



**Knowledge hub**  
-  
**Collection of best practices**

**Summary of the best practice**

1. Title of the best practice (e.g. name of policy, programme, project, etc.) \*

21st Century Skills in Government Schools of Jammu & Kashmir

2. Country or countries where the practice is implemented \*

India

3. Please select the **most relevant** Action Track(s) the best practice applies to \*

- Action Track 1. Inclusive, equitable, safe, and healthy schools
- Action Track 2. Learning and skills for life, work, and sustainable development
- Action Track 3. Teachers, teaching and the teaching profession
- Action Track 4. Digital learning and transformation
- Action Track 5. Financing of education

#### 4. Implementation lead/partner organization(s) \*

UNICEF India in partnership with Pi Jam Foundation, Next Skills 360 and the Directorate of Samagra Shiksha, Department of School Education, Jammu & Kashmir

#### 5. Key words (5-15 words): Please add key descriptive words around aims, modalities, target groups etc. \*

#21stCenturySkills, #CodinginSchools, #CodingwithoutComputers, #EdTech #ICTinEducation, #creativethinking, #problemsolving

#### 6. What makes it a best practice? \*

One of the prominent reforms announced in the Indian National Education Policy 2020 is the initiation of classes on coding for students from class 6 onwards. Introducing coding and increasing exposure to technology at a young age will go a long way in helping the youth lead the way to a new world of innovation and creativity, thus, giving children the opportunity to set their own goals and reach new heights. This programme is one of the first of its kind, not just in Jammu & Kashmir, but perhaps around the country. Not only does this programme aim to teach coding to children, but it is also participatory in nature and encourages them to create their own programmes and present them in hackathons. It also has an innovative element of 'coding without computers' using a board game that helps children write code using blocks and convert them into simple programmes in 'scratch' language. This is very beneficial for children in low-tech or no-tech settings, enabling them to gain skills in problem solving and encourage creative thinking and expression through basics of coding.

## Description of the best practice

## 7. Introduction (350-400 words)

This section should ideally provide the context of, and justification for, the practice and address the following issues:

- i) Which population was affected?
- ii) What was the problem that needed to be addressed?
- iii) Which approach was taken and what objectives were achieved? \*

i) Children in Class 6-10 in J&K have little or no access to computers and almost 70% children DO NOT have access to any kind of digital device. This is also accentuated by the fact that Kashmir is a volatile zone with frequent closures, internet shutdowns and lockdowns due to the ongoing conflict since the early 1990s. Many areas in Jammu & Kashmir are also very remote and tough terrains with little or no internet connectivity.

ii) The issue in question here was the lack of any kind of creative activities and/or 21st Century Skills being organised in schools. J&K currently has just 1420 Computer Aided Learning Centres and 1588 ICT Labs for over 900,000 students from Class 6-12. This initiative will not only expose children to technology, but also encourage creative thinking and create an environment of promoting ICT in Education, innovation and investments in EdTech.

iii) Through this initiative, children are being taught about coding using a very basic language called 'Scratch'. Scratch is a free programming language and online community where you can create your own interactive stories, games, and animations. It is a high-level block-based visual programming language and website aimed primarily at children as an educational tool for programming, with a target audience of ages 8 to 16. The service is developed by the MIT Media Lab, has been translated into 70+ languages, and is used in most parts of the world. (Source: Wikipedia)

The expected impact of the programme is:

- a) Students will be able to link computing and computational concepts like algorithms to everyday phenomenon and subject learning.
- b) Students will create their own digital artefacts serving as a medium of expression for their ideas.
- c) Students will start developing a problem-solving mindset towards real life scenarios.

In addition to the above, an innovative no-tech solution called 'ProGame' is also being piloted in 10 schools and 300 students. ProGame is a simple boardgame that helps children understand 'Scratch' in a simple way and use it to create their own computer programs. This paves the way for understanding coding and programming. ProGame has been selected as MIT Solver Team, AI For Humanity Prize by McGovern Foundation, Best Social Enterprise by Action for India and other awards.

## 8. Implementation (350-450 words)

Please describe the implementation modalities or processes, where possible in relation to:

- i) What are the main activities carried out?
- ii) When and where the activities were carried out (including the start date and whether it is ongoing)?
- iii) Who were the key implementation actors and collaborators? (civil society organizations, private sector, foundations, coalitions, networks etc.)?
- iv) What were the resources needed (budget and sources) for the implementation?

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i) UNICEF partnered with Pi Jam Foundation and Samagra Shiksha, an integrated scheme of the Ministry of Education at the local level and selected 50 teachers for the 'Coding in Schools'. These 50 teachers underwent extensive training on 'Scratch' and each teacher in turn was expected to teach coding to 50 children in their school and nearby institutions. This initiative was driven through a network of teachers called 'JK Knowledge Network', which is a loose network of teachers of the ICT-CAL Labs of J&K.

Out of these 50 schools, 10 were selected for the ProGame 'Coding without Computers' pilot. 150 ProGame boardgames were given to these schools and 10 teachers were trained. Each boardgame caters to 2 students and as a pair they work on their codes. Children from different schools were selected

ii) Only government schools were selected for this exercise, and the programme is operational in 50 selected government schools. The programme was launched in November 2021 and is scheduled to run till September 2022 but expected to continue through the government and its investments for innovation.

iii) UNICEF is the lead partner and convenor in bringing together government, civil society and private partners together. UNICEF brought together Pi Jam Foundation as the lead implementing partner, and the government as the host institution for access and support within public schools. The network of JKKN was leveraged to get the best and most motivated teachers and also drive this initiative. UNICEF also roped in Next Skills 360 Pvt Ltd to contribute 150 ProGame boardgames for the programme to impart 'Coding without Computers'. Thus, this is also a highly convergent programme where UNICEF acted as a convenor to bring together civil society, government and a private entity together for a common cause.

iv) UNICEF made a financial contribution of USD 16,150 for the programme and Pi Jam Foundation set up the two Pi Labs for USD 3200 in two schools. In addition to the above, Next Skills 360 donated 150 ProGame board games worth USD 1000 to the programme. The Department of School Education contributed teachers and the JKKN network and its computer labs for the classes.

## 9. Results – outputs and outcomes (250-350 words)

To the extent possible, please reply to the questions below:

- i) How was the practice identified as transformative? (e.g., impact on policies, impact on management processes, impact on delivery arrangements or education monitoring, impact on teachers, learners and beneficiary communities etc.);
- ii) What were the concrete results achieved with regard to outputs and outcomes?
- iii) Has an assessment of the practice been carried out? If yes, what were the results? \*

i) This programme has revolutionized how computer education is seen in government schools. Seeing the results, the Department of School Education was encouraged in setting up more ICT CAL Labs, investing in innovation, EdTech and also training of teachers.

ii) So far in the programme, 50 teachers are trained in Scratch by Pi Jam Foundation and reaching 1500 students (expected to reach 2500), and 10 out of 50 were also given Programme boardgames and trained, reaching 300 children in schools with 'coding without computers.

iii) A mid-term assessment of the programme was carried out and it was found out that so far 280 student projects were created in 32 sessions, and 58% teachers have covered all the concepts. From a rapid assessment, it was deduced that

- 69% students are comfortable in using technology

- 75% girl students said that their confidence has increased in participating, using tech, computers than before

## 10. Lessons learnt (300 words)

To the extent possible, please reply to the following questions:

- i) What were the key triggers for transformation?
- ii) What worked really well – what facilitated this?
- iii) What did not work – why did it not work? \*

i. The main reason why this intervention was started was the absence of activities for creative thinking in government schools. On the one hand, we have a generation of children who we are worried about over-exposure of digital devices and cyber safety and on the other hand, we have a huge majority of children struggling with access to computers and internet in this digital age. This disparity and the fact that some of these children can go on to become innovators in the future was something that triggered this intervention.

ii. What worked well was the support from the government, and because this was led and facilitated by the JK Knowledge Network, the teachers' collective that has the aim of connecting schools and students to the digital world. The presence of JKKN really helped the intervention and also to advocate with the government. JKKN helped select the right participants for the programme, handpicked teachers with the motivation, drive and skills for undertaking the pilot programme.

iii. Although it is too early to say what did not work, yet the programme did hit a slight delay in the beginning due to the lack of interest from government officials in the programme. There was a little hesitation and reluctance to partner with UNICEF's implementing partners, but that was overcome with UNICEF's existing relationship with the government and the fact that the National Education Policy 2020 has advocated for coding to be taught in schools. Other private firms were also interested in pitching, but the government eventually decided to go ahead with the programme with UNICEF.

## 11. Conclusions (250 words)

Please describe why may this intervention be considered a “best practice”. What recommendations can be made for those intending to adopt the documented “best practice” or how can it help people working on the same issue(s)? \*

This is a best practice because it is a step ahead even for basic computer education being imparted in schools. Where students are even grappling with access to computers and other digital devices, this initiative takes them to the next level of knowing and understanding how programs work. Furthermore, it also helps children with no access to computers, understand coding, encourages creative thinking, expression and finding solutions to problems of the 21st Century. This is also a very low-cost innovation and 1-2 children can afford to use the boardgame for less than USD 5.

The first recommendation is that tech must not be for tech alone. i.e. Technology is meant to drive a solution, and that should be the end result rather than introducing ICT for the sake of EdTech alone. Secondly the ‘Ed’ component should be as good as the ‘Tech’ component in the intervention. And the third recommendation, especially for low-tech and developing regions, is that innovation should be locally contextualised, affordable and feasible.

## 12. Further reading

Please provide a list and URLs of key reference documents for additional information on the “best practice” for those who may be interested in knowing how the results benefited the beneficiary group/s. \*

<https://www.crosstownnews.in/post/73144/samagra-shiksha-jak-e-launches-coding-project-under-nep-2020-.html>

<https://kashmir.thenewscaravan.com/students-above-class-vi-will-learn-coding/>