



Selecting a Tool to Measure Early Learning Outcomes

PROGRAM TO IMPROVE PRIVATE EARLY EDUCATION (PIPE)



Glossary of terms (1/2)

- Affordable Private Schools (APSs): Schools that charge fees up to INR 28,500 per annum, and typically provide education up to grade 10
- Early Childhood Education (ECE): The formal education a child receives between the ages two through five. Typically early childhood is considered to range from birth to age six, this narrower definition has been chosen to reflect the research's interest in the years when formal pre-primary education is typically provided in India
- English-medium education: Education where the language of instruction is English
- Markers: Indicators or signs that parents use to assess whether their child is learning
 - Markers to test recall: Questions used by parents to assess their children for content memorized using rote methods (e.g., asking the child to recite numbers)
 - Markers to test concepts: Questions used by parents to assess their children's conceptual understanding of any topic (e.g., asking the child to count items)
- Preschooling/ Pre-primary classes: All formal educational classes prior to first grade
- Program to Improve Private Early Education (PIPE): Program that aims to replace rote with activity based learning in all 300,000 APSs in India
- Activity based learning (ABL): Learning through structured play-based activities, games, and experiences that provide developmental benefits across the cognitive, physical, and socio-emotional domains
- **ABL solution provider:** Private companies providing ABL solutions including curriculum materials, teacher training and continuous support for proper implementation of the program
- Partner: Private companies that have partnered with PIPE and provide high-quality ABL solutions to APSs
- Partner solutions: Play/ activity based programs including curriculum materials and continuous support for proper implementation of the program, provided by PIPE partners

Glossary of terms (2/2)

- PIPE teachers: Teachers teaching in APSs served by PIPE partners
- STARS: Scoring Tool for Assessing Readiness at School to assess the impact of ABL in APSs
- PIPE APSs: APSs using PIPE partner solutions
- Control APSs: APSs using no external interventions
- Full curriculum PIPE APSs: PIPE APSs using full school curriculum
- Single subject PIPE APSs: PIPE APSs using single subject curriculum
- 1 year PIPE APSs: APSs with partner solutions for 1 year
- 2 year PIPE APSs: APSs with partner solutions for 2 years
- 3 year PIPE APSs: APSs with partner solutions for 3 year
- 4 year PIPE APSs: APSs with partner solutions for 4 years

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PIPE would require assessment tools to track and measure the effectiveness of ECE interventions

Metric to be Measured	Objective of Tools
Child outcomes	 To assess the impact of the interventions on child outcomes To assess and report development outcomes of children in India from different backgrounds/environments and highlight areas for attention
Class environment	 To assess the impact of the interventions on classroom environment To assess and report the level of quality in a selection of class environments and identify areas for attention
Home environment	 To assess the impact of markers on parents' understanding of development and parents' engagement with children To assess the impact of markers on parents' demand for quality ECE
Operational performance	 To monitor implementation of the interventions and identify challenges preventing the achievement of intended outcomes

Different tools would measure different aspects of the interventions

Metric to be Measured	Objective of Tools
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Operational performance	 To monitor implementation of the interventions and identify challenges preventing the achievement of intended outcomes

Staged approach was used to select and refine the tool to measure child outcomes

1 Select tool	2	3 Conduct	4
	Adapt tool	assessments	Refine tool
 Developed criteria to assess candidate tools Engaged with 10 experts to advise on process¹ Modified criteria with expert inputs Identified and procured shortlisted tools Assessed tools on selection criteria Shared findings with experts and got feedback Selected tool for use in assessments 	 Field tested and adapted tool for contextual relevance Created an addendum of 8 items for the selected tool with expert inputs to meet contextual expectations Pilot tested the addendum Finalized modifications with expert inputs Translated the adapted tool into local languages 	 Selected assessment agency Trained 13 evaluators on administering the tool Assessed 480 students across 25+ schools, in 4 cities 	 Identified areas to refine tool and translations Refined tool based on field experience

Quality assessment tools should be contextually relevant, produce-granular results, be usable at scale and be adaptable

1 Select tool	Adapt tool 3 Conduct assessments 4 Refine tool
Criterion	Description
1 Assess environment and impact	 Assess age-specific child development outcomes (e.g. literacy, numeracy, social-emotional skills) Assess factors that are relevant to PIPE (e.g., capture data on numeracy but not on nutrition)
2 Produce granular results	Scale that provides sufficient rangeAbility to distinguish between good, poor, and great quality
3 Possible to use at scale	 Possible to be used by people without advanced qualifications in ECE Support should be available from owner of tool
4 Possible to adapt	 Tool owners / managers should be open to adaptation Minor modifications (i.e. a user manual or a glossary) are preferable compared to major modifications (i.e., adding or removing questions, changing questions)

PIPE considered a number of tools that assess child development outcomes for use in the program



Tools considered by PIPE¹

- School Readiness Instrument (SRI)
- International Development and Early Learning Assessment (IDELA)
- Measuring Early Learning and Quality Outcomes (MELQO)
- Bayley Scales of Infant Development

Experts with varied relevant backgrounds were consulted for selecting and adapting the assessment tool

1 Select tool	Adapt tool 3 Conduct Adapt tool 4 Refine tool		
Name	Designation and Organization		
Abbie Raikes	Assistant Professor and Director of Global Early Childhood Development, University of Nebraska; Former Lead, Measuring Early Learning Quality & Outcomes project, United Nations Children's Fund (UNICEF)		
Venita Kaul	enita Kaul Former Director, Centre for Early Childhood Education and Development (CECED), Ambedkar University, Delhi		
Nandita Jhaveri	Independent education consultant; Former Principal, Saifee School, Mumbai		
Aisha Yousafzai	Aisha Yousafzai Associate Professor of Global Health, Harvard T. H. Chan School of Public Health, Harvard University		
Nirmala Rao	Professor, Early Childhood Education and Development, Hong Kong University		
Amanda Devercelli	Acting Global Lead, Early Childhood Development, World Bank		
Amber Gove	Director, Research, RTI International		
Jayanti Tambe	Executive Director, Early Care and Education, University of California, Los Angeles		
MS Tara	Independent education consultant; Former Regional Director, National Institute of Public Cooperation and Child Development		
Vibha Krishnamurthy	Founder & Executive Director, Ummeed Child Development Center		

Tools were assessed across five key developmental domains

1 Select tool	Adapt tool 3 Conduct Refine tool
Development domain	Rationale
Numeracy and problem-solving skills	 Pre-math concepts of size, patterns, sequences, estimation, etc. are important to master for school readiness
Early language skills	 This is a focus of ECE settings and lays the foundation for other learning Pre-reading, sound and letter awareness and recognition are necessary
	skills for school readiness
Motor skills	Fine motor skills are important for preparedness for formal writing etc.
	 Gross motor skills are important to master control of major muscle groups in the body in order to engage in more complex physical activities later
Socio-emotional skills	Interacting with peers, adapting to different adults and environments, etc.
Executive function	 Ability to plan, focus attention, remember instructions, and juggle multiple tasks successfully

Notes: While language and math are two components of the various areas of development, formal schools in India tend to focus more on these two and hence in reference to school readiness these have been ranked higher. In terms of motor skills, for school readiness, fine motor skills will probably have more focus than gross motor skills. Also, while it is important to ensure math and language mastery, there needs to be a balance in the focus on other categories as well.

PIPE tested shortlisted tools, and in consultation with experts, selected the IDELA tool for assessments (1/2)

1 Select tool	2 Adapt tool	Conduct assessments	4 Refine tool
Criteria on which	Tool options ^{1,2}		
tools were evaluated	SRI ³	MELQO ⁴	IDELA ⁵
Coverage of key domains			
 Numeracy and problem-solving 	 ✓ (Pre-numeracy, moth) 	✓	\checkmark
Early language	math) ✓	✓	\checkmark
Motor		✓ (Fine motor)	\checkmark
 Socio-emotional 		\checkmark	\checkmark
Executive Function		\checkmark	\checkmark
Openness to adaptation	• Yes	• Yes	• Yes – open to limited extensions to core tool
Training available	• Yes	To be developed	• Yes

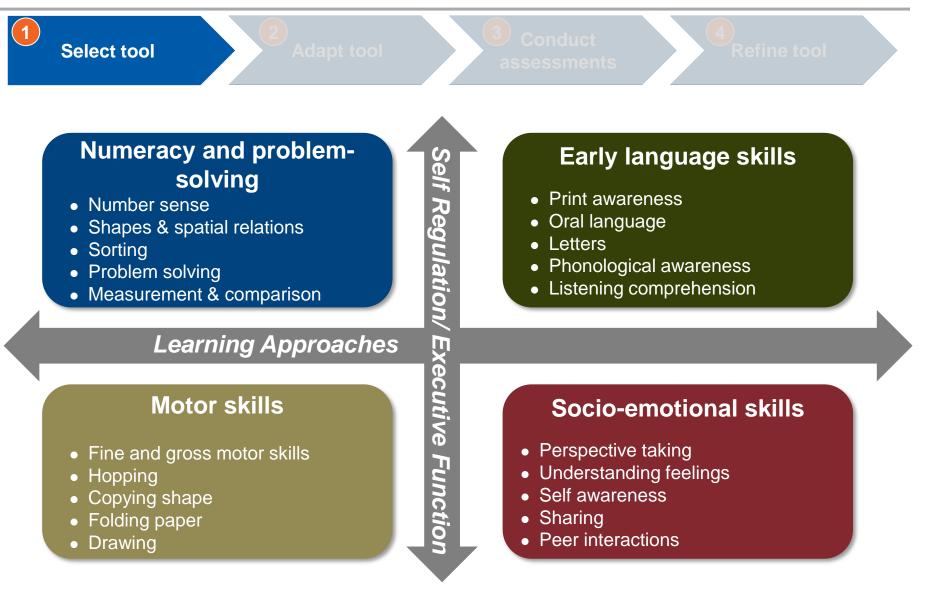
Preferred option

Notes: ¹Tick marks indicate that the domain is covered by the tool; ²Text in parentheses indicates that the tool covers only that specific construct; ³School Readiness Instrument; ⁴Measuring Early Learning and Quality Outcomes; ⁵International Development and Early Learning Assessment; The Bayley Scales of Infant Development were not considered as they are applicable only for children up to 42 months of age

PIPE tested shortlisted tools, and in consultation with experts, selected the IDELA tool for assessments (2/2)

1	Select to	2 Adapt tool	3 Conduct assessments	4 Refine tool	
	erview of IDELA	 The International Development based assessment tool development tool development is targeted at children aged 3. IDELA is designed for global us settings It has 24 items that cover 5 development to based assessment tool development to based as a setting setti	ed by Save the Children 5 - 6.5 years se, and assessments are velopment domains (i.e emotional, and executive	n e feasible for low resource e., math and numeracy, langu e functioning)	

IDELA covers all identified key development domains



Notes: ¹Development; Slide adapted from Save the Children

PIPE identified skills that were either not being assessed by IDELA or could be assessed more deeply

Select	tool Adapt tool 3 Conduct assessments 4 Refine tool
Domain	Skill (construct)
Ski	ills not included in IDELA but developmentally appropriate and relevant in APS context
Numeracy and problem- solving	 Number/quantity comparison Ability to work with patterns Positionality (spatial understanding)
Early language	 Spoken language Reading simple phonic words (e.g. consonant, vowel)
	Skills included in IDELA but could be assessed in greater detail
Executive function	Working memoryInhibitory control

PIPE consulted experts and other tools to create an addendum to IDELA that can assess the additional skills (1/2)

1 Select tool	2 Adapt tool	Conduct assessments	efine tool
Construct	Item	Rationale for inclusion	Source
Number comparison	 Identifying the greater quantity, and the greater 	Ability to compare numbers is an important math skill	 MELQO
	numeral	 Items have been tested during development of MELQO 	
 Patterning 	Copying a patternCompleting a pattern	 Ability to work with patterns is an important pre-math skill 	• SRI
	e completing a pattern	 Item has been administered as part of SRI assessments 	
 Positionality 	 Identifying objects by their position, relative to a table 	 Understanding of positionality is an important concept for spatial understanding Item has been tested during development of MELQO 	• MELQO

PIPE consulted experts and other tools to create an addendum to IDELA that can assess the additional skills (2/2)

1	Select tool	2 Adapt tool	3 Conduct assessments	fine tool
	Construct	ltem	Rationale for inclusion	Source
• R	eading skills	 Reading simple, three- letter phonic words 	 Schools expect children to read simple words in Grade 1 	• PIPE
• E	xpressive ocabulary	 Speaking in full sentences to describe a nisture 	 Spoken English is an important skill 	• SRI
	picture	picture	 Item has been administered as part of SRI assessments 	

PIPE followed the same process to add items that assess skills related to Executive Function in greater detail

	1 Select tool	2 Adapt tool	3 Conduct assessments	efine tool
	Construct	Item	Rationale for inclusion	Source
Domain: Executive function	 Working memory 	 Backward digit span 	 Enhance IDELA's assessment of working memory 	 MELQO
	 Inhibitory control 	 Knocking or tapping (opposite of whatever the evaluator does) 	 Enhance IDELA's assessment of inhibitory control 	 LEAPS¹ study (being conducted by Aisha Yousafzai in Pakistan)

PIPE selected an agency experienced in child assessments, and trained their evaluators on administering IDELA and the addendum



Selection of assessment agency

- PIPE invited agencies with assessment experience to submit proposals for conducting baseline assessments and selected the assessment partner from amongst applicants
- PIPE team members managing the assessments were trained on administering the IDELA by experts from Save the Children

Training of evaluators

- PIPE used material and methodology from Save the Children to train 13 evaluators before the assessments
 - Evaluators were trained for 4 days (1 day orientation and 3 days practice)
 - 4 evaluators were trained for Bangalore and Hyderabad (each), 3 for Mumbai, and 2 for Delhi









Apart from two items, the IDELA worked well



- Most items on the IDELA tool worked well
- One socio-emotional item may not have fit well in the cultural context
 - Question on emotional awareness/regulation: Very few children could answer the question (on what makes them sad)
- One item proved difficult to administer
 - Task on inhibitory control: Evaluators found it challenging to stick to the scripted instructions that required them to maintain neutral body language and only give verbal instructions

Most of the items in the addendum worked well, but a few require further modification

Construct	Item	Pilot performance
 Numeracy and problem- solving: Number comparison 	 Identifying the greater quantity, and the greater numeral 	 Item worked well
Numeracy and problem- solving: Patterning	Copying a patternCompleting a pattern	 Items worked well
Numeracy and problem- solving: Positionality	 Identifying objects by their position, relative to a table 	 Image used for questions on positionality was not clear
Early language: Reading skills	 Reading simple, three-letter phonic words 	 Item worked well
Early language: Expressive vocabulary	 Speaking in full English sentences to describe a picture 	 Image used did not seem stimulating enough for children to form sentences
Executive Function: Working memory	 Backward digit span 	 Backward span beyond 3 digits was too difficult for children
Executive Function: Inhibitory control	 Knocking or tapping (opposite of whatever the evaluator does) 	 Item worked well © FSG

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Organizations/ partners interested in using IDELA can access it by signing an MoU with SAVE. Further details in this regard are available at:

https://idela-network.org/start-using-idela/

- FSG can provide additional support in using IDELA
 - FSG added an addendum to the IDELA to assess skills that were either not being assessed by IDELA or could be assessed more deeply. In case organizations wish to <u>access and use the</u> <u>addendum</u>, they can reach out to FSG at <u>PIPE@fsg.org</u>.
 - FSG has used the tool and hired and trained assessors to use the tool. In case organizations require assistance and support in <u>training assessors</u>, FSG can provide the required guidance and help.

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Overview of FSG Inclusive Markets (IM)

Mission	To improve opportunities, agency, and choice for families with low- income by working with companies to serve families as customers (and not with non-profits to serve them as beneficiaries)		
Vision	To demonstrate profitability of offering inclusive products, services, or practices (e.g., housing, education, employment) that benefit families with low-income		
	Run multiyear programs to address barriers that prevent companies from offering inclusive products, services or practices		
	 Talk to thousands of families to understand their needs, aspirations, and challenges 		
	 Talk to hundreds of CXOs and managers to understand their business, ecosystem, regulatory and operational challenges 		
Approach	Co-create, pilot and rollout solutions with companies to address barriers and profitably scale inclusive products, services, or practices		
	 Publish and disseminate public goods (e.g., primary research, best practices, business model) to get more companies to offer the product, service or practice 		
	Address ecosystem barriers (e.g., policy suggestions) to make the market more conducive		

Overview of PIPE



Replacing rote¹ with activity based learning² in affordable private schools³ could improve learning outcomes for ~50% of children

~50% of children in India are enrolled in affordable private schools

- 40% of children in rural India are in private schools⁴
- 86% of families with lowincomes in urban India send their children to affordable private schools (APSs)⁵
- 54% of children in South Asia are enrolled in private schools for pre-primary education⁶

Current learning outcomes are poor due to rote teaching

- 35% of Grade 10 students can read at Grade 4 level⁷
- 84% of Grade 1 students can't read at grade level⁸
- Most private preschools follow mainly rote teaching with no age appropriate activities⁹

Adopting activity based learning in early years can provide the right educational foundation

- Poor learning outcomes in the early years leads to poor learning and life outcomes later¹⁰
- Children learn best using activity based learning (ABL) in the early years (ages 3-8)¹¹
- Intervening in the early years gives the highest return on investments¹²

- 1. See example of rote teaching here
- 2. Learning through structured play-based activities, games, and experiences
- 3. Schools that typically charge fees under INR 1,500 (USD 23) per month, and offer classes from nursery to grade 10 or 12
- 4. ASER 'Early Years' Report (2019)
- 5. PIPE research based on 4400 interviews with families with low-incomes (2015)
- 6. UNICEF 'A world ready to learn' (2019)
- 7. Education Initiatives research based on an assessment of 50,000 students in Gujarat, Maharashtra and Rajasthan (2013-14)
- 8. ASER 'Early Years' Report (2019)
- 9. CECED, ASER, and UNICEF 'The India Early Childhood Education Impact Study (2017); PIPE research
- 10. S Lockhart, Play: An Important Tool for Cognitive Development (2010)
- 11. M. Hohmann, D.P. Weikart, 'Educating Young Children: Active Learning Practices for Preschool and Child Care Programs' (1999)
- 12. J Heckman and D. Masterov, The Productivity Argument for Investing in Young Children (2004)

Barriers to adoption of ABL are lack of demand and low willingness to serve APS market

APS administrators, teachers and parents are not demanding ABL

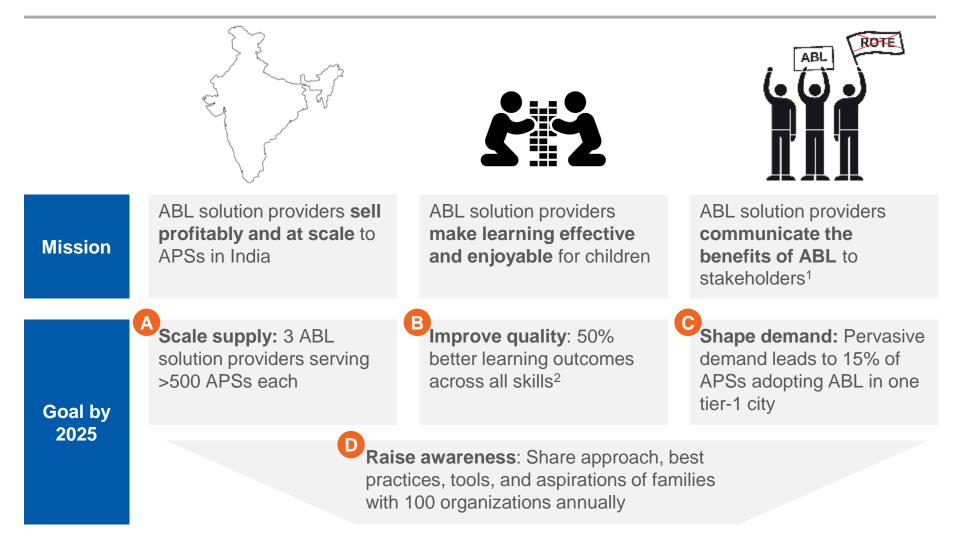
- Limited awareness of poor learning outcomes in children
- Limited awareness on the benefits of ABL
- Current rote memorization technique meets parents' demands

Solution providers¹ don't see a business opportunity to sell in the APS market

- Unclear business model to acquire and sell to APSs
- Fragmented market
- Unclear proposition for APS customers
- Lack of quality standards/ robust tools to assess quality

1. Solution providers are existing private companies currently providing ABL solutions including curriculum materials, teacher training and ongoing support to schools serving students from families with mid or high incomes

PIPE's vision is to replace rote with ABL in all 300,000 APSs in India





1. Stakeholders are APS administrators, teachers and parents

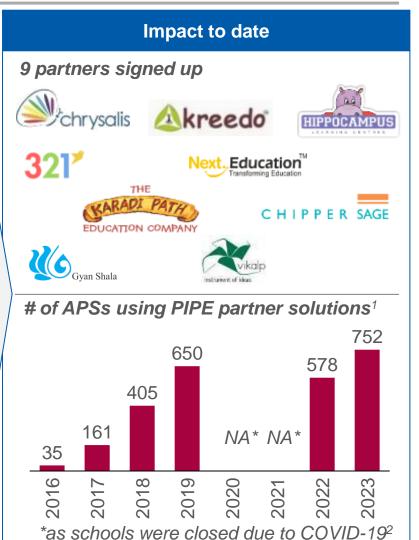
2. Skills include numeracy, early language skills, executive function, motor skills and socio-emotional skills

Scale supply: PIPE partners are providing ABL to >150,000 children across 750+ APSs



Activities

- Identified, convinced and signed-up 8 partners to the serve the APS market
- Developed a profitable business model for the APS market
- Identified barriers and developed 23 best practices across 4 business functions (i.e. product, sales, implementation and management) to support partners to profitably scale in the APS market
- Supported PIPE partners to co-develop an effective organization structure and team to scale (e.g., building a strong 2nd line of management)
- Supported PIPE partners to embed managing by objectives through a set of annual and monthly dashboards and metrics which determine business health



1 –Based on data collected from partners I 2-Schools were physically shut due to COVID-19, and only remote learning products were offered by the partners to APSs during academic years 2020-21 and 2021-22 The PIPE team has been unable to verify children's extent of engagement with these remote learning products due to school closures and COVID travel restrictions

Goal

3 ABL solution providers >500 APSs each

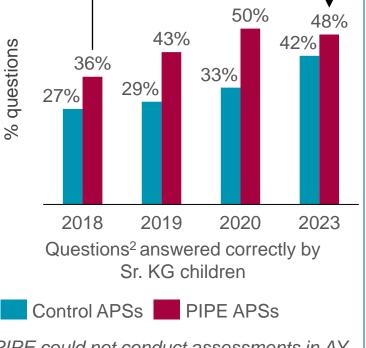
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Improve quality: Children in PIPE APSs responding correctly to numeracy and literacy questions increased by 33%

Activities

- **Developed public goods** based on research with 4400 parents, 28 APS administrators, 40 teachers, 167 ABL solution providers to:
 - Understand the reasons for poor learning outcomes
 - Leverage motivations of stakeholders to improve quality
- Supported partners in adapting their product for the APSs market and in improving teacher training
- Developed 'STARS', a tool to assess education quality (including learning outcomes) in APS
- Annually assessed and published learning outcomes in PIPE APSs
- Supporting partners to develop remote learning strategies to ensure learning continues during the pandemic

Impact to date¹ 33% improvement Since 2018 +33% 50%



PIPE could not conduct assessments in AY 2020-21 and AY 2021-22 as schools were shut due to COVID-19

1-Using the STARS tool. Sample sizes: 2018 (190 children in 38 PIPE APSs and 100 children in 20 control APSs), 2019 (636 children in 106 PIPE APSs and 168 children in 28 control APSs), 2020 (492 children in 116 PIPE APSs and 210 children in 35 control APSs), 2023 (378 children in 63 PIPE APSs and 204 children in 34 control APSs) I 2- Represent 4 questions that were assessed from 2018-2023 – a. Can you read the word 'PIN'? b. Can you identify the largest number from a group of numbers? c. Can you count and give 12 sticks out of 20? d. Can you name any 6 animals?.

Goal

50% better learning outcomes across each skill

Shape demand: Created and disseminated collateral to educate parents on the benefits of ABL



Activities

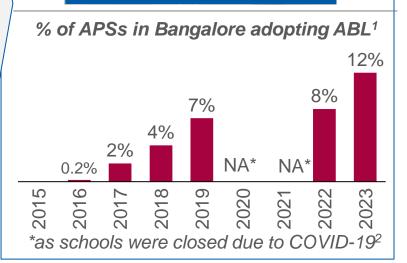
- Developed 'markers to test concepts' to shape parental demand
- Developed video and print collaterals to educate stakeholders on key skills that children should be learning by age
- Developed 8 videos to educate parents about their child's current poor learning outcomes, and help them engage in simple activities with their children at home
- Supported partners in organizing 'learning exhibitions' for parents, to showcase child learning outcomes due to ABL
- Developed 'Toys in a box', an engaging set of 6-8 developmentally appropriate affordable toys that engage children on key developmental outcomes

Impact to date

Disseminated parent engagement videos to 100K+ parents



www.ratta-ya-samajh.com



1 – Per PIPE's estimates, Bangalore has ~3,000 APSs Calculated based on the data reported by partners in July every year | 2 – Schools were physically shut due to COVID-19, and only remote learning products were offered by the partners to APSs during academic years 2020-21 and 2021-22

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Goal

Pervasive demand leads to 15% of APSs adopting ABL in one tier-1 city

Raise awareness: Shared the importance of early education and the APS market with ~180 organizations



Activities

- **21 publications** including ANYAS, IDELA Equity
- ~50 presentations at national and global conferences (e.g., Global Philanthropy Forum)
- Whitepapers highlighting program research (e.g. the PreschoolPromise)
- 9 best practices sharing sessions attended by ~20 organizations (e.g. MSDF investee's)
- **10+ Videos** highlighting sales process, parent engagement etc.
- ~180 annual 1-1 update calls with people from foundations, NGOs and other organizations working in the education space to share PIPE's approach

Impact to date

market

- Godrej
 - **Godrej** developed a program to support ABL solution providers by providing grants to APSs to "trial" the solution

Companies have used PIPEs

best practices and business

model to better target the APS

• AVPN set up 'Early Learning Collective' as they realized that ECE can have high impact



• Central Square Foundation added a vertical that focuses on ECE based on PIPE research



 Aga Khan Education Service, India using videos developed by PIPE to communicate benefits of ABL to teachers and parents

Goal

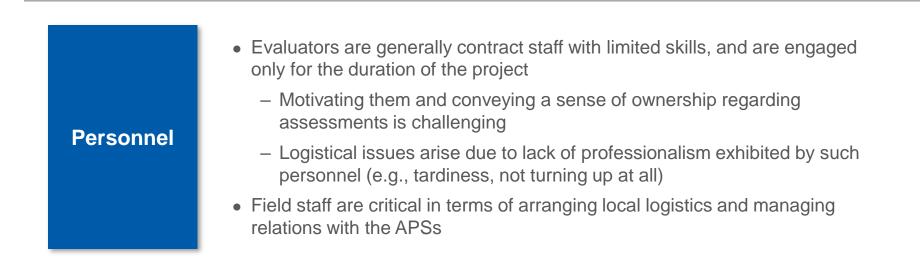
Share approach, best practices, tools, and aspirations of families with 100 organizations annually

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Key learnings from the fieldwork for assessments



Training

- PIPE needs to build assessment capacity in partner organizations (e.g., by facilitating Train the Trainer sessions for some permanent staff)
- Training pools should be larger, permitting greater leeway in selecting personnel that the team feels will perform well
- Another round of full training will be required before conducting assessments again (the team had earlier planned only a 1-day refresher training)



REIMAGINING SOCIAL CHANGE

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