest and curiosity among children towards innovative tasks. Students were also exposed to the technology and tab-based learning was started in the village. Simultaneously students were provided hands-on activities to make learning interesting. He showed visuals of the village where students were engaged with simple tools during the teaching-learning process.

Mr. Pradhan elaborated on the importance of learning outside the four walls of the classroom where students were encouraged to visit neighbourhood areas and observe the local issues and problems to find out their solutions. This method was adopted for students of primary to higher secondary classes. They have established several labs like *Tor Phor Jor* where basic tools were given to students to develop different types of prototypes. He praised Government of India's programmes launched during last 5 years like Hackathon and other national level competitions, which have been encouraging for rural children. He also talked about another interesting lab *Jor kaa Jhatakaa* where students learn about electronics and the *Rapid Prototyping* lab where students learn to create prototypes. The *Kabaar se Jugaar* project is related to issue of climate change where students learn about reuse, recycle and reduce. He added that students were also encouraged to explore on the internet to get ideas. The design thinking which was started with the programme outside the four walls of the classroom has started taking shape and students have started taking up projects on their own. For example, students have developed a small machine to remove plastic wastes from the Mahanadi River. He said that students were not learning about solutions only in the textbooks but developing solutions on their own.

Mr. Pradhan stated that one major achievement of this project has been to involve girls in STEM learning activities. This has increased the enrollment of girls in schools. He informed the audience that they have collaborated with IIT Delhi and ten doctoral students of IIT Delhi visited the village who were involved in the rural innovation programme. Further they also tried to connect their village with other parts of the world. He also shared the story of a boy and girl who were earlier road-side bicycle mechanic and welder respectively. They were selected by his organization keeping in view their skills and became part of the team which has received the prestigious NASA award. He ended his presentation by saying that teachers must work daily to see big change over time. Dr. Jere thanked Mr. Pradhan for an inspirational presentation and hoped that a large number of schools have learnt from his experience.

Question & Answer Session

The session was coordinated and moderated by the co-chair Dr. Arunabh Singh and selected questions from MyGov portal were put up to the speakers.

Dr. Singh asked Ms. Rupa Chakravorty how she will help change the teachers' mindset by encouraging innovation in education. Ms. Chakravorty responded by emphasizing a need for fellow principals to lead by example. She suggested that new learning and innovation must be encouraged and celebrated during staff meetings, alongside inculcating a life-long learning culture among teachers where they are open to learning anytime from anyone, including children.

Talking about In-service teacher training, Dr. Singh asked Mr. Manish Jain what kind of teacher training programme works best. Mr. Jain shared his thoughts on active teaching-learning, and pointed out that different formats of teacher training (namely one-day workshops, action research projects and longer-term training camps), all work well in different contexts. To him, it is crucial that the teacher is in love with the subject they are teaching and hence passionate about teaching the learner under their care. Elaborating further, he mentioned that one-day training workshops are like movie trailers and help generate interest, while a longer programme helps teachers delve deeper and bring about considerable improvement to their skills. Mr. Jain reiterated that success of a programme depends on whether the trainer can reach the teachers' heart alongside their mind and generate interest and connect with them.

Dr. Singh asked Mr. Santosh Kumar Tarak what type of initiatives can be taken at the individual and school level to sustain the good work being done in the education sector during the pandemic. Mr. Tarak pointed out that children are eager to learn, irrespective of where they live and what their personal circumstances are. He stated that the initiatives taken in Chhattisgarh which facilitate teaching children at home, along with parents' help can be replicated across the country. According to him, with these initiatives targeted towards fostering innovation in teaching-learning, NIPUN Bharat goals can be achieved.

Dr. Singh asked Mr. Anil Pradhan what government programmes to foster innovation have benefitted his students. Mr. Pradhan shared several programmes initiated by Government of India to foster creativity in teaching-learning. He talked about the ATL Programme and several Institution Innovation Council initiatives, while emphasizing that teachers at grassroot level need to encourage innovation in children by modeling innovation in their own teaching practice. Highlighting the importance of asking the right questions, he applauded the Smart India Hackathons initiative launched by the Department of Education in collaboration with organizations like Indian Railways and CPRF, that help foster curiosity in children and help

them dream big. Programmes under NIPUN Bharat in his opinion, have been instrumental in digitizing content, and translating the same in several languages to give children in different places access to educational content. Now, it is the responsibility of teachers across the country to actively work towards using these platforms and make positive changes to children's lives. Mr. Pradhan also underlined the importance of creating awareness about impact of education among parents in rural areas as this will motivate them to send their children to school.

Concluding Remarks

Dr. Abhay Jere in his concluding remarks encouraged teaching teachers to chase ideas to foster innovation in education. He applauded the hard work put in by the nation's teaching community that has helped us move from the 81st position on the Global Innovation Index in 2015 to the 48th position this year. At the same time, Mr. Jere reiterated that the innovation potential of our students and teachers is much higher, and we need to work further on this. We, together, must encourage ideas and inculcate a culture of innovation in our schools.