



Raj Reddy Center for Technology & Society

Position Paper on

New Education Policy (NEP) & the opportunity for Technology interventions

November 2021

A roundtable meeting on ‘**New Education Policy (NEP) & Opportunity for Technology Interventions**’ was organised by the Raj Reddy Center for Technology and Society, IIIT Hyderabad. The meeting was to understand the New Education policy comprehensively, identify challenges in its implementation, and explore the possibilities to build solutions for its implementation at the grassroots. Well-known social leaders from NGOs, policy makers, grassroot educators, social scientists, AI researchers and social innovators were in the panel of the roundtable conference. This position paper summarises the deliberations of the roundtable.

Broadly the discussion was around 4 major topics that the NEP talks about: Efficient Resourcing and Governance through School Complexes; Transitioning for Summative to Formative Assessments to Assess (and not Monitor) Student Learning; Pedagogical transformation to encourage playful, discovery, inquiry, and experiential learning; Preparation of teachers for the effective implementation of the New Education Policy. Panelists shared their present/planned work or problems faced relating to school education in dealing with post covid and NEP execution challenges in various realms of school education, specifically in rural and government schools. This roundtable has tabled the prevailing challenges and explored possibilities to build new models and technology solutions to implement the NEP at the grassroots.

A. Current state and challenges in school administration and governance

1. Parents' disinvestment and post-pandemic effects is making it difficult to get the students attend schools

Post-pandemic, absenteeism of the students again has become a huge challenge for both the private and government schools. Even worse, many higher secondary students left their education and started getting involved in daily wage work to support their families. Students' strength has come down to a great extent, especially in rural govt schools. Getting parental support also stands as a big struggle as they are busy in getting their basic income per day. They neither are aware of their role as a parent they play in their child's life nor have time to invest in them. They see more value in earning than learning now.



2. Poor infrastructure is a big reason for student absenteeism and disinterest

For quality education, school infrastructure is an important part as it affects both students' interest and enthusiasm towards attending school. Schools also require inclusion of education. Students stay 6-8 hours a day inside the school, hence the school environment needs to be holistic for the wholesome development of the children. Unfortunately, the poor maintenance of toilets & other school infrastructure, unavailability of proper labs, under trained staff, absence of libraries, restricting to play and learn co-curricular activities like arts, crafts, dance, drama, etc and rote learning has resulted in heavy loss of interest in the children towards education.

3. Lack of skill and will acting as a hurdle for effective school administration

There are good enough resources available in and around us, but sometimes there is no will to leverage them to the fullest. For e.g. everytime the benchmark is considered the percentage of the students, the management will not think of doing more than just focussing on producing academic results. The existing assessment standards as well as learning indicators need to be improved. Sometimes even if there is will and available resources, the skill to use them in an efficient and effective manner becomes a challenge.

4. Absence of collaborative efforts in the school complexes is a barrier for a holistic learning environment

There are a number of resources available. Even commercial and non-profit organisations are emerging to be one of the greatest support to improve the state of education. Still, the collaboration among all these is missing to bring the whole system together. Therefore, the ecosystem should be leveraged keeping in mind the holistic need of a child as well as a school.

5. Current forms of assessments adding to the administrative load of the teachers

Currently there are 2 summative and 4 formative assessment systems followed in pen and paper mode which increases a high amount of administrative load. Plagiarism is an issue for the report-style assessment under formative exams. Hence, making it a tiresome clerical and time-consuming process for the teachers. Moral education is missing in the higher secondary level

6. Delayed recruitment of teachers affecting student learning outcomes

Late recruitment of teachers fills the vacancies with low qualified teachers, which in turn worsens the quality of education delivered. Many teachers are not skilled enough to deal with or manage the present condition the schools are in. In addition to that, the student teacher ratio ranges from 1:40 to 1:80 and even 90 in many government schools. Moreover the teachers are



expected to do home visits, parent conversations and other admin work. All of these additional responsibilities makes a teacher burdened with a number of tasks which they are not even trained or qualified to do.

7. Ineffectiveness of the present pedagogical models followed leading to disinvested mindset

The age-old rote learning or memorizing technique was prominently followed in most of the government schools. Though in the recent past there was a good number of initiatives by teachers to drive project based or experiment based learning, post-pandemic everything came down to nil. Inquiry-based learning requires basic resources to be available to demonstrate or deliver the idea properly. The students also need similar resources for that. This requirement again becomes a problem for the children in arranging things to learn a certain topic.

B. Prominent recommendations came up for the Implementation of NEP

1. Build an accountability system to make the school operations run effectively on ground

The people in the management positions are not always enthusiastic or eager about their roles and responsibilities as it comes with a lot of challenges. The get-together meetings have become a formality for the sake of procedural attendance. At least there should be enough resources on the school complex level to leverage for schools under that particular complex. Therefore, there should be an accountability factor built or somebody should review the performances timely to strengthen these school complex systems in place. Invested people should be recognised to make plans and decisions that are action driven for better management.

2. Quality human resources needed to meet the pressing need at the grassroot level

Currently the student teacher ratio is a havoc in most of the government schools. There is not enough qualified human resource available to manage the problems faced by the schools. There is a need for an in-charge, to take care of all the activities that run on the school and classroom level. We need to hand hold the schools to initiate any good program with them, for at least a few months for them to get used to it. Also, honouring and incentivising those making an effort will ensure sustainability and user engagement of those programs.



3. Transitioning for Summative to Formative Assessments to Assess (and not Monitor) Student Learning

Currently there are 2 summative and 4 formative assessment systems followed in pen and paper mode which increases a high amount of administrative load. Plagiarism is an issue for the report-style assessment under formative exams. Hence, making it a tiresome clerical and time-consuming process for the teachers. Moral education is missing in the higher secondary level. Therefore there is an acute need to switch from a lengthy and time taking process to a short, simple and effective assessment process model.

4. Preparation of teachers for the effective implementation of the New Education Policy

Teacher training should be looked at as a regular skilling exercise for the school staff. Teachers need to stay updated with the latest resources available, with the different pedagogy and instruction methods available, existing platforms/research available like videos and virtual 3D models for different subject areas. To be able to make them use the available resources they will require continuous support and motivation to try new things in their classrooms. The takeaways of the training sessions should be determined before training is put through, training should be made mandatory in competencies of pedagogy, and all teachers must be taught or trained to make lesson plans to understand the difference between learning outcomes and learning indicators. The teacher training process must be reevaluated, to improve the overall standard.

5. Pedagogical transformation required to encourage playful, discovery, inquiry, and experiential learning

To enable the implementation of the new-age pedagogies there is a challenge in the number of infrastructure and the bandwidth of internet availability for every rural school setting. Continuous or regular training is required for the teachers to get exposure to the different pedagogies available. Moreover, the teachers themselves need to be taken through all those pedagogy experiences to be able to practice in their own classrooms. For e.g. the teacher training sessions should be led in storytelling based form or enquiry based or project and discovery based to encourage them to use the latest methods as well as see value in them.

6. Infrastructure and resources required to enable implementation of new-age pedagogies

Worldwide it is proven that the learning that happens by doing or is application-based increases the retention rate in the children. To enable hands-on learning there will be basic resources needed in every school to make it experiential. Hence, the need of well equipped science labs, science exhibitions, projects, social experiments and most importantly, regular teacher training will help increase student enthusiasm and interest. To mainstream the pedagogical teaching techniques, schools need to collaborate with other organisations like Creya learning, Agastya



for hands on learning, Nirmaan for student scholarships, Nischals' lab for pedagogy and so on. Collaboration with nearby universities to make pedagogical teaching techniques mainstream. This will help create a pipeline for introduction of new techniques and ideas in a standardised fashion.

C. Creative Solutions Proposed

1. Leveraging local ecosystem to meet the local needs

Each school complex consists of 20 schools. If any school doesn't have enough resources then this system has good potential to explore or use local ecosystems to meet those needs. A hierarchical operational system should be in place to keep accounts of the activities done or to be done. There should be timely performance review inspection done not to hold anyone accountable, but to make sure that every plan is properly implemented on field.

2. Latest tech-tools can become an alternative to replace the manual admin work done by the teachers

To reduce the loads of manual work the latest technological solutions should be used to maintain records, data of every root level to a high level, to monitor on a periodic basis and bring out insights. It should be looked at from a holistic standpoint like how the DEOs office can be equipped with the data; how can schools maintain data points to communicate back effectively; efficiency of data management systems, and etc.

3. Digitalizing the monitoring and tracking of systems will help in better governance

Digitalization is not an immediate possible solution due to various reasons, like supply of proper electricity in the rural areas, lack of enough infrastructure with all the stakeholders involved, lack of exposure to the newest technological development, under trained staff to use the technology, and so on. However, it can become a great tool for centralised monitoring and quality management through apps and such platforms. Continuous training will be required to get all the concerned stakeholders to use and adapt to it. All the responsibilities can be reviewed by an administrative body for better governance.

4. Technology can help design holistic progress cards for easy recording and maintenance

NEP talks about competency based progress cards and competency based curriculum. This kind of progress reports will help identify trends and skills where exactly students need remediation or support. This is a way by which students can build their portfolio and have their



own identity through their holistic progress card. Technology can help design tools to make the decision making data driven both for the teachers and the admins.

5. AI can help build a constructive assessment tool to provide immediate feedback and support personalized learning

AI can help build both subject and competency based assessments to be short and quick. The assessment process should not take more than 15 minutes, especially the formative ones. At the end of the assessment the teacher should be able to know his/her actions steps, for e.g. which concepts are to be remediated for which children for differentiated support; which ones need fundamental help; which child is good at which skills and competency etc. The question can have an assigned subject attribute or a competency attribute to it like critical thinking, etc, with 1 or 0 as mark weightage and then draw insights from the results for further guidance.

6. The teacher recruitment procedures need upgradation for the systematic execution of NEP

Recruitment process of the govt teachers has to be changed as it is not competitive enough to handle a school scenario. Majorly the teachers take the lead of the classroom, but the latest policies express that the teachers need to be trained to step back and let the children take responsibility of their own learning. The students need to be trusted first to take ownership of their own learning journey by letting them discover by themselves. The B.Ed internships should make school case studies and best practice applying mandatory. Teacher unions should conduct teacher recognition programs for teachers to make them feel honoured and motivated.

7. Volunteering services to be encouraged for meeting the human resources need

There can be a volunteering system built where any graduates or anyone willing to give their service for the society, can become a part of government activities, like teaching in schools or helping in record maintenance and tracking or in operational activities, can be a great way of managing the need on ground. This can also add to the practical experience for the volunteers and provide them with an honoured award or certification for their career growth.

Summary and Next Steps

Subsequent to the roundtable, the Raj Reddy center will consider building emerging research-based solutions that can address some of the needs discussed. Knowledge and language technology based solutions to assist teachers, leverage intelligence to personalise learning, explore if cameras and AI can be used to automatically generate basic classroom based data reports for schools and more. The center will also work with one school-complex



cluster to pilot technology interventions and explore possible tech solutions for formative assessments and such.

Convergence of Social Sciences, domain project teams, development specialists, product designers and engineering will ensure the right solutions are built to solve relevant problems. Every endeavour will be made to create standards, reusable frameworks, and platforms to enable a much wider impact in the years to come.

Acknowledgments:-

Moderated by Dr. Rohit Kandakatla - Director, KG Reddy College of Engineering and Technology

Panelists invited were: Sridhar Rao - District Educational Officer, Ranga Reddy; Srinivas Rajaram - Hamari Mitti Society; Vinoda Kailas - Navam Foundation; Akhila Nookala - Inqui-Lab Foundation; Shreemoyee Bhattacharya - Learning Curve Foundation; T.N. Sridhar - Government School Teacher; Punyavathi Kollu - Government School Teacher; Pramod Bathena - Founder, Alokit; Prateek Reddy - Founder, Bolt Education; Harsha Kankanala - Founder, Edwisely.

About Raj Reddy Center: This center is an initiative of IIIT Hyderabad to enable research and emerging technology-led solutions for grassroots education and public health, with specific emphasis on rural. The problem faced by the bottom of the societal pyramid is huge and needs solutions that can be scalable to billions of underprivileged. Several NGOs have been doing a phenomenal job on ground but NGOs don't have access to research technology. This limits the scale amplification due to dependency on volunteers alone to scale. With access to the tech research institutions, the center will help leverage the good quality of emerging technologies (like AI and such) to amplify the impact of these organizations' efforts. The centre will pursue two broad directions for high societal impact: Innovations in rural education, and Innovation in rural Healthcare for the Bottom of the pyramid.