School Ki Ghanti

An investigation into the causes of the Digital Divide and building new approaches to reimagine learning, by making it more accessible and inclusive.

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Abstract

Because of the pandemic, 270 million Indian children stopped attending school in March 2020. The disruption in education uncovered by the pandemic has limited opportunities for the most vulnerable children and youth of many developing countries, like India. Furthermore, it has far-reaching consequences, including child labour, child marriage, and increased domestic violence. When global education was undergoing a digital shift, there was a lack of reliable Internet access, which extensively contributed to a learning gap. Some factors that influence a digital divide include connectivity, awareness of digital devices, their extent of use, the opportunity to learn and use new media, experience, skills, support, disability, linguistic area, and gender.

We aim to create a new narrative by responding to such a learning crisis both mindfully and empathetically. Because innovation is not always necessary to be accompanied by new technology, to engage students and encourage adaptive learning, we use simple technologies to carve new learning paths. The fulcrum of this intervention is to make education inclusive & accessible by providing a story-centred pedagogy and delivery method that is: Simple, Audio-based, and Internet-independent.

We demonstrate the intervention's viability by establishing its need and validating it through multiple pilots across six months in India, using the most recent COVID-19 and its impact on the disrupted education cycle in India as a context. We discover more opportunity areas for such a deeply rooted problem through stakeholder interviews, an extensive literature review, and market analysis. As a result, to justify this intervention's successful implementation and create a road map for its scalability, we have also listed the benefits, limitations, and vision.

Team

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1.The Setting

"Education is the most powerful weapon you can use to change the world."
:: Nelson Mandela

Providing education entails empowering communities and fostering resilience within them. The Norwegian White Paper 25[1] Education for Development declares "a renewed global effort to achieve good quality, relevant education for all (...)" to address the role of education in fighting poverty and creating equitable opportunities, leading to peace and development. If quality and relevant education can reach the most vulnerable and marginalised populations, therefore bringing systemic change that champions such communities' advancement and tackles the multi-dimensional challenges associated with poverty. In India, 22 % of the population lives below the poverty line, as defined by the World Bank. Poverty significantly affects the quality and quantity of education at the individual, community, and national levels.

Education catalyses a developing country like India by ensuring proper information flow. Despite severe challenges such as reduced life expectancy, health issues, high mortality rates, and inadequate nutrition and sanitation, parents from the poorest communities aspire to send their children to school. They hope that their children can escape poverty by receiving good education. The dream must be maintained by ensuring proper and equitable access to education. Although the Indian constitution encouraged decentralisation and community participation in education and provided free and compulsory primary education for children aged 6 to 14 as a fundamental right, the question of whether every child attends school remains unanswered. Is this opportunity readily available to all Indian children, regardless of caste, religion, gender, or economic background? To date, India's literacy remains less than 80%.

While access to quality infrastructure remains challenging, the recent pandemic has worsened the less-discussed 'digital divide'[2]. To address this, the

Figure 1: Primary modes of Education Delivery in the Pandemic, reported by Oxfam. Image Source: Oxfam India

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1 Ministry of Foreign Affairs Norway, "Education for Development," 2013.
2 The digital divide refers to the observed economic, cultural, and social gap between the population of a nation and their access to technologies pertaining to information and communication.

Government of India introduced a revised National Education Policy in July 2020, emphasising fostering digital learning and building infrastructure around it. While this is a positive development, there are several roadblocks to making digital learning accessible and equitable in the country. As schools transitioned to an online learning structure, many students sufferED academically due to a lack of internet connectivity and obsolete hardware. Only 2.7 % of 20 % of households have a computer, and less than 9 % have an internet connection[3]. With more than nine out of ten phone users in India experiencing poor wireless connectivity[4], a 4G connection is a utopian dream. To think that students without reliable internet access owing to frequent floods, power outages, or facing a connectivity crackdown due to political unrest may have a conducive environment to study is short-sighted.

The ever-widening digital divide alienated many first-generation learners from the learning system. The intervention outlined in this proposal discusses novel and accessible ways of delivering fundamental skills such as reading, writing, and numeracy, that have a proven positive influence on the incomes of disadvantaged communities. The discussed lack of access to appropriate technology and educational services due to disruptive events, such as the pandemic, has impacted the groups below disproportionately:

1.1. The Urban Slum Dwellers

Figure 2; A Dream Slate activity was carried out during a community workshop in a Bangalore slum, Karnataka, India. Here the slate serves as a placeholder for the community's voices and aspirations. Despite the difficulties, the parents in the community were eager to support their child's education. Image Source: Author

The Indian public education system has failed to provide quality education to children living in slums. Even in urban centres such as Delhi, where local governments invest 23% of their budget in education, 8% of children hailing from these dwellings report not going to school. The living conditions of over 100 million urban slum residents in India remain precarious and detrimental to their children's education, preventing them from having a consistent education.

1.2. The Rural Population

While most urban schools have digital resources such as laptops, tablets, and cloud-based and online learning platforms, the resource pool of rural schools is very different. Reused buildings, shared textbooks, chalkboards, and the crash of a gong to indicate study time are still the norm in most rural Indian schools. Moreover, with millions of schoolchildren walking across communities to school, Internet-based resources are a long way off. The ASER 2021 survey[5] reports that only 68 per cent of households with primary-school-age children in rural India owned smartphones. Furthermore, only a quarter of students had access to these phones—this no schooling during the two years of the pandemic.

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[3] Protiva Kundu, "Indian Education Can't Go Online – Only 8% of Homes with Young Members Have Computer with Net Link," Scroll.in, May 5, 2020, https://scroll.in/article/960939/indian-education-cant-go-online-only-8-of-homes-with-school-children-have-computer-with-net-link.
[4] P R Sanjai, "Bloomberg - Are You a Robot?," www.bloomberg.com, June 6, 2022, https://www.bloomberg.com/news/articles/2022-06-06/poor-network-low-speed-plagues-92-of-india-mobile-phone-users.
[5] ASER Centre, "Annual Status of Education Report (Rural) 2021," 2021.

Figure 3; Agricultural losses due to a 2021 Flood in Maharashtra's Arjunwada village led to Aishwarya Koli's (Pictured) dream of becoming a cosmetologist being derailed: Image Source: Sanket Jain.

1.3. People Living in Regions of Fragility, Conflict, and Violence

The World Bank reports that since the beginning of the pandemic, an additional 20 million people have entered extreme poverty in regions affected by fragility, conflict, and violence (FCV). Education has a pivotal role to play in stabilising these regions of conflict. However, current systems have struggled to deliver consistent access to education in the circumstances such as armed conflict, climate-induced disasters, political crises, and health epidemics. Providing children access to education and skill development opportunities in these unstable regions is an urgent development priority. Refugees today are 50% less likely than the general population to have an internet-enabled phone, a shared resource even when they have access to it[6]. With more people living in such hardships than ever, education systems must evolve to reach children in these circumstances.

The 2030 Sustainable Development Goals call for all children to complete primary and secondary school with equal access to opportunities for quality technical and vocational education for everyone. Policy interventions are required to improve access and quality while addressing significant impediments such as gender disparities, food insecurity, and armed conflicts. However, the government alone cannot provide quality primary education. India needs public-private partnerships and the understanding of hyper-local contexts that come along with it[7]. Inclusive dissemination methods refer to various techniques that can provide a learning environment in which every student has equal access to all types of education: resources, books, documents, or tests. Steps should be taken to ensure the provision of appropriate provisions for learners from disadvantaged families, abusive households, disaster-prone regions, and differently abled students.

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[6]   Filippo Grandi, "Internet and Mobile Connectivity for Refugees – Leaving No One Behind," UNHCR Innovation, June 28, 2018, https://www.unhcr.org/innovation/internet-mobile-connectivity-refugees-leaving-no-one-behind/ .

[7] Urvashi Sahni, "Primary Education in India: Progress and Challenges," Brookings (Brookings, January 20, 2015), https://www.brookings.edu/research/primary-education-in-india-progress-and-challenges/.

2. The Problem

2.1. Deconstructing India's Educational Digital Divide

More than 1.5 million schools in India, out of which more than a million (80-85%) are in rural areas. The total enrolment of children in rural India stands at 178 million, accounting for 71% of all children in schools across the country[8]. Providing access to quality education to these children is imperative for the country's future. Apart from the sheer size of the population, the three most deterring factors are Social Exclusion, Tech Poverty, and Gender-based discrimination.

It is critical to recognise that most of the Indian population is impoverished due to poor information and education dissemination that fails to reach poorest of the poor. As per the ICEA report, smartphone users are expected to exceed 800 million in 2022[9]. Affordability, user exposure and government initiatives have made this possible. However, more than half a billion people, primarily in rural areas, do not have access to a smartphone. Current online learning methods demand infrastructure that can support audio-visual content and high-speed internet for video conferencing and downloading materials. Nevertheless, internet service providers are still faced with the issue of attempting to reduce subscription costs while increasing customer volume geometrically and geographically, leading to the 'Digital divide' still being a persistent problem. The relationship between poverty and educational disparity in India remains.

2.1.1. Social Exclusion and Education in India

Although India has made progress in the education sector, the growth has failed to resolve the social and economic stratification in Indian society, resulting in discriminatory dissemination of education. With the commercialisation of education, while the purchasing power of a considerable number of Indians remains low, availing of decent education becomes challenging for disadvantaged and low-income students. For instance, most Dalit[10] and Adivasi[11] children in the state do not attend school due to the episodes of discrimination they face from teachers and fellow students. As a result of such obstacles, the enrolment of SC and ST[12] children in schools is dismally low.

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[8] Central Square Foundation, "School Education in India Data, Trends, and Policies," August 2020.
[9] India Cellular and electronics association and KPMG, "Mobile Applications Bridging the Digital Divide: ICEA-KPMG Report," July 2020. don
[10] Untouchables, also called Dalit, in traditional Indian society, the former name for any member of a wide range of low-caste Hindu groups and any person outside the caste system.
[11] People from indigenous tribes of the Indian Subcontinent.
[12] Scheduled Caste and Scheduled Tribes are socially and economically disadvantaged communities in India.

2.1.2. Access to digital tools of learning; Tech poverty in India

The gap in digital literacy is a significant deterrent to implementing digital solutions. With educators and parents struggling to set up digital resources, imparting education about using technology is a prerequisite for availing of online educational material during events such as the pandemic. We need technological interventions that can be understood and operated with ease.

Ability	Rural		Urban	
	Male	Female	Male	Female
Able to operate a computer	12.6%	7%	37.5%	26.9%
Able to use the Internet	17.1%	8.5%	43.5%	30.1%

Figure 4: Levels of digital literacy reported by Ministry of Statistics and programme implementation, India (2019)

2.1.3. Gender-based education

One of the most crucial variables determining whether a girl child gets access to education is poverty. Children's or dependents' care duties overlap with economically productive years, making women particularly vulnerable to poverty due to their many commitments. In 2016, out of 750 million people, two-thirds of whom were women were illiterate, and after the pandemic, 11 million girls worldwide are at risk of never returning to school[13]. Patriarchy seeps in when access to smartphones and the internet is given to boys in a family before girls. Girl children dropping out of school and being compelled into child marriage are still standard practices in many parts of India. Also, siblings in BPL[14] homes often become responsible for each other when their parents struggle to put food on the table. As a result, the girl child bears the burden of these responsibilities, which include caring for their siblings, managing household tasks, cooking etc.

2.2. The Unveiling of the Crisis

"The prolonged school closure due to COVID-19 has resulted in many children missing out on learning, social interaction, and playtime, all of which are important for their overall development and well-being,"

:: Dr Yasmin Ali Haque, UNICEF India Representative

In the 21st century, education is still a privilege for those with abundant resources. There is a need to find alternate and complementary interventions for students from vulnerable communities and disadvantaged backgrounds. We took a pandemic to accelerate this process and think of such interventions. On 24 March 2020, with the announcement of a lockdown in India, millions of children stepped out of formal education as people stepped inside their homes. Schools remained shut for months, leaving many children at home with no access to education.

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[13] United Nations, "Education - United Nations Sustainable Development," United Nations Sustainable Development (United Nations, 2020), https://www.un.org/sustainabledevelopment/education/
[14] Below Poverty Line: Economic benchmark set by the Government of India (national), and the World Bank (global) to set a threshold income to identify financially weaker parts of the population.

Figure 5; A teacher conducts online classes in an empty classroom in Mumbai India. Image Source: Indranil Mukherjee / AFP

"Education has been hit particularly hard by the COVID-19 pandemic with 1.53 billion learners out of school and 184 country-wide school closures, impacting 87.6% of the world's total enrolled learners. Unlike urban communities where schools have already adopted remote learning solutions, there is limited access to dedicated devices, amongst peri-urban and rural community stakeholders."

:: How HundrED Ambassadors in India have Supported Learning during Lockdown by Pukhraj Ranjan

Covid 19 has been declared a crisis of profound magnitude, especially in the education sector, impacting 87.6% of the world's total enrolled learners[15]. According to the National Sample Survey education report of 2019, just 20 % of Indians above the age of 5 could access the internet, and only 24 % of families had the facility[16]. The trends vary across states and are even worse for rural areas. According to a school status report during COVID-19, children studying in government schools were especially heavily hit, with more than 80% of government school kids in Odisha, Bihar, Jharkhand, Chhattisgarh, and Uttar Pradesh not receiving any instructional materials during the lockdown[17]. This failure was mainly attributed to families' lack of access to digital gadgets and e-learning resources. Teachers are now expected to convert physical learning to digital, which has resulted in ineffective systems and tools to keep the children in the learning loop. Very few are formally trained to deliver such online classes on digital platforms. Teachers have been bearing the brunt of harassment by their students due to their lack of adaptability to technology. Now more than ever, new capacity-building initiatives and teacher support are required. Private and government contributions assisted very few learners in states such as Bihar in acquiring educational devices. However, such modalities of delivery rely heavily on internet connections. According to research, more than 75% of parents had difficulty ensuring WhatsApp lessons due to a lack of a reliable internet connection[18].

[15] Sabine Meinck, Julian Fraillon, and Rolf Strietholt, "The Impact of the COVID-19 Pandemic on Education: International Evidence from the Responses to Educational Disruption Survey (REDS)," Unesco.org, 2022, https://unesdoc.unesco.org/ark:/48223/pf0000380398.

[16] "Indian Education Can't Go Online – Only 8% of Homes with Young Members Have Computer with Net Link," CBGA India, May 5, 2020, https://www.cbgaindia.org/blog/indian-education-cant-go-online-8-homes-young-members-computer-net-link/.

[17] UNESCO, "India Case Study Situation Analysis on the Effects of and Responses to COVID-19 on the Education Sector in Asia," October 2021, https://www.unicef.org/rosa/media/16511/file/India%20Case%20Study.pdf.

[18] UNESCO, "India Case Study Situation Analysis on the Effects of and Responses to COVID-19 on the Education Sector in Asia," October 2021, https://www.unicef.org/rosa/media/16511/file/India%20Case%20Study.pdf.

3. The Opportunity

3.1. The Need: Low-cost technological solutions for enabling education

One of the biggest obstacles to efficiently reaching students from varied socioeconomic and cultural backgrounds is robust digital and physical infrastructure. Nearly one in every ten homes with children under 18 stated that their children had to discontinue their studies the previous year due to a lack of access to a mobile phone or a laptop[19]. While the world is becoming more reliant on digital tools, we must be mindful of the large strata of society that most likely have a single device shared by a family of six. Apart from being ill-equipped to use these convoluted smartphone interfaces, inherent motivation and desire are frequently lacking in these children and their caregivers.

Over 90% of education ministries have established policies to encourage digital and broadcast remote learning to meet the needs of nearly 1.6 billion students affected by the COVID-19 problem (UN, 2020)[20]. However, even when gadgets are available, they are frequently underused and children's access to them is limited. In Indian states like West Bengal, Bihar, and Jharkhand, this resource gap worsens as 70% of the rural population lacks access to an active internet facility, such as an internet cafe[21]. On the contrary, well-connected states like Jammu & Kashmir, plagued by political unrest, experience plenty of issues with online learning created by the state's everlasting 4G ban.

Figure 6; Children listening to School Ki Ghanti's broadcast on Tilonia Community Radio, in Rajasthan, India. Image Source: Author

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19 Partha Roy, "Issue 8 Www.jetir.org (ISSN-2349-5162)," JETIR1808347 Journal of Emerging Technologies and Innovative Research 5, no. 8 (2018), https://files.eric.ed.gov/fulltext/ED612684.pdf .
20 United Nations, "Policy Brief: Education during COVID-19 and Beyond," August 2020, https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf.
21 Neilsen, "India Internet," 2019, https://www.thedmti.com/wp-content/uploads/2019/09/India-Internet-final-report-240919_C3.pdf.

3.2. Child-Welfare Work in India: Ecosystem Analysis

India has made advances toward improving access to quality education; however, the pandemic's consequences have highlighted gaps in this effort. There is agreement that universal elementary education can help people escape poverty, and measures such as the Sarva Shiksha Abhiyan[22] have been developed in response. Below is an analysis of a few of the numerous initiatives and policy actions were undertaken by private and public sector:

Intervention	Description	Primary Beneficiary	Mode of Delivery
Teach for India	Nationwide organisation dedicated to providing quality education to under-resourced classrooms by conducting fellowships and training staff teams for strategic support.	Children from low-income communities across India.	Connecting Youth from acclaimed universities and children from low-income communities and underserved schools through teaching fellowships.
Katha	Non-profit focused on tackling poverty through encouraging reading for fun and creating book-rich environments for children.	Children from economically disadvantaged backgrounds.	Story-based pedagogy is delivered through programs targeting different facets of education, like reading skills.
Pratham,	One of the largest non-governmental organisations in the country, focused on high-quality and low-cost interventions to improve the quality of education.	Underprivileged children and youth across India.	Along with open-source, multilingual publications, initiatives spanning early childhood education to research and knowledge building to inform education policy.
Mid-Day Meals	Mandated by the Supreme Court of India, the Mid-Day Meal program is a government-run initiative of the PM Poshan Shakti Nirman Scheme.	Children attending Government and Government-assisted Primary Schools across India.	Nutritious meals are provided to students to incentivise enrolment, retention, and attendance.
Mission Buniyaad	Launched in 2018, the Delhi Government-run scheme aimed at providing the ability to read and solve basic mathematical problems seamlessly.	Students from classes 3 to 9 in schools run by the Municipal Corporation of Delhi	Co-curricular Summer Camps aim to improve writing, reading and other basic mathematical skills.
School on the Wheel	Program is designed to reach children in locations where even temporary classroom infrastructure cannot be set up	Children from marginalised sections from migrant, underprivileged, and roadside dweller families.	Mobile infrastructure in the form of a vehicle, taking classrooms with educational audio-visual material to areas with limited accessibility.
Udaan	Mumbai-based non-profit organisation providing long-term educational support to children from low-income communities for holistic development.	Children from economically disadvantaged backgrounds.	Long-term support in education, from kindergarten to 12th grade through learning centres.
Nanhi Kali	Organisation provides holistic academic support and access to digital learning platforms for girls.	Girls from underserved communities.	Holistic Curriculum and AI-powered ed-tech platforms accessed via tablets in government schools.
eVidyaloka	Not-for-profit organisation transforming the educational landscape of rural India by creating digital classrooms in remote villages for an equitable learning experience.	School-going children in rural areas.	E-classroom software platform managed by volunteers.
Wake Up India	A network of students committed to driving social and political change in India through charity programs, youth outreach campaigns and policy research.	Underserved Children in Urban Slums	Organises 'e-classes' to bridge the resource gap by identifying a room in each slum furnished with a server and a smartboard.

Figure 7: Child-Welfare Organisations' Ecosystem Analysis.

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[22] Programme pioneered by former President of India, Atal Bihari Vajpayee, with the goal of universalisation of elementary education for all children aged 6-14 as a fundamental right.

According to the preceding survey and evaluation, most organisations are attempting to provide infrastructure for the children participating, which requires them to come to a location rather than allowing them to be in certain situations. Rather than focusing on learning, the interventions aim to increase enrolment and retention. Many of these rely heavily on human labour or internet access. Interventions are typically customised to a relatively specific group of children, posing a barrier to scalability.

3.3. A New Approach to Build Forward Better

Primary education is every child's first and most fundamental right. It intends to teach fundamental reading, writing, and mathematics abilities to lay a solid foundation for learning. The primary goals of elementary education are to instil mindfulness in children, open doors to opportunities alongside self-development, and reduce generational neediness. A holistic investment in early childhood is thus essential. These primary goals are not being met equitably in the current educational scenario of India.

To emphasise the importance of primary education, our proposal targets students aged 6-12 years, attending primary school with little or no access to the internet or new media, introducing them to a new engaging learning tool. It is essential to develop adaptive empathy-driven systems that promise equal access and optimise reach to all sections of society. With inclusivity and equity as the central pillars, we aim to use simple and robust technology to carve out new learning paths to engage children and respond to the education crisis which the pandemic has exaggerated.

Mahatma Gandhi said, "Main Radio mein shakti dekhta hu (I see the power in the radio)." It has remained a potent medium of communication due to its ubiquitous nature. Radio broadcasting, frequently underutilised in education, inspired our proposal's low-tech approach to problem-solving. Bultoo Radio[23], considered the first community radio via phone, was a revolutionary system deployed to allow people to communicate and receive information in their language and is an excellent illustration of an inclusive, low-tech solution. In line with the 2020 national education policy's advocacy for the use of "existing mass media, such as television, radio, and community radio"[24] to address the digital divide, our proposal strives to advocate for an empathy-driven, accessible, affordable, and inclusive intervention to enable under-served children.

While public and private schools struggle to navigate the digital space and provide experiential learning through Zoom calls and Google Meet, the underprivileged are being left behind because of the digital divide. In light of our analysis, we asked ourselves-

Are we taking everyone along as we move towards an increasingly digitised world? How can simple, low-cost technologies become a catalyst for universally equal and accessible learning environments? How can children from disadvantaged communities access education without adequate resources? Below is our proposition to answer these challenging questions.

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[23] A collaboration between CGNetSwara, a citizen journalism platform and the state government of Chattisgarh, India, Bultoo Radio is a mobile-based, bluetooth communication for exchange of news and entertainment in media dark zones.
[24] Government of India, "National Education Policy 2020" , 59.

4. The Solution; School Ki Ghanti

"Now, with the pandemic hitting our lives, my school has been shut, and nobody knows when it will reopen. My father does not have a smartphone through which I can access lessons on the internet."

:: Replied the ten-year-old Deeksha when our team when the team asked her while conducting user research for this intervention.

The Zoom room is a luxury for the majority of India. A survey of 1,400 kids from disadvantaged homes across 15 states in September 2021 discovered that just 8% of children in rural areas and 24% in urban areas got regular online education[25]. The intervention introduced through this proposal, School Ki Ghanti (SKG), aims to keep students facing similar challenges engaged in the learning system despite the most challenging circumstances.

Figure 8; School Ki Ghanti's Logo in Devnagri Script.

4.1. School Ki Ghanti: What is it?

Lal Bagh Juggi[26], New Delhi,

3:55 pm 30/06/2020

126 children are eagerly awaiting a phone call in their homes. The slum has no electricity, and few children have access to a smartphone; most of them are patiently waiting next to a feature phone. A few have gathered at a friend's house, where the father, fortunately, had a spare device. All phones begin ringing simultaneously at 4 p.m. It is school time. They sit patiently for the next four and a half minutes, their ears glued to the device, listening to an extraordinary phone call that has come just for them.

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[25] Nirali Bakhla et al., Locked Out: Emergency Report on School Education, Ruralindiaonline.org (People's Archive of Rural India, 2021), https://ruralindiaonline.org/en/library/resource/locked-out-emergency-report-on-school-education/ .

[26] A Jhuggi is a local word for a slum like settlement. Lal Bagh Jhuggi is one of the oldest slum settlements in the capital region of New Delhi in India.

School Ki Ghanti ('school bell' in English), or SKG, is an intervention that uses a simple voice broadcasting system to disseminate audio modules to educate underserved children aged 6 to 12. It focuses on children from impoverished neighbourhoods and low-income households, mainly affected by situations like the recent Covid-19 Pandemic. To compensate for lost school days, we send out pre-recorded audio-based content via a voice broadcasting system every Monday to Friday at 4:00 p.m. Our primary research revealed that 4:00 p.m. was the most relaxing time for at least one parent to have returned from work, and a phone was made available to the children.

Figure 9; School Ki Ghanti's Social Media Campaign post describing the system.

Without reliable internet connections and experiential learning tools, it reaches the children using a simple tool: phone calls. We propose a relevant, locally specific, and story-based pedagogy to disseminate audio content with voice broadcasting. By empowering children through internet-independent solutions, SKG hopes to democratise education. Our vision is to expand accessibility and inclusivity in education that is: simple, audio-based, and internet-independent. We envisage SKG to be a free service powered by crowdfunding.

The initiative's cornerstones are the creative and effective use of phone technology, content development, coordinated collaboration, and continuous community engagement. It ensures engagement through an automated phone call which aims to bring back lost schooldays and a schedule to the children, without any internet connection or a call cost, creating learning communities without borders. The idea is to address the digital divide and the challenges confronting educators and learners in remote, low-income, and deprived communities. The aim is not to replace schools but create alternative and complementary design-led educational interventions.

We anticipate that this audio-based learning can expand into delivering many types of learning to listeners, from educational to vocational. For our trial, we used a story-based learning system.

4.2. Implementation

It was a priority to bound our solution by the technology these groups had easy access to, rather than equipping them with new-age tools. SKG will focus on providing elementary learning to under-served children who lack digital learning tools, which we believe is primarily pragmatic considering the educational challenges. SKG aims to;

- **ATTRACT** the listeners with a simple phone call.
- **PROVOKE** a routine/learning system within them.
- **INFORM** the listeners with our story-based modules.
- **ACTIVATE** Critical thinking, imagination, and creative literacy.

4.2.1. Implementation Setting

Bihar has India's lowest literacy rate, 61.80 %, whereas the national literacy rate is 74.04 %[27]. We are merging our local connection and understanding with the prevalent, educational disparity in Patna, Bihar; SKG's foremost pilot to test its efficacy involved 20 children from a local NGO named Flashlight Initiative[28].

4.2.2. Technology

Phone calls are to be used to communicate in the listeners' native language with them. It is the most widely available medium for urban and rural populations and can support remote learning. The technology of Interactive Voice Response[29] (IVR) interacts with callers, obtains relevant information, and routes call to the listed recipients. In the suggested system, voice broadcasting service, a part of the IVR is deployed to send out automated phone calls to a list of phone numbers in seconds. The phone thus acted as radio, with pre-recorded lessons uploaded to the IVR dashboard and broadcasted at a specific time.

We collaborated with Sarv, an Indian private voice broadcasting provider. We negotiated the call costs before agreeing on the collaboration, as this depended on the high volume of incoming students and the need to raise funds for this service. We proposed that the pilot of this intervention should be free or crowdfunded so that listeners and families from underserved communities could access this service without worrying about the call costs. The rates proposed were 18 Paise (INR) per 30 seconds of the call.
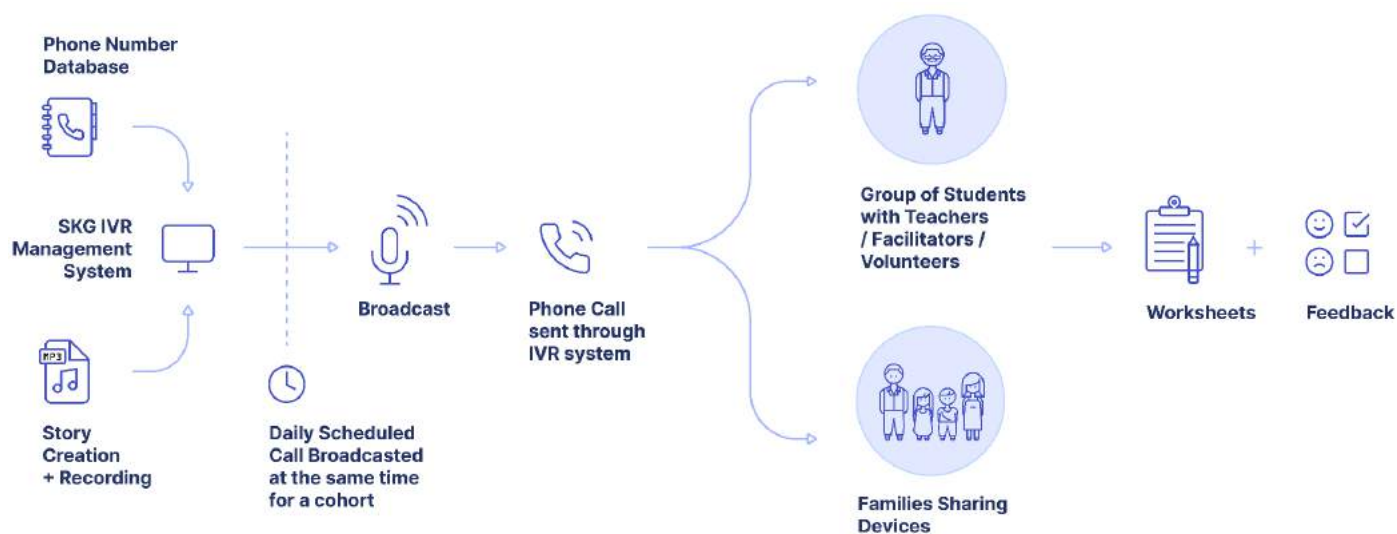
4.2.3. The System

Figure 10: System Map; School Ki Ghanti

The proposed system will use calling minutes to connect with primary school students on their parent's phones and disseminate valuable pre-recorded lessons as stories that keep the young students engaged and teach them

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[27] "10 Facts on Illiteracy in India That You Must Know | Oxfam India," www.oxfamindia.org, accessed July 18, 2022, https://www.oxfamindia.org/featuredstories/10-facts-illiteracy-india-you-must-know#:~:text=Which%20state%20has%20lowest%20literacy.
[28] The Flashlight Initiative is an educational mission for needy and disadvantaged children that began with the goal of providing free education, in Patna, Bihar, India.
[29] IVR (Interactive voice response) is a technology that allows interaction between humans and computer-operated phones. It can be through the use of voice or through clicking keys on a keypad. It is same technology used for automated customer service.

simultaneously. Therefore, we eliminate the need for not just fancy learning tablets or computers but even a smartphone, a need most learning technology fails to resolve.

1. We connect with local NGOs or individuals and leverage their network in underserved communities to cater to the children by retrieving their names and contact details, primarily phone numbers.
2. The IVR company equipped us with a digital dashboard to manage and schedule content to reach the registered students.
3. Each module was planned to be around four to seven minutes long. Furthermore, since we did not have the aid of props, we emphasised using voice modulation to capture the kids' attention. Sound effects are also added to make the calls more fun.
4. At the end of every session, we also gave them a fun activity so that the whole intervention did not remain one-way,
5. The IVR company will assist us in obtaining quantitative data on the number of minutes heard by each listener, allowing us to track and create a metric system.
6. SKG is not just a delivery system; it also measures the listenership and engagement levels of the listeners to constantly reiterate the service and send out detailed reports to our partners to maintain transparency and strengthen collaboration.

4.2.4. The Content

Modules

We believe in the children's capacity to create knowledge through experiments and hope to leverage joyful experiences in our educational content. Hence, the modules will be designed considering factors like– brevity, engagement, relevance, and value. They will be created to prompt listeners to consider a concept in context, such as identifying and listing five nouns in their daily life to expose learners to the subject. Such learning activities encourage the learner to inculcate the spirit of inquiry which is the essence of scientific temper.

1. The module begins with a school bell's engaging yet familiar sound introducing the new lesson.
2. To keep the students engaged and excited, the narrator begins the module by performing it with various vocal modulations. To add to the fun, we interlace the narration with sound effects and tunes.
3. The lesson will then be followed by a small activity in which the child can participate and may or may not share it with the facilitators/caregivers with whom they are in contact.
4. A YES/NO question asks children to press on the phone's keypad to keep track of listenership levels and to add an interaction where the child engages with the phone.

A Story-based Pedagogy

Storytelling is one of the oldest modes of information dissemination which has the power to penetrate and influence the mind[30]. As a pedagogical tool, SKG uses storytelling to explore cultural diversity and integrate them into the curriculum, fostering imagination and investigating the power of narrative. Stories can simplify a complex subject and effectively teach lessons to allow listeners to retain information and remain engaged.

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[30] R. Eric Landrum, Karen Brakke, and Maureen A. McCarthy, "The Pedagogical Power of Storytelling.," *Scholarship of Teaching and Learning in Psychology* 5, no. 3 (September 2019): 247–53, https://doi.org/10.1037/stl0000152.
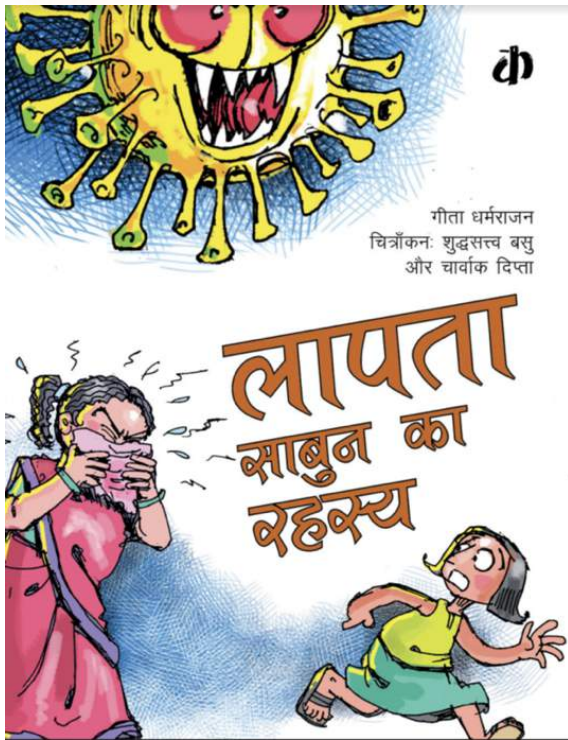
Figure 11; Stories curated and published by Katha, disseminated through SKG curriculum. Image Source: Katha Publications.

The Curriculum

The curriculum developed using the materials of the Bihar State Board[31] and the CBSE board[32], responds to the demographic of enrolled SKG students in the pilot and schools' affiliation to these education boards. Five familiar subjects are spread out over the five days of the week: These subjects rely on the primary school curriculum defined by the authorities mentioned above.

Monday	Science
Tuesday	Mathematics
Wednesday	General Studies
Thursday	Social Science
Friday	Hindi / Regional Language

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[31] Bihar state board is a state level governing body of education in the state of Bihar in India, controlled and managed by the Bihar state government.
[32] CBSE (Central Board of Secondary Education) is a national level governing body of education in India for public and private schools, controlled and managed by the central government.

Art Education

A crisis has always impeded learning where we do not consider learning a joyful exercise. Students can learn joyfully and overcome the seriousness of teaching and learning activities. We propose using art-based activities such as drawing, where students experience and understand the concepts using their imagination. These can boost one's mood in the short term and facilitate an opportunity for students to express themselves, recognising their creative expression[33].

Figure 12; School Ki Ghanti's listeners following social distance norms whilst listening to the module and showing their activities in Delhi, NCR, India. Image Source: Author

Narration & Sound Effects

Because the entire learning process is audio-based, it is critical to keep the young listeners engaged. We intend to recruit narrators and storytellers to narrate and record the lessons by incorporating fun, theatrical, and lively tones into the audio lesson. Sound effects engage our listeners in the settings of the characters and stories. Voice modulation and ambient sounds (rivers flowing, wind blowing, animals, etc.) encourage children to visualise and expand their imagination. Our storytellers and sound designers collaborate to ensure that the stories are engaging and entertaining. We want to pepper the lesson with more sound effects with the help of sound designers and producers, where the lesson always begins with an exciting sound of the school bell to bring in familiarity for when they pick up the phone every Monday-Friday 4:00 pm.

4.2.5. Ways of Listening

With one simple mobile phone, we hope to change the way our listeners learn. During our user testing, we observed organic ways of collaboration sprouting around SKG. When a farmer's family could not even afford a handset, dedicated teachers reached out to them, where students listened to our modules on loudspeakers. If one of our listeners misses their scheduled call at 4, their mother listens to the lesson and narrates it to them. We primarily foresee two distinct ways our listeners will access and hear our calls, giving rise to new learning experiences.

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[33] Jennifer E. Drake and Ellen Winner, "How Children Use Drawing to Regulate Their Emotions," Cognition & Emotion 27, no. 3 (April 2013): 512–20, https://doi.org/10.1080/02699931.2012.720567.

Figure 13: Children listening to their daily calls. Image Source: Author

Scenario 1

The phone call will be sent to the parent's registered mobile number. The parent can then ensure that the child actively listens to the call. As demonstrated in many cases throughout the pilot, they can listen to the call with the child.

Figure 14: The local teacher at Child Trust has combined her own classes with these daily School Ki Ghanti phone calls to discuss the stories with students in groups of ten following physical distancing norms. Image Source: Author.

Scenario 2

Along with one of our partners, 'The Child Trust'[34], based in Delhi, NCR, we carved out a listening model for children from farming communities, where the remote facilitator makes the phone available to them in groups of ten. They would follow social distancing norms and listen to the call on speaker phone, after which the facilitator would facilitate a discussion and the exercise.

4.2.6. Building Partnerships and Collaborations

SKG seeks to engage and interact with existing non-governmental organisations (NGOs), Child Welfare Groups, care homes and individuals to drive change and reach diverse communities by collaborating with and within their networks. This collaboration will allow us to partner on content development and capacity building, resulting in impact. We particularly hope to focus our efforts on building the following relationships:

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[34] The Child Trust is a philanthropic organisation that has been working on child rights issues for over 15 years.

Local and State Governments

o We hope to engage with governmental bodies ranging from a local panchayat to the state education department to seek funds to support the cost of the IVR.

o Connecting with communities that have underserved kids through their database

o We will need organisational support, volunteers, and much-needed human resources to cater to all children in any state.

Volunteers, NGOs, and children's welfare groups

o Create organisation-specific cohorts from their databases, along with the names and phone numbers of the children to be enrolled.

o Connect with translators, authors, storytellers, and sound designers to assist us in publishing stories in the local language.

o Assistance mobilising organisations and individuals ready to support the expense of IVR for these children.

Community outreach programme for individual collaborators

o SKG will develop a community outreach programme- Dost (Friend in English). This programme will call out individuals to identify children in their neighbourhoods to increase listenership and bring storytelling sessions to them.

o Roles played by the 'Dost':

• Help SKG connect to underserved children.

• Act as facilitators who would gather feedback and exercises from these children.

• Share weekly listeners' reports to give beneficiaries visibility into the engagement levels.

Children Publications

We propose collaborations with children's book publications and writers to borrow from their repository of stories and retell them in our unique ways. These collaborations will help to build culturally diverse and inclusive material by adding stories to our proposed curriculum and using the organisation's framework to battle the learning crisis, therefore providing age-appropriate content that has already been rigorously validated. For our pilot, Pratham books[35] and their StoryWeaver[36], the digital repository generously allowed us to borrow their stories and retell them as part of our curriculum.

Extended Collaborations- Community Radio Stations in India

SKG aims to widen its reach by leveraging traditional yet effective technological platforms like the nationwide community radios that combine our intervention's domain knowledge with community radio's reach and connective power. To test this delivery method, during our six months pilot run, we collaborated with three community radio stations across India Tilonia Radio[37] (Rajasthan), Radio Awaz[38] (Dahod, Gujarat), and Gurgaon ki Awaaz[39]. The show was promoted through radio commercials, social media marketing, and word of mouth.

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[35] Setup in 2004, Pratham Books is a leading non-profit bringing story books to children across India in their mother tongue languages.

[36] StoryWeaver is a digital repository of reading resources curated and maintained by Pratham Books.

[37] Tilonia radio is an effective medium for communicating with rural communities within a 15-kilometre radius. There are 50,000 listeners spread across over 30 villages in Rajasthan, India

[38] Radio Awaj Dahod 90.8 FM is a community radio works for community development, community awareness, education, health, and overall development of all Dahod district residents. It is managed by Blind Welfare Council Dahod, Gujarat, India.

[39] A non-profit radio station in Gurugram, Haryana, India, that broadcasts 22 hours a day, 365 days a year to over 500,000 listeners.

4.2.7. Outreach Strategies

To increase awareness and enrolment for SKG, we have built three primary channels:

- Social Media
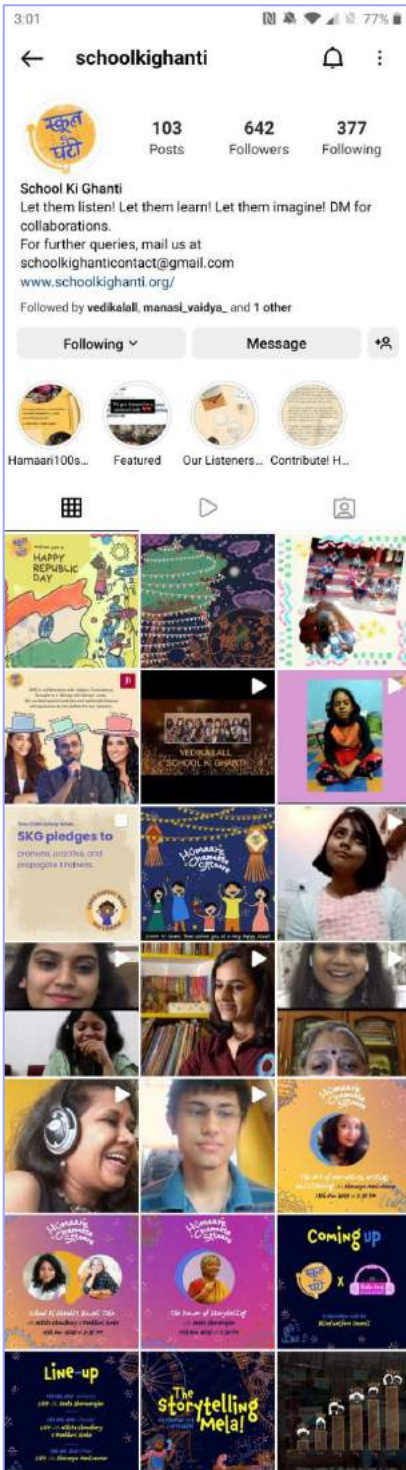- Website
- Word of Mouth

Figure 16: SKG Instagram Profile

Figure 15: SKG Website Design

4.3. Benefits of School Ki Ghanti

- SKG hopes to restore confidence in students from disadvantaged families by providing an alternative. The proposed IVR-based system would enable these children to continue their primary education in remote locations and regions experiencing internet instability and conflict.

- It is imperative to make this model sustainable and scalable. We recognize this as a promising initiative to afford education to the children at the bottom of the pyramid.

- SKG boosts the idea of offering creative literacy to their children. Our modules combine storytelling with creative thinking and creative problem solving using a new pedagogical approach. Our feedback has shown that our methods help listeners retain concepts like division, subtraction, and gravity with better efficacy than traditional means.
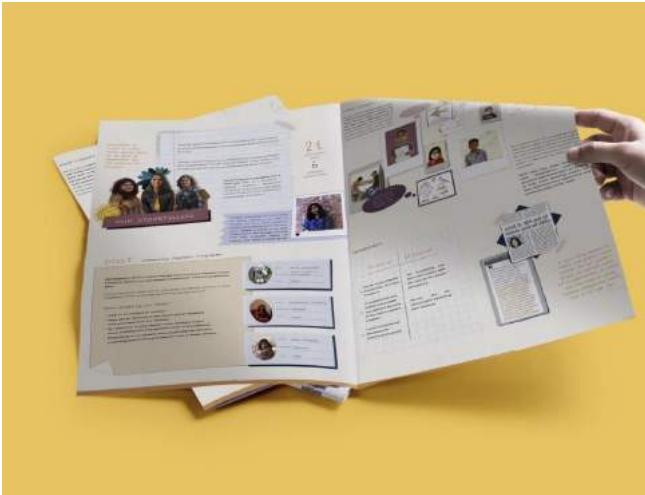
Figure 17; School Ki Ghanti's first month Newsletter to discuss its impact and potential and raise awareness.

- The propensity to drop out or pay half-hearted attention increases in an online environment heavily reliant on self-learning. Even if there is a mechanism to check attendance, it would not be easy to guarantee students' attention and interest in a virtual setting. SKG resolves the challenge posed by self-learning by sending a call to the children, like a school bell, that urges and motivates them to pick up.

- SKG can inform policy research since building resilient education systems require similar actionable evidence-gathering, scalable implementation, and understanding of nuances at the grassroots level.

4.3.1. SKG's intended learning outcomes

To deliver tangible and measurable benefits, we formulated the following learning outcomes in collaboration with educators and child psychologists to guide decision making and content creation:

Intellectual & Cognitive Skills

- Predicting the learning outcomes from stories instils meaning making.
- Strengthened ability to imagine and visualise.
- Capable of recalling their experiences through innovative and relevant concepts and stories.
- Capable of differentiating and distinguishing objects, elements, and actions in their environment.
- Storytelling improves focus and concentration.

Social and Emotional Skills

- Awareness of their individuality and characteristics such as gender, ethnicity, culture & abilities.
- Understand and demonstrate empathy, sensitivity, and civic awareness.
- Improved mindfulness and self-expression.
- Appreciation for the earth, and those who inhabit it.
- Create positive interactions, mannerisms, and behaviours.

Verbal Information

- Learn and apply new vocabulary.
- Capable of processing, making sense of, and breaking down linguistic concepts.

Motor Skills

- Coordination of multiple senses at a time, such as hearing and limb movement.
- Capable of transforming ideas into forms such as drawings, body language, gestures, and words.

4.4. Beneficiaries

Figure 18: Children from Lal Bagh Juggi, New Delhi, India complete their exercises after listening to the modules. Image Source: Author

SKG's primary stakeholders would be defined as:

Listeners

- Primary school children, and first generational learners from underserved communities of age 6-12 years.

Parents

- Parents are reassured that their children are participating in a learning cycle. Their role is critical since they are the ones who allow their children to use phones.

Educators

- SKG provides them with a tool to reach out to their students outside the classroom and keep them in the learning loop.

Remote Facilitators

- They serve as our bridges between listeners, their families, and the SKG team, ensuring that the listeners are informed about the calls and that the SKG team receives listener feedback regularly.

NGOs/Child Welfare Organisations

- SKG brings a new dimension to their low-cost welfare strategies.

The Team

- Storytellers, writers, design researchers, visual artists, and data analysts all impact the children, reminding them that they are not forgotten.

Policymakers

- Benefit from real-time, actionable data collection through the SKG system to inform local, state, and central policy initiatives.

4.5. Funding

We intended to elicit an informal funding method to begin the pilot's implementation. These funds were designated to cover the cost of outgoing calls. We sought sponsorship from audiences we encountered on social media platforms such as Instagram and LinkedIn.

4.5.1. Crowdfunding

Crowdfunding helped the SKG pilot get off the ground by acquiring the essential cash flow boost. We planned most of our campaigns online, provided time limits for raising funds, and specified precise monetary goals.
- For our pilot, we have collected INR 55,000 from crowdfunding through Milaap[40] and INR 3,300 through individual contributions. In month 1, we had 54 supporters for our cause.
- Crowdfunding on FuelaDream[41]- Raised INR 1,89,920

4.5.2. Impact Funding

Impact investments to aim to have a beneficial, demonstrable social and environmental impact and a financial return. As a result, we want to connect with donors and philanthropic organisations to show how we can improve outcomes for the communities in which we want to operate.

4.5.3. Adopt-a-Child Programme

We intend to develop a programme that allows people/ collaborators to sponsor a learning module for as many children as they wish at INR 30 per child per week. Below is the breakdown of INR 30*. These funds are being utilised to sponsor the cost of broadcasting calls via the IVR system and fulfil legal obligations.

Cost for a call per child per week*	₹30	🪙🪙🪙🪙🪙🪙
IVR Cost	₹18	🪙🪙🪙🪙
Content & Sound Design	₹9	🪙🪙
Admin	₹3	🪙

*Assuming 500 children   🪙 = INR 5

4.5.4. Unit Economics Model

As a new social enterprise, we want to learn more about how we develop, mature, and grow by applying a unit economics approach to the prospective hybrid business model[42]. In the future, SKG may expand to a nationwide self-sustaining social enterprise where parents enrol their children at a nominal fee, and the profit capabilities
are based on the number of children enrolled.

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[40] Milaap is a free crowdfunding platform in India that Raises funds online for medical emergencies and social causes
[41] Fueladream is a crowdfunding platform that aims to make a difference in the lives of over 2 billion people in India and other parts of the world.
[42] Hybrid business model: Social enterprises are organisations that seek to achieve social goals by engaging in innovative and social value-creating activities while also confronting financial and resource-based market challenges to ensure their long-term viability.

4.6. Testing the Intervention

4.6.1. The Pilot

To put the proposed solution to the test, we conducted primary research by interviewing primary school children in Patna, Bihar, to learn about their daily routines during the lockdown. They were enrolled in government schools and had not received any educational assistance during the start of the Pandemic in May 2020. Many participants confirmed doing housework and playing with friends. Those with smartphones spent their time on YouTube and Tiktok. Many had started to accompany their parents to their workplaces, forcing them to succumb to child labour. This prompted us to seek out a Child Welfare Organisation in the city and use their network to encourage enrolment and send our first audio modules. This prompted us to seek out a Child Welfare Organisation in the city, use their network to encourage enrolment, and send our first audio modules.

Figure 19; Responses from Tilonia community radio listeners in Rajasthan, India. Image Source: Author

We began our intervention in Patna, but through the pilot, word of mouth, and social media campaigns, we reached 700+ children across seven cities in six months, working with 20 partner organisations. We had made 42,060 calls in two languages up to that point, creating 52,203 minutes of engagement.

This was majorly attributed to all the collaborations. Being a part of some of the country's largest welfare organisations boosted our performance and supported us to maximise our reach. As one of the many partners of Katha's[43] 300M movement, we wanted to be more disruptive—faster, frugal, far-reaching, and more efficient. Katha's founder and Padma Shri awardee[44], Mrs Geeta Dharamrajan, introduced us to their unique earth-friendly curriculum that helps children become Reader-Leaders. Soon after, our collaboration with Sesame Street India, whose two characters provided additional voices and enhanced our audio modules, brought recognition to our intervention.

Endorsements from dignitaries such as Dr Swati Popat Vats, the founder of the Early Childhood Association[45] and Poddar Jumbo School[46], facilitated us in reaching a national audience. Together we enforced digital literacy in India, learning for all, and the importance of child advocacy.

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[43] Indian non-profit organisation connecting grassroots work in publishing, education and urban resurgence to bring children living in poverty reading resources and book-rich learning centres.
[44] Fourth highest civilian award of the Republic of India.
45 The Early Childhood Association (ECA) is a networking platform for anyone who is interested in the enrichment, networking, awareness, and advocacy of childhood and all things related to it.
[46] Podar Education Network, founded in 1927 by Sheth Anandilal Podar, has always been driven and motivated by traditional Indian values such as honesty, integrity, and service.

Figure 20; Collaboration between School Ki Ghanti and Sesame Street India.

To mark the occasion of our 100 stories in 100 days, we worked with internationally acclaimed children's book authors Sharanya Manivannan, Paro Anand, and Natasha Sharma to narrate their stories in their voices, culminating in our modules.

Our calls needed to benefit all our listeners. We used to send monthly reports that included metrics like Number of calls, Number of calls answered, Number of calls that crossed engagement threshold, Answering rate, and Engagement level to ensure transparency, accountability and inform our partners about their specific cohorts.

Thus, the pilot proved critical in testing how an intervention like SKG will seek to change outcomes and impact. It reveals the program's theoretical assumptions and the risks associated with its implementation.

Figure 21; School Ki Ghanti's partner organisations across India.

4.6.2. Monitoring and Evaluation
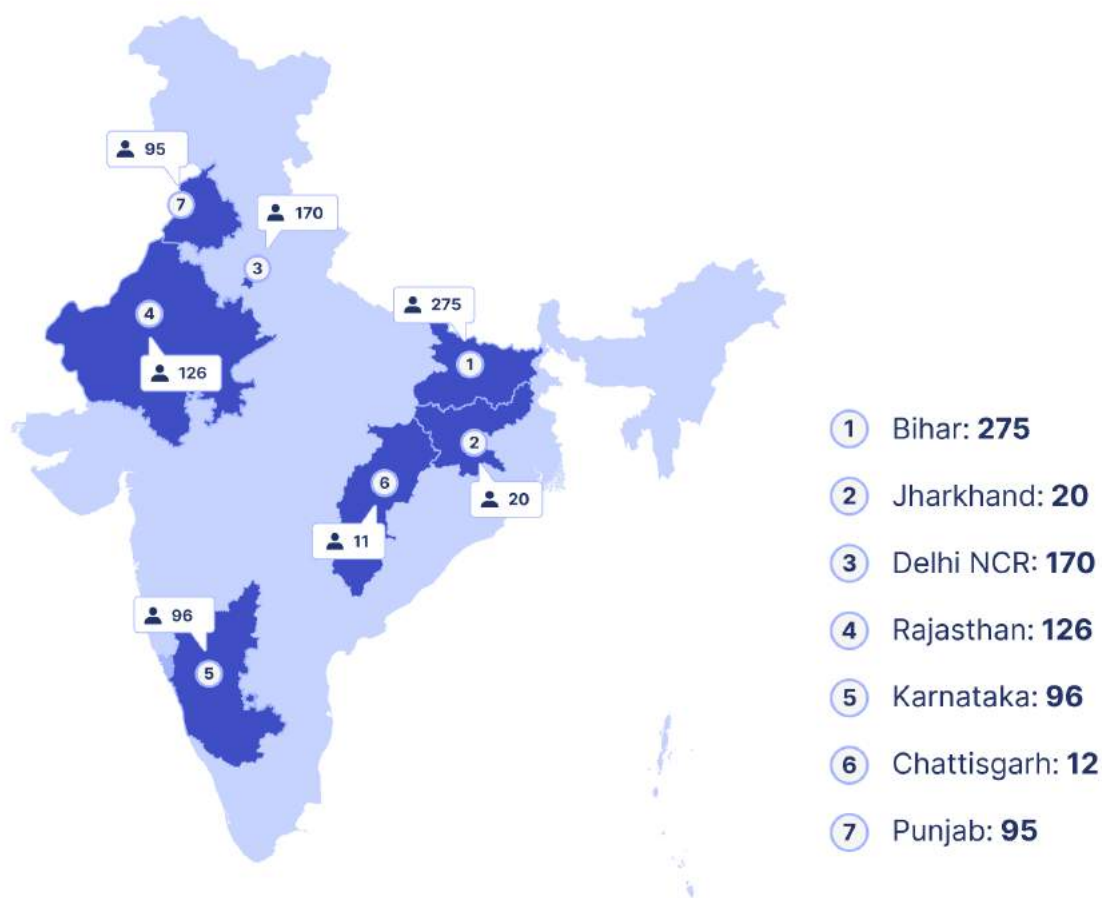
Figure 22: Number of Students listening to SKGs daily phone calls towards the end of pilot.

We advise adopting a proactive quantitative data analysis and feedback evaluation mechanism to improve the modules' effectiveness consistently. For meaningful impact, we propose a system that tracks children's engagement levels across groups through parameters like how often they pick up the call and whether they hear the entire story. During the pilot, we gauged the response to the content identified different cohorts by creating a testing survey-based feedback model that assessed the success of the intervention based on the following criteria:

- Interest
- Retention and Learning

Below are the two parameters we articulated during the pilot to understand the engagement of our listeners:

Answering Rate

Number of calls answered by the individual listener concerning the total number of calls made in a week. Success threshold was 60%

Engagement Levels

The duration between answering the call and disconnecting is used to measure engagement levels. Success was measured with a variable threshold for each call depending on the length of the pre-recorded call.

4.6.3. Impact measurement of the Pilot
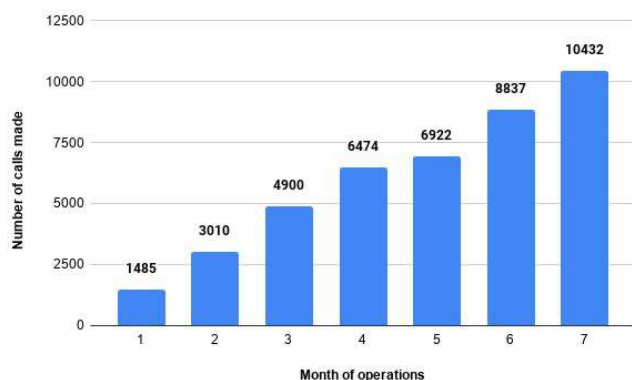
Figure 24: Increase in number of calls through the pilot.
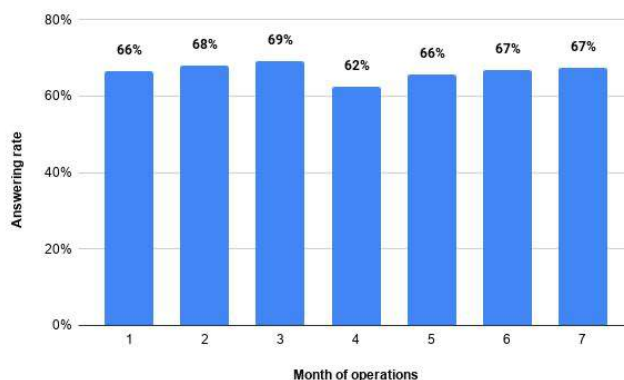
Figure 23: Growth in Listenership through the pilot.

Qualitative

The Listeners

- After three months of pilot testing, our early listener Deeksha said; "I wait for SKG's phone call every day. I also maintain a notebook for this. My parents and I thank SKG for thinking of us in these grave times."
- Muskan remarks, "I love doing art-related exercises; they are so much fun!"

Remote Facilitators

- "The daily phone calls provide children with continuous learning while also giving them the impression that they can continue their education without using the internet. Listening to stories makes studying more engaging and pleasurable. Their parents are pleased with the personal touch provided by phone calls for feedback." Kusumlata, GPS Mamoon, Pathankot.
- "The children like listening to stories and participating in activities. Storytelling provides kids with new avenues for learning and exploration. These children record the activities in their notebooks and complete the exercises assigned to them. In challenging circumstances like the pandemic, they enjoy listening to stories on a speaker collectively, bringing excitement." Shobana, Maher Ashram, Care home.

Quantitative

As we sent out calls to children, we witnessed a consistent upward trend in the number of calls answered, barring a few days where we faced technical issues. Call answer rates vary between 70-80% on average. Average engagement levels were 60%.

After the pilot, we contacted 100 listeners who received calls from SKG daily to record their feedback and experiences using a Google Form.

We discovered that:

- **91%** of the children are excited about our daily storytelling calls.
- **90%** of the children listen to our storytelling calls regularly.
- **95%** of the children like the stories.
- **96%** of the children understand the stories being told.
- **84%** of the children do the exercises narrated in the storytelling calls.
- Nearly **71%** of the children shared/narrated the stories with/to their friends and family.

28

- Only **2%** of children face difficulty in story translation and explanation.
- More than **40%** of the children were interested in recommending SKG to their friends.
- More than **85%** of the children want to continue the SKG calls.
- **3** of **10** Children are occupied with tuition or school homework
- **2** out of **10** Children have to help with household chores.

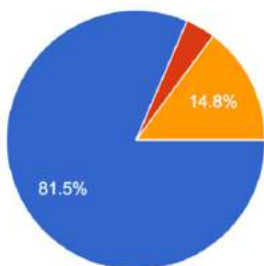**Do you like answering the storytelling calls?**
27 responses

85.2% · 11.1%
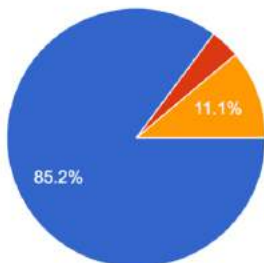
Level of Excitement on answering the call
27 responses

63% · 11.1% · 25.9%
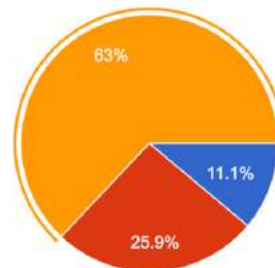
- ● Little
- ● Moderate
- ● Extreme

Are you understanding the stories being narrated?
27 responses

81.5% · 14.8%

Do you do the exercises narrated in the call?
27 responses

14.8% · 11.1% · 74.1%
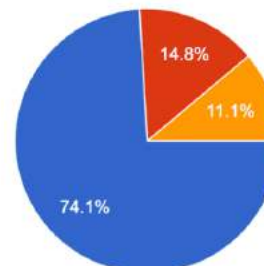
- ● Yes
- ● No
- ● Maybe

Figure 25: Responses from enrolled students post pilot and user research.

4.6.4. Insights from the Pilot

- The partner organisations' engagement with listeners plays a significant role in raising awareness and directly influences SKG's listenership levels.

- Most of our listeners are first-generation learners. Although the parents are not well educated, they are eager to help their child learn by ensuring that he or she answers the call.

- A 5-minute-long narrative requires great efforts, including planning the schedule, content, communication, and impact analysis while keeping the target audience in mind and aspirations for scalability to reach the lakhs of children who are currently deprived of any learning opportunity. Building a multidisciplinary team with a range of skills and networks would be crucial to realise this ambition.

4.7. Limitations

Identified from the Testing

Linguistic

Considering India's great linguistic diversity, where it is stated that language and dialects change every 100 metres, even though we began with commonly spoken Hindi, there were still issues and requests to deliver calls to the user's mother tongue. This made us realise the importance of an automated system allowing seamless translation and delivery.

Technical

Our intervention largely depends on a third-party technology for call delivery, so we discovered numerous inconsistencies during the test.
1. Server failure: A failure at the IVR provider's end would mean our failure to deliver calls consistently.
2. Connectivity: Many times, adverse weather conditions like heavy rains or cyclones would disrupt the call delivery. This can even happen at the receiver's end.

Bureaucratic

While attempting to acquire government funds to expand our reach and improve our operations, we realised that the reputation of charities and non-governmental organisations (NGOs) was not very good in front of the government.

Legal

An organisation must be legally recognised to receive any impact funding or funds from MNCs as Corporate Social Responsibility. Our constitution calls for such organisations to be formed as a Society or a Trust. These processes necessitate significant paperwork and money, making it difficult for interventions such as SKG to expedite and operate at total capacity. We must heavily rely on crowdfunding and other grants to keep the work going.
Logistical
1. Many listeners have limited access to phones at all times and struggle to keep up with SKG's calling schedule.
2. Some phone numbers provided to us do not exist. Because many of our listeners are from migratory communities and untrustworthy slums, the continual shift and changing of devices make it challenging to update and deliver calls on new numbers constantly.

Speculated

Child Protection Policy

Considering that SKG requires data collection as a core activity to function, it would warrant collecting names, numbers, and cities of residence of students from partner NGOs and trust them to take adequate consent from the parents/guardians of these children for the limited purpose of their welfare. We anticipate developing a privacy-protection policy for this information and inculcate best practices in dealing with this data in a responsible manner.

5. Potential Impact

Building reliable, equitable educational infrastructure must be prioritised in the poverty alleviation discourse. Through our proposal, we hope to advocate for a system that children everywhere can access without the hindrance of a financial burden. For instance, with more than 8 million children living in approximately 49,000 slums in India[47], if SKG can touch just 10%, it can help 800,000 children in 3 yrs.

5.1. Short-term

- In the face of the COVID 19 Pandemic, SKG functions as a design-led service. Because it brought more significant losses for public-school students, the team would initially aim to cover and educate such children.

- Language is essential to creating an inclusive education service for a country like India. To reach kids across the country, SKG hopes to diversify and generate audio modules relevant to local contexts and in multiple regional languages and dialects.

- SKG eventually intends to explore automation of certain aspects to make operations self-sufficient and less resource intensive. This would allow us to set up calls, collect qualitative and quantitative feedback, and collaborate with writers, narrators, and translators efficiently.

- SKG has the potential to reach children with special needs, especially the visually impaired. As tested with a community radio (Bultoo Radio) catering to the blind children of Gujarat, India, we learnt that these listeners were highly attracted to the radio broadcast and engaged positively with the SKG system and delivery method.

- SKG's content infrastructure can bring region, grade and vocation-specific education that can address challenges like agricultural illiteracy regarding land holdings, farming technologies, and best practices often cited as a factor in keeping families in poverty in an agrarian society like India. Instead, the 'one for all' approach will need to be evolved by creating relevant content and offering the service to students beyond just elementary education.

5.2. Long-term

- SKG aims to create a network of content creators, facilitators, and volunteers to provide employment opportunities at both local and systemic levels.

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[47] "Urban Children Living in Slums Vulnerable to Variety of Risks: Report," The Indian Express, July 17, 2015, https://indianexpress.com/article/india/india-others/urban-children-living-in-slums-vulnerable-to-variety-of-risks-report/.

- Regardless of connectivity, the Indian government's frequent bans on 4G connection and internet services have disrupted learning cycles for children living in conflict areas[48]. A UNHCR report in 2017 suggested that around 4 million refugee children were pushed out of school[49]. In our pilot, we collaborated with a care home in Jammu, India, GPS Mamoon[50] Pathankot, to deliver calls and realise this dire need.

- SKG intends to collaborate with policymakers and advocate for a more inclusive educational environment so nations such as India can improve their readiness for remote learning. We intend to provide actionable evidence gathered during fieldwork and listenership data collected over the months of operations to inform education policy.

- While SKG has its genesis from the gaps in the Indian education ecosystem, the issues about access to reliable internet, hardware, and educational material are global. A low-cost and low-tech approach to education like SKG can be extended to regions with these universal issues globally through redesigning content and collaborating with local state and civil society institutions.

5.3. School Ki Ghanti's Impact on Sustainable Development Goals

Sustainable Development Goals	Targets within the SDG	Rationale behind how SKG can address these
1 NO POVERTY	By 2030, SDG 1 hopes to eradicate extreme poverty, currently measured as people living on $1.25 a day and ensure that everyone, in particular the poor and the vulnerable, has equal access to economic and technological resources	The primary intention of SKG as an intervention is to help individuals escape generational poverty by leveraging education and equitable access to learning technologies.
4 QUALITY EDUCATION	SDG 4 advocates for education as an enabler for upward socioeconomic mobility and a key to escaping poverty. It calls for efforts and coalitions to ensure affordable, equitable, quality education by 2030.	Owing to the low-tech delivery approach, SKG has demonstrated the potential to establish remote contact with students who have limited access to a classroom through curated, locally relevant educational materials.
10 REDUCED INEQUALITIES	Citing socio-economic inequality, the goal articulates a need for reduced inequalities and political, social and economic inclusion of vulnerable populations to ensure that no one is left behind.	The low-cost, voice-based delivery mechanism of educational material can ensure the inclusion of even marginalised populations, irrespective of limited access to hardware and financial resources.

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[48] Freedom House, "India: Freedom on the Net 2021 Country Report," Freedom House, n.d., https://freedomhouse.org/country/india/freedom-net/2021.

[49] United Nations High Commissioner for Refugees, "Four Million Refugee Children Go without Schooling: UNHCR Report," UNHCR, 2018, https://www.unhcr.org/news/latest/2018/8/5b86342b4/four-million-refugee-children-schooling-unhcr-report.html.

[50] GPS Mamoon Pathankot was founded in 1960 and is run by the Department of Education. It is situated in the Pathankot block of Punjab, India. The school has grades ranging from 1 to 5. The school does not have any computers for teaching and learnin

6. Vision

Figure 26: Sunny Kumar, an eight-year-old boy from Patna, lives with his parents and older brother. His father works in a small office as a peon. His mother works as a housekeeper in various homes. Both parents want their children to learn and are working hard to provide them with a good education for a bright future. Because no one in his family had a smartphone and no internet connection, he could not attend his online classes during the COVID-19 crisis.

Sunny can learn through stories thanks to School Ki Ghanti. He makes make sure to complete the activities. He has a high retention capacity because he remembers the entire story as well as the information provided by the story. Image Source: Author

SKG began with the question of why internet access is a barrier to education. We used audio as a democratising medium and the power of storytelling to make concepts understandable. By making learning exciting, we hope to break the rote learning process. Therefore, we focussed on meaningful collaborations to create a new pedagogical approach. Although we started small, our pilot taught us that innovating with limited resources and time leads to the most effective solutions.

Because the Pandemic has shaken the global educational system, we wanted to add our intervention to the country's resilience strategies to increase educational support and skill-building opportunities for the growing number of out-of-school children and youth. After all, some students will not return to school. The learning loss, if not mitigated, will compound itself over time. SKG responds immediately and tries to address this by keeping children in the learning loop so that they can have a foundation to build on when schools reopen.

As an emerging social enterprise, we believe that SKG should be built as a robust network that includes the knowledge of all stakeholders and knowing that we can impact lives, both individually and collectively.

Our vision is to make all children feel included, help families and communities bridge the digital divide by providing resilient learning tools. We want to reach out to all the children in the country where SKG acts as a harbinger of the little joys of finding a friend over the phone and instil hope, just like Sunny (an eight-year-old) listener of SKG who waits for our calls.

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8. List of Figures