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BANGALORE

Improving Math at scale in India's Government Primary schools: Akshara's Ganitha Kalika Andolana (GKA)

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Executive Summary:

This is an independent study of an important program of Akshara Foundation. The program called Ganitha Kalika Andolana ("Mathematics Learning Movement") was a pioneering effort by Akshara. It has grown over the years. This study captures the evolution of this program.

Math is a subject that is dreaded and revered at the same time. It is widely believed to be a 'foundational' discipline upon which a lot of future learning in school depends. While India's access to schools and enrolment ratio in primary schools is one of the highest in the world, assessments on quality of education report at least 50% of children across grades are far below minimum learning levels.

Akshara Foundation's flagship program GKA (Ganitha Kalika Andolana or "Mathematics Learning Movement") provides activity-based joyful Mathematics learning to over 5.5 million children in over 90,000 government primary schools in the states of Karnataka (since 2015) and Odisha (since 2017) in India. Cumulatively, over 7 million children have been beneficially impacted over the last 10 years of GKA implementation. A multi-stakeholder program implemented in collaboration with the State and the Community, GKA is a highly scalable, sustainable and replicable program for India's state schools.

GKA has received national and international recognition. RTI International, a global non-profit research organization, acclaimed GKA as one of six successful large-scale early grade numeracy programs globally. NCERT's (National Council of Education Research and Training), the central academic body that designs curriculum and textbooks for all schools in India, NIPUN BHARAT (National Initiative for Proficiency in Reading with Understanding and Numeracy) 2021 guidelines says "The State of Karnataka has initiated GKA to improve numeracy skills and facilitate classroom teaching of Mathematics in Government primary schools. The programme is implemented by providing Math TLMs to schools, and by providing training and support to teachers in government primary schools. "

GKA is a holistic multi-stakeholder program with the following key constituents:

- Government commitment and buy-in at all levels.
- Teaching Learning Materials (TLMs) for innovative Mathematics pedagogy using NEP2020 (National Education Policy) recommended activity-based teaching learning approach deployed to every government school by the State.
- Over 200,000 teachers and State Resource Persons trained on GKA pedagogy. Besides face-to-face training, Akshara's GKA teacher training is available digitally (on the Ministry of Education's DIKSHA platform) in seven Indian languages.

- Akshara's Math learning app, Building Blocks (downloadable from Google Play Store and DIKSHA) is mapped to syllabus and available to ~33 Million children in grades 1 to 8 in 11 Indian states (in English and 8 Indian vernacular languages Hindi, Urdu, Kannada, Tamil, Telugu, Oriya, Marathi & Gujarati) through free state-distributed Energised Textbooks (ETBs).
- Over 55,000 village volunteers mobilized and trained by Akshara, work absolutely free in supporting GKA implementation, probably the largest volunteer-driven STEM program globally.
- Comprehensive community engagement program involving Gram Panchayats (village governance bodies), School Monitoring Committees and parents. In 2024-25, Akshara facilitated nearly 4900 community sponsored Gram Panchayat Mathematics contests in Karnataka assessing over 5,95,000 children that showed heartening improvement in learning outcomes in Mathematics.

Abstract:

India currently has a total population of over 1.4 billion and children represent 39% of the total population. According to the Census of India 2011, while there are 142 million children in the age group of 6-10 years (technically grades 1-5), the number of children in grades 1 to 5 in government primary schools in India is over 62 million (UDISE 2023-24). For perspective, Ghana has a population of 33 million, Kenya 57 million and South Africa 61 million. While India's access to schools and enrolment ratio in primary schools is one of the highest in the world, assessments on quality of education report at least 50% of children across grades are far below minimum learning levels. The situation is worse especially in rural India, where about 65% of India resides. a) The need is to create a programme that is beneficial to all stakeholders including children, teachers, educators and district level state education department officials, youth of the communities, local administration like Gram Panchayats and SDMC (School Development and Monitoring Committee) members, community members including parents, the state and the community at large, and possibly other NGOs. b) The solution should design for scale c) Create content of high standard. d) Make the content available in the Creative Commons so that other organizations can adapt it to their needs rather than reinventing the wheel e) Have an exit strategy for long term sustainability. Akshara Foundation's model Ganitha Kalika Andolana (GKA) which stands for " Mathematics Learning Movement" is used to deliver mathematics education across all government schools in Karnataka and in a significant part of Odisha to telling effect. Besides being beneficial to millions of children, GKA has proven to be politically acceptable, socially desirable, technologically feasible, financially viable and administratively doable.

INTRODUCTION:

India is a huge country with over 250 million children in schools across the country. While a lot has happened in terms of infrastructure and benefits for children, the learning achievement/ outcomes needle has not made any significant movements in the right direction – if anything, studies show that the Covid pandemic has resulted in a significant loss of learning for children especially in rural India.

Scaling and scaling sustainably proven solutions to problems especially in early education (the foundational years) are regarded as the "holy grail" of success in the development sector. Philanthropists, social entrepreneurs, governments and indeed the entire supply-side ecosystem is focused on the large goal of how to impact the largest number of children in a sustainable manner. Governments, on their own, are constrained by limited capacity for innovation and risk aversion to fund innovation – but they are open to invest in solutions that show the promise of large-scale impacts. There are multiple studies by Foundations and organizations that have tried to understand the question of scaling in India - see *Why Indian Nonprofits Are Experts at Scaling Up*[1], an article on Stanford Social Innovation Review and *Growing at Scale: Best Practices in Scalability*[2] by the Edelgive Foundation.

In a landmark paper by Rebecca Winthrop and Eileen McGivney of the Brookings Institution[3], the authors say "*In the last 200 years, the number of children attending primary school globally has grown from 2.3 million to 700 million today, covering nearly 90 percent of the world's school-age children. But the gulf in average levels of education between rich and poor countries remains huge. Without a fundamental rethinking of current approaches to education, it's going to take another 100 years for children in developing countries to reach the education levels achieved in developed countries. Something needs to change.*"

This was written in June 2015. To bridge this 100-year gap requires the ideation, creation and implementation of unique models (not just plain interventions) that engage all stakeholders in the process of education.

Some perspectives:

To get a sense of the size of the issues that confront us in India, here are some data points:

1. The number of children in grades 4 and 5 in government primary schools in India as per DISE (District Information System for Education) data is estimated to be nearly 25 million children.

[1] https://ssir.org/articles/entry/why_indian_nonprofits_are_experts_at_scaling_up#

[2] https://www.edelgive.org/wp-content/uploads/sites/3/2020/04/Paper-3.-A-Synopsis-Growing-at-Scale-Best- Practices-in-Scalability.pdf

[3] https://www.brookings.edu/research/why-wait-100-years-bridging-the-gap-in-global-education/

2. Karnataka has a state population of about 68 million as per the Census of India 2011 and ~ 2.4 million children in studying grades 1 to 5 in government primary schools. For perspective, Ghana has a population of 30 million, Kenya 48 million and South Africa 53 million. So, if we are able to scale up to cover all of Karnataka, it is akin to addressing the needs of an entire country.
3. By and large, **state mechanisms and institutions have failed to provide quality education**. In reality, State schools have qualified teachers who also get some amount of annual training and there is a well-defined system in place. However, execution fails and there is little accountability in the system. In contrast, **private sector players look for low- hanging fruit and end up servicing largely urban markets**. For example, in the city of Bengaluru, for every child that goes to the public school system, four children go to the private school system; in rural communities that is reversed and, in many rural locations, the public school is often the only school.

There are multiple organizations in the country that do very good work with regard to education for children at the bottom of the pyramid. Unfortunately, very few of them scale up in a structured and sustainable manner to create impact at the systemic level. Akshara's own journey, which started as bringing in different interventions to help improve the quality of learning outcomes in the public pre-primary and primary school systems, has slowly morphed into looking for: **Can a model be created that delivers a specific proficiency to all children in a given (large) geography in a sustainable manner and, can this *modus operandi* of the model be shared with other organizations who can do the same with respect to their interventions so that collectively a large set of organizations can help deliver quality education in a sustained and sustainable manner**. In this quest, Akshara has developed and used technology along with partners with open-source tools and they have addressed multiple issues both on the supply and demand sides to ensure systemic acceptance to scale.

The Math Challenge:

While India's access to schools and enrolment ratio in primary schools is one of the highest in the world, assessments on quality of education report at least 50% of children across grades are below minimum learning levels. The latest National Education Policy (NEP) points out that India is currently in a severe learning crisis: a large proportion of students currently in elementary school estimated to be over 50 million - have not attained foundational literacy and numeracy, i.e., the ability to read and comprehend basic text and the ability to carry out basic addition and subtraction. The NEP goes on to state that attaining foundational literacy and numeracy for all children must become an urgent national mission.

Successive ASER[4] (Annual Status of Education Report) reports reveal that , on average, less than 25% of children in grade 5 can do basic division of grade 2 level. And since 2005, this percentage for division has remained between 19-30% for grade 5 in government schools.

A quick snapshot of data from ASER 2024 provides shows the magnitude of this problem.

Table 7: % Children by grade and arithmetic level. All children. 2024

Std	Not even 1-9	Recognise numbers		Subtract	Divide	Total
		1-9	11-99			
I	26.3	39.9	26.6	5.2	2.0	100
II	10.6	33.5	37.2	13.7	5.0	100
III	5.5	23.7	37.1	22.3	11.4	100
IV	2.9	15.6	34.1	25.8	21.5	100
V	2.3	11.8	30.1	25.1	30.7	100
VI	1.6	8.8	28.9	24.7	36.0	100
VII	1.2	6.6	27.2	23.5	41.5	100
VIII	1.1	4.9	25.4	22.8	45.7	100

ALL INDIA NUMBERS

Table 7: % Children by grade and arithmetic level. All children. 2024

Std	Not even 1-9	Recognise numbers		Subtract	Divide	Total
		1-9	11-99			
I	26.3	35.8	35.0	2.6	0.3	100
II	9.7	25.6	53.2	10.5	1.0	100
III	4.8	16.3	53.0	22.4	3.5	100
IV	2.9	9.1	45.7	29.6	12.6	100
V	1.5	7.2	39.5	30.9	20.9	100
VI	1.6	4.0	34.8	32.0	27.7	100
VII	0.8	3.4	31.9	29.2	34.9	100
VIII	0.6	1.8	30.4	29.4	37.9	100

KARNATAKA NUMBERS

Table 9: Trends over time
Arithmetic in Std V and Std VIII. By school type.
2014, 2016, 2018, 2022, 2024

Year	% Children in Std V who can do division			% Children in Std VIII who can do division		
	Govt	Pvt	Govt & Pvt*	Govt	Pvt	Govt & Pvt*
2014	20.7	39.3	26.1	40.0	54.2	44.2
2016	21.1	38.0	26.0	40.2	51.2	43.3
2018	22.7	39.8	27.9	40.0	54.2	44.1
2022	21.6	38.7	25.6	41.8	53.8	44.7
2024	26.5	41.8	30.7	41.9	55.8	45.8

*This is the weighted average for children in government and private schools only.

Table 9: Trends over time
Arithmetic in Std V and Std VIII. By school type.
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Year	% Children in Std V who can do division			% Children in Std VIII who can do division		
	Govt	Pvt	Govt & Pvt*	Govt	Pvt	Govt & Pvt*
2014	16.7	33.2	20.2	34.9	43.3	37.0
2016	17.2	28.1	19.7	39.9	49.2	42.2
2018	19.6	23.0	20.5	36.1	47.4	39.0
2022	12.0	17.9	13.3	33.4	43.4	36.0
2024	19.3	25.6	20.9	35.7	43.3	37.9

*This is the weighted average for children in government and private schools only.

While the data for the year 2024 shows the declines that took place during the Covid-19 pandemic and the subsequent school closures have been reversed, the learning level deficits are still cause for concern.

Vision for School Mathematics

Math is a subject that is dreaded and revered at the same time by children. It is widely believed to be a 'foundational' discipline upon which a lot of future learning in school depends. Yet, achievement levels of students in primary school math are poor. As shown earlier, less than 20% of children in Standard 5 in Karnataka can do simple division (ASER). On the other hand, the National Curriculum Framework (NCF2005) and the subsequent National Education Policy 2020 (NEP2020) calls for moving beyond the 'narrow aim' of mathematics confined to numeracy to embrace a 'higher aim' "to develop the child's resources to think and reason mathematically, to pursue assumptions to their logical conclusion and to handle abstraction."

[4] https://www.asercentre.org/

The national policies outline the following vision for teaching of Math in schools:

- Shifting the focus of Mathematics education: Math teaching should move away from numerical procedures and calculations to the ability to think mathematically to solve problems by building a child's capacity for logical analysis and handling abstractions. Children should be able to see patterns and make connections between concepts within math as well as with other subjects and solve unstructured problems from real life using math.
- Every child should learn math: *"All students can learn mathematics and all students need to learn mathematics"*. Children should learn to enjoy mathematics rather than fear it and teachers should engage every child in class with the conviction that everyone can learn mathematics. One of the ways to do this is to use activities and concrete materials to introduce and develop math concepts. Also, an opportunity for children learning from each other helps in making learning of math less intimidating. As children gain confidence and succeed through these activities, they can be offered more challenging problems that develop their problem-solving abilities.
- Assessments should check a child's ability to think mathematically and not procedures: A change in emphasis of teaching math means that 'what' and' how' of assessments should change accordingly. Instead of pen and paper assessments at the end of the year, assessments can be ongoing and through observing children's activities. Since every child is unique and learns in a different way and at a different pace, teachers need to be aware of each child's progress in each concept to be able to help them better. Such continuous assessment is one of the important ways to make sure that every child is learning math.
- A resource-rich classroom and teacher support: Teachers need support in making this change both through professional development as well as material and ideas that they can readily use in their classrooms.

Why is Math important?

Numeracy encompasses the ability to use mathematical understanding and skills to solve problems and meet the demands of day-to-day living in complex social settings. To have this ability, one needs to be able to think and communicate quantitatively, to make sense of data, to have spatial awareness, to understand patterns and sequences, and to recognise situations where mathematical reasoning can be applied to solve problems. Math supports logical reasoning and analytical thinking, improves problem-solving skills, develops flexible thinking and creativity and opens up many different career paths.

There are huge economic benefits in inculcating early numeracy. Many studies show that a modest increase in numeracy scores corresponds with almost 20% higher wages; other studies show that an improvement of one-half standard deviation in mathematics and science performance at the individual level can increase GDP (Gross Domestic Product) per capita by

0.87%[5]. This is all the more important in countries like India where studies show that less than 25% of children in elementary schools (grades 1 to 5) can do grade appropriate math – this translates to over 100 million children unable to be ready to progress effectively (with respect to math) to secondary school and beyond!

Besides economic arguments, there is a more basic social issue. Not inculcating math skills early will increase inequality, which leads to poor innumerate families falling prey to financial manipulation. We need to raise the numeracy expectations of every stakeholder - parents, teachers, the State, employers and, most of all, children by creating structures conducive to a math learning movement. Unless an effective collaboration between the state, the community and the corporate sector is set up to ensure that issues of quality in education are sustainably addressed across the system, we will have a demographic disaster in our hands within the next ten years.

According to the National Science Foundation, 80 percent of the global jobs created in the next decade will require some form of math and science skills. In fact, the current education system finds it difficult to understand the adoption of STEM (Science, Technology, Engineering and Mathematics) hands-on teaching methodology across subjects. India, being a big hub for knowledge-based industries, cannot afford to ignore this vital part of the education process. And, we have to recognize that to learn **STE** there is a need for a solid **M**ath foundation that is sadly lacking in our education system.

Mathematics gives us the ability to learn and think in any field of daily life. At Akshara, the belief is that the skills of learning are critical – perhaps more important than knowledge which is readily available on the Internet. Foundational skills of Mathematics should be imparted to all students – scientists and engineers will definitely benefit but so will every citizen who has to learn and think creatively and critically no matter what their fields of endeavour. It is no secret that today's teaching methods at the school levels stress memorization and rote learning instead of analysing and understanding.

[5] https://www.researchgate.net/publication/279603863_Education_and_economic_growth_It%27s_not_just_going_to_school_but_learning_something_while_there_that_matters

It All Started with Akshara Ganitha

Akshara Ganitha was designed by Akshara Foundation with the NCF2005 vision in mind for teaching math in grades 1-5 (In Karnataka this was used for grades 4 and 5 so as to not disturb the existing *Nali Kali*[6] methodology in force in grades 1-3). It is a support programme (not a remedial intervention) aligned with the math syllabus and math textbooks that teachers follow in Karnataka.

The programme uses four main strategies:

- Learning with fun and understanding: A child creates his/her own knowledge by engaging with the environment while the teacher supports him/her in this process. The methodology introduces concepts in a graded manner focussing on the higher vision of mathematics as described earlier. The focus is on the child's ability to think mathematically, see patterns and structures and handle abstractions rather than rote memorisation or mastering procedures. Procedures often naturally 'flow out' of understanding a concept. The Teaching Learning Materials (TLMs) are used in early stages to build this understanding, but as the child gains confidence, he/she is encouraged to work on their own.

- Co-operative Learning: Learning in peer groups has a positive impact on learning. The Akshara Ganitha methodology involves co-operative learning in small groups of children (5-6 in a group) with mixed levels of achievement. In these groups, the students who are already familiar with the concepts, deepen their understanding by teaching other students who are having difficulties in grasping a concept.

- Continuous Activity-based Assessments: Every child can and should learn math. But they learn at different speeds and in different ways. Assessments help teachers know the level of understanding of each child in particular concepts so that they can help in advancing that learning. It also serves as feedback to the teacher so that she can focus on particular concepts that are not understood by many children in her class. Akshara Ganitha uses 'mini' activity based assessments on an on-going basis.

- On-going Teacher Support: To make this change happen, teachers need substantial support over an extended period of two to three years. Apart from providing TLM and training, teachers need in-school support to help them with practical issues they face in their classrooms as well as build a community of practice of teachers that supports each other. Akshara Ganitha programme engages teachers from the very first step and supports them for a substantial time so that a long term change in the culture of teaching of math can be achieved.

[6] https://www.schooleducation.kar.nic.in/pdffiles/NaliKali.pdf

Pedagogical Approach

The pedagogical concepts are grouped in four broad areas: Numbers and Operations; Geometry; Measurements; Patterns, Data Handling and Problem Solving. The key components and strategies for each of these are shown below:

	Grades 4 and 5
Numbers and Operations	Focus on place value and its connection with all four operations. Addition and subtraction flow from understanding of place value. Multiplication introduced using area model of multiplication. Division is introduced through partial division. In each case, procedures are derived through introductory activities and then reinforced through practice. Introduction to fractions and multiple meanings of fractions. Decimals are introduced by developing connections with fractions and place value.
Geometry	Geometry is introduced as a mechanism of structuring the 3D space using 3D and 2D shapes. Introduction of formal properties of shapes. Focus on spatial visualisation involving representation and transformations of 2D/3D shapes. Linkages to the real world are emphasised.
Measurement	Introduction of standard measurements for length, weight and volume and their conversions. Using this measure in real life situations and connecting them to the four numerical operations with decimals. Reading of clocks and calculations involving simple durations either through counting or by calculations.
Data Handling, Patterns & Problem Solving	Deepening the understanding of number and visual / spatial patterns. Introduction to data collection and representation and drawing inferences from that. Emphasis on age appropriate problem solving techniques for numerical as well as spatial reasoning.

What is GKA?

Based on the success of the Akshara Ganitha programme, in 2014, the Government of Karnataka made a commitment to bring in an activity-based programme for maths called Ganitha Kalika Andolana (GKA).

Children learning basic operations

Ganitha Kalika Andolana, conceived and developed by Akshara Foundation, Bangalore, is an attempt to bring a paradigm shift in Maths Teaching and Learning in government schools. GKA includes a critical component of using Teaching Learning Materials (TLMs) to break down abstract maths concepts into every day, relatable scenarios and help children understand maths in a Concrete way[7]. It is all about removing the fear of maths by simplifying it with activity-based and experiential learning.

By 2018, Odisha and Andhra Pradesh had taken GKA to their states. While Odisha followed a similar approach as Karnataka and scaled it up in a phased manner, Andhra Pradesh implemented in ~2,000 select model schools spread across the state.

GKA finds mention in NCERT's (National Council of Educational Research & Training) NIPUN BHARAT 2021 guidelines ("National Initiative for Proficiency in Reading with Understanding and Numeracy"), Page 263 of the NIPUN document says "The State of Karnataka has initiated Ganitha Kalika Andolana (GKA) – a mathematics learning movement program to improve numeracy skills and facilitate classroom teaching of Mathematics among students in Government primary schools. The programme is implemented by provisioning Math Teaching Learning Materials (TLMs) to schools and providing training and support to teachers in government primary schools."

[7] https://k5mathspot.com/what-is-the-cra-math-method/#:~:text=The%20CRA%20math%20model%20refers,abstract%20(numbers%20%26%20equations)

The following factors make GKA a unique program:

- The largest STEM program globally (based on the innovations from a non-profit organization) in terms of children impacted
- Highly cost efficient : Unlocks significant institutional value from :
    - the State : that deploys the Akshara designed Math kit ; implements Teacher Training & State Monitoring of implementation
    - the Community : that participates in Community Monitoring of the program and community led Assessments
- With over 50,000 grassroots volunteers , GKA is the largest Volunteer driven education program globally
- An exit strategy after establishing systems and processes, ensuring sustainability formatting
- Leverages Technology for scale and outreach:
    - Extensive use of DIKSHA and existing digital infrastructure
    - Math learning app- Building Blocks deployed through State Energised Textbooks
    - Teacher Training digital content deployed through several channels.
    - Highly successful blended learning pilots, now seeking to scale.

The GKA Model:

In a quintessential Public-Private Partnership mode, Akshara Foundation spearheads the program management of GKA while the State activates its program delivery mechanism. The partnership for any state is for multiple years to allow for stabilization at all levels and achieves the following outcomes-

1. Institutionalise government buy-in at the highest level of education policy making in the state.
2. Ensure curriculum-aligned Mathematics Teaching Learning Materials (TLM) reaches every school.
3. Build significant capacity among math teachers in all government primary schools to effectively teach math and make it fear-free and enjoyable for students.
4. Ensure mechanisms for monitoring and on-site mentoring for teachers are established within the government system.
5. Track improvement in student learning in math year on year with technology as the backbone.
6. Activate demand for quality education within Panchayats and Communities by empowering them with local data on student learning outcomes

While state governments invest in resources for their schools and teachers, Akshara invests in innovations and programme management at State and District levels.

Besides math pedagogy expertise, Akshara's core strength is in efficiently utilizing philanthropic capital towards outcome- oriented action within the government system and communities.

In October 2023 , RTI International, a global US non-profit research organisation, acclaimed ***GKA as one of six successful large-scale early grade numeracy programs globally.*** The "Numeracy at Scale" Study was the second phase of the Learning at Scale Research Study led by RTI International and part of the Global Development Research Consortium funded by the Bill and Melinda Gates Foundation. The Numeracy at Scale Summary Report on GKA in India[8] researches the following aspects:

1. Teaching practices and classroom environment that lead to learning in programs that are effective at scale - It cites that the GKA Math kits were key in engaging students and strengthening their understanding of math concepts.

2. Training and support that lead to teachers adopting effective classroom practices - Besides the GKA kit and student materials and relevant and organised training, teachers pointed out that parents, School Development & Monitoring Committee (SDMC) Meetings and community involvement as a program highlight.

3. System support required to deliver effective training and support to teachers:
    a. Government resources for GKA scale up : Budget provisions were made for the State to provide GKA kits and teacher training.
    b. Alignment with Government policies and curriculum addressing teachers' needs.
    c. Implementation through government's systems relying heavily on the State's infrastructure, personnel and processes for State-wide scale up .

Key Features of GKA:

The GKA model includes six parts that need to be synchronized for the model to be effective.

(a) **Government buy-in**: without this there is little hope of scaling up in a sustainable manner. The state has made significant financial investments into this programme. The state bears the entire cost of the GKA math kit developed by Akshara. In addition, Akshara makes extensive use of government school teachers in helping with the creation of question banks; using Cluster Resource Persons (CRPs) and other field personnel of the state government to monitor programme rollout.

[8] https://akshara.org.in//srv/htdocs/wp-content/uploads/2023/11/Numeracy-at-Scale-Findings-Brief-GKA- in-India_FINAL-1.pdf

b) **Pedagogy and Teaching / Learning Material (TLM)**[9]: Akshara's TLM ("math kit") complies with the National Curriculum Framework-2005. Akshara follows the Concrete- Representational-Abstract (CRA) pedagogy to teaching Math. The State follows a tendering process to procure the Akshara designed GKA kits from independent manufacturers. GKA kits are supplied to schools directly by independent manufacturers. A GKA kit in every state school through this State is a fine instance of institutionalisation and adoption of GKA by the State. Akshara has also developed Teacher Training manuals and other supplementary materials like Concept Cards which are available **for free** under a Creative Commons Licence (CCBY) from the Akshara website and the government education platform Diksha in **nine regional languages.**

TLMs being used by primary school children

GKA identified the gaps in the teaching methods adopted by teachers/the system and provided solutions without disturbing the theoretical framework of the maths pedagogy suggested by the National Curriculum Framework (NCF) 2005.

Teaching Learning Materials (TLMs) are a vital part of learning mathematics in a formal school setting, at any age. Studies have shown that TLMs are found to be helpful in many ways.

- They are instrumental when introducing an unfamiliar topic as it helps visualise how math works. It acts as a "catalyst to deepen mathematical understanding."
- When children explore concepts using TLMs, it allows teachers to observe their thought patterns and notice where they falter.
- TLMs help children organise, record and communicate mathematical ideas in more ways than one.
- TLMs also clarify confusing ideas that children may find hard in purely symbolic form thereby helping the child to "visualise" abstract symbols and concepts.

[9] https://www.researchgate.net/publication/334083571_Development_of_Teaching-Learning_Materials

In addition, using TLMs is aligned with the constructivist approach encouraged by the National Education Policy 2020 (NEP 2020). It helps children construct their understanding using concrete materials (for concept clarity), discuss their interpretations through group learning and then gradually master abstract procedural knowledge.

TLMs to teach concept of fractions

GKA 1.0 (for Grades 1 to 5) focused on the development of a maths kit aligned to competencies in the curriculum that follows the one-to-many (one TLM to explain many concepts) as well as many- to-one (many different TLMs used to explain one concept) principle. This scientifically designed toolkit is now an essential part of the Maths period in **every government school** in Karnataka and Odisha.

Following the successful implementation of GKA for primary grades in Karnataka, Samagra Sikshana Karnataka (SSK), Department of School Education, Karnataka requested Akshara Foundation to design and develop an activity-based pedagogy and TLMs for grades 6, 7 and 8 in collaboration with maths teachers/practitioners from government schools in Karnataka. This GKA kit co-created by Akshara and State teachers is referred to as GKA 2.0 (for grades 6-8). In the first half of academic year 2022-23, over four GKA 2.0 Workshops hosted by SSK, 30+ teachers from government schools in Karnataka along with senior pedagogists from Akshara created the “GKA 2.0 Math kit” comprising 22 Teaching Learning Materials (TLMs), a Teacher’s Handbook, and Teacher Training Manual. The GKA 2.0 TLM received approval from the "Projects Approval Board” (PAB) in 2023-24 for deployment to every Upper Primary School in all 7 districts of the Kalyana Karnataka region (the most socio-economic underserved region of North Karnataka covering the 7 districts Yadgir, Koppal, Bidar, Kalaburgi, Raichur, Gulbarga, and Bellary).

Over 8,800 GKA 2.0 kits were dispatched by the State to every Govt Upper Primary School in these 7 districts (over ~ 4500 schools) in early 2024. The State is now deploying GKA 2.0 TLMs for all ~ 20,000+ Upper Primary government schools in the entire state of Karnataka. Odisha State has also piloted the GKA 2.0 TLMs in 18 schools in Khurda district. This is another instance of State adoption of the program, which ensures long term sustainability.

c) **Training**[10] for the state resource persons and teachers has been developed, and so far, Akshara has trained over **200,000** teachers, Head-Teachers and CRPs across the states of Karnataka and Odisha. Akshara's training has consistently been rated as best-in-class in both these states by teachers.

Effective teacher training is essential in making sure that students receive quality education. Teachers who receive quality training are better prepared to engage students, promote critical thinking, and foster a love of learning. In addition, capacity building also helps teachers stay current with changes in educational theory and technology, and in improving their teaching skills.

Training of teachers, state and district Resource Persons (RPs) in the Education Department is done in a cascade format, as part of GKA's Capacity Building exercise.

The GKA Training Methodology focuses on

- Teacher guided and child-initiated learning – learner centric model
- Balance between concrete and abstract ideas
- Training provided on using TLMs
- Enabling teachers to create own low cost TLMs
- Simulation of classroom environment enabling group, activity -based learning
- Emphasis on concept clarity and making maths fun to learn and teach

During the Covid pandemic years, when physical teacher training was not possible, Akshara made the investments and developed 25 hours of **audio-video teacher training content** on the CRA pedagogy, use of the TLM and classroom instructions for GKA. These have been uploaded on the national digital education platform, DIKSHA. This teacher training content, available as a course in 7 languages, allows the teacher anywhere anytime training. Further, the AV modules have been broken into short 3- 7 minute modules, 169 in number, to explain

[10] https://www.oecd-ilibrary.org/sites/6d543b7b-en/index.html?itemId=/content/component/6d543b7b-en

each micro-concept that the teacher can use to refresh her training anytime including "just in time" for her class. In addition, the State has mandated all primary school math teachers to enrol into the GKA digital training course on DIKSHA and complete the course during the academic year.

Akshara is now developing digital course content for teacher training for grades 6 to 8 which will also be uploaded on DIKSHA for teachers' virtual training.

Discussions for creating TLM and audio-video teacher training content

(d) Building Blocks (BB), the Math Learning App: EdTech worldwide has been limited to tools and content for those with choice and access. Most children in India attend state schools which get a maximum of ~2.5 hours of Mathematics instruction in the classroom weekly. Teachers in these schools continue to use the "blackboard and chalk" and rote teaching approach. Children have no exposure to any edtech product that kindles the child's natural curiosity and urge to learn and explore Math. At home, there is neither a learning environment nor support from parents who, are often uneducated themselves or unavailable to lend support.

Building Blocks (BB) is an intuitive and interactive math learning app with 400+ interactive games mapped to grade-appropriate curriculum and it supplements Akshara's in-school math programme at home (for children in grades 1-8). Children in government schools learn math for less than 2 hours a week at school and many of them do not have a learning environment at home either. Building Blocks provides a supplemental opportunity for the child to practice math at home in a fun way.

BB is deployed both as

- a Math learning App (on Google PlayStore) as well as
- individual interactive games uploaded on DIKSHA and linked to several Indian states' "Energized Textbooks (ETBs)". ETBs are textbooks with QR Codes at the end of each chapter, which when scanned lead the child to free curated content on Diksha.

The games are mapped to the syllabus as per NCF. Currently, it is available to all children in English and 8 Indian vernacular languages (Hindi, Urdu, Kannada, Tamil, Telugu, Oriya, Marathi and Gujarati). BB runs both offline and online and on low-cost smartphones, the fastest growing segment of devices.

ETBs/ Diksha is Akshara's primary mode of deployment. Currently, BB games are linked to 11 state ETBs which have distributed over 33 million ETBs to children in government schools in their respective states. Nearly 6 Million+ BB games have been played so far, 78% of these in various vernacular languages.

Building Blocks is yet another instance of an NGO edtech innovation being made not only accessible to all children in state schools but institutionalised through state textbooks leveraging state digital infrastructure

Two years in a row, in 2023 and 2024, Building Blocks has been rated one of hundred globally scalable and impactful edtech innovations by HundrED, a global non-profit organisation specialising in K-12 education innovation research. In November 2024, Building Blocks also won the NASSCOM award for edtech in the not-for-profit category.

Building Blocks in use by children

e) **Monitoring of the rollout of GKA** : Innovative and efficient monitoring tools and processes are essential to support roll-out of any programme at scale. GKA is no different. There is a carefully defined monitoring system that has been put in place to check the progress of every single element in the model and not just learning outcomes of children, because without all of that playing together one will not see the outcomes.

Every state has a large cadre of resource support personnel in the form of Cluster Resource Persons (CRPs or CRCCs); Block Education Officers (BEOs) and Block Resource Persons (BRPs), etc. They are expected to support the schools academically and for some administratively as well. Part of their efforts include trying to understand how children are performing and whether programmes implemented through the state are working.

To help them with this task with respect to GKA, Akshara Foundation created a simple process of data collection that comprises answering four simple questions. Each one of those questions help the stakeholders understand where action needs to be taken and at what stage.

For instance, knowing the extent to which *GKA kits were used during the math class* – helps Akshara and the Education Department officials understand the 'why, why not' of it and remedy the situation.

(f) **Assessments of children** via an extensive **Community engagement model:** Akshara has been a pioneer in engaging with the community at scale and in a sustainable manner. In the last 3 years , when schools reopened after 2 years of closure owing to Covid, Akshara resumed their unique initiative of facilitating **Gram Panchayat Math Contests** across Karnataka. In September 2024, over **5,95,000 children** of grades 4,5 and 6 studying in government schools across Karnataka were assessed in a transparent process in **~4900 GP Contests**. The analysis of the learning outcomes from these assessments is briefly discussed later in this document.

In many districts there was 100% participation of Gram Panchayats indicating deep community engagement. These GP contests are entirely funded by the local communities, with Akshara only facilitating the question paper and evaluation of the assessments. Akshara encourages GP math contests as an annual affair to be conducted by communities on their own with very little support from Akshara.

Akshara's Community engagement program also mobilises **Education Volunteers** from the community who devote a few hours every month in helping implement GKA - visiting schools and supporting monitoring the program. Akshara's field teams help identify and train these volunteers. Across 28 districts of Karnataka, Akshara has mobilised a cadre of over **50,000** such volunteers so far and **6000** volunteers across 2 districts in Odisha.

Post the GP contests in Karnataka this year Math Symposiums were facilitated across 25 districts of Karnataka with participation from key stakeholders (District CEOs, District Collectors, DIETs, DDPIs, Gram Panchayat Sarpanches, School heads) to discuss results of the contests and collectively encourage improved learning.

Gram Panchayat assessments in progress

Stakeholder participation is vital in ensuring quality education in government schools. Their effective participation makes school management more porous and increases demand for quality education. They serve as a platform to keep a tab on children's learning curve and make necessary course corrections to improve the learning process for children.

For a programme to be sustainable well beyond the initiating non-profit organisation, every stakeholder needs to recognise its potential, take ownership of its outcomes and continue to implement it. Unless the locus of control moves from the supply side to the demand side (parents, SDMC members, Education Volunteers and Gram panchayat leaders), the quality of schooling will not improve.

How has Akshara managed to involve the community and keep them engaged in their children's learning?

a) First, by building a cadre of Education Volunteers

Volunteers mobilized by Akshara Foundation in villages

Akshara believes that volunteers can work under direction to energize the school system and enlighten communities. These youth are aware of the kinetics of village communities and can connect with the people there.

The model may differ from place to place, but the core principle is the same: committing their time to the cause of improving the quality of education in their villages.

b) Second, by facilitating Gram Panchayat Maths contests (GP Contests)

The Gram Panchayat (GP) Maths contest is a first-of-its-kind community initiative in India to encourage all concerned stakeholders to push for enhancing the quality of teaching and learning of Mathematics, across the education system.

All the school children from 4th to 6th grade who come under that GP are invited to participate. Except for setting the question paper, which is done by Akshara, these contests are organised entirely by the community members themselves. The timer is set to 1 hour as they begin the test. Education volunteers evaluate the answer sheets before finally announcing the winners.

Parents and other community members come to witness the contest and prize distribution ceremony. This is the first time that most parents would be exposed to the impact of interactive-based learning and in turn, the importance of math.

This concept of math contests has opened up a healthy dialogue between the various stakeholders like parents, teachers and other community members, with respect to their children's performance and learning levels.

c) Third, by encouraging 1-3-6-9 wall writings

Volunteers mobilized by Akshara Foundation in villages

Those who send their children to private schools are used to the Parent-teacher meetings, open Houses, review meetings where teachers give parents feedback on their child's learning levels and share progress.

In the context of rural India and the public schooling system, parents and other stakeholders are not visible in the process of educating their children. To encourage community involvement and create awareness, Akshara Foundation has promoted the 1-3-6-9 wall writing activity in public places so that people read this information and act on it **(over 12,000 wall writings in Karnataka and over 1,000 in Odisha).**

Each 1-3-6-9 wall writing has the following message:

- 1 - The School Development and Monitoring Committee (SDMC) to meet every month.
- 3 - Parents to participate in the parents' meetings that schools hold once every three months.
- 6 - Teachers to ensure that parents review their children's learning progress once in six months.
- 9 - Children attend school nine months a year.

The community, motivated by the Education Volunteers, have raised money by themselves and facilitated these wall writings in every village.

Meeting for parents organized to review children's progress

To recap in one frame, this is what the GKA model looks like:

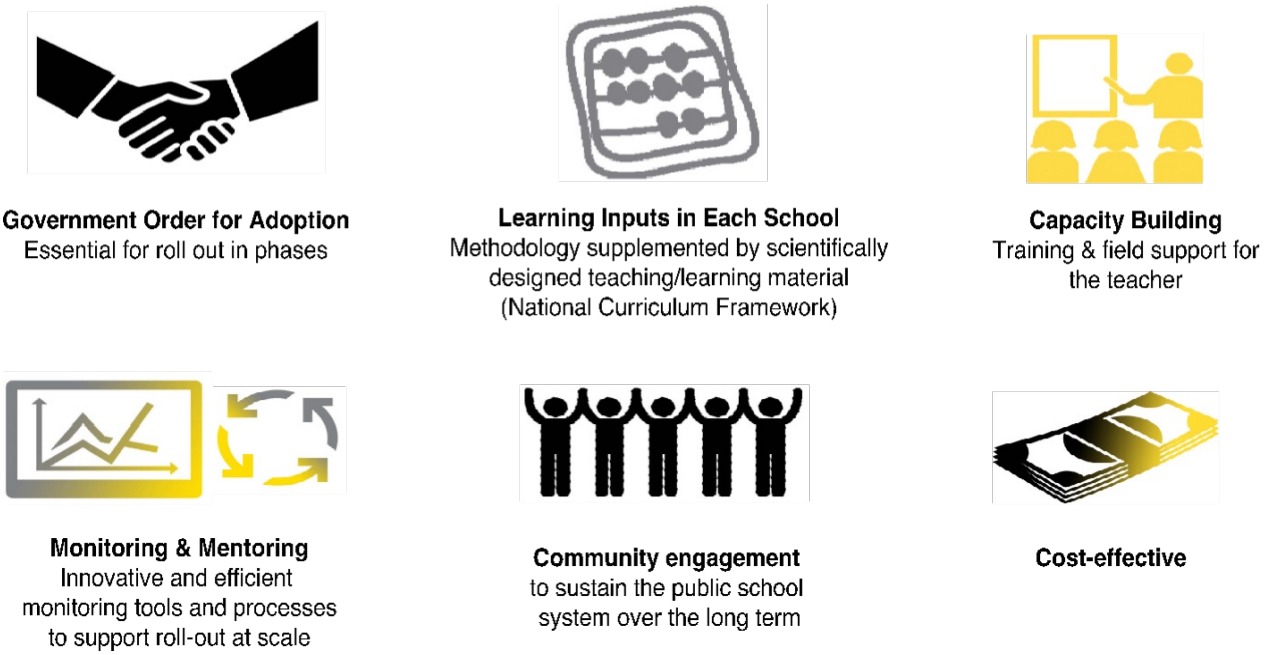


Figure: The Ganitha Kalika Andolana Model

Impact:

The impact of GKA has to be evaluated both in terms of "has GKA improved the enabling environment" and, also on the performance of children in maths. The GKA model has managed to succeed in the following ways:

1. There is a strong government buy-in both in the state of Karnataka and in Odisha. In 2014 the state of Karnataka had committed itself to GKA and has not wavered since then. And the evidences are: (a) the state has procured GKA kits through public tendering processes for all the schools in the state; (b) the state has made investments in training teachers to use the GKA methodology; (c) the state has encouraged local communities to participate and organize Gram Panchayat Math Contests across the state; (d) the state has invited Akshara to build similar resources for Grades 6-8 and has supported this activity substantially. In Odisha, since 2017, Akshara has been the state's Numeracy Partner and this has reflected in the state's decisions to procure GKA kits through a public tendering process, continuous investments in teacher capacity building. In both states, GKA has also been modified to use in the state Foundational Literacy & Numeracy (FLN) efforts. Akshara has been supporting state institutions in adapting the GKA content to match the needs of children in the FLN age groups (grades 1-3). Some additional data points to reinforce a strong state buy-in:

    a. Every district through the District Institute for Education and Training (DIET) and from the office of the District Director for Primary Instruction (DDPI) or equivalent have been issuing formal instructions to educators at the block and cluster levels to implement GKA.

b. Gram Panchayat Math Contests are also supported by the state Education Department as well as the state RDPR (Rural Development and Panchayat Raj) officials who instruct their departments to ensure facilitation support for the conduct of these contests.

c. In Odisha, a 3 day Workshop was conducted by the SCERT (State Council of Education Research & Training) to link Building Blocks games to the State Textbooks.

d. In Odisha, a 1-3-6-9 Wall Writings State Committee has been set up to officially start 1-3-6-9 wall writings in all schools

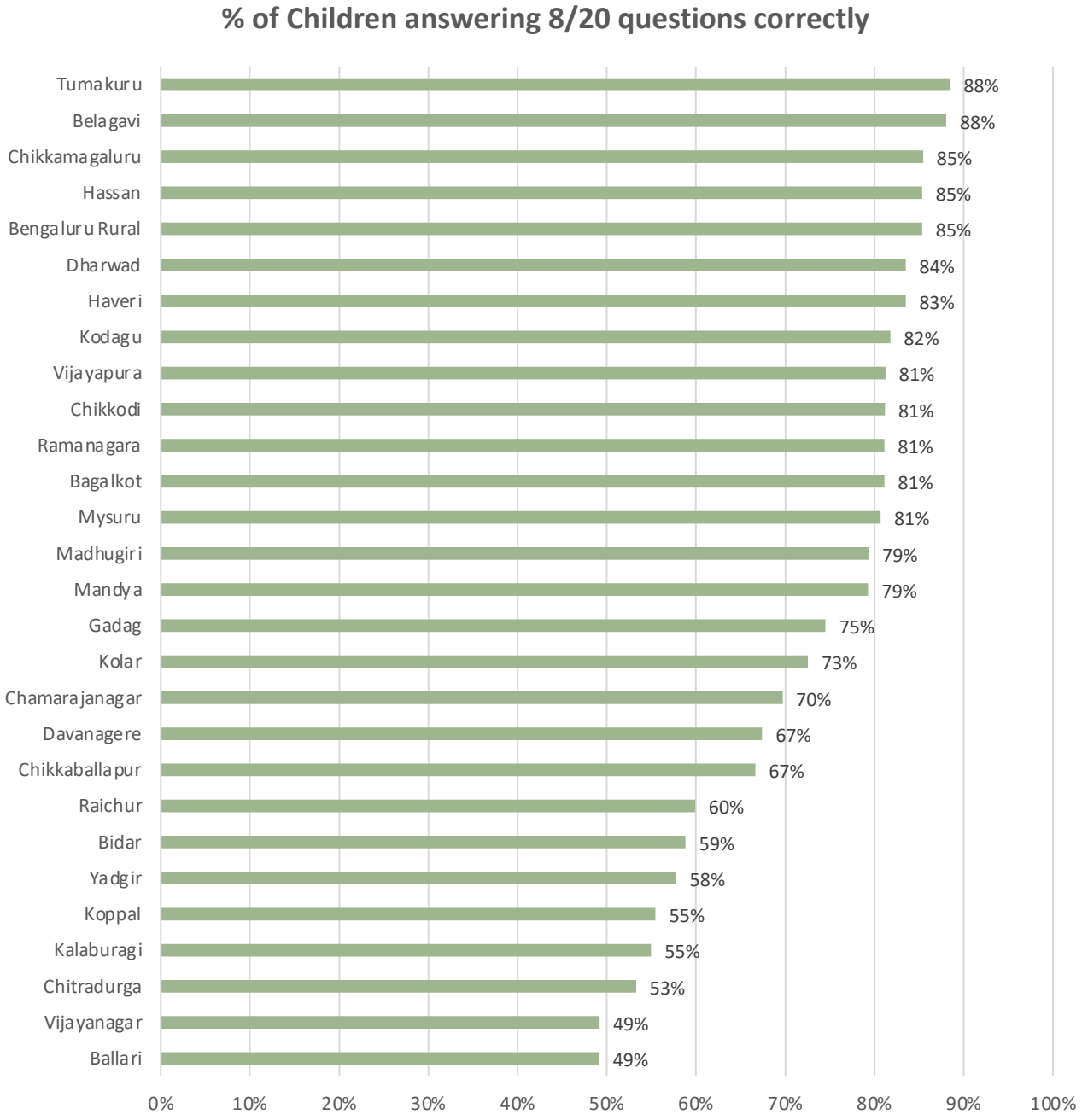
2. Akshara developed GKA 1.0 for grades 1-5 and in 2021-22 was invited by the Karnataka state to prepare GKA 2.0 (for grades 6-8) – this has been successfully done. GKA 2.0 has been rolled out in the academic year 2023-24 with the belief that children will benefit from this scientifically designed content and kit. In addition, Akshara has prepared extensive teacher training content both for face-to-face training and via digital means through 25 hours of AV modules covering the entire curriculum. The program is being scaled across Karnataka by the State.

3. In terms of community engagement, Akshara has managed to create large numbers of youth as Education Volunteers and Team Leaders- in Karnataka they have over 50,000 such volunteers and in three districts of Odisha they have over 6,000 such volunteers. This has translated into large numbers of 1-3-6-9 Boards being painted in schools across the villages and these serve to remind all stakeholders of their role in the process of education.

4. Perhaps, the best validation of GKA are the findings from the Gram Panchayat (GP) Math contests, India's largest community led assessments. Over the years, the GP Math contests have gained significant traction. In the 2024-25 edition of the contests 4,890 out of 5,956 Gram Panchayats in Karnataka participated. The initiative engaged over 5,95,000 children from over 26,100 schools in 28 out of 35 districts of Karnataka. The contests are aimed at understanding the learning levels of children in maths, through a community-driven approach. Over 37,000 grassroot level volunteers participated in the conduct of the assessments. Such large scale decentralised assessments of learning levels help provide stakeholders and policy makers data based evidence for course correction to improve learning at scale.

Performance highlights of children from the Karnataka State level GP Contests 2024-25 [11] for grades 4, 5 and 6 are shown below:

GRADE 4



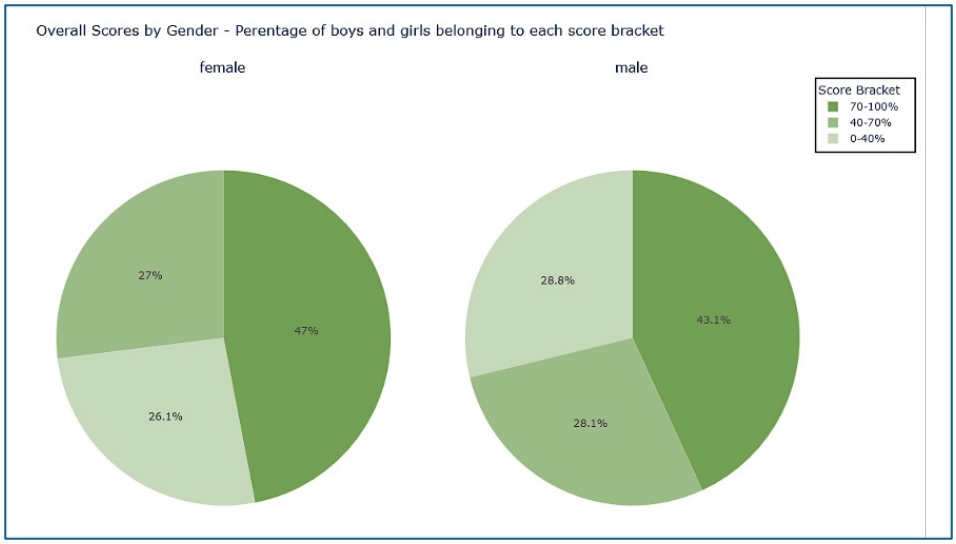
- In grade 4, even in the lowest performing districts of Ballari and Vijayanagar, 49% of the children could answer 8 out of 20 questions correctly.
- At the top end, 88% of the children in Tumakuru and Belagavi could answer 8 out of 20 questions correctly.
- Children in grade 4 have spent three years under the state's "Nali Kali" activity-based pedagogy

[11] https://akshara.org.in/wp-content/uploads/2025/03/state-level-GP-report-2024-25.pdf

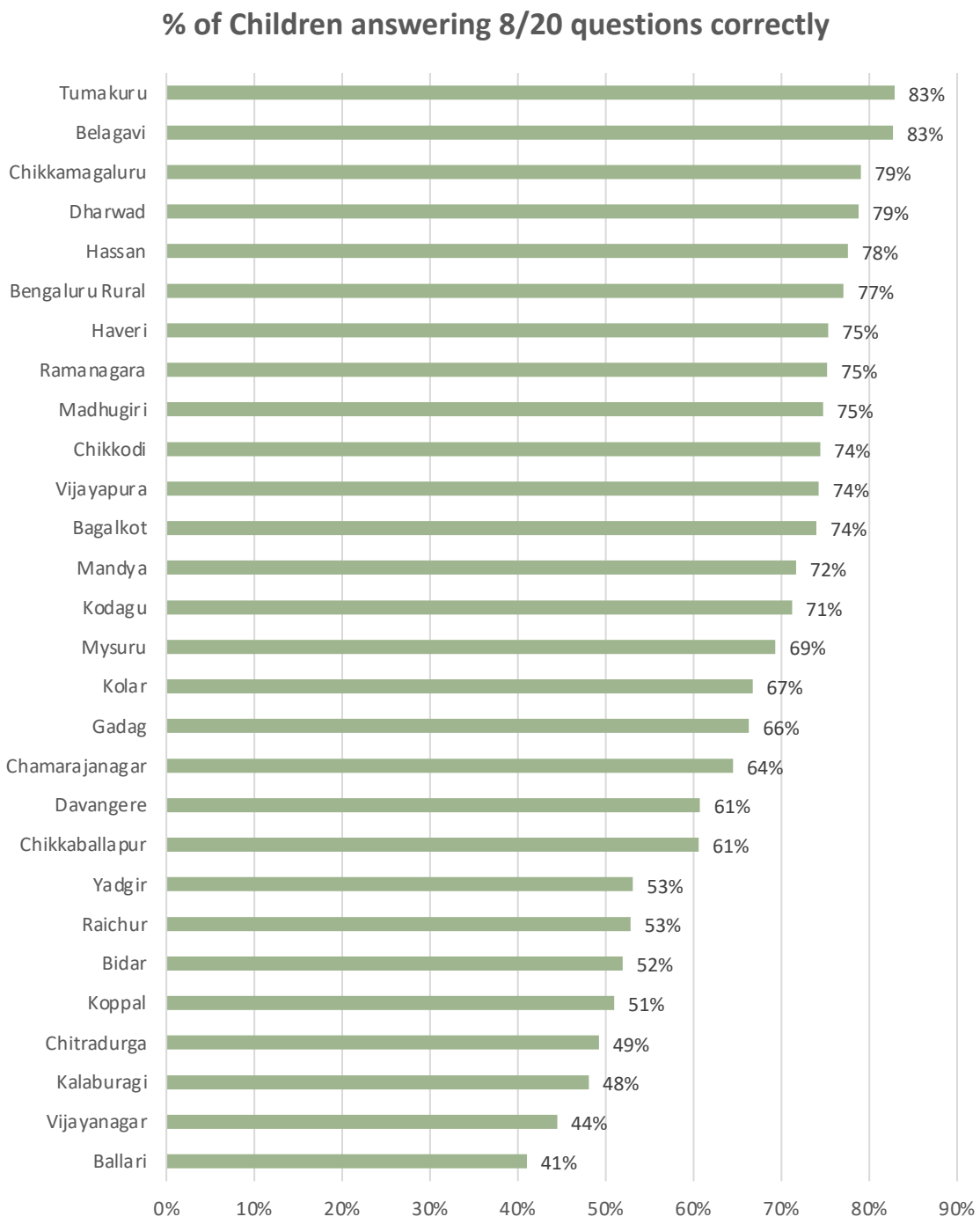
HOW CHILDREN PERFORMED ACROSS COMPETENCIES

- Across the state, children in grade 4 found Subtraction and Division difficult while Addition and Shapes were easy competencies. **In every competency, girls outperformed boys across the state**.

- **In grade 4, across the state 53.1 % of the participants were girls while 46.9% were boys.**

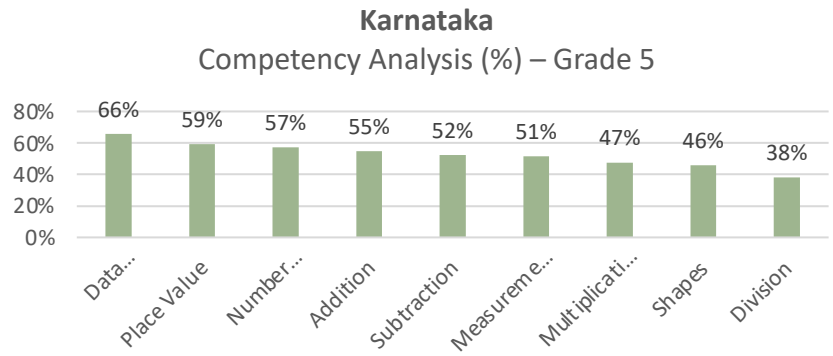


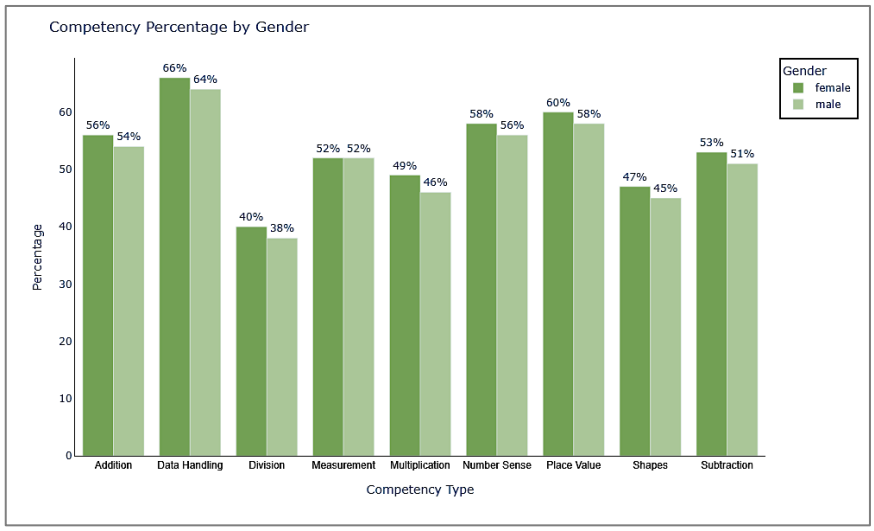
GRADE 5



- In grade 5, the lowest performing districts were Ballari at 41% and Vijayanagar at 44% which meant that 41% and 44% of the children in those districts were able to answer 8 out of 20 questions correctly.
- Both Tumakuru and Belagavi continued to be the best performing districts where 83% of the children could answer 8 out of 20 questions correctly.
- It is to be noted that children were tested for competencies they should have learnt in grade 4.

HOW CHILDREN PERFORMED ACROSS COMPETENCIES

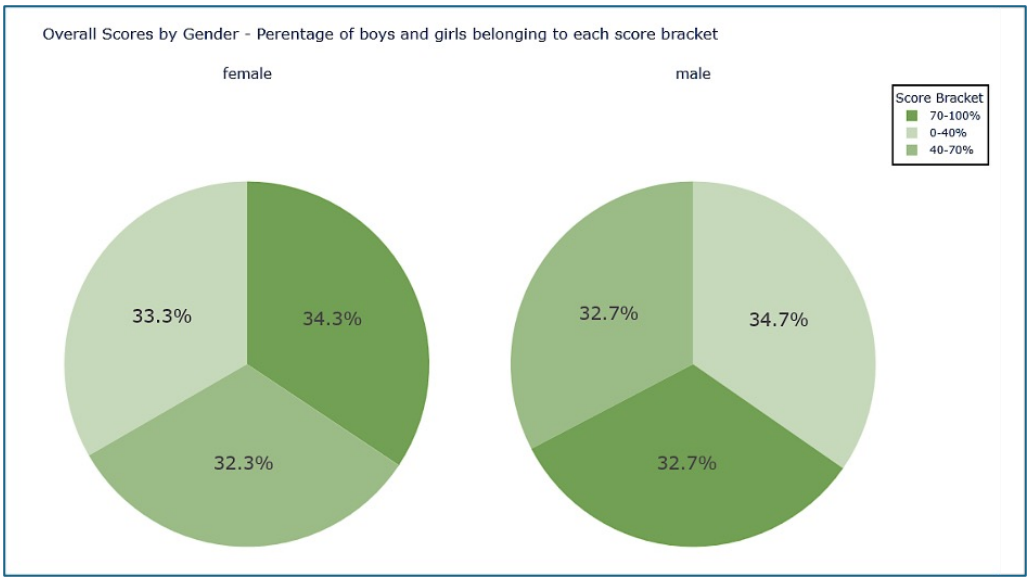




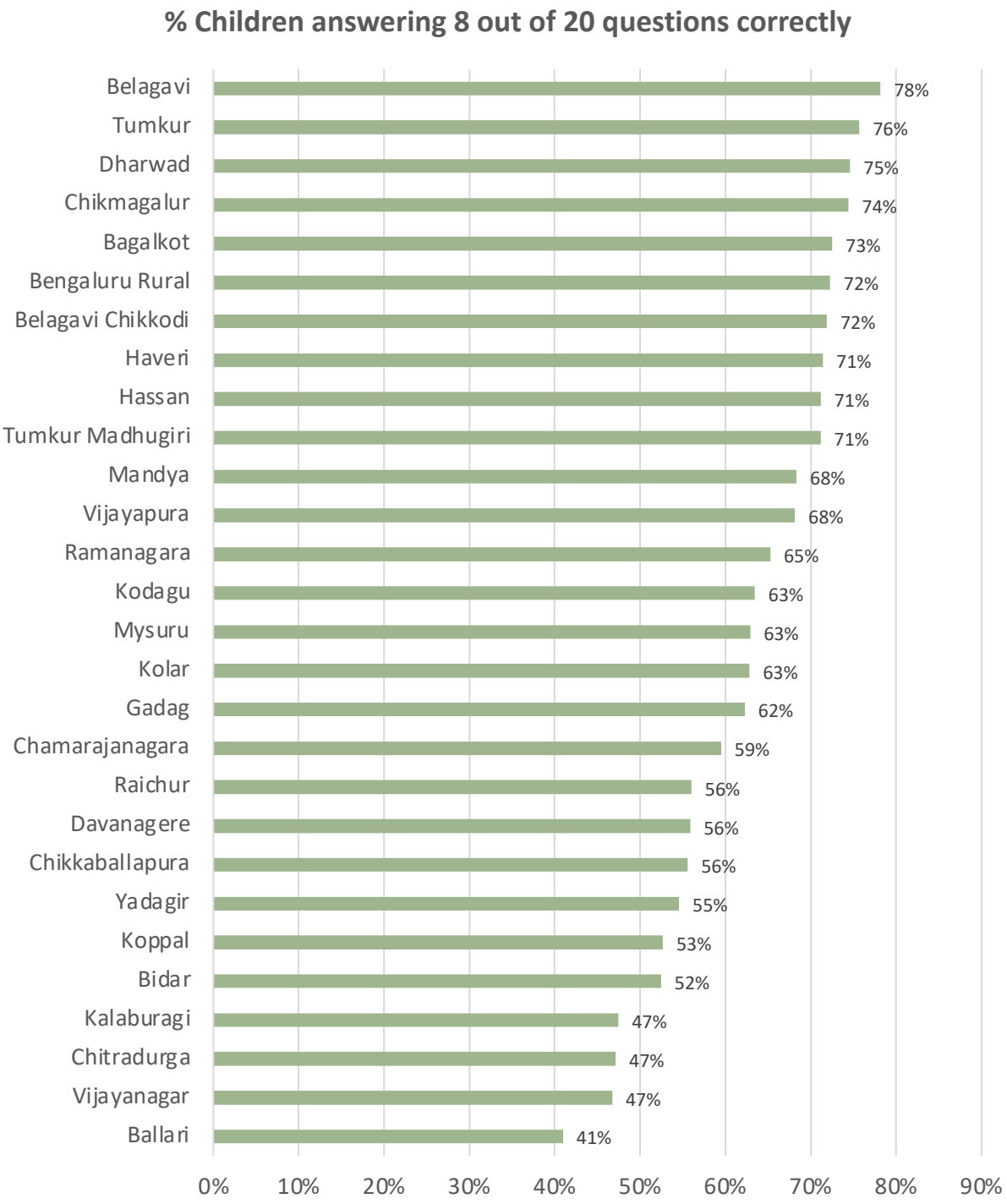
- Across the state, children in grade 5 found Shapes and Division difficult while Data Handling and Place Value were easy competencies. **For every competency except Measurement, girls outperformed boys across the state.**
- **In grade 5, across the state 54.1 % of the participants were girls while 45.9% were boys.**

As seen in grade 4, in the 70%-100% band girls outperformed boys by nearly 2 percentage points while at the bottom end boys trailed girls by 1.6%. Some interesting trends start to emerge:

- In grade 4, 44% of the children could handle Division while in grade 5 this dropped to 38%.
- In grade 4, 48% of the children could handle Subtraction while in grade 5 this jumped to 52%.

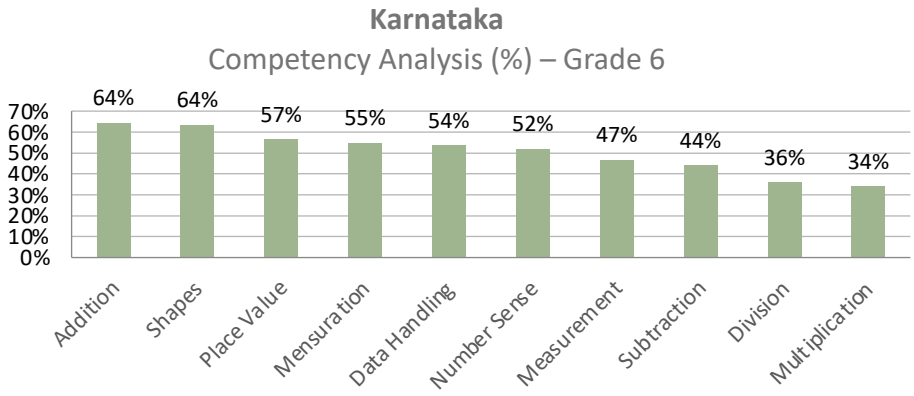


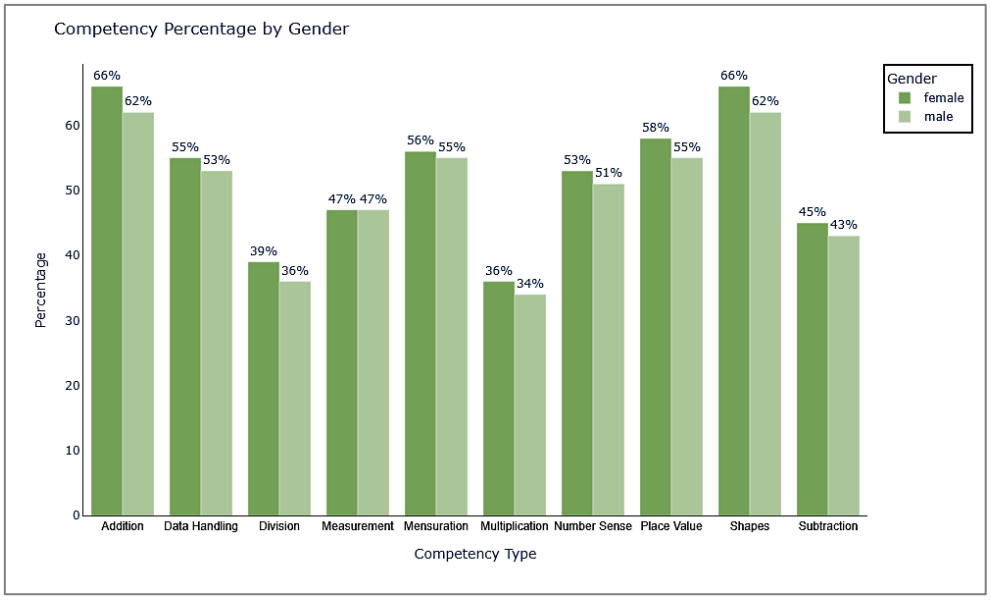
GRADE 6



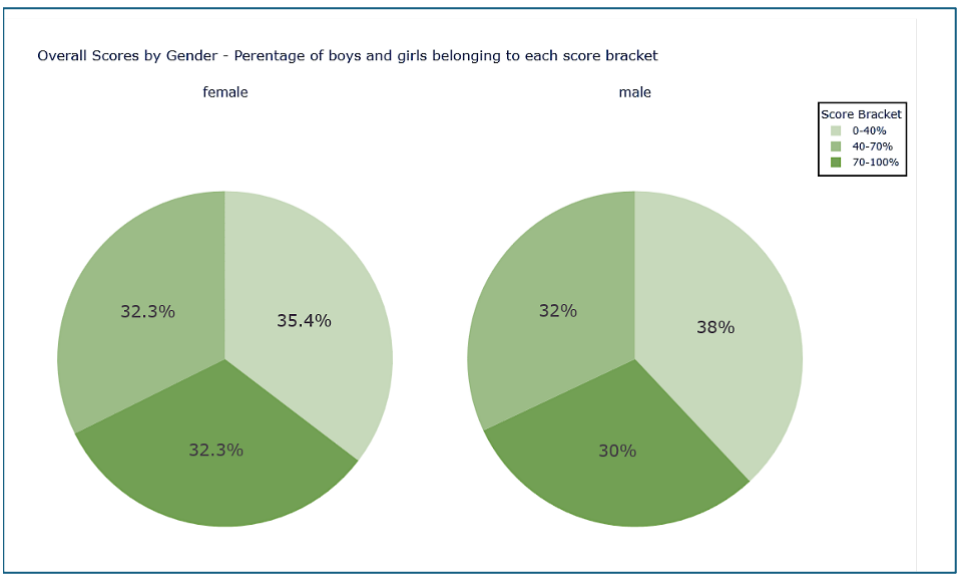
- In grade 6, Ballari and Vijayanagar continued to be the lowest performing districts while Belagavi and Tumakuru retained the top two spots respectively, as in grade 5.
- Compared to grade 5, Ballari continued to be at the 41% mark while Vijayanagar gained three points in grade 6 from 44% in grade 5 to 47% in grade 6.

HOW CHILDREN PERFORMED ACROSS COMPETENCIES





- Across the state, children in grade 6 found Division and Multiplication the most difficult competencies while Addition and Shapes were the easiest competencies. **Across all competencies except Measurement, girls performed better than boys.**
- **In grade 6, across the state 53.2 % of the participants were girls while 46.8% were boys.**
- As seen in grades 4 and 5, in the 70%-100% band, girls outperformed boys by 2.5 percentage points while at the bottom end, boys trailed girls by 3.1%.



A QUICK SUMMARY OF THE STATE-WIDE RESULTS:

- In terms of participation in the contests, more girls than boys participated. In numbers, girls outnumbered boys by over 40,000.

- While in grade 4, over 40% of the children were in the highest scoring band (70-100%), this dropped to about a third in grades 5 and 6. This is a disturbing trend.

- In grades 5 and 6, a third of the children were in the bottom band of the scoring (0-40%).

- Division is a difficult competency across all grades while subtraction is not.

- Competencies like Shapes and Place Value were easy for most children.

Note: GP Maths Contests were not held in Uttara Kannada, Sirsi, Udupi, Dakshina Kannada, Shivamogga and Bengaluru Urban.

Principles of every scalable and sustainable programme that GKA reveals:

- Any programme meant for the greater good should be **designed for scale** from the beginning.

- If one wants to implement a programme at scale, then one should be open to working with the government, because only governments can ensure that the programmes reach the remotest of villages.

- Working with the government comes with its share of challenges, but an open mind and perseverance will reap huge rewards. While it takes a lot of time, ultimately it also benefits a lot of people/children.

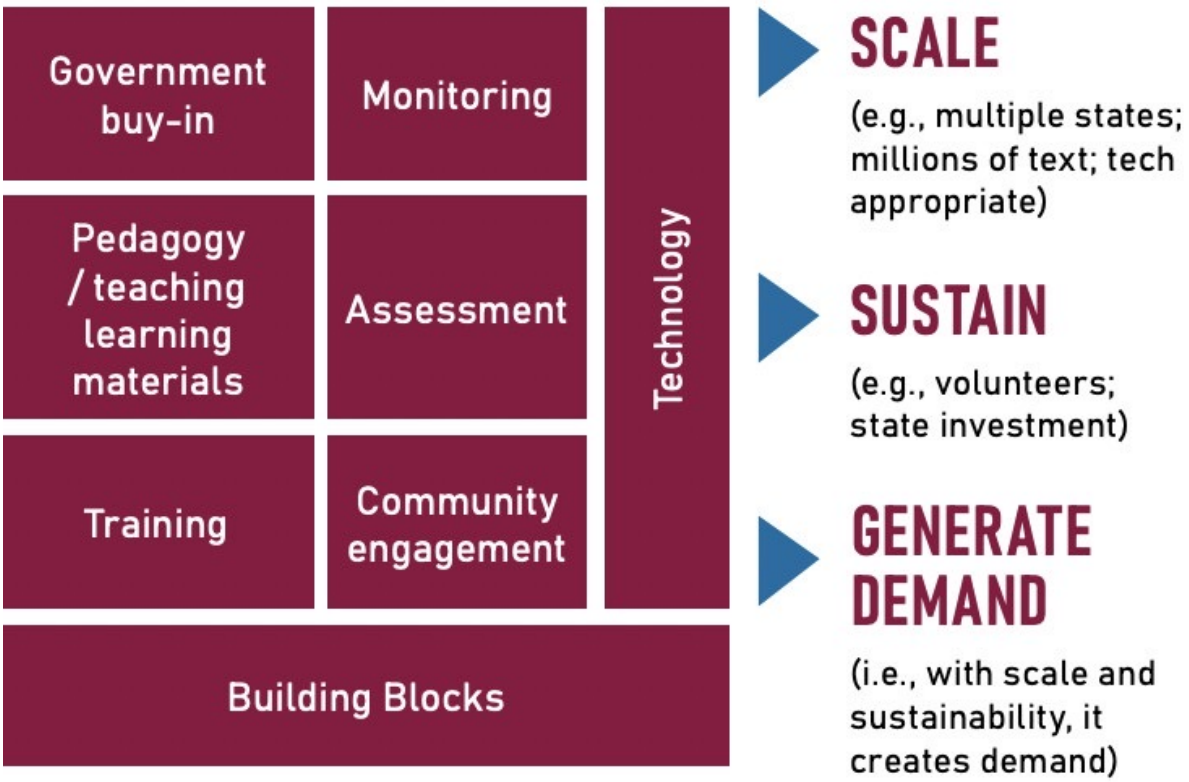
- One should constantly upgrade and innovate their models. Which is how GKA can now benefit children not only in Grades 1 to 5, but also Grades 6 to 8. Additionally, Building Blocks, the learning app which was originally designed for children in Grades 1 to 5, has expanded to help kids in Grade 6 to 8 as well.

The End Game: to bring about large improvements in the enabling environment so that impact can be seen on learning outcomes of children. An enabling environment is a complete ecosystem that supports and encourages learning, growth, and development, thus allowing the children within it to achieve their full potential, like:

- A safe and comfortable learning space in school
- Supportive and knowledgeable teachers
- Access to quality learning resources
- Enhanced practice of critical thinking, problem-solving, and collaboration
- An inclusive peer group that encourages healthy dialogue
- Support at home in developing a learning environment

Therefore, creating an enabling environment is crucial for ensuring that all students have the opportunity to succeed in their learning journey and beyond.

Figure 6. GKA's theory of change



Source: Recreated from an image drawn by Akshara Foundation Chairman Ashok Kamath

Evaluation:

RTI International, in its October 2023 report, cites GKA as ***one of six successful numeracy programs from across the world to have improved early grade numeracy outcomes at scale*** .

RTI is an independent, nonprofit research institute dedicated to improving the human condition with a vision to address the world's most critical problems with science-based solutions in pursuit of a better future. The research study was led by RTI International and was part of the Centre for Global Development education research consortium, funded by the Bill and Melinda Gates Foundation. Its research spanning six programs in five countries and three continents culminated in a report titled "Numeracy at Scale"[12] .

The five programs researched besides GKA were Nanhi Kali [India], ESMATE Project for the Improvement of Mathematics Teaching in Primary and Secondary Education [El Salvador], RAMP Early Grade Reading and Mathematics Initiative [Jordan], R-Maths Grade R Mathematics and Language Improvement Programme [South Africa], and TAFITA Tantsoroka ho an'ny Fitantananany sekoly [Madagascar].

[12] https://akshara.org.in//srv/htdocs/wp-content/uploads/2023/11/Numeracy-at-Scale_Final-Report-1.pdf

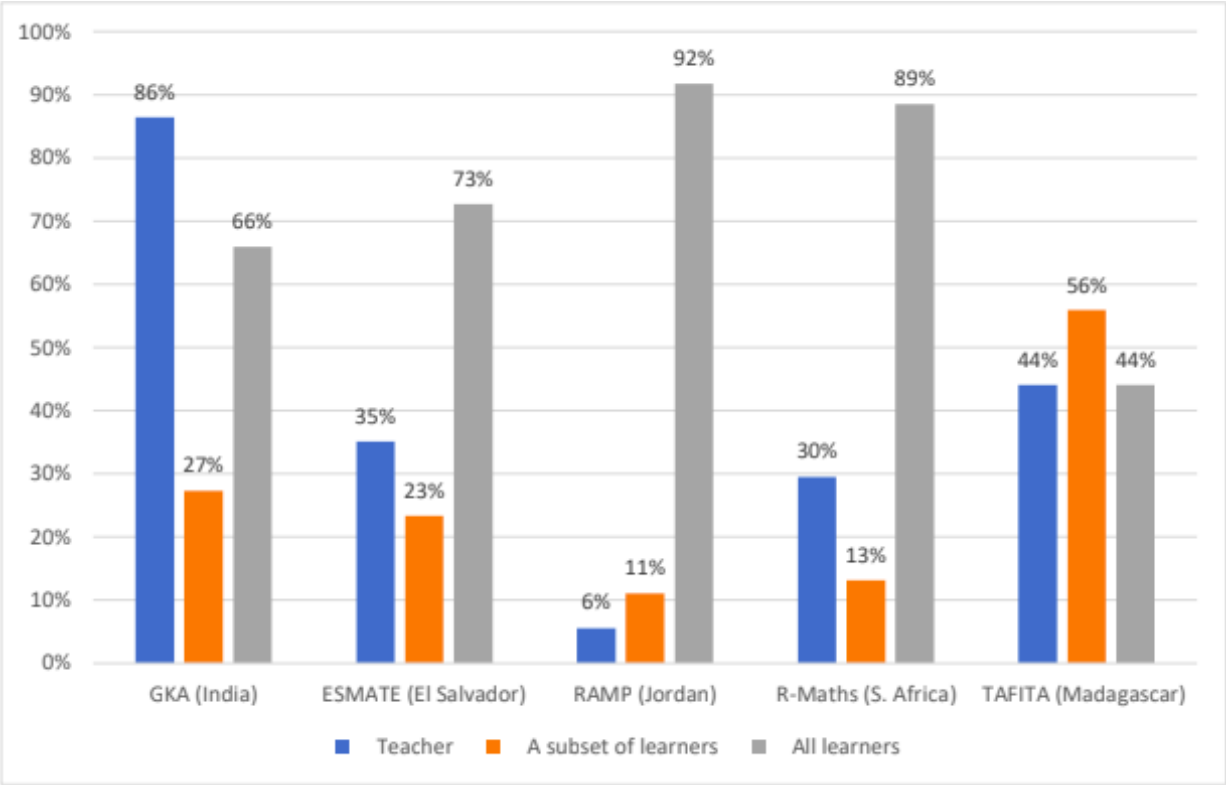


Fig 5: From RTI evaluation:- Observation: Who used materials during independent work?

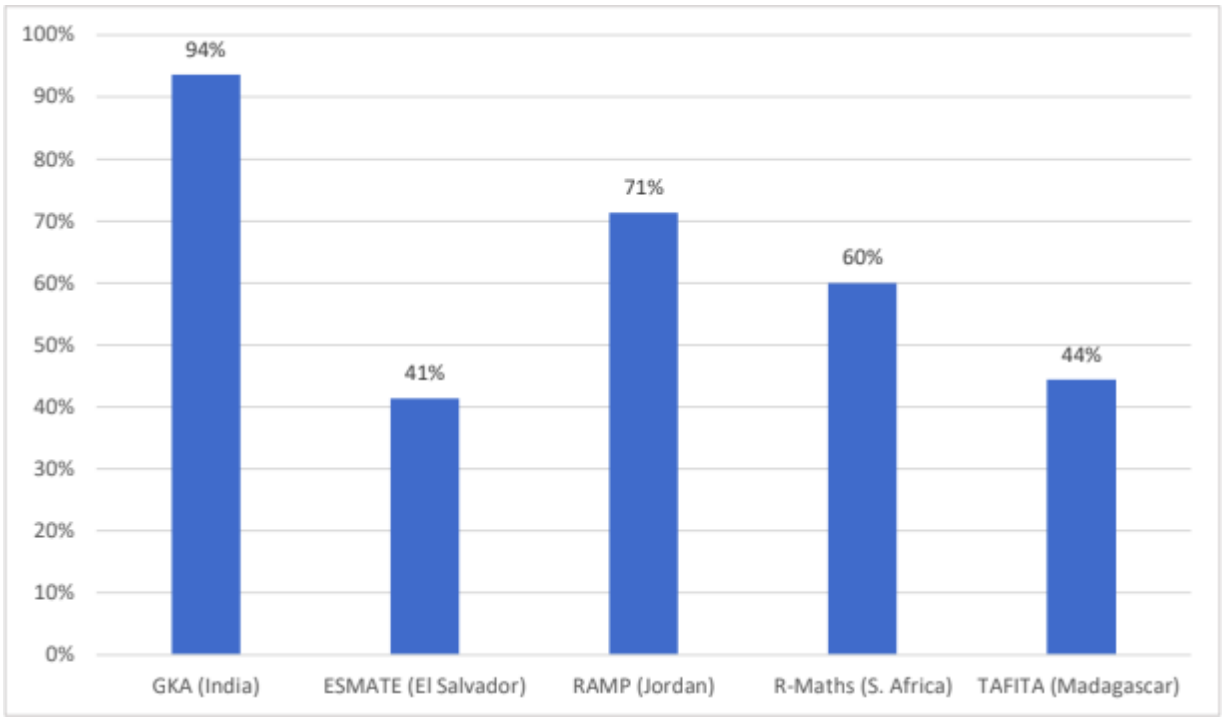


Fig 6:- RTI evaluation - Percent of lessons in which the teacher connected math concepts to real-life examples or the lives of students, by program

The Report says "In terms of teacher support, three unique factors stood out that other programs and governments may find valuable to learn more about/may warrant further study: 1) the role of parents and the community in using assessment results; 2) virtual training mechanisms and 3) the emphasis on classroom management during training, as a pre-requisite for materials use and increased student independent work."

Besides the RTI "Numeracy at Scale" Report, earlier evidence on the impact of GKA on student outcomes draws from two studies: an internally commissioned longitudinal study (Vaijayanti et al., 2016[13]) and an external experimental evaluation conducted by the Abdul Latif Jameel Poverty Action Lab (deBarros et al., 2023[14]).

The internal, non-representative longitudinal study tracked 615 students (367 treatment, 248 control) in 21 schools across three years of schooling in Bengaluru Rural District, Karnataka. The school sample comprised two educational blocks, Hoskote (treatment block) and Devanahalli (control block). The student sample was broken down into three cohorts: cohort 1 followed students from Grade 1 in 2012 to Grade 3 in 2015; cohort 2 followed students from Grade 2 in

2012 to Grade 4 in 2015; cohort 3 followed students from Grade 3 in 2012 to Grade 5 in 2015. Each year, Competency-based pen and paper tests were administered to all the students in the sample at three timepoints, culminating in nine assessments through the duration of the study. Findings from a comparison of pre- and post-tests, by treatment group, are organized by cohort: cohort 1 saw a significant impact at Grade 3 endline (2015) with an effect size of 0.43; cohort 2 saw a significant impact at Grade 4 endline (2015) with an effect size of 0.27; cohort 3 significant impact at Grade 5 endline (2015) with an effect size of 0.34.

The external, randomized evaluation compared treatment and control groups comprising 98 Gram Panchayats and 294 schools in two districts of Karnataka: Bijapur and Tumkur. Data were collected from grade 4 students in sampled schools at three timepoints: November 2018 (Baseline), September 2019 (Midline) and February 2020 (Endline). While no significant positive impacts were detected for Gram Panchayat 'contests' or on student math outcomes overall, GKA was found to have a positive impact on girls' math outcomes only (0.18SD).

Conclusion

Shri. Anil Swarup, IAS (Retd.) former Secretary, School Education to the Government of India, who has a track record for fostering public-private partnerships to improve the quality of school education has repeatedly said, "In India for any idea first to work and then to sustain and scale, it has to be politically acceptable, socially desirable, technologically feasible, financially viable and administratively doable."

GKA is all that and more.

[13] Vaijayanti, K., Suma, M.N., Mondal, A. (2016). The Impact of Akshara Ganitha: A Longitudinal Study 2012-13 to 2014-15. Akshara Foundation.

[14] de Barros, A., Fajardo-Gonzalezez, J., Glewwe, P., Sankar, A. (2023). "The Limitations of Activity-Based Instruction to Improve the Productivity of Schooling." The Economic Journal, June 2023.

LIST OF ABBREVIATIONS

ASER	Annual Status of Education Report
BEO	Block Education Officers
BRP	Block Resource Persons
CRA	Concrete-Representational-Abstract
CRP	Cluster Resource Persons
DDPI	District Director for Primary Instruction
DIET	District Institute for Education and Training
DISE	District Information System for Education
ETB	Energized Textbooks
FLN	Foundational Literacy & Numeracy
GDP	Gross Domestic Product
GKA	Ganitha Kalike Andolana
IAS	Indian Administrative Services
NCERT	National Council of Educational Research & Training
NCF	National Curriculum Framework
NEP	National Education Policy
NIPUN	National Initiative for Proficiency in Reading with Understanding and Numeracy
RDPR	Rural Development and Panchayat Raj
SCERT	State Council of Education Research & Training
SDMC	School Development and Monitoring Committee
TLM	Teaching Learning Materials