

CSD Working Paper Series: Towards a New Indian Model of Information and Communications Technology-Led Growth and Development

Adapting the need of Remote learning and Supporting Social Emotional Learning amid Pandemic.

ICT India Working Paper #39

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December 2020

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Abstract

The COVID-19 health crisis has presented humans with unprecedented health, socioeconomic and human rights challenges. Nearly all countries around the world have responded to this public health crisis with sweeping measures including lockdowns and school closures. The pandemic has induced a ripple effect of transformation across sectors and daily life. Educational communities have made united efforts to maintain learning during this period through remote and blended schooling. This has raised demands for accelerating universal access to Information and Communication Technology (ICT) tools like high-speed internet, devices, apps, and online teaching and learning platforms, and for adapting teacher skills for remote teaching and supporting learners' social emotional needs during a difficult period, particularly those from marginalized backgrounds.

These immediate requirements of adapting to remote learning by students, teachers, families, and policymakers have created an opportunity to figure out how the lessons learned from this remote learning experience can help improve education over the long-term, using technology, engaging families, and integrating social emotional learning in new ways. Our team has been working toward these aims with the development of a customizable Mobile Application (Literacy Everywhere) for teaching early literacy in local languages that support learners, educators, and families in building foundational literacy skills, and by exploring how to better support teachers to take care of their and their student's social emotional well-being.

Introduction

The COVID-19 pandemic is widely considered to be the most challenging health crisis the world has ever faced, attacking societies at their core, as described by the World Health Organisation (WHO)¹. The novel coronavirus has caused a tremendous loss of lives, jobs, and opportunities for people around the world. It has affected all segments of the population and continues to do so. Almost every country has imposed complete or partial lockdowns to combat the spread of the virus. Measures to slow the spread have interrupted conventional schooling drastically with many countries facing school closures. According to World Bank data, 190 countries have faced complete or partial school closure, affecting more than 1.7 billion students². This has forced Education Sectors to shift dramatically to virtual and blended modes of teaching and learning using various Information and Communication Technology (ICT) tools, and has radically accelerated the pace and urgency of various ongoing technology-driven educational initiatives.

Students are now relying more on self-led learning using various online platforms. Similarly, teachers have also had to adopt new pedagogical methods and modes of delivering lessons remotely. These uncertain times have been particularly difficult for the most marginalized populations who may lack access to adequate healthcare, and with regard to education, lack access to devices and connectivity, with families who may feel less equipped to support children's learning from home. Recognizing these challenges, education communities across the globe are figuring out how to support their students and teachers with innovative platforms and strategies, adopting widespread use of online tools like Zoom, Google Classroom, Blackboard, mobile applications to facilitate communication with parents, telephone, television and radio to try to reach each and every learner. This global crisis has reiterated the potential of ICT in enabling the goal of education access and quality for each and every child.

In early 2020, prior to the onset of the pandemic, the Center For Sustainable Development (CSD) released their Digital School Survey³, sharing findings from data collected in close collaboration with the Maharashtra State Council on Education Research and Training. The study looked at the status of ICT in Education in Maharashtra state in India, highlighting the gaps and needs for reaching universal ICT infrastructure access across the state. Another state of India, Kerala, has been the flag bearer for reaching the hardest to reach with the help of technology during COVID. During such difficult times, the state has been effectively using technology to ensure continuous learning and has embodied their slogan "Physical Distance and Social Unity into Practice". The state government has launched virtual classes through KITE⁴ (Kerala Infrastructure and Technology for Education), an educational television channel launched in 2005 with the vision of taking the benefits of technology driven education to grass root levels. Kerala's example demonstrates how prioritization and targeted investment can enable universal access to ICT infrastructure and content for learners to continue their learning journey during this crisis, and lays the groundwork for an improved learning experience over the long-term.

¹ <https://www.un.org/development/desa/dspd/everyone-included-covid-19.html>

² <https://www.worldbank.org/en/topic/edutech/brief/lessons-for-education-during-covid-19-crisis>

³ <https://csd.columbia.edu/sites/default/files/content/MaharashtraDigitalSchoolsSurveyFinalReport.pdf>

⁴ <https://kite.kerala.gov.in/KITE/>

The transition of adapting new ways of learning through virtual modes of interaction, compounded with challenges of keeping safe from the virus, concerns over job security, economic upheaval and loneliness due to social isolation have created a heightened level of awareness and demand for education to address the social and emotional needs of students, families, and educators. It becomes of utmost importance for education institutions to address and mitigate these challenges and to provide support to educators, children, and families to navigate through this difficult period and beyond.

This paper will discuss how our ongoing work has adapted to these needs for remote learning content and social emotional support for students and teachers. Understanding the need to equip our educators and students with the skills to meet the immediate demands of remote learning, our focus is to extend our planning lens to addressing long-standing inequities and building toward long-term goals while leveraging the opportunity for reimagining education that responding to this urgent crisis has created. Our team has been working on the development of a mobile app for facilitating early literacy learning in local languages, and extending our work to support the Socio- Emotional well-being of educators and students. The following sections discuss our ongoing work at CSD of developing customizable Mobile Application (Literacy Everywhere) for teaching Early Literacy in local languages has been expanded to include more languages to widen its reach to young learners from different backgrounds, and supporting content and training development to equip educators with skills for facilitating social emotional learning.

Early Literacy App Development

In this era of digitization, increasingly widespread accessibility of the internet has made it possible to reach the remotest regions of the world with tailored learning content. The education sector has seen dramatic changes in recent years with the proliferation of mobile applications designed for a range of teaching and learning needs. The way children are learning, teachers are upskilled, curriculum is designed, schools are administered and many more such aspects have evolved with these technological advancements. Smartphones have played a big role in moving toward access to these interventions for everyone. Educational apps have encouraged learners from all age groups to learn and explore more and have helped make learning fun. This has made it possible to access knowledge in remote areas, with reliable availability of content, personalised learning, instant updates and overall interactive and engaging ways of learning. ICT initiatives play a distinct role in fulfilling the promise of education access for everyone, and while great progress has been made, there is still a need for tailored learning content that meet the unique needs of specific populations, such as speakers of less dominant languages.

As mentioned under Sustainable Development Goal 4 - Education 2030 Framework for Action, ICT is highlighted for its cross-cutting role in improving inclusiveness, equity and quality in education. ICT is seen to have the potential to connect those who are marginalized and those in remote areas and conflict zones to education opportunities, increase literacy rates through mobile technology-based literacy programmes, improve quality through appropriate pedagogical approaches supported by ICT, and facilitate lifelong learning for all through ICT supported non-formal education and informal learning⁵.

⁵ https://teams.unesco.org/ORG/fu/bangkok/public_events/Shared%20Documents/EISD/2018/Feb-SARSIE/26_Feb_Positioning%20ICT%202030.pdf

The ongoing pandemic has been a major catalyst in accelerating the use of technology tools and digital platforms to facilitate the learning process for all. While the stay-at-home requirements of the pandemic necessitated this shift, the lessons learned can be applied over the long-term. According to data by [Statista](#), there is a visible surge in the mobile educational app downloads during the first quarter of 2020 compared to previous years. Online learning apps and platforms for learning from home have been making it possible to continue the learning process for learners in the safest manner. Simultaneously, the inevitable dependency on digital platforms and resources for remote learning have made the digital educational divide more pronounced. In a country like India, where there exist so many languages, this calls for integrating the digital resources of learning with the regional languages to make learning possible for everyone. The survey findings of the Digital School Survey also showed similar insights, where more than 40% of the teachers (both urban and rural settings) expect availability of more digital content in their mother tongue. The Literacy Everywhere app developed by the Center for Sustainable Development is a step in this direction, assisting educators and children from low-resourced environments to improve early literacy skills in their local language. The features of the app are designed to enable widespread reach to language speakers who lack adequate resources in their mother tongue, with a customizable platform for creating language content.

[Theoretical Background of the App](#)

The methodology that serves as the foundation for the Literacy Everywhere app is based on the Center for Sustainable Development's cognitive neuroscience-based *Literacy in 100 Days* method, designed for children entering school with little to no previous exposure to written text. Cognitive neuroscience research findings on language acquisition show that fluency and comprehension are strongly linked and that fluency comes from building neural pathways connecting visual letter perception and language. In order for children with lower levels of readiness at the start of Grade 1 to quickly become readers, these pathways must be built through consistent practice linking visual letter perception to associated sounds, and blending those sounds together. Through practice, the time memory requires to recognize and decode letters is reduced, building speed and thereby facilitating comprehension⁶. CSD's method works by reducing readers' reaction time to letters, introduced in frequency order, with a bulk of class time focused on structured, individual student practice and corrective feedback (formative assessment).

A baseline literacy assessment was conducted by CSD in two Districts of Telangana state in India, Medak and Mahbubnagar to understand the literacy levels of early learners prior to implementation of CSD's literacy program. The assessment results suggested that by the end of grade 1, children could read just 25 percent of grade-level words correctly. Such poor outcomes result from textbooks that are often designed based on norms from more privileged societies, where students are read to from birth and exposed to text, with neural pathways connecting letters to sounds already established. Considering many students come from low-

⁶ Abadzi, H. Reading Fluency Measurements in EFA FTI Partner Countries: Outcomes and Improvement Prospects. GPE Working Paper Series on Learning, No. 1.

income homes with parents who often lack literacy skills themselves, their learning needs are different and require a different approach of building foundational phonemic awareness. Using these insights and with the help of linguists from Hyderabad University, textbook developers in Medak district and educationalists from CSD's education team, these principles were operationalized into developing a workbook on Telugu (regional language of Telangana) literacy. These theories were applied considering the Telugu speaking context with language-specific nuances, consultation with language experts, and some level of trial and error. The workbook included letters in simple, consistent fonts and in big and small sizes. To not overload the brain, each day was dedicated to learning a single letter and its sound. Thus, each letter is introduced as a new chapter, in order of frequency. Each letter was followed by blended letters to form simple words followed by short sentences. Unlike the grade textbook, which mostly is overcrowded with large, colourful, distracting pictures and small texts with little practice, this workbook included letters in big fonts, hardly any pictures and provided much text to read for ample practice. The idea is through this approach, the entire alphabet should be learned within the first 100 days of Grade 1.



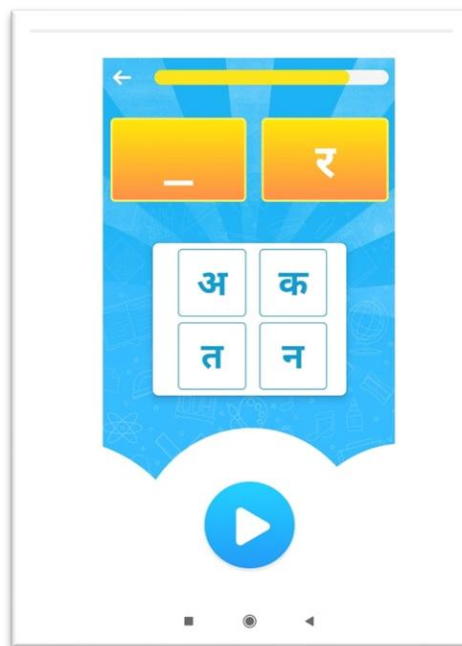
Based on this study, similar literacy programs were also developed for Burundi, Malawi and Rwanda as well by CSD with respective in-country partners. The mobile app was developed as a way to further spread this methodology to additional language groups and enable additional practice at home, as access to smartphones is becoming more and more widespread. The approach is to mirror the Literacy in 100 Days method so that learners can practice their skills listening to a letter sound and identifying the correct letter without distracting pictures and graphics. The app has a companion web-based platform where program managers can input custom language content, including customised feedback in the target language that children hear when interacting with the app. The CSD team is in process of piloting the app in Telugu, Hindi, Kirundi, and Hausa as part of various ongoing project partnerships.

Features of the Literacy App

The app is designed for young learners from low-resourced environments to build the following foundational literacy skills:

- Linking letters with their corresponding sounds, with letters introduced in frequency order
- Blending letter sounds together to form short words
- Reading short sentences
- Getting customized feedback in their target language

The repetitive practice method recreated in the app with built-in feedback builds speed and accuracy and thereby facilitates fluency, leading to comprehension. Because the app can be customized to numerous local languages, learners can practice these skills in their mother tongue with words they already know. The app is designed to require minimal data to download and use the content. After the initial download, the app caches the data and can be used in that language without requiring additional data use, enabling more reading practice in areas where data costs can be prohibitive to young learner's families. The backend features provide the options to customize the app for different languages across the globe, and gain access to analytics that lend insights into how many users are using the app in various languages, how long they are spending on the app, and how they are performing within the app.



Adaptation of Telugu and Hindi Language

For Telugu language - The same workbook content developed during the study in Telangana state was used to guide the order of the letters, words, and sentences for the app version. The order was decided by carrying out a frequency count of primary letter forms and secondary letter forms with the help of grade 5 level textbooks (as it comprised enough letters for students to read). The letters were then grouped into different levels. Similar to the approach used for the workbook, one level was created for each new letter.

For Hindi Language - Learning from the experience from Telugu language analysis, a similar approach was followed for Hindi Language. The frequency count of the alphabets was done with the help of levelled storybooks ([Storyweaver](#) - level 1,2 in this case). Sample text of at least more than 5000 characters was taken. The text was carefully selected to avoid any reoccurrence of a particular letter or sound and to have a fair representation of the alphabets for the frequency count. Alphabets were then categorized into 10 different levels having 4-5 letters, based on the most frequently used to least frequently used. Each level follows a progression of introducing a letter (consonant), a sound(vowel), letters blended with the introduced sound then words with those letters and sounds and eventually small sentences (in higher levels).

[Manual for Language Customization](#)

A manual has been developed by the education team at CSD with the intent to provide visual, step-by-step instructions to support users with the process of adding new language content and customize it using the application's backend web-based application. The manual aims to help users with the required skills to prepare high quality content and upload it on the app. The manual starts with guiding the users through the mobile app features with the help of screenshots to familiarise how uploaded content will look on the user side. To help the users with the preparation of the language content to be uploaded, manual explains the frequency analysis process to guide users in preparing the language content and designing the order and levels of the letters. The relevant resources for reference are also included in the manual. These resources are intended to help in creating a list of letters, words and sentences to be uploaded. Users are also provided tips to produce high quality audio files of letters, words, and sentences in order to maximize the user experience for learners. Once the process of preparation of the language content to be uploaded is covered, using the screenshots of the app's backend features, each and every step of uploading the content is explained in detail. The manual also walks through the backends' analytics tools.

[Lessons Learned and Next Steps](#)

While the app is intended to allow customized language content for virtually any language, the exercise of developing content for Telugu and Hindi revealed some specific needs for enabling presentation of Devanagari and Brahmic scripts. These lessons will be incorporated in a forthcoming round of updates to the app.

The research team is seeking partners to help pilot the app for various language groups within India, both on the side of developing local language content, and supporting learners and families with downloading and using the app to support local language learning for early readers. The team is exploring opportunities for implementation with partner Leadership for Equity (LFE) to help with the uptake with Marathi language, regional language of Maharashtra.

Social Emotional Learning

Social Emotional Learning (SEL) has emerged as an effective process for cultivating the necessary skills, attitudes, competencies and knowledge to learn and achieve well-being and success. Social Emotional Learning (SEL) is commonly defined as “acquiring core competencies to recognize and manage emotions, set and achieve goals, appreciate the perspectives of others, establish and maintain positive relationships, make responsible decisions, and handle interpersonal situations constructively⁷. Research shows that SEL is most effective when integrated into routine education practices, with explicit learning goals pursued through sequenced, active approaches, and that these approaches can improve academic performance⁸. Educational institutions everywhere serve individuals coming from various backgrounds having different motivations for engaging in learning and performing

⁷ <http://www.ineesite.org/en/psychosocial-support-social-emotional-learning>

⁸ Durlak, J. A., R. P. Weissberg, A. B. Dymnicki, R. D. Taylor, and K.B. Schellinger. 2011. The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82, no 1, 405–432.

academically. SEL helps create a safe space for everyone to learn together and grow into an understanding and empathic adult. The National Education Policy of India launched in 2020 also gives significant importance to ensuring that students become both academically as well as socially and emotionally competent. The goal is to attain holistic education using 21st century skills with equivalent emphasis on academic excellence as well as areas of community engagement and service, environmental education and value-based education.



Source - <https://bcchp.org/the-importance-of-social-emotional-learning-in-children/>

While understanding of SEL as a necessary component of an effective education has gained traction in recent years, the COVID-19 public health crisis has presented communities with an overwhelming magnitude of fears and concerns which can lead to major psychological risk factors like anxiety, depression or even self-harm, accelerating urgency for integrating SEL into teacher and student learning. While children seem to be less vulnerable to severe illness resulting from COVID-19, staying away from school contributes to a tragic situation for children, particularly those who rely on schools as a safe learning space for feeding programs that provide a main source of nutrition and for a fulfilment of their social and emotional needs. Education institutions across the globe are addressing these issues by trying to provide critical psychosocial support to children, families and educators during this time of physical distancing. They have identified SEL as a major priority for educators to focus on as education systems have worked to rapidly transition to remote learning while attempting to mitigate the widening of achievement gaps that result from existing digital divides (see [WHO](#), [UNESCO](#)).

SEL becomes even more valuable in light of the reality that the teachers and adults who children turn to for social and emotional support are themselves likely to be struggling with their own mental health challenges during this time. Survey findings by the Collaborative for Social Emotional and Academic Learning and Yale's Center for Emotional Intelligence in the US showed that teachers' most commonly cited emotions during this crisis included feeling anxious, fearful, worried, overwhelmed and sad. Teachers worried over themselves or loved ones contracting COVID-19, but also the anxiety of trying to juggle caring for their own

families at home while also trying to work full time from home and figuring out how to transfer their teaching practice to online platforms, which many have very little if any experience using. While these challenges are difficult to process or allow the mental latitude to think of solutions, the present times can be viewed as a wake-up call to the need to re-imagine how our education systems can better support psychosocial well-being as a foundation for learning going forward.

[SEL Resources for Parents, Children and Educators](#)

The education team at CSD has published a blog [article](#) offering a review of resources that have been put forth globally, with an emphasis on resources in the US and India. These are two of the world's most severely impacted and heavily populated countries and the common threads among them can potentially guide how to approach education beyond the COVID-19 pandemic. These resources cater to the social and emotional well-being needs of educators, children and parents who are transitioning to the online mode of learning in these unprecedented times.

Parents and families are now having the extended responsibilities of home-schooling and creating a positive learning environment for their children along with juggling stricter protections for family health, work responsibilities, and other compounding commitments. This makes it extremely important for them to prioritize their mental health to be better equipped to navigate stress and anxieties around them. The resources covered in the article give emphasis on personal well-being practices, mindfulness practices, anxiety management techniques so as to have a balanced work from home routines. There are resources included to help with actively listening to their children and addressing their queries, it helps having a constructive conversation that can contribute to manage the coronavirus stress in kids.

For children, the lack of social and physical activities can make it difficult for them to express themselves and can contribute to feeling anxious and isolated. By engaging them in conversation around coronavirus through stories or comics in child friendly language can help in providing accurate knowledge and understanding the gravity of following the precautions. The pandemic also illuminates the importance of imbibing mental well-being practices from a very young age. There are various activity resources included for children which helps them to express themselves better and create a positive learning environment at home. Teachers everywhere have had to make overwhelming changes to continue with their roles in enabling the learning process for their students in new ways. With constant juggling between taking care of the well-being of their own families and caring for their students' emotional wellbeing, it becomes even more important to support them with tools and approaches for striking this balance.

[Ongoing work with our partner organization LFE](#)

Our implementation partner NGO, Leadership for Equity (LFE) based in Maharashtra, has been conducting training sessions on Social and Emotional Learning for the teachers focused on the importance of social emotional well-being in these uncertain times and beyond. The LFE team along with the District Institute of Education and Training (DIET) team from various districts are reaching out to teachers through cluster level virtual meetings. The sessions are focussed around building the self-awareness skills with the help of the

Collaborative for Academic, Social, and Emotional Learning (CASEL) framework⁹. The framework addresses five broad, interrelated areas of Self-Awareness, Self-Management, Social Awareness, Relationship Skills and Responsible Decision-Making. These skills are proven to equip an individual to have a deeper understanding of oneself and of their community. Teachers practice specific activities that they themselves can benefit from and which they can facilitate with their students remotely.

Our team has been engaged with the ongoing sessions through observation to gain deeper understanding of the needs and challenges teachers are facing with virtual teaching, and to learn what are some of the key areas where teachers would expect more support with respect to their own social emotional well-being and self-efficacy for extending these skills to their students and peers. We are still in the planning phase with LFE for how to build on this initial work to support teachers in incorporating SEL into their regular teaching practice across subject areas.

[Next Steps](#)

In addition to exploring action research opportunities for promoting SEL skills among teachers in partnership with LFE, the research team will also be conducting a desk review of SEL trainings and tools that have been developed and rolled out during the course of the pandemic to date in various states and districts of India to identify best practices that can be scaled up.

⁹ <https://casel.org/wp-content/uploads/2020/10/CASEL-SEL-Framework-10.2020-1.pdf>

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