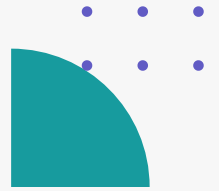


**Code to Enhance Learning**



# 2021 - 2022 ANNUAL REPORT



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# ABOUT CODE TO ENHANCE LEARNING

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Code to Enhance Learning is a non-profit organization based in Ahmedabad which uses coding as a tool to build 21st-century skills.

India envisions being the largest economy in the world. Children with higher 21st-century skills would play a crucial role in achieving this vision. However, children have poor 21st-century skills.

We offer an engaging, affordable, and confidence-building coding program to children to solve daunting problems using technology. Indirectly, we also create informed and invested parents and communities in the journey of building 21st-century skills in children.

We share an open-source skill-based coding curriculum, place CEL's trained facilitator in

classrooms or train and support in-house teachers and monitor the progress of children. We also give showcase opportunities to children to solve problems aligned to UN Sustainable Development Goals in front of industry experts and distinguished stakeholders.



# PROBLEM STATEMENT

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Children in age group of 10-15 lack engaging opportunities to build 21st century skills including critical thinking, creativity, collaboration and perseverance.

World Economic Forum Report 2016 identified 21st century skills as significant for children to thrive in the innovative world. Also, it shows a correlation of these skills with higher fundamental literacy and numeracy skills.

The poor ASER report of Gujarat and many other states shows poor literacy and numeracy skills and hence points towards poor 21st century skills. We all will find it hard to make India the largest economy for better livelihood and living conditions if children are not empowered with 21st century skills.

The root causes are lack of engaging resources and awareness about 21st century skills in parents and stakeholders

## SOLUTION

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We leverage coding as a tool to build critical thinking, creativity, collaboration and perseverance in children in grade 4-9 (age 10-15).

As per a research article on Frontier, leading open science platform, platform for coding significantly boosts the executive functions in children which are related to 21st century skills.

We create open-source skill based coding curriculum, place CEL's trained facilitator in classrooms or train and support in house teachers and monitor the progress of children. We organize national level Hackathon to give showcase opportunities to children. Children solve problems aligned to UN Sustainable Development Goals in front of industry experts and distinguished stakeholders.

### Lack of engaging opportunities for children in the age group of 10-15 to build 21st century skills



**21st century skills important for children to thrive in the innovative world\***



**Low 21st century skills in low income kids of developing countries\***



**Lack of awareness & skill based curriculum in India**

\*WEF Report 2016

Our program leverages open source technologies like Scratch, JavaScript and other web development framework to make the program affordable.

Children have higher engagement, increased confidence in solving daunting problems using technology and programs are less costly. Indirectly, we also create informed and invested parents and communities in the journey of building 21st century skills in children.

In short term, children will code games and application on different programming platforms to express and solve contextual problems to build critical thinking, creativity, perseverance and collaboration. In long term, children will grow into a pool of change makers who are aware of contextual/global problems and have innovative skills to solve problems to make world better place.



As per research by Keep Connected Program, children at the age, from age 10-15, are developing reasoning and critiquing abilities at a faster pace. They start developing a liking towards any particular field and develop personalities. Strong support can help them develop the confidence they need to make positive choices as they sort out who they are and how they fit with others.

## Leverage coding as a tool to build critical thinking, creativity, collaboration and perseverance



2.5 times more children from low-income countries ask for access to digital devices\*\*

\*\*Children in Digital World, A UNICEF's 2017 report

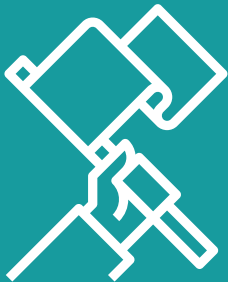


Coding activities accelerates the executive function in children\*\*\*

\*\*\*Research article on Frontier, a leading science platform

# VISION

Children in India leverage technology to solve contextual problems and thrive in the innovative world.



# MISSION

Our mission is to empower schools/organizations to bring coding to children.



# IMPACT



Shivraj and Sumit study in grades 9 and 8 respectively in Riverside Natural School in Mohgaon in Madhya Pradesh. Owing to the extreme power cut in their village, a problem that falls under UN's SDG 7: Affordable and Clean Energy they thought of making a project on Scratch to express this problem in a fun way.



The project shows a story of women burning wooden sticks to cook food. The smoke affects their health. Later, there is a game where the user has to connect different components, by dragging them, of hydro, wind and solar plants to make it functional. While playing the game, the user gets more information about these plants.

## Hours of Open Source Coding Curriculum

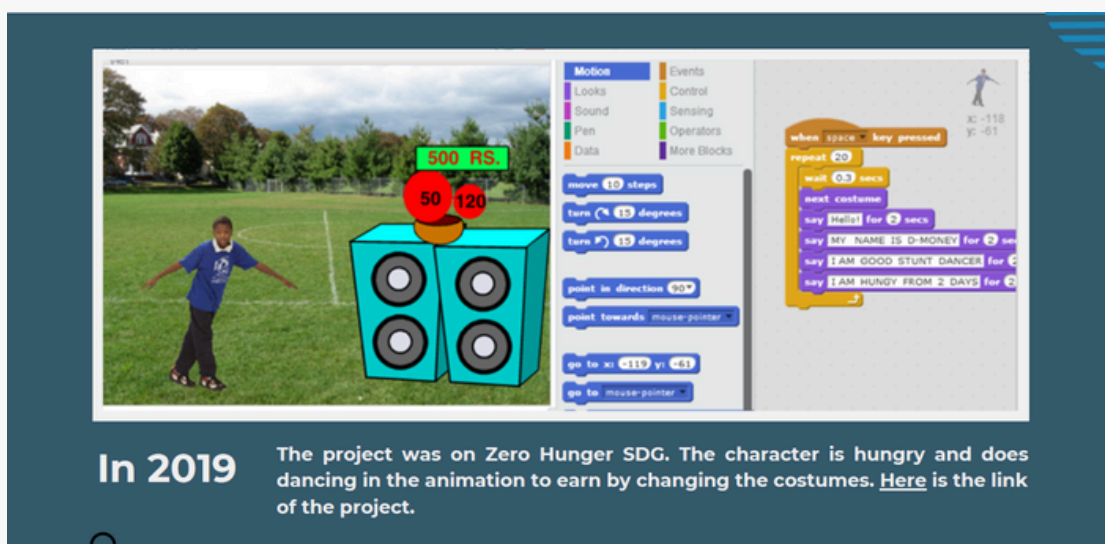


# Building 21st Century Skills through Coding and Hackathons: An Exploratory Case Study

To support over 250 million students in India in fostering 21st century skills is an important next step and one that has been identified as a national priority in the National Education Policy 2020. Supporting students requires future interventions to build scalable and sustainable models to engage students in developing future-ready skills.

An analysis of interviews, students' projects, codes and scores revealed positive insights on the improvement of students' computational thinking abilities, design skills, and collaboration skills due to two different CEL interventions. Learning through such solutions can allow students to develop 21st century skills, serving a future potential to transform the lives of countless children and their families.

This paper is written in collaboration between Purvee Chauhan, a Harvard GSE and Teach For India alumna, and Irfan Lalani, Founder of CEL and a Teach For India alumnus.





# STUDENT CODING PROGRAM

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CEL Student Coding Program is a well-crafted program designed for students. The goal is to empower them to use coding as a medium of self expression and problem solving. The Expert Facilitator of CEL works directly with students to create amazing learning experiences for children.



# 169

kids built 21st century skills with the help of CEL's expert facilitators



# TEACHER CODING PROGRAM

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CEL Teacher Coding Program is a well-crafted program designed for teachers. The goal is to empower them to facilitate coding sessions for children in grade 4-9. They get access to researched curriculum and engaging pedagogies and are trained to deliver them effectively and efficiently. Moreover, they get access to assessment tools which help them to gain more insights about the children, analyse and make changes for higher learning outcomes. It saves time and energy spent on making and conducting assessments.



# 300

In-house teachers  
empowered to teach coding





# CEL KIDS HACKATHON

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CEL Kids Hackathon is an annual collaborative coding event for students in grades 5 to grade 9 to help them begin their coding journey and showcase their coding talent. The students would be required to participate in pairs. Children would be given a problem statement aligned to UN Sustainable Development Goals for which they have to create a project on Scratch if they have access to a computer or Pocket Code if they have access to Smartphone.

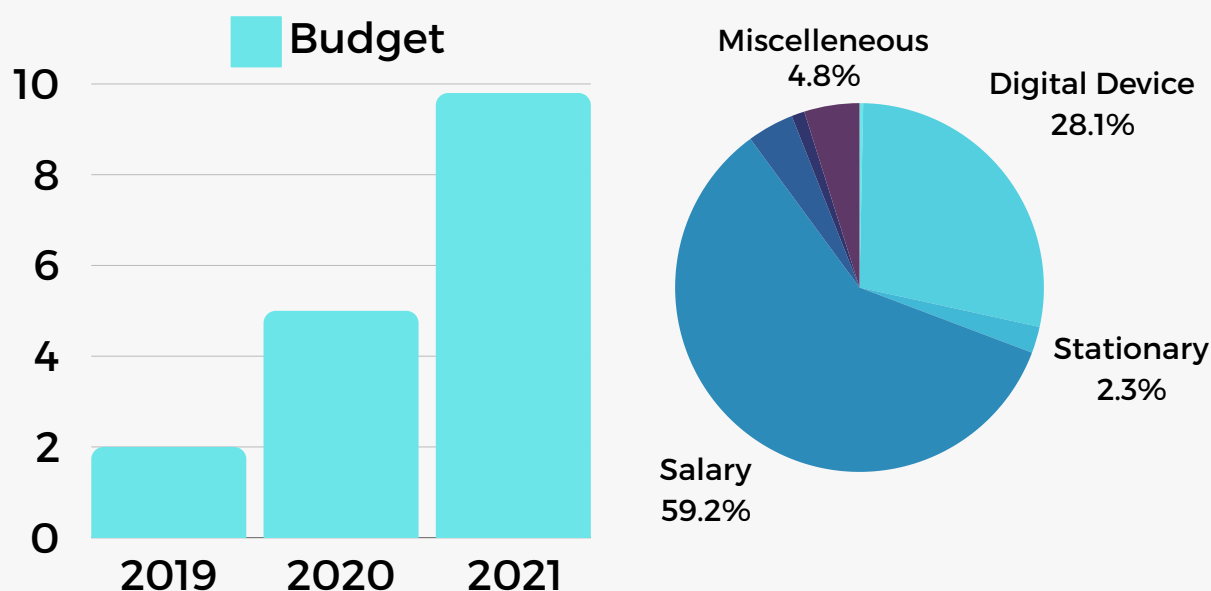


**200** kids showcased their coding talent by solving contextual problems aligned to UN Sustainable Development Goals.

# FINANCIALS

In the fiscal year 2019, the organization operated with a budget of ₹2.3 lakh. This increased to ₹4.86 lakh in 2020, reflecting a 111% growth. By 2021, the budget further expanded to ₹9.2 lakh, representing a 89% increase from the previous year.

The largest portion of the budget was allocated to salaries, amounting to ₹5,50,012, reflecting our significant investment in human resources. Expenses on digital devices totaled ₹2,61,311, highlighting our commitment to technological advancement and infrastructure. Miscellaneous expenses amounted to ₹45,055, covering various essential and unplanned expenditures.



Note: The amount is in lakh

This consistent financial growth underscores our commitment to scaling operations and achieving long-term goals. The increased budgets over these years have enabled us to enhance service delivery, invest in infrastructure, and better serve our community and stakeholders. This strategic financial management has allowed us to focus on operational efficiency, personnel investment, and effective service delivery, ensuring that we continue to make a meaningful impact.



# COLLABORATORS & SUPPORTERS

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Code to Enhance Learning

# THANK YOU

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