

The background features a dark blue gradient with abstract, glowing circuit-like lines in shades of teal and purple. These lines are primarily located in the corners, forming a network of nodes and connections. The main text is centered in a white, serif font.

SCIENCE OF TEACHING

MATH EDUCATION WEBINAR #3:

PUTTING LEARNING INTO ACTION TO IMPROVE MATH
INSTRUCTION

December 4, 2024



WELCOME!



AGENDA

- ▶ MEET THE PRESENTERS
- ▶ PURPOSE: Webinar Series & CoP
- ▶ PRESENTATIONS
- ▶ Q&A
- ▶ BREAKOUT GROUPS
- ▶ REGROUP & DISCUSSION
- ▶ CLOSING REMARKS



MEET THE PRESENTERS



**Language and Learning Foundation:
Sunil Kushwaha**



**Language and Learning Foundation:
Uttam Gogoi**



**Educaid UK:
Foday Kalokoh**



**Akshara Foundation:
Pushpa Thantry**



**The Citizens Foundation:
Muhammad Umair**





PURPOSE: WEBINAR SERIES & COP

- Promote resource sharing, networking and discussion
- Foster opportunities for collaboration
- Share research evidence
- Give members a voice in future webinars and CoP activities
- Garner sustainability and growth of the community beyond the end of SoT

PRESENTATION #1

- SUNIL KUSHWAHA & UTTAM GOGOI
- LANGUAGE AND LEARNING FOUNDATION

Putting Learning into Action to Improve Math Instruction

Sunil Kushwaha & Uttam Gogoi

Language and Learning Foundation (LLF)

Science of Teaching

Mathematics Community of Practice

Webinar 4th December 2024

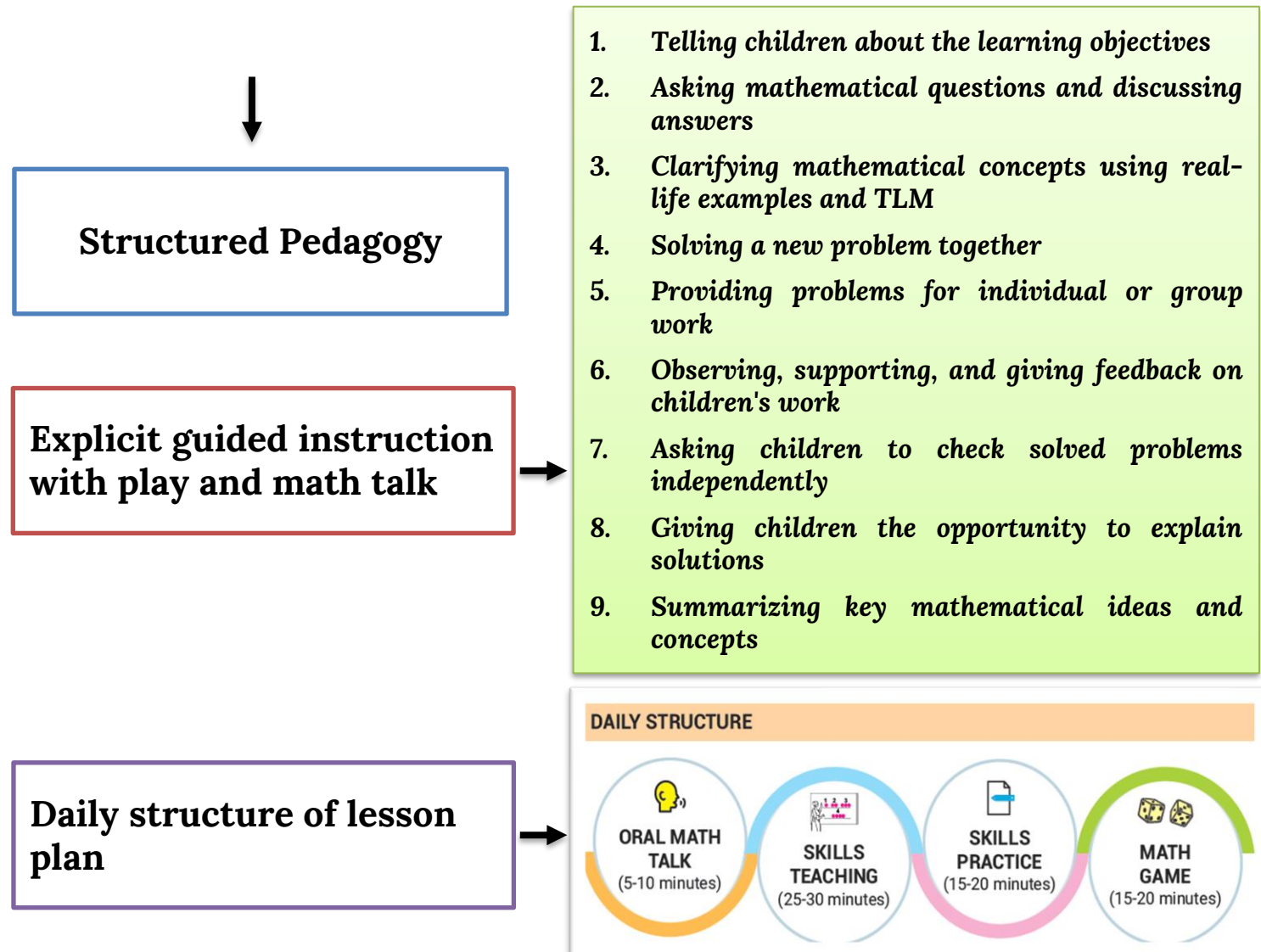


About LLF and Foundational Numeracy

About Us

- We are a **system-focused** and **impact-driven** organization working at **scale**, to **improve foundational literacy and numeracy (FLN)** outcomes of children studying in government primary schools in India.
- Through our programs and collaborations with state governments, we reached around **16 million children**, 1.08 million teachers, and 236,000 schools across 8 states during 2023-24.
- Our core competencies to improve FLN ecosystem at scale are **Continuous professional development of teachers**, **Driving Systemic reform country-wide** and **demonstrating strong teaching and practice at the district level**.

Approaches for Numeracy



M3 Workshop Highlights- Learning

- ❑ Enhancing teachers' subject knowledge and pedagogical understanding
- ❑ Maximizing children engagement in math learning
- ❑ Enhancing place value and moving beyond counting for basic facts fluency.
- ❑ Formative assessments for real-time feedback:
- ❑ Teacher training model (20:20:20:40): Lecture (20%): Discussion (20%): Demonstration (20%) Practice (40%)



Action Plan from Workshop

❑ Enhancing subject Knowledge and Pedagogy :

- Focus on critical competencies Like numbers with place value, Fluency in Basic facts and Basic operations.
- Using High Impact Teaching Strategies for outcomes driven intervention.

❑ Learning Documentation and Process Study on Place value:

- Instruction design with 4 block models of lesson plan
- Multigrade teaching

❑ Strengthening Training with key Training Practices :

- Adopting (20-20-20-40) model for teacher's training): **Lecture (20%): Discussion (20%): Demonstration (20%) Practice (40%)**
- Conducting training of internal team and teachers



Current Progress

❑ Enhancing Subject Knowledge and Pedagogy:

- Developing videos and handouts on critical competencies such as place value, mental calculation, operations and orientation on it.
- Drafted 6-7 key teaching practices and revising classroom observation tool from impact on learning outcomes perspective.

❑ Learning Documentation and process study on place value:

- Conducting place value study in 20 schools and concept note for learning documentation on multigrade teaching.
- Plan is ready for documentation on instructional design and multigrade teaching.

❑ Strengthening training with key Training practices:

- Phase 2 training is planned to be done based on key effective training strategies.



PRESENTATION #2

FODAY KALOKOH
EDUCAID UK

Putting learning into action to improve maths instruction

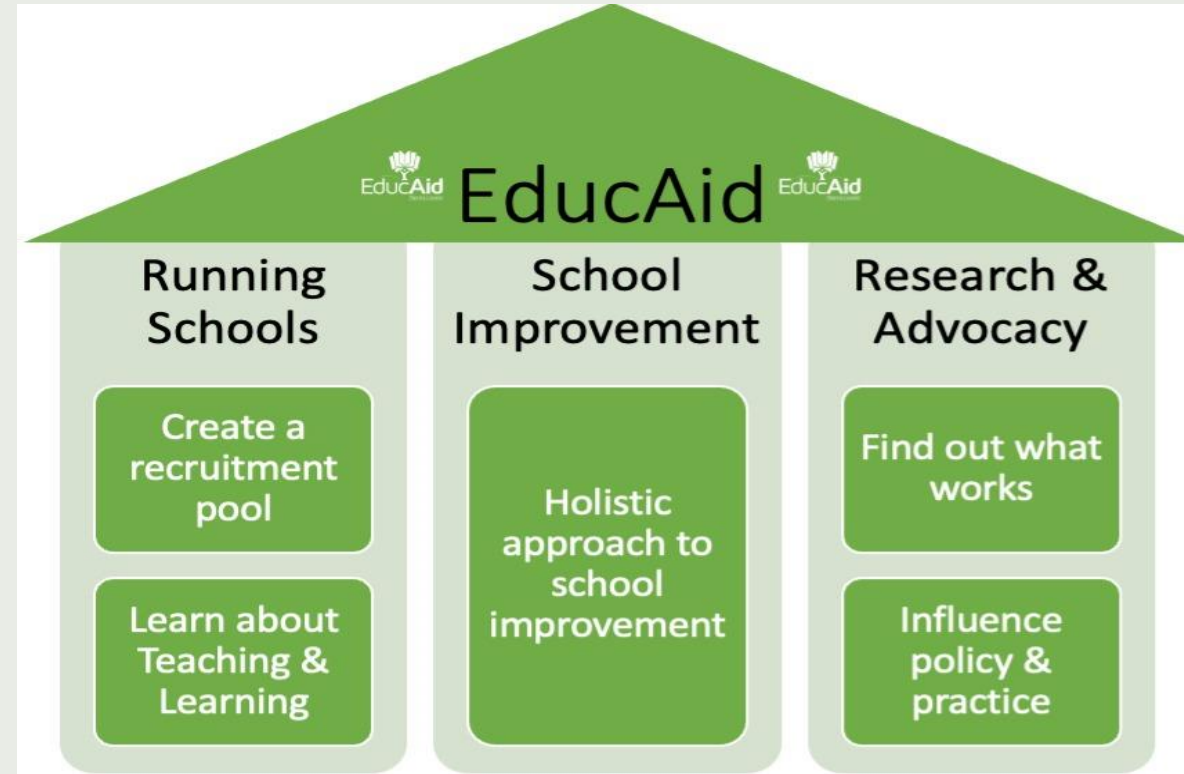
Foday Kalokoh

Science of Teaching
Mathematics Community of Practice
Webinar December 4 2024



EducAid

Learning for life in Sierra Leone



EducAid is a charity organisation that provides quality education to young Sierra Leoneans. This year marks EducAid Sierra Leone 30th anniversary.

Currently, we are working across 4 districts in Sierra Leone implementing FLN programs. We work with over 2000+ teacher and 40000+ children.

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EducAid

Learning for life in Sierra Leone

Action Plan from the workshop

Goal: Develop mathematical understanding and fluency by training teachers to implement strategic teaching methods that prioritize conceptual understanding, procedural fluency, and active student engagement.

- Re-train 100% teachers on EducAid Top 10 Strategies: Establish a foundation of kindness, respect, and trust in teaching practices.
- Build Teacher Confidence: Provide ongoing coaching to strengthen math teaching skills. Ensure at least 80% of teachers demonstrate improvement in their use of math games and discussions.
- Focus on creating low-cost resources and strategies that directly address current gaps in student numeracy and engagement.
- Re-visit our current maths materials to create more opportunities for math games and activities that can encourage mathematical discussions and engagement.

The aim is to achieve these outcomes within six months, with a mid-term review after three months to assess progress and make necessary adjustments.



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Current Progress

- Trained teachers on EducAid Top 10 Strategies 1 to 5 so there is a foundation of kindness, respect and trust on which to build good pedagogy.
- Trained teachers on EducAid Top 10 Strategies 6 to 10 to focus on each child and their learning needs, and a clear understanding of the order in which children acquire maths skills.
- Working with our school coaches to build their confidence and competence for effective maths teaching through regular trainings and field coaching.
- Working with school leaders to create supportive environments for numeracy teaching & learning through a growth mindset lens and collaboration among teachers, parents and other relevant people. E.g. Ministry staff
- Revise our 'low-cost/no-cost' skills focused maths resources to include more maths games and create activities that can promote maths talk in the classrooms.



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EducAid

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Thank You!

TOP 10

EducAid
Sierra Leone

Part 1 - The classroom environment & supportive approaches

1. Let every child know they are seen and known
2. Develop a Growth Mindset
3. Support learning to learn
4. Create a kind classroom
5. Believe in your students

Part 2 - Teaching skills

6. Always know the children's level of mastery
7. Group the children purposefully
8. Focus on core skills
9. Make teaching and learning fun
10. Strengthen Executive functioning

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PRESENTATION #3

PUSHPA THANTRY
AKSHARA FOUNDATION



Mission: Every Child In School and Learning Well

Putting learning into action to improve math instruction

K.Vaijayanti and Pushpa Thantry

Science of Teaching

Mathematics Community of Practice

Webinar November 2024

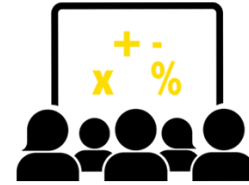
GANITHA KALIKA ANDOLANA (GKA) - NUMERACY AT SCALE MODEL



GOVERNMENT BUY-IN is essential for roll out at scale. It is a combination of public commitment, backed with financial investment
Work at Scale



METHODOLOGY supplemented by scientifically-designed teaching/learning material



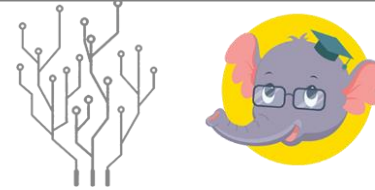
TRAINING and field support for the teacher, state and district Resource Persons (RPs) in a cascade mode
All training is now available digitally



Innovative and efficient **MONITORING TOOLS** and processes to support roll-out at scale



COMMUNITY ENGAGEMENT to sustain the public school system over the long term



TECHNOLOGY that facilitates timely assessment and creates a learning environment at home



Akshara develops programs on the principles of **Innovate, Scale, Sustain** -by leveraging existing infrastructure.
All content developed by Akshara is available as *Open Source content for everyone to use at no cost.*

M3 Workshop Highlights

- The workshop focused on key areas in early mathematics education, including:
 - **Foundations of Mathematical Thinking:** Understanding cognitive development and fostering early math skills.
 - **Numerical Skills & Operations:** Emphasizing pre-counting, counting, and basic arithmetic (addition and subtraction).
 - **Effective Teaching Practices:** Strategies for planning engaging and successful math lessons.
 - **Mastering Math Concepts:** Techniques for developing both skills and conceptual understanding.
 - **Teacher Training:** Approaches for enhancing teacher effectiveness in math instruction.
 - **Assessing Early Math Skills:** Methods for evaluating young learners' progress.
 - **Math in Multilingual Classrooms:** Addressing challenges and strategies for inclusive math teaching.

Action Plan from workshop

- Training strategies
 - Include sufficient time for presentation and Akshara staff acting like facilitators
- Including strategies around Math language
 - Some govt schools in Karnataka are switching to 'English' medium. During the training – we encourage the use of both languages especially for math vocabulary
- Action research
 - 2 DIET's have undertaken 'action research' on GKA program in their districts



Current progress

- **Slowing Down Thinking:** Teachers were encouraged to slow down their own thinking processes to better model and explain concepts clearly to students. This approach helps in breaking down complex ideas and promoting deeper understanding.
- **Use of Manipulatives:** The training program emphasized the importance of manipulatives in teaching mathematics. Teachers learned how to integrate physical tools (e.g., blocks, counters, number lines) into lessons to support hands-on learning and visual representation of mathematical concepts.
- **Designing Activities with Manipulatives:** Teachers were introduced to a variety of activities using manipulatives, enabling them to design interactive lessons that make abstract concepts more concrete and accessible to students.
- **Encouraging Active Learning:** Teachers were trained to create engaging, student-centered lessons that encourage exploration, problem-solving, and collaboration through the use of manipulatives.
- **Promoting Conceptual Understanding:** The program focused on using manipulatives not just for practice, but as a tool to help students build a deep, conceptual understanding of math principles.
- **Assessment through Manipulatives:** Teachers were shown how to use manipulatives as part of formative assessments, allowing them to observe and gauge student understanding in real-time.

These strategies are designed to help teachers better support their students' learning through hands-on, interactive, and effective teaching practices.



PRESENTATION #4

MUHAMMAD UMAIR
THE CITIZENS FOUNDATION

Putting learning into action to improve math instruction

Muhammad Umair

Science of Teaching

Mathematics Community of Practice

Webinar December 2024

The organization started as a group of 5 primary schools in 1995 located in the most underprivileged areas of Karachi.

TCF TODAY



EDUCATION & ALUMNI PROGRAM

2,033
purpose-built
school units

302,000
students from low
income families

17,000+
principals and
teachers

63,000
matriculates
till date

96%
pass rate for
matriculates

90%
student transition to
Intermediate education

COMMUNITY DEVELOPMENT PROGRAMS

174,000
Aagahi Literacy
Programme beneficiaries

4,000
Vocational training
Programme beneficiaries

40,000
Clean water project
beneficiaries per day

Key Takeaways from M3



THE CITIZENS FOUNDATION

Enhance Teacher's Conceptual and Pedagogical Knowledge: Equip teachers with correct conceptual knowledge and allow them space to deliberate over their math solving strategies.

Early grade Math strategies: How to build on math strategies from basic counting onwards and how to move students from solving via counting to using procedure

Efficient use of Formative Assessments: Using formative assessments efficiently to gain quick sense check on student progress. Allowing time for in class feedback and quick conceptual correction

Teacher Training Model: The 20:20:40 model which dedicates maximum time for teacher practice.



Action Plan

- Incorporate CK and PCK as part of our Digital Training platform
- Increase space for teacher practice in our training modules
- Conduct Trainings on Good formative assessments strategies.

Current Progress



THE CITIZENS FOUNDATION

Enhancing CK and PCK

Launched our digital training platform in select schools. Conceptual videos along with assessments were made and teachers were provided with weekly learning targets.

Teacher Training Model

Trainings have become more practice oriented now, with exercises with regards to common errors and question making added within the training, moving closer to the 20:20:40 model

Formative Assessments

We are currently reviewing our formative assessment strategies and working on ways to improve incorporation of formative assessments in our teaching.



Q&A

BREAKOUT GROUPS

30 MINS

1. WHAT IS A RECENT LEARNING EXPERIENCE FROM YOUR PROGRAM? HAVE YOU TRIED SOMETHING NEW, OR APPLIED A NEW APPROACH?

2. SHARE A CHALLENGE THAT YOU ARE CURRENTLY FACING. BRAINSTORM IN THE GROUP POSSIBLE WAYS TO ADDRESS THIS CHALLENGE.



BEYOND
SCHOOL



WELCOME BACK



CLOSING REMARKS

**Scan the below code to
learn about and join the
Math CoP!**



Scan me!

THANK YOU!