Program to Improve Private Early Education (PIPE)
IMPACT ASSESSMENT 2020
## Glossary of terms (1/2)

- **Affordable Private Schools (APSs):** Schools that charge fees less than INR 25,400 ($340) 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 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

• **PIPE teachers**: Teachers teaching in APSs served by PIPE partners

• **STARS**: Scoring Tool for Assessing Readiness at School to assess the impact and sustainability 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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1. **Objectives of the assessment**
2. Research design and methodology
3. Key assessment findings
4. Introduction to PIPE
5. Appendix
Objectives of the assessment

- **Independently track impact of PIPE partners** in APSs by measuring change in the classroom environment and child learning outcomes\(^1\)

- **Independently, track sustainability of PIPE partner solutions** by measuring administrator, teacher and parent awareness about Activity Based Learning and child learning outcomes

1. Child learning outcomes include assessment of Sr. KG and Grade 2 children
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1. Objectives of the assessment
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5. Appendix
116 PIPE and 35 Control APSs, representative of the same target population, were assessed

Similar segment of schools

- Private schools that are not government-aided, trust-aided or trust-funded
- Operate pre-primary to at least Grade 5
- All inclusive annual fee < INR 25,000

Similar fees (INR)

- Control (35 APSs)
- PIPE (114 APSs)

Similar administrator profile

% administrators that named one non-recall based question to assess learning in...

- Math: 91% (Control), 84% (PIPE)
- English: 91% (Control), 93% (PIPE)

1. Indicates actual locations of the schools. Not to scale. 2. As reported by respective school administrators. Includes books, tuition fee, admission/readmission fee, uniforms, etc. and excludes transportation. Reported fees may differ from actual fees. 3. Administrators were asked “How does a good teacher know if a child is learning in Math/English?” Good response are non-recall based.
Scoring Tool to Assess Readiness of Schools (STARS) was used by an independent agency to conduct the assessments

- Developed the Scoring Tool for Assessing Readiness at School (STARS) to assess the impact and sustainability of ABL in APSs
- STARS assesses schools across 5 key sections – (i) classroom environment, (ii) Sr. KG and Grade 2 student learning outcomes, and interviews with (iii) administrators, (iv) teachers and (v) parents
- Identified and signed up 151 APSs that included
  - 116 APSs with partner solutions
  - 35 APSs with no partner solutions
- Shortlisted and trained assessors from Modulus Research and Analysis – selected after requesting proposals from 4 agencies
- Ensured data consistency and accuracy by
  - Shadowing all assessors on their first 2 assessments across all cities
  - Conducting 12 surprise spot checks at schools covering all assessors across all cities
- Organized and analyzed the data to identify key findings which have been listed in this document

PIPEC shortlisted Modulus Research & Analysis after soliciting services from 4 agencies to conduct the impact assessment

Assessment conducted by Modulus Research & Analysis

1. To refer to the Scoring Tool for Assessing Readiness at School (STARS) (formerly known as the Preschool Assessment Tool (PAT)) and the approach to developing the tool visit STARS>>
2. Adapted ECERS 3 to the Indian APS context. To learn more, visit www.fsg.org/PIPE
3. Selected questions from an adapted version of IDELA for the Indian APS context. To learn more visit STARS>>
STARS contains 5 sections to track sustainability and impact of good pedagogy

<table>
<thead>
<tr>
<th>Sections</th>
<th>Classroom environment</th>
<th>Child learning outcomes</th>
<th>Administrator interviews</th>
<th>Teacher interviews</th>
<th>Parent interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>• Assesses physical setup of classroom&lt;br&gt;• Assesses culture through peer interactions and teacher-student engagement</td>
<td>• Measures child learning outcomes in numeracy, literacy and cognitive task&lt;br&gt;• Assessments for end of Sr. KG and Grade 2</td>
<td>• Checks if administrator&lt;br&gt;– Knows that good pedagogy helps learning&lt;br&gt;– Shares benefits with parents</td>
<td>• Checks if teacher&lt;br&gt;– Has received training to teach in early years&lt;br&gt;– Manages parent concerns&lt;br&gt;– Recommends pedagogy</td>
<td>• Evaluates level of parent engagement&lt;br&gt;• Checks parents awareness of and satisfaction with the school</td>
</tr>
<tr>
<td>Rationale</td>
<td>• In a safe classroom environment students take risks, ask questions promoting better interaction among children and staff</td>
<td>• Good pedagogy improves child’s understanding of concepts and learning outcomes</td>
<td>• Administrator understanding and buy-in is essential for continued use of good pedagogy</td>
<td>• Teacher capability and buy-in is essential for good implementation</td>
<td>• Parent understanding and buy-in is essential for continued use of good pedagogy</td>
</tr>
<tr>
<td>Example</td>
<td>• Teachers asks open-ended questions and responds positively</td>
<td>• Read “pin” (UKG)&lt;br&gt;• Solve two subtraction problems (Gr 2)</td>
<td>• According to you, how does a good teacher teach counting?</td>
<td>• Has it been easy to address parent complaints about the pedagogy?</td>
<td>• At the end of Sr. KG/ this grade what should your child know in English?</td>
</tr>
</tbody>
</table>

Note- Please refer [here](#) for the detailed tool
Findings are based on assessment of 82 PIPE APSs for Sr. KG analysis, 62 PIPE APSs for grade 2 analysis and 35 control APSs.

**Assessment includes**

- **117 Sr. KG classrooms**
- **702 Sr. KG children**
- **485 Grade 2 children**
- **585 Sr. KG parents**
- **117 Sr. KG teachers**
- **151 administrators**

**PIPE APSs**

- **82**
- **492**
- **310**
- **410**
- **82**
- **116**

**Control APSs**

- **35**
- **210**
- **175**
- **175**
- **35**
- **35**

**Regions**

Bangalore, Chennai, Delhi, Mumbai and Hyderabad

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1. Includes 352 boys and 350 girls | 2. Includes 250 boys and 235 girls | 3. Administrators include principals, owners, management in-charge, etc. | 4. Each region includes 1-2 nearby cities/towns (e.g., Bangalore would include Mysore and Mangalore)
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1. Objectives of the assessment
2. Research design and methodology
3. **Key assessment findings**
4. Introduction to PIPE
5. Appendix
**PIPE APSs have scored better than control APSs across all sections on the impact assessment**

<table>
<thead>
<tr>
<th>Improved learning outcomes</th>
<th>Sr. KG children in PIPE APSs scored 48% higher on learning outcomes as compared to control APSs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of Sr. KG children in PIPE APSs responded correctly to numeracy, cognitive and literacy tasks was higher as compared to control APSs</td>
</tr>
<tr>
<td></td>
<td>% of Sr. KG children in PIPE APSs that responded correctly to numeracy and literacy tasks increased by 38% over the years</td>
</tr>
<tr>
<td></td>
<td>Grade 2 children in PIPE APSs scored 27% higher on learning outcomes as compared to control APSs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>More capable teachers</th>
<th>Sr. KG classroom scores in PIPE APSs were 68% higher as compared to control APSs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sr. KG classroom environment scores within PIPE APSs have improved by 40% over 3+ years of implementation</td>
</tr>
<tr>
<td></td>
<td>92% more Sr. KG teachers in PIPE APSs use materials effectively to teach and reinforce concepts than in control APSs</td>
</tr>
<tr>
<td></td>
<td>In schools implementing ABL for 3+ years, more teachers encourage dialogue in class, introduce new words and engage with children better</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scope for improvement</th>
<th>More Sr. KG parents in PIPE APSs recollected the name of the curriculum and raised complaints about it than in control APSs</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Across all APSs, peer interactions and use of structured lesson plans was not observed</td>
</tr>
</tbody>
</table>
Sr. KG children in PIPE APSs scored 48% higher on learning outcomes as compared to control APSs.

Control APSs
Average score: 11.1

PIPE APSs
Average score: 16.4

48% higher score

For score by gender please refer [here](#).  
In each APS, 6 Sr.KG children were assessed on 7 questions, each – 3 in math and 1 each on reading, executive function, spoken English and expressive vocabulary.
% of Sr. KG children in PIPE APSs that responded correctly to numeracy, cognitive and literacy tasks was higher as compared to control APSs (1/2)

<table>
<thead>
<tr>
<th>Task</th>
<th>Control (210 children)</th>
<th>PIPE (492 children)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identified largest number from a group of 6 numbers</td>
<td>22%</td>
<td>40%</td>
<td>+81%</td>
</tr>
<tr>
<td>Could count and give 12 sticks from 20</td>
<td>23%</td>
<td>46%</td>
<td>+99%</td>
</tr>
<tr>
<td>Solved abstract addition problem</td>
<td>26%</td>
<td>31%</td>
<td>+19%</td>
</tr>
<tr>
<td>Solved a 4 piece puzzle</td>
<td>13%</td>
<td>21%</td>
<td>+63%</td>
</tr>
</tbody>
</table>

1. Overall percentage calculated based on simple average of all questions in each domain
2. Question- “There are 3 apples in this box. If I were to add 2 more, how many would be there in total?” (Show the child a picture with 3 apples)
% of Sr. KG children in PIPE APSs that responded correctly to numeracy, cognitive and literacy tasks was higher as compared to control APSs (2/2)

<table>
<thead>
<tr>
<th>% of Sr. KG children that read a new word (PIN)</th>
<th>% of Sr. KG children that named 6+ animals</th>
<th>% of Sr. KG children that framed an English sentence (noun, verb) when shown a picture</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Graph showing 40% in control and 50% in PIPE for reading a new word (PIN)" /></td>
<td><img src="image" alt="Graph showing 46% in control and 64% in PIPE for naming 6+ animals" /></td>
<td><img src="image" alt="Graph showing 14% in control and 22% in PIPE for framing a sentence" /></td>
</tr>
</tbody>
</table>

1. Overall percentage calculated based on simple average of all questions in each domain
2. This question tests the child on expressive vocabulary, therefore considered as a literacy question.
3. Child is expected to frame a simple sentence consisting of one noun and one verb (e.g., girl playing)
% of Sr. KG children in PIPE APSs that responded correctly to numeracy and literacy tasks increased by 38% over the years

% of questions answered correctly by Sr. KG children¹

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIPE 2018</td>
<td>36%</td>
<td></td>
</tr>
<tr>
<td>PIPE 2019</td>
<td>43%</td>
<td>+38%</td>
</tr>
<tr>
<td>PIPE 2020</td>
<td>50%</td>
<td></td>
</tr>
</tbody>
</table>

1. Represent 4 questions that were assessed in 2018, 2019 and 2020 – 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?
Sample sizes: PIPE 2018 (190 children), PIPE 2019 (636 children), PIPE 2020 (492 children). Please refer here for detailed break up
Grade 2 children in PIPE APSs scored 27% higher on learning outcomes as compared to control APSs.

Control APSs
Average score: 36.9

PIPE APSs
Average score: 46.9

- No significant variance in scores by gender observed in PIPE and Control APSs.
- In each APS, 5 Grade 2 children were assessed on 18 questions, each – 9 in math and 9 in English.
Sr. KG classroom scores in PIPE APSs were 68% higher as compared to control APSs

Average classroom environment score (in %)

- 19% in Control (35 classrooms)
- 32% in PIPE (82 classrooms)

Key drivers

- Compared to classrooms in control APSs, PIPE APSs are doing better by
  - 94% as teachers respond positively to children’s communication and encourage them to talk more
  - 46% in having a culture of giving children positive feedback/reinforcement
  - 46% in utilization of space for children to engage in individual and group activities

1. Find the detailed break up of scores [here](#)
Sr. KG classroom environment scores within PIPE APSs have improved by 40% over 3+ years of implementation

Average classroom environment score (in %)

- First year implementation (34 classrooms): 26%
- Second year implementation (23 classrooms): 33%
- 3+ years implementation (25 classrooms): 37%

Key drivers

- In 3+ years of implementing ABL curriculum, Sr. KG PIPE teachers have improved by:
  - 2.2x in **using visual stimulations** (e.g., charts) to reinforce key concepts
  - 2.2x in **having a structured lesson plan** available during class
  - 1.5x in **effectively engaging children** during transition. For e.g., when children are moving from one lesson to the next

1. 3+ years implementation includes APSs implementing an ABL intervention for 3 or more years
92% more Sr. KG teachers in PIPE APSs use materials effectively to teach and reinforce concepts than in control APSs

<table>
<thead>
<tr>
<th>% of teachers correctly using one learning material to teach concepts</th>
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<tbody>
<tr>
<td>Control</td>
</tr>
<tr>
<td>PIPE</td>
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</table>

<table>
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<tr>
<th>% of teachers who allow children to use a learning material, independently</th>
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</thead>
<tbody>
<tr>
<td>Control</td>
</tr>
<tr>
<td>PIPE</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>% of teachers who ask children questions to test understanding of activities/ concepts being taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
</tr>
<tr>
<td>PIPE</td>
</tr>
</tbody>
</table>

Typical support received by teachers from PIPE partners:
- ~6 group teacher training sessions per teacher per year
- ~6-8 in-class observation and feedback sessions per teacher per year
- On-demand remote support over call or WhatsApp through the academic year

1. Actual support may vary by solution providers
In schools implementing ABL for 3+ years, more teachers encourage dialogue in class, introduce new words and engage with children better.

**% of teachers who encourage dialogue during class**

- First year implementation: 12%
- Second year implementation: 17%
- 3+ years implementation: 32%

**Explanation**

Teacher asks children at least two open-ended questions (e.g., questions that begin with how, what if, why) and encourage them to talk more through positive reinforcement.

**% of teachers introducing new words in class**

- First year implementation: 29%
- Second year implementation: 22%
- 3+ years implementation: 48%

**Explanation**

Teacher introduces 1-2 new words with some explanation (e.g., for the word “nib”; the teacher states “the pen has a nib”).

**% of teachers keeping 75%+ children on task**

- First year implementation: 59%
- Second year implementation: 74%
- 3+ years implementation: 76%

**Explanation**

At least 75% of the children are on task and paying attention for most of the time (e.g., activities, doing worksheets).

Note: Data based on assessments conducted in 2020. ‘3+ years implementation’ includes PIPE APSs implementing an ABL intervention for 3 or more years. Sample sizes: First year implementation (34 classrooms), Second year implementation (23 classrooms) and 3+ years of implementation (25 classrooms).
More Sr. KG parents in PIPE APSs recollected the name of the curriculum and raised complaints about it than in control APSs.

**% of parents that could name the curriculum provider**
- Control (175 parents): 3%
- PIPE (410 parents): 29%

**% of parents that complained about the curriculum (as told by Sr. KG teachers)**
- Control (35 Sr. KG teachers): 11%
- PIPE (82 Sr. KG teachers): 44%

Note: In each APS, 5 parents were interviewed.
Across all APSs, peer interactions and use of structured lesson plans was not observed

% of classrooms where planned peer interaction was observed

Control (35 classrooms) | PIPE (82 classrooms)

% of Sr. KG teachers having a structured lesson plan

0% | 10%

Peer interaction…
refers to children engaging with each other in pairs and small/large groups

A structured lesson plan has…
- Objective of the lesson
- Steps to follow
- Materials required
- Questions to test understanding
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<th>Table of contents</th>
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<td>4</td>
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<td>5</td>
<td>Appendix</td>
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</table>
Overview of PIPE

Please view in slide show mode. Please click on the image to open a video link. Requires internet connectivity.
Replacing rote\(^1\) with activity based learning\(^2\) in affordable private schools\(^3\) could improve learning outcomes for ~50% of children

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

- 40% of children in rural India are in private schools\(^4\)
- 86% of families with low-incomes 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 education\(^6\)

**Current learning outcomes are poor due to rote teaching**

- 35% of Grade 10 students can read at Grade 4 level\(^7\)
- 84% of Grade 1 students can’t read at grade level\(^8\)
- Most private preschools follow mainly rote teaching with no age appropriate activities\(^9\)

**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 later\(^10\)
- 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 investments\(^12\)

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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 25,400 (USD 340) per annum, 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
Barriers to adoption of ABL are lack of demand and low willingness to serve APS market

<table>
<thead>
<tr>
<th>APS administrators, teachers and parents are not demanding ABL</th>
<th>Solution providers(^1) don’t see a business opportunity to sell in the APS market</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Limited awareness of poor learning outcomes in children</td>
<td>• Unclear business model to acquire and sell to APSs</td>
</tr>
<tr>
<td>• Limited awareness on the benefits of ABL</td>
<td>• Fragmented market</td>
</tr>
<tr>
<td>• Current rote memorization technique meets parents’ demands</td>
<td>• Unclear proposition for APS customers</td>
</tr>
<tr>
<td></td>
<td>• Lack of quality standards/robust tools to assess quality</td>
</tr>
</tbody>
</table>

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

**Mission**

**ABL solution providers sell profitably and at scale to APSs in India**

**ABL solution providers make learning effective and enjoyable for children**

**ABL solution providers communicate the benefits of ABL to stakeholders**

**Goal by 2022**

**Scale supply:** 3 ABL solution providers serving >500 APSs each

**Improve quality:** 50% better learning outcomes across all skills⁴

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

**Raise awareness:** Share approach, best practices, tools, and aspirations of families with 100 organizations annually

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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 have provided ABL to >74,000 children across 650+ APSs

**Goal**

3 ABL solution providers >500 APSs each

### 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 **best practices** for ABL solution providers (e.g., pricing, sales) to address these barriers
- 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

### Impact to date

**8 partners signed up**

<table>
<thead>
<tr>
<th>Partner</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chrysalis</td>
<td>35</td>
<td>161</td>
<td>405</td>
<td></td>
<td>650</td>
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<tr>
<td>Akreedo</td>
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<td>Hippocampus</td>
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<tr>
<td>Next Education</td>
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<td>321 Path Education</td>
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<td>Chipper</td>
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<td>Sage</td>
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<tr>
<td>Vikalp</td>
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**APSs using PIPE partner solutions**

<table>
<thead>
<tr>
<th>Year</th>
<th># of APSs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul 2016</td>
<td>35</td>
</tr>
<tr>
<td>Jul 2017</td>
<td>161</td>
</tr>
<tr>
<td>Jul 2018</td>
<td>405</td>
</tr>
<tr>
<td>Jul 2019</td>
<td>650</td>
</tr>
<tr>
<td>Jul 2020</td>
<td># TBD</td>
</tr>
</tbody>
</table>

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1- As a result of COVID-19, schools have not re-opened for AY 2020-21. We are likely to have the final sales numbers once schools re-open

© FSG | 29
Improve quality: Children in PIPE APSs responding correctly to numeracy and literacy questions increased by 38%

**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**

**Impact to date**

38% improvement over 2 years

<table>
<thead>
<tr>
<th>Year</th>
<th>Control APSs</th>
<th>PIPE APSs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>27%</td>
<td>36%</td>
</tr>
<tr>
<td>2019</td>
<td>29%</td>
<td>43%</td>
</tr>
<tr>
<td>2020</td>
<td>33%</td>
<td>50%</td>
</tr>
</tbody>
</table>

1- STARS tool was used to assess 702 children across 151 APSs (116 PIPE APSs with 492 children and 35 control APSs with 210 children) in 2020
2- Represent 4 questions that were assessed in 2018, 2019 and 2020 – 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? 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)
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
- Partnering with organizations (e.g., non-profits and microfinance companies) with mass reach to households with low-incomes for dissemination of the videos
- 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

**Collateral developed**

![Image](www.ratta-ya-samajh.com)

**% of APSs in Bangalore adopting ABL**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.2%</td>
<td>2%</td>
<td>4%</td>
<td>7%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Collateral developed is available in the subsequent slides
2. As a result of COVID-19, schools have not re-opened for AY 2020-21. We are likely to have the final numbers once schools re-open

**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

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

**Activities**
- **21 publications** including ANYAS, IDELA Equity
- **40+ 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**
- Companies have used PIPEs best practices and business model to better target the APS market
- **Godrej** is developing a program to support ABL solution providers by providing grants to APSs to “trial” the solution
- **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
Join our funders in supporting PIPE

Our efforts are supported by...

To support PIPE connect us with...

- Organizations working to improve APSs in developing countries to exchange learnings and open source material
- Organizations that can help raise awareness of the benefits of ABL among families with low-incomes
- Foundations interested in improving learning outcomes of children in APSs

To learn more:  www.fsg.org/pipe  pipe@fsg.org
Our team* brings together strategic, educational, and operational experience and expertise

Vikram Jain  
*Program Lead*
- Leads the PIPE program
- Over 20 years of strategy, operations and consulting experience
- Worked with Monitor Inclusive Markets, McKinsey and Deloitte
- MBA, London Business School

Puneet Goenka  
*Partner Team*
- 10 years of experience in the private and development sector
- Worked with Boston Consulting Group, Naandi Foundation, Navistar
- MBA, Ross School of Business, University of Michigan

Gauri Kirtane  
*Quality Team*
- 14 years of experience in education, with a focus on teaching, learning and curriculum design
- Education Manager for >35 centers and 1200 students at Akanksha Foundation
- EdD, University of Pennsylvania

Sana Kazi  
*Program Team*
- 8 years of experience in the education sector
- Worked with PwC, Center for Civil Society and Goldman Sachs
- MPA, LSE

Lakshmi Narayanan G  
*Field Team, Bangalore*
- Over 5 years of work experience, with extensive experience in the education space in Bangalore
- MA-Development, Azim Premji University

Total team size: 10  
**Roles and responsibilities:**
- *Partner team:* Capacity building of partners, best practice development
- *Quality team:* Best practice development
- *Program team:* Dissemination and program management
- *Field team:* Monitoring in schools

* The team shown here is representative of the PIPE team for 2020-21
# Table of contents

1. Objectives of the assessment
2. Research design and methodology
3. Key assessment findings
4. Introduction to PIPE
5. Appendix
Classroom environment | PIPE APSs have scored better on all dimensions as compared to control APSs

Average score of all dimensions of classroom environment (out of 3)

- **Lesson planning**: 5% (Control) vs. 19% (PIPE)
- **Room arrangement**: 64% (PIP) vs. 44% (Control)
- **Displays**: 30% (Control) vs. 37% (PIPE)
- **Expand vocabulary**: 22% (Control) vs. 25% (PIPE)
- **Encourage use of language**: 9% (Control) vs. 17% (PIPE)
- **Materials and activities**: 11% (Control) vs. 36% (PIPE)

- **Staff-students interactions**: 40% (Control) vs. 59% (PIPE)
- **Peer interactions**: 4% (Control) vs. 7% (PIPE)
- **Discipline**: 17% (Control) vs. 32% (PIPE)
- **Student engagement**: 14% (Control) vs. 28% (PIPE)
- **Transitions**: 11% (Control) vs. 23% (PIPE)

Legend:
- Blue: Control (35 APSs)
- Red: PIPE (82 APSs)
Classroom environment | There is no significant difference in classroom environment score over the past two assessments

Comparison of classroom environment score of PIPE and control APSs in 2019 and 2020
Sr. KG learning outcome 2019-2020 | Children scores across PIPE and control APSs have improved over the past two assessments

Comparison of Sr. KG student outcomes score of PIPE and control APSs in 2019 and 2020

1. In each APS, 6 Sr.KG children were assessed on 7 questions, each – 3 in math and 1 each on reading, executive function, spoken English and expressive vocabulary
Sr. KG learning outcome | The number of Sr. KG children in PIPE APSs completing literacy, numeracy and cognitive tasks has increased over the years

<table>
<thead>
<tr>
<th>% of Sr. KG children(^1) that solved abstract addition problem</th>
<th>% of Sr. KG children(^1) that framed an English sentence (noun, verb) when shown a picture(^2)</th>
<th>% of Sr. KG children(^1) that solved a 4 piece puzzle</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Graph" /></td>
<td><img src="image2.png" alt="Graph" /></td>
<td><img src="image3.png" alt="Graph" /></td>
</tr>
</tbody>
</table>

**Question-**
“There are 3 apples in this box. If I were to add 2 more, how many would be there in total?”

1. Represent questions that were assessed in 2019 and 2020.
2. Child is expected to frame a simple sentence consisting of one noun and one verb (e.g., girl playing, boy cycling)
Sr. KG learning outcome | Children in PIPE and control APSs had similar results on empathy and conflict resolution

Empathy (Question)¹

a “This girl is crying. What would you do to make her feel better?“

b Is there anything else you would do?

Conflict resolution (Question)²

c “Imagine that you are playing with a toy that you like. Now another child wants to play with that same toy, but there is only one toy. What would you do in this situation?”

d Is there anything else you would do?

% of children that gave a correct response

Gave 1 correct response for empathy questions

Gave 1 correct response for conflict resolution questions

Gave 2 correct responses for empathy questions

Gave 2 correct responses for conflict resolution questions

Control (210 children)  PIPE (492 children)

1. Example response- ‘I will give her a chocolate’, ‘I will call her mother’  2. Example response- ‘I will share the toy’, ‘I will give my toy to him/her’
There is significant variance among partners and potential for each partner to improve

<table>
<thead>
<tr>
<th></th>
<th>% Sr. KG children that answered questions correctly(^1)</th>
<th>Sr. KG Classroom environment scores (%)(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner 1</td>
<td>25%</td>
<td>36%</td>
</tr>
<tr>
<td>Partner 2</td>
<td>39%</td>
<td>58%</td>
</tr>
<tr>
<td>Partner 3</td>
<td>37%</td>
<td>42%</td>
</tr>
<tr>
<td>Partner 4</td>
<td>43%</td>
<td>49%</td>
</tr>
<tr>
<td>Control</td>
<td>27%</td>
<td>29%</td>
</tr>
</tbody>
</table>

1. Scores are based on 4 questions which were asked across all years. 2. Scores are out of 30 and do not include lesson planning as a dimension.

Grade 2 learning outcome - English | Children in PIPE APSs are at par with children in control APSs

- Read 5 words correctly: PIPE 67%, Control 71%
- Read 4 simple sentences: PIPE 56%, Control 62%
- Answered a simple question based on the 4 sentences: PIPE 64%, Control 67%

- Read a story with less than 3 errors: PIPE 23%, Control 20%
- Answered a listening comprehension question (1): PIPE 41%, Control 41%
- Answered a listening comprehension question (2): PIPE 51%, Control 57%

- Answered a listening comprehension question (3): PIPE 41%, Control 37%
- Read 5 unknown words: PIPE 30%, Control 38%
- Wrote spellings of 5 simple words: PIPE 24%, Control 28%

Control (175 children) vs PIPE (310 children)
Grade 2 learning outcome - Math | Children in PIPE APSs are doing significantly better as compared to children in control APSs

% of children

- 59% | 75%  
Solved two single digit subtraction problems  
Control (175 children)  
PIPE (310 children)

- 11% | 32%  
Solved two double digit subtraction problems  
Control (175 children)  
PIPE (310 children)

- 37% | 66%  
Solved two double digit addition problems (without carry over)  
Control (175 children)  
PIPE (310 children)

% of children

- 23% | 53%  
Solved a double digit addition problem (with carryover)  
Control (175 children)  
PIPE (310 children)

- 49% | 66%  
Solved an oral addition problem (without carryover)  
Control (175 children)  
PIPE (310 children)

- 54% | 73%  
Solved an oral subtraction problem (without borrowing)  
Control (175 children)  
PIPE (310 children)

% of children

- 46% | 60%  
Solved a single digit addition word problem (without carryover)  
Control (175 children)  
PIPE (310 children)

- 39% | 55%  
Solved a double digit subtraction word problem (with borrowing)  
Control (175 children)  
PIPE (310 children)

- 22% | 38%  
Identified the missing number in a given pattern  
Control (175 children)  
PIPE (310 children)
Grade 2 learning outcome | Children in PIPE APSs are doing better at Math and at par on English as compared to control APSs

| % score of grade 2 children in Math (per APS) | % score of grade 2 children in English (per APS) |

Control (175 children) | PIPE (310 children)

Note: In each APS, 5 Grade 2 children were assessed on 18 questions, each – 9 in math and 9 in English
Sample size of children assessed in Sr. KG and Grade 2 | Similar number of boys and girls were assessed

Total number of Sr. KG boys and girls assessed

<table>
<thead>
<tr>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>352</td>
<td>350</td>
</tr>
</tbody>
</table>

Total number of grade 2 boys and girls assessed

<table>
<thead>
<tr>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>250</td>
<td>235</td>
</tr>
</tbody>
</table>

1. Sr. KG sample size includes 104 boys and 106 girls from control schools and 248 boys and 244 girls from PIPE schools
2. Grade 2 sample size includes 90 boys and 85 girls from control schools and 160 boys and 150 girls from PIPE schools
Sr. KG learning outcome scores by gender | No significant variance was observed across PIPE and Control schools

% of Sr. KG children that answered questions correctly (by gender)

- 23% of 104 boys in control APS
- 29% of 106 girls in control APS
- 38% of 248 boys in PIPE APS
- 40% of 244 girls in PIPE APS
Assessment scores by year of implementation | Significant improvements observed in the quality of classroom environment

Average score by year of implementation (Out of 145)

- Classroom environment (33)
- Capable teacher (7)
- Improved learning outcomes (42)
- Supportive home environment (50)
- Engaged Administrator (13)

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom environment</td>
<td>8.7</td>
<td>10.9</td>
</tr>
<tr>
<td>Improved learning outcomes</td>
<td>16.6</td>
<td>15.4</td>
</tr>
<tr>
<td>Engaged Administrator</td>
<td>6.7</td>
<td>6.0</td>
</tr>
<tr>
<td>Capable teacher</td>
<td>5.4</td>
<td>5.5</td>
</tr>
<tr>
<td>Supportive home environment</td>
<td>5.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

# of APS

Year 1: 34
Year 2: 23
Year 3+: 25

1. Total section score captured in brackets ()
Administrator interview | No significant variance between PIPE and control APS administrators observed

Average administrator score by question (in %)

- Describes marker to test for concepts in Math: 46% (Control), 45% (PIPE)
- Describes marker to test for concepts in English: 59% (Control), 64% (PIPE)
- Shares conceptual markers with parents to assess learning in Math: 28% (Control), 34% (PIPE)
- Shares conceptual markers with parents to assess learning in English: 43% (Control), 44% (PIPE)
- Owners that wanted to renew the program: 60% (Control), 67% (PIPE)

Note: Represents owners of all PIPE APSs where Sr. KG and grade 2 assessments were conducted
Parent interview | More Sr. KG parents in PIPE APSs described one marker to check for learning in Math and English

Average parent score by question (in %)

- Describes right markers to check for learning in Math: 30% (Control), 39% (PIPE)
- Describes right markers to check for reading in English: 33% (Control), 40% (PIPE)

Control (175 parents)  PIPE (410 parents)
Average number of sections | There are an average of 1.41 sections in each APS

Spread of APSs by number of Sr. KG section(s)

- 1 Sr. KG section: 62%
- 2 Sr. KG sections: 29%
- 3+ Sr. KG sections: 9%

Sample size: 117

Sample size includes 35 control and 82 PIPE APSs
Average number of children in each Sr. KG classroom is 28

Average number of children\(^1\) per Sr. KG classroom

- 26% < 20 children
- 36% 20-30 children
- 24% 30-40 children
- 15% 40+ children

Average # of children:
- 28

Sample size:
- 117

---

1. Number of children per classroom were documented based on attendance register and manual counting on the day of observation.
Age | Average age of children in Sr. KG is 5.32 years and of grade 2 children is 7.66 years

% of Sr. KG children by age

- 5 years: 56%
- 6 years: 36%
- Others: 8%

% of Grade 2 children by age

- 7 years: 41%
- 8 years: 41%
- 9 years: 11%
- Others: 7%

Average age

- Sr. KG: 5.38 years
- Grade 2: 7.66 years

Sample size

- Sr. KG: 702
- Grade 2: 485

Note: Age as provided by children
Type of administrators interviewed | Predominantly owners and principals were interviewed

Spread by role of administrator

- Principal: 51%
- Owner: 27%
- Pre primary principal: 5%
- Others\(^1\): 17%

Sample size: 151

---

1. Others refers to vice principal, school coordinators, in-charge, trustee, management, secretary, etc.
Distribution of parents interviewed | Predominantly mothers were interviewed, followed by fathers

Distribution of parents interviewed (by relationship)

- **Mother**: 77%
- **Father**: 22%
- **Others**: 1%

Sample size: 754

---

1. Others include grandparents, uncle, aunt or sisters
2. In each school, 5 parents were interviewed. In one control school only 4 parents were interviewed
Teacher interview | PIPE teachers recommend the respective curriculum despite receiving more complaints from parents

% of teachers who said they...

- Will ask the principal/owner to buy the current books/curriculum: 77% (Control), 91% (PIPE)
- Received complaints from parents about the books/curriculum being followed: 11% (Control), 44% (PIPE)
- Addressed parents concern with ease: 60% (Control), 83% (PIPE)
- Received feedback from principal/owner on their teaching in the past 1-2 months: 71% (Control), 78% (PIPE)

Legend:
- Teal: Control (35 teachers)
- Maroon: PIPE (82 teachers)
Details on classroom environment dimensions observed (1/2)

<table>
<thead>
<tr>
<th>Topic</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lesson planning</strong></td>
<td>No plan available (or)</td>
<td>Plan available without detailed steps and/or materials required (e.g. &quot;phonics for A-E&quot;, &quot;counting 11-15&quot;)</td>
<td>Plan available with Steps to follow (and) Materials required (and) Teacher follows plan</td>
<td>Teacher articulates learning objectives (or) Teacher checks for learning outcomes in at least one way</td>
</tr>
<tr>
<td><strong>Room arrangement</strong></td>
<td>Most of the classroom area is so crowded that learning activities cannot be conducted (and) There are no alternate spaces available to conduct activities</td>
<td>The class/ alternate space is crowded but at least one area has been organized where at least one learning activity can be conducted (e.g. benches moved slightly to make room in the front)</td>
<td>The class/ alternate space is organized such that two or more learning activities can be conducted (and) The teacher can supervise most children</td>
<td>Children are observed using the space for more than one activity</td>
</tr>
<tr>
<td><strong>Displays</strong></td>
<td>There are no relevant displays (e.g. alphabets, numbers, weather charts, shapes, posters about transport, my body) on the classroom walls</td>
<td>Relevant materials are displayed on the classroom wall</td>
<td>Relevant materials are displayed on the classroom wall and referred to at least twice (by teacher or children)</td>
<td>Children's artwork displayed on the wall</td>
</tr>
<tr>
<td><strong>Expand vocabulary</strong></td>
<td>Teacher may use new words but does not introduce them with an explanation</td>
<td>Teacher introduces 1-2 new words with minimal explanation (e.g. for the word &quot;nib&quot;, the teacher states &quot;the pen has a nib&quot;)</td>
<td>Teacher introduces 1-2 new words and correctly explains their meanings (e.g. for the word &quot;nib&quot;, the teacher (i) shows a pen, (ii) points to the nib; (iii) provides explanation about the object)</td>
<td>Teacher exposes children to language by (any of the below): Using adjectives or descriptions Using multiple scenarios or examples to explain something Telling stories/ anecdotes</td>
</tr>
<tr>
<td><strong>Encourage use of language</strong></td>
<td>Majority of questions are rote based (i.e. have specific one or two word responses) or yes/ no answers (and) Talking among children or with staff is not encouraged</td>
<td>Staff asks at least two open-ended questions during the observation (e.g. questions that begin with how, what if, why, tell me about)</td>
<td>Staff responds positively to children's communication and encourages them to talk more</td>
<td>Staff child conversations go beyond classroom activities and materials (e.g. social talk about home and family life, activities in the community, feelings, other non-school topics)</td>
</tr>
<tr>
<td><strong>Staff-child interaction</strong></td>
<td>Staff* is unresponsive or interacts negatively with children</td>
<td>Whole class interactions between staff and children are positive</td>
<td>Staff interacts positively with some children individually by providing positive feedback/ reinforcement</td>
<td>Staff gives a message of warmth through actions (any of the below): Appropriate physical contact Respectful tone Showing sensitivity to children's needs</td>
</tr>
</tbody>
</table>

*Staff refers to all adults observed in classroom
### Details on classroom environment dimensions observed (2/2)

<table>
<thead>
<tr>
<th>Topic</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Materials and activities</strong></td>
<td>No appropriate materials (e.g. flashcards) are used by teacher/children <em>(Or)</em> Teacher uses materials/ conducts activities incorrectly (e.g. adopts rote approach when using flashcards)</td>
<td>At least one material is appropriately used by teachers to teach a concept</td>
<td>One material is appropriately used by children (individually, in pairs or small/large groups) to learn a concept <em>(and)</em> Staff asks children questions to test understanding or stimulate reasoning about that material/ activity/ concept</td>
<td>More than one material is appropriately used by children (individually, in pairs or small/large groups) to learn a concept <em>(and)</em> Staff asks children questions to test understanding or stimulate reasoning about more than one material/ activity/ concept</td>
</tr>
<tr>
<td><strong>Peer interaction</strong></td>
<td>There is no planned peer interaction* for children <em>(Peer interaction refers to children engaging with each other in pairs and small/large groups)</em></td>
<td>Peer interaction is observed for less than 5 minutes</td>
<td>Peer interaction is observed for a total of at least 10 minutes</td>
<td>Peer interaction is observed for a total of at least 20 minutes <em>(and)</em> Staff guides children on positive interaction (e.g. sets tone like share materials, encourages use of social cues like say please, thank you)*</td>
</tr>
<tr>
<td><strong>Discipline</strong></td>
<td>Class is poorly managed with no norms, routines or expectations made visible or used <em>(or)</em> Severe forms of discipline are used (e.g. yelling, threatening)</td>
<td>Teachers use appropriate rules to manage class (e.g. Raise hands to ask or answer questions) <em>(and)</em> Staff does not hurt or intimidate children <em>(and)</em> One use of a norm/ routine is observed (e.g. Calling out &quot;1-2-3 &quot;Eyes on me&quot;)</td>
<td>Children appear to be aware of class rules and expectations (e.g. children clean up after activity is done) <em>(and)</em> Expectations are reinforced gently and positively <em>(and)</em> 2 different norms/ routines are observed</td>
<td>Staff tries to involve children in solving their conflicts and problems</td>
</tr>
<tr>
<td><strong>Student engagement</strong></td>
<td>Half the children are disengaged for most of the time <em>(or)</em> Children are only participating in rote or whole group recitation/ repetition</td>
<td>At least 75% of the children are on task and paying attention for most of the time</td>
<td>Children participate in small group (3-6 children) activities <em>(and)</em> Teacher observes when children are disengaged and attempts to bring them back on task</td>
<td>Some children ask questions in class</td>
</tr>
<tr>
<td><strong>Transitions</strong></td>
<td>Transitions* are chaotic or abrupt (e.g. staff not prepared, materials not ready, children required to wait) <em>(Transition: A period of time when children are moving from one activity/ lesson to the next)</em></td>
<td>Transitions involve a wind-down or closure of the previous activity <em>(and)</em> an introduction to the next activity <em>(and)</em> Teacher takes more than 3 minutes to organize</td>
<td>Transitions involve a wind-down or closure of the previous activity <em>(and)</em> an introduction to the next activity <em>(and)</em> Teacher takes less than 3 minutes to organize</td>
<td>Teachers actively engage children during transitions</td>
</tr>
</tbody>
</table>
## Sr. KG assessment questions (1/2)

<table>
<thead>
<tr>
<th>SI no.</th>
<th>Construct</th>
<th>Questions</th>
<th>Expected response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>English reading</td>
<td>“Can you read ‘pin’?” [Show word ‘pin’]</td>
<td>Child should be able to read new and unfamiliar 3 letter phonic words correctly</td>
</tr>
<tr>
<td>2</td>
<td>English speaking</td>
<td>“Can you tell me in English what is happening in this picture?” [Show a picture of park with 2-3 children playing different games]</td>
<td>Child should be able to say at least one sentence using English words about a familiar topic/ theme</td>
</tr>
<tr>
<td>3</td>
<td>One-to-one correspondence</td>
<td>“Can you give me 12 sticks?” [Ask while pointing to a bowl with 20 ice cream sticks]</td>
<td>Child should be able to count up to 12 sticks correctly</td>
</tr>
<tr>
<td>4</td>
<td>Comparing numbers</td>
<td>“Can you identify the greatest number here?” [Show numbers 6, 3, 5, 9, 4, and 7 arranged randomly]</td>
<td>Child should be able to identify the greatest single digit number from a random group of numbers</td>
</tr>
<tr>
<td>Sr no.</td>
<td>Construct</td>
<td>Questions</td>
<td>Expected response</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>5</td>
<td>Abstract addition</td>
<td>“There are 3 apples in this box. If I were to add 2 more, how many would be there in total?” [Point towards a photo of 3 apples. Do not indicate the numbers with fingers or otherwise]</td>
<td>Child should be able to do abstract addition with single digit numbers</td>
</tr>
<tr>
<td>6</td>
<td>Executive function</td>
<td>“Can you complete this puzzle?” [Give the child a four-piece puzzle]</td>
<td>Child should be able to complete up to 4-piece puzzles</td>
</tr>
<tr>
<td>7</td>
<td>Working memory</td>
<td>“Name as many animals as you can.”</td>
<td>Child should be able to recall and name at least 6 animals</td>
</tr>
</tbody>
</table>
## Grade 2 assessment questions- English (1/2)

Ask the child to read this tool. Mark the child at the highest level he/she can reach.

<table>
<thead>
<tr>
<th>Questions No.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expectation</strong></td>
<td>Children must read 5 or more words correctly</td>
<td>Children must make 3 or less errors</td>
<td>Child says either jumping or banana</td>
<td>Children must read full story fluently with three or less errors</td>
<td>Children must read 5 or more words</td>
</tr>
</tbody>
</table>

1: All questions have been sourced from ASER Centre Test Samples and EGRA; Question 3 added by PIPE to test comprehension
# Grade 2 assessment questions- English (2/2)

<table>
<thead>
<tr>
<th>Sl no.</th>
<th>Construct</th>
<th>Questions(^1)</th>
<th>Expected response</th>
</tr>
</thead>
</table>
| 5,6,7 | Listening comprehension\(^2\) | “Now I will read you a small story. Then I will ask you some questions. Listen carefully.
Rani is feeling very sad. She dropped her new toy and it broke. Her mother comes home and sees the broken toy. She picks up the pieces and helps Rani fix the toy with glue. The toy looks fine now and Rani is happy once again.”
Ask the child:
- Why is Rani sad?
- Who helps Rani?
- Why is Rani happy now? | Child should give correct answers to the question based on the read-aloud passage |
| 9     | Oral dictation             | Ask child to write legibly
- jot
- mud
- ship
- tram
- goat
- best
- spray
- fight | Children must write 5 or more spellings correctly to get a tick |

\(^1\) Questions have been sourced from [ASER Centre Test Samples](https://www.asercentre.org/) and [EGRA](https://www.egra.org/); 2: Question 5,6,7: Added by PIPE
Grade 2 assessment questions - Math (1/3)

Ask the child to read this tool. Mark the child at the highest level he/she can reach.¹

<table>
<thead>
<tr>
<th>Q1. Ask the child to do both 2 problems from any one set below. Both problems must be correct for a tick.</th>
<th>Q2. Ask the child to do both 2 problems from any one set below. Both problems must be correct for a tick.</th>
<th>Q3. Ask the child to do both 2 problems from any one set below. Both problems must be correct for a tick.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET A</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>- 5</td>
<td>- 2</td>
</tr>
<tr>
<td>SET B</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>- 3</td>
<td>- 6</td>
</tr>
<tr>
<td>SET C</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>- 2</td>
<td>- 1</td>
</tr>
<tr>
<td>SET D</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>- 1</td>
<td>- 4</td>
</tr>
<tr>
<td>SET E</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>- 3</td>
<td>- 2</td>
</tr>
<tr>
<td>SET A</td>
<td>51</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>- 35</td>
<td>- 48</td>
</tr>
<tr>
<td>SET B</td>
<td>84</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>- 49</td>
<td>- 36</td>
</tr>
<tr>
<td>SET C</td>
<td>56</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>- 37</td>
<td>- 13</td>
</tr>
<tr>
<td>SET D</td>
<td>45</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>- 18</td>
<td>- 24</td>
</tr>
<tr>
<td>SET E</td>
<td>25</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>- 19</td>
<td>- 39</td>
</tr>
</tbody>
</table>

1: Questions have based on [ASER Centre Test Samples](#) and [EGMA](#)
Ask the child to read this tool. Mark the child at the highest level he/she can reach.¹

Q4. Ask the child to do both 2 problems from any one set below. Both problems must be correct for a tick.

<table>
<thead>
<tr>
<th>SET A</th>
<th>18 [+35]</th>
<th>37 [+44]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SET B</td>
<td>24 [+29]</td>
<td>43 [+39]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SET C</td>
<td>28 [+37]</td>
<td>49 [+12]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SET D</td>
<td>18 [+27]</td>
<td>43 [+19]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SET E</td>
<td>13 [+19]</td>
<td>59 [+31]</td>
</tr>
</tbody>
</table>

Q9. Ask the child to identify the biggest number below

[Diagram showing circles with numbers 65, 72, 38, 47, 23, 11]

Q10.

DO THIS QUESTION ORALLY

[Say to the child]
“Can you say the missing number below:”

| 10 | 15 | ____ | 25 |

[If correct, start with patterns below. If incorrect, give the correct answer and start with patterns below]
“Can you say the missing number below:”

| 300 | 400 | 500 | ____ |

28 | ____ | 24 | 22

¹: Questions have based on ASER Centre Test Samples and EGMA
# Grade 2 assessment questions - Math (3/3)

<table>
<thead>
<tr>
<th>SI no.</th>
<th>Construct</th>
<th>Questions ¹</th>
<th>Expected response</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Word problem (Simple)</td>
<td>How much is 9 and 4 altogether?</td>
<td>Child must say 13</td>
</tr>
<tr>
<td>6</td>
<td>Word problem (Simple)</td>
<td>If I take away 5 from 9, what is left?</td>
<td>Child must say 4</td>
</tr>
<tr>
<td>7</td>
<td>Word problem (Complex)</td>
<td>Samara had 4 chocolates. Her father gave her 7 more chocolates. How many chocolates does Samara have altogether?</td>
<td>Child must say 11</td>
</tr>
<tr>
<td>8</td>
<td>Word problem (Complex)</td>
<td>Raju had 12 chocolates. He gave 5 chocolates to Pooja. How many chocolates does he have left?</td>
<td>Child must say 7</td>
</tr>
</tbody>
</table>

¹ Questions have based on ASER Centre Test Samples and EGMA
**Administrator interview questions (1/5)**

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 1: How does a good teacher know if a child is learning Math?</td>
<td><strong>Mentions one or more of the following:</strong></td>
<td><strong>Mentions one of the following:</strong></td>
<td><strong>Mentions two of the following OR one in column 3:</strong></td>
<td><strong>Mentions two or more of the following:</strong></td>
</tr>
<tr>
<td>(Prompt “Can you suggest more ways to check” once)</td>
<td>Ask the child to:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Recite 1-100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Write numbers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Write number names</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Recite tables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check test scores/report card</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unaware</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ask child to:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Identify numbers at random</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Identify shapes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Count using objects (e.g. beads, fruits, vegetables)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Add or subtract</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Administrator interview questions (2/5)

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question 2:</strong> How does a good teacher know if a child is learning English?</td>
<td><strong>Mentions one or more of the following:</strong> Ask child to:</td>
<td><strong>Mentions one of the following:</strong> Ask child to:</td>
<td><strong>Mentions one of the following:</strong></td>
<td><strong>Mentions two or more of the following:</strong></td>
</tr>
<tr>
<td></td>
<td>• Recite A-Z</td>
<td>• Identify letters at random</td>
<td>• Describe a picture in English/ Narrate a story/ event</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Recite rhymes</td>
<td>• Match sounds with letters</td>
<td>• Read new words (e.g. in newspaper, story book, billboard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Repeat after teacher</td>
<td>• Write dictated alphabets/ words/ spellings</td>
<td>• Match the word to the picture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Write alphabets</td>
<td>• Respond to simple questions (e.g. “What is your name?”)</td>
<td>• Name objects starting with a letter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Check test scores/report card</td>
<td>• Use every day phrases like “good morning,” “please,” “thank you”</td>
<td>• Speak in English (Have simple conversations in English)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Read familiar words taught in class (cat, bat, apple)</td>
<td>• Follow instructions in English</td>
<td>• Phonics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Unsure/ unaware</td>
<td></td>
<td>• Blending of sounds</td>
<td></td>
</tr>
</tbody>
</table>
## Administrator interview questions (3/5)

<table>
<thead>
<tr>
<th>Question 3: What do you tell parents about how they can help their child learn Math at home?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mentions one or more of the following</strong>&lt;br&gt;Ask child to:</td>
<td><strong>Mentions one of the following</strong>&lt;br&gt;Ask child to:</td>
<td><strong>Mentions two or more of the following OR one in column 3</strong>&lt;br&gt;Ask child to:</td>
<td><strong>Mentions two or more of the following</strong>&lt;br&gt;Ask child to:</td>
<td></td>
</tr>
<tr>
<td>• Recite numbers&lt;br&gt;• Copy numbers&lt;br&gt;• Check report cards&lt;br&gt;• Send to tuitions&lt;br&gt;• Ensure homework is completed&lt;br&gt;• Revise lesson taught at school&lt;br&gt;• Do nothing&lt;br&gt;• Other</td>
<td>• Count objects&lt;br&gt;• Identify shapes, etc.&lt;br&gt;• Add or subtract</td>
<td></td>
<td>• Arrange currency in order of value&lt;br&gt;• Word problems for addition/subtraction&lt;br&gt;• Play simple games (e.g. snakes and ladders)&lt;br&gt;• Teach kids to sort (e.g. shapes, size, colour)&lt;br&gt;• Transact using real money&lt;br&gt;• Read numbers at random (e.g. mobile and bus numbers)</td>
<td></td>
</tr>
</tbody>
</table>
**Administrator interview questions (4/5)**

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question 4:</strong> What do you tell parents about how they can help their child learn English at home?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Prompt “any more” once)</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Prompt “Give examples of homework” if the response is “Ensure homework is completed”)</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mentions one or more of the following</strong></td>
<td><strong>Mentions one or more of the following</strong></td>
<td><strong>Mentions one or more of the following OR one in column 3</strong></td>
<td><strong>Mentions two or more of the following</strong></td>
<td></td>
</tr>
<tr>
<td>Ask child to:</td>
<td>Ask child to:</td>
<td>Ask child to:</td>
<td>Ask child to:</td>
<td></td>
</tr>
<tr>
<td>• Recite poems</td>
<td>• Read words taught in school</td>
<td>• Read “new” words</td>
<td>• Read words taught in school</td>
<td></td>
</tr>
<tr>
<td>• Recite A-Z</td>
<td>• Identify letters at random</td>
<td>• Describe their routine/picture/event/TV show etc.</td>
<td>• Identify letters at random</td>
<td></td>
</tr>
<tr>
<td>• Send to tuitions</td>
<td>• Identify colors/animals/vehicles, etc.</td>
<td>• Identify sounds/phonics</td>
<td>• Identify colors/animals/vehicles, etc.</td>
<td></td>
</tr>
<tr>
<td>• Check exam results</td>
<td>• Practice writing alphabets</td>
<td>• Tell/Read stories together in English</td>
<td>• Practice writing alphabets</td>
<td></td>
</tr>
<tr>
<td>• Attend PTM</td>
<td>• Name objects starting with a letter</td>
<td>• Show English stories/cartoons on YouTube, TV (or similar media)</td>
<td>• Name objects starting with a letter</td>
<td></td>
</tr>
<tr>
<td>• Ensure homework is completed</td>
<td>• Encourage conversations in English</td>
<td>• Speak with parent in English (Make simple conversation)</td>
<td>• Encourage conversations in English</td>
<td></td>
</tr>
<tr>
<td>• Do nothing</td>
<td></td>
<td>• Follow simple instructions (e.g. “Go carefully”)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Administrator interview questions (5/5)

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[Transition question]</strong> Which book publisher or programme is used in your Sr. KG classroom?</td>
<td>Enter name of programme below</td>
<td></td>
</tr>
<tr>
<td><strong>Question 5:</strong> Are you going to renew that book publisher / programme for the upcoming year?</td>
<td>• No / Unsure</td>
<td>• Yes</td>
</tr>
</tbody>
</table>
### Parent interview questions (1/2)

<table>
<thead>
<tr>
<th>Questions</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. At the end of Sr. KG/ this grade what should your child know in Math?</strong></td>
<td>• Write number names</td>
<td>• Count items (fruits/vegetables)</td>
<td>• Identify letters at random</td>
<td>• Identify numbers at random</td>
</tr>
<tr>
<td>• Write numbers</td>
<td>• Identify numbers at random</td>
<td>• Identify currency value</td>
<td>• Read words/ alphabets in school/ tuition book</td>
<td>• Transact with money</td>
</tr>
<tr>
<td>• Recite rhymes on numbers</td>
<td>• Identify numbers at random</td>
<td>• Add/ subtract/ divide</td>
<td>• Read new words</td>
<td>• Add/ subtract/ divide</td>
</tr>
<tr>
<td>• Recite numbers</td>
<td>• Identify currency value</td>
<td>• Identify shapes</td>
<td>• Match sounds and letters</td>
<td>• Identify shapes</td>
</tr>
<tr>
<td>• Recite tables</td>
<td>• Transact with money</td>
<td>• Play games involving cards/ dice</td>
<td>• Identify sounds/ phonics</td>
<td>• Identify missing number before/ after</td>
</tr>
<tr>
<td>• Check homework</td>
<td>• Add/ subtract/ divide</td>
<td>• Identify greater than / less than numbers</td>
<td>• Have simple conversations in English</td>
<td>• Identify greater than / less than numbers</td>
</tr>
<tr>
<td>• Unsure / other</td>
<td>• Ensure / other</td>
<td></td>
<td>• Follow simple instructions given in English</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Read simple stories</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Match words and picture of the word</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2. At the end of Sr. KG/ this grade what should your child know in English?</strong></td>
<td>• Recite nursery rhymes</td>
<td>• Identify letters at random</td>
<td>• Identify numbers at random</td>
<td>• Transact with money</td>
</tr>
<tr>
<td>• Ability to complete homework</td>
<td>• Read words/ alphabets in school/ tuition book</td>
<td>• Identify currency value</td>
<td>• Read new words</td>
<td>• Add/ subtract/ divide</td>
</tr>
<tr>
<td>• Practice cursive writing</td>
<td>• Read new words</td>
<td>• Add/ subtract/ divide</td>
<td>• Match sounds and letters</td>
<td>• Identify shapes</td>
</tr>
<tr>
<td>• Recite A-Z</td>
<td>• Match sounds and letters</td>
<td>• Identify sounds/ phonics</td>
<td>• Have simple conversations in English</td>
<td>• Identify missing number before/ after</td>
</tr>
<tr>
<td>• Unsure / other</td>
<td>• Have simple conversations in English</td>
<td>• Follow simple instructions given in English</td>
<td>• Identify greater than / less than numbers</td>
<td>• Identify greater than / less than numbers</td>
</tr>
<tr>
<td></td>
<td>• Read simple stories</td>
<td>• Read simple stories</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Match words and picture of the word</td>
<td>• Match words and picture of the word</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Parent interview questions (2/2)

<table>
<thead>
<tr>
<th>Questions</th>
<th>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Which company's textbooks are used in your child's school?</td>
<td>● Doesn't know or no response</td>
<td>● Names the correct publisher</td>
</tr>
<tr>
<td>4. Are you satisfied with this company's books?</td>
<td>● No</td>
<td>● Yes</td>
</tr>
<tr>
<td>5. Are you satisfied with this school?</td>
<td>● No</td>
<td>● Yes</td>
</tr>
<tr>
<td>6. Would you recommend the school to any other parent?</td>
<td>● No</td>
<td>● Yes</td>
</tr>
</tbody>
</table>
Teacher interview questions

[Warm up] How are you?

[Warm up] What classes do you teach?

[Warm up] We are interested in talking about Sr. KG.

[Warm up] Which books or curriculum do you use in your classroom?
  
  - Question 1: How satisfied are you with the current books/curriculum?
  - Question 2: Have parents shared any complaints about the curriculum/books being followed?
  - Question 3: Has it been easy for you to address their complaints?
  - Question 4: Have you spent money to buy teaching learning material this Academic Year? How much?
  - Question 5: In the past 1-2 months, has the principal/owner given you feedback on your teaching?
  - Question 6: If you join a new school, will you ask the principal/owner to buy the current books/curriculum?
  - Question 7: How many days of teacher training have you attended this Academic Year from someone from within the school?
  - Question 8: How many days of teacher training have you attended this Academic Year from someone outside the school?
  - Question 9: How many total days of teacher training have you attended this Academic Year?