



REIMAGINING SOCIAL CHANGE



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PIPE Impact Assessment 2023

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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Objectives of the 2023 PIPE impact assessment

- **Independently track impact of PIPE partners** in APSs by measuring change in the Sr. KG classroom environment, and Sr. KG and grade 2 student learning outcomes
- **Assess the impact of the COVID-19 pandemic** on student learning outcomes and classroom environment in both PIPE and control APSs

Context for the 2023 PIPE impact assessment¹

PIPE impact assessments

- 1 PIPE impact assessments (IA) were conducted thrice – at the end of academic years (AY) 2017-18, 2018-19 and 2019-20, and paused in 2020 due to COVID
- 2 PIPE impact assessments were resumed in AY 2022-23 post-COVID

School shutdowns during COVID

- 3 Sr. KG students assessed had missed 1+ year of in-person schooling owing to COVID-induced school shutdowns
- 4 Grade 2 students assessed had missed 2+ years of in-person schooling owing to COVID-induced school shutdowns

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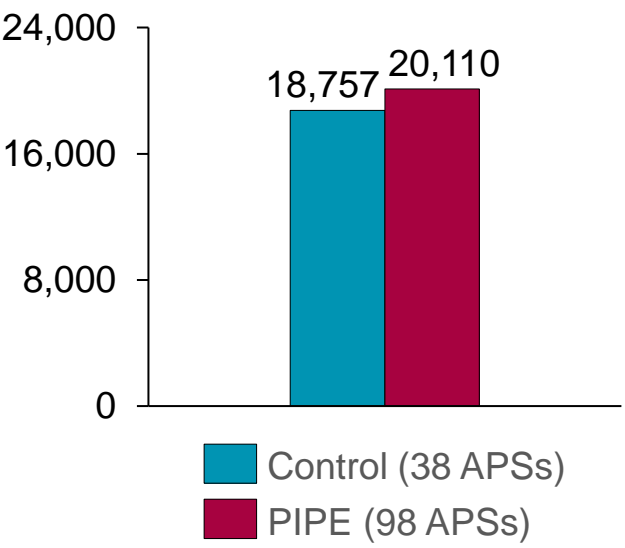
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98 PIPE and 38 Control APSs, representative of the same target population, were assessed

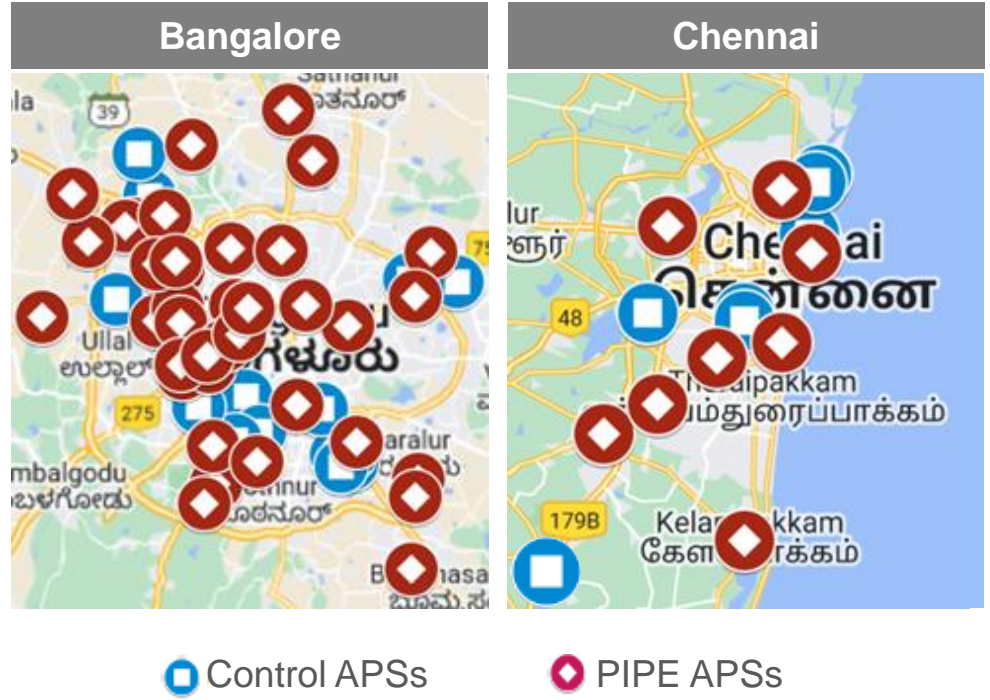
Similar segment of schools

- 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 31,300

Similar fees² (INR)



Same neighbourhood¹



1. Indicates actual locations of the schools; not to scale. See Appendix section 'Profile of APSs assessed' for more details on the sample
 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

'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)**¹ to assess the impact of ABL in APSs across 2 key sections² – (i) classroom environment³, (ii) Sr. KG and grade 2 student learning outcomes⁴
- **Identified and signed up 136 APSs** that included:
 - 98 APSs with partner solutions (PIPE APSs)
 - 38 APSs with no partner solutions (Control APSs)
- **Shortlisted** RSB Insights & Analytics to conduct the assessment
- **Trained assessors** from RSB Insights & Analytics on STARS
- **Ensured data consistency and accuracy** by:
 - Shadowing all assessors on their first 2 assessments across all cities
 - Conducting at least 2 surprise spot checks per assessor, covering all assessors across all cities
 - Conducting random checks on the assessment scores and evidence submitted by assessors
- **Organized and analyzed the data** to identify key findings which have been shared in this document

PIPE shortlisted RSB Insights & Analytics after soliciting services from 3 agencies to conduct the impact assessment



Assessment conducted by RSB Insights & Analytics

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>>](#). See Appendix section 'Scoring Tool for Assessing Readiness at School' for the complete tool

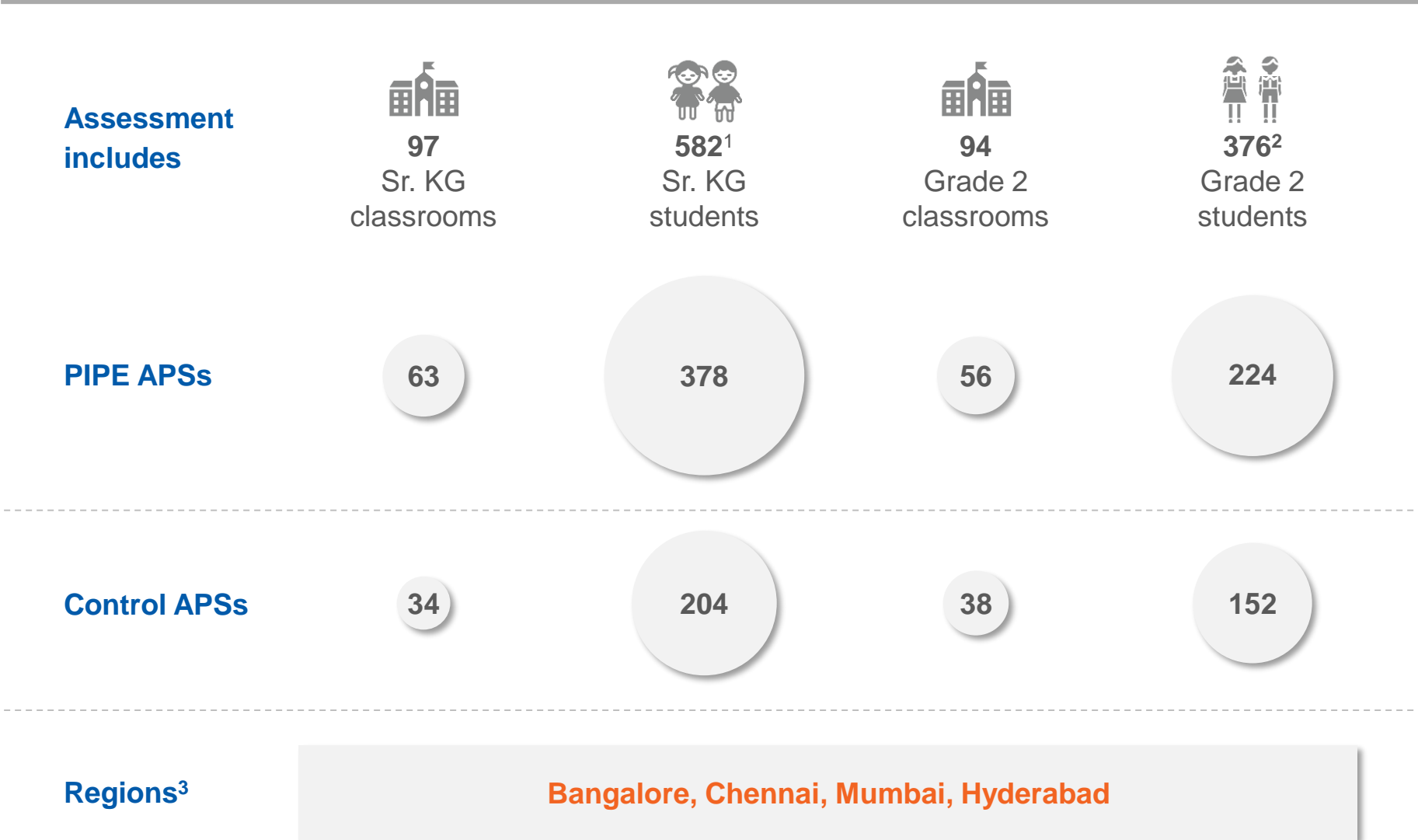
| 2. In the 2023 IA, stakeholder interviews (parent, teacher, and administrator) were not included. This is because in past IAs, stakeholder responses were not useful as respondents seem to be sharing what assessors wanted to hear rather than their actual feedback | 3. Adapted ECERS 3 to the Indian APS context. To learn more, visit www.fsg.org/PIPE | 4. Selected questions from an adapted version of IDELA for the Indian APS context. To learn more visit [STARS>>](#)

STARS¹ contains 2 sections to track the impact of good pedagogy

Sections	Classroom environment	Student learning outcomes
Description	<ul style="list-style-type: none"> Assesses physical setup of classroom Assesses how activities are conducted in the classroom Assesses culture through peer interactions and teacher-student engagement 	<ul style="list-style-type: none"> Assessments for end of Sr. KG and grade 2 Measures student learning outcomes across 5 domains for Sr.KG – numeracy, literacy and cognitive, socio-emotional, and executive function Measures student learning outcomes on English and Math for grade-2
Rationale	<ul style="list-style-type: none"> In a safe classroom environment students take risks and ask questions, promoting better interaction among students and staff 	<ul style="list-style-type: none"> Good pedagogy improves students' understanding of concepts and learning outcomes
Example	<ul style="list-style-type: none"> Teacher asks open-ended questions and responds positively 	<ul style="list-style-type: none"> Read “tap” (Sr. KG) Solve two subtraction problems (Grade 2)

1. See Appendix section 'Scoring Tool for Assessing Readiness at School' for the complete tool

Findings are based on assessment of 63 PIPE and 34 control APSs for Sr. KG, and 56 PIPE and 38 control APSs for grade 2



1. Includes 293 boys and 289 girls | 2. Includes 186 boys and 190 girls | 3. Each region includes 1-2 nearby cities/ towns (e.g., Chennai would include Chengalpet)

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PIPE APSs have scored better than control APSs on Sr. KG student learning outcomes and classroom environment^{1,2}



Student learning outcomes from 2023 IA

- 1 Sr. KG students in PIPE APSs scored 13% higher on learning outcomes compared to control APSs
- 2 Sr. KG students in PIPE APSs performed better on all 5 domains compared to control APSs
- 3 Grade 2 students in PIPE APSs scored similar to control APSs on learning outcomes
- 4 In both PIPE and control APSs, girls and boys scored similar on learning outcomes



Student learning outcomes over the years (2018 – 2023)

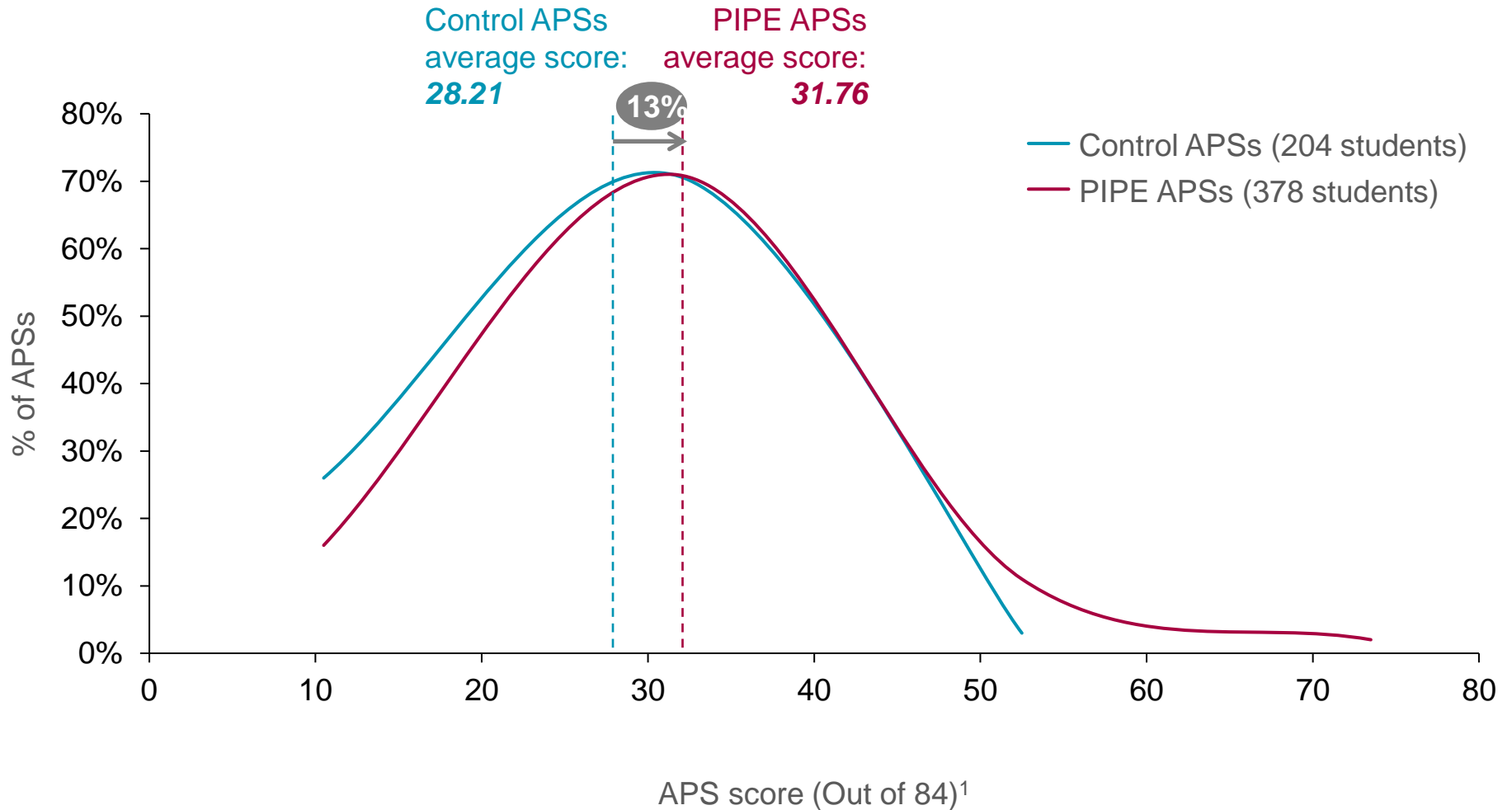
- 5 Compared to 2018, Sr. KG scores in PIPE APSs improved by 33%, although 2023 and 2020 scores remained similar
- 6 Compared to 2019, grade 2 scores in PIPE APSs improved by 18%, although 2023 scores were lower than 2020
- 7 Compared to 2020, grade 2 scores in PIPE APSs were lower for both English and Math
- 8 Compared to 2020, Sr. KG scores in control APSs improved by 14%, while they remained similar for grade 2



Sr. KG classroom scores from 2023 IA

- 9 Classrooms scores in PIPE APSs were 51% higher compared to control APSs
- 10 Higher classroom scores in PIPE APSs were driven by effective use of materials and classroom space by teachers, and positive staff-student interactions
- 11 Most teachers in both PIPE and control APSs did not use lesson plans, encourage dialogue, or organize peer interactions
- 12 APSs that used ABL pre-COVID had similar classroom scores as APSs that used ABL for the first time in 2022-23

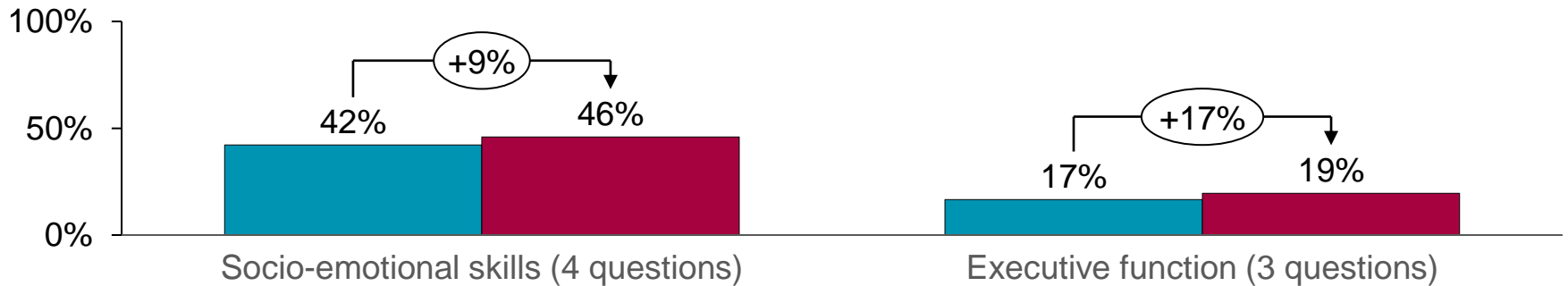
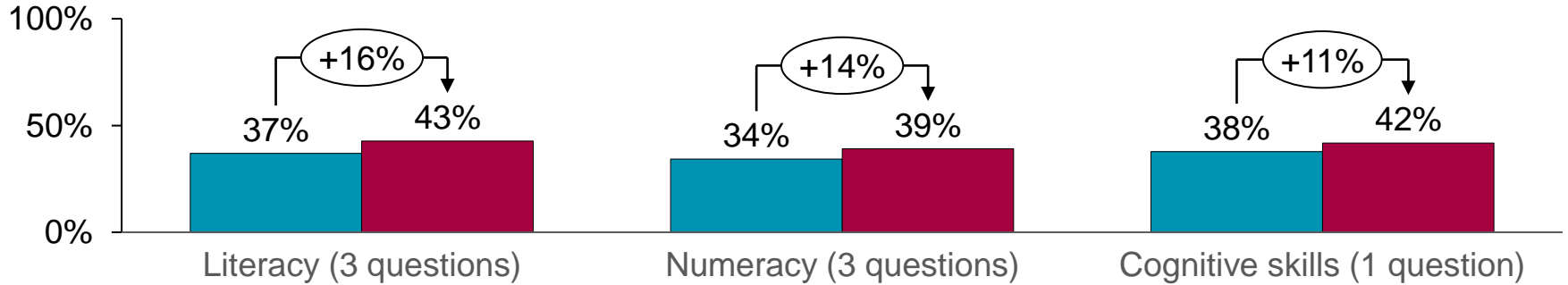
1 Sr. KG students in PIPE APSs scored 13% higher on learning outcomes compared to control APSs



1. In each APS, 6 Sr.KG students were assessed on 14 questions across 5 domains – numeracy (3 questions), literacy (3 questions), cognitive skills (1 question), socio-emotional skills (4 questions), and executive function (3 questions). Maximum score per APS is 84. See Appendix section “Student learning outcomes” for question-level breakdown

2 Sr. KG students in PIPE APSs performed better on all 5 domains compared to control APSs

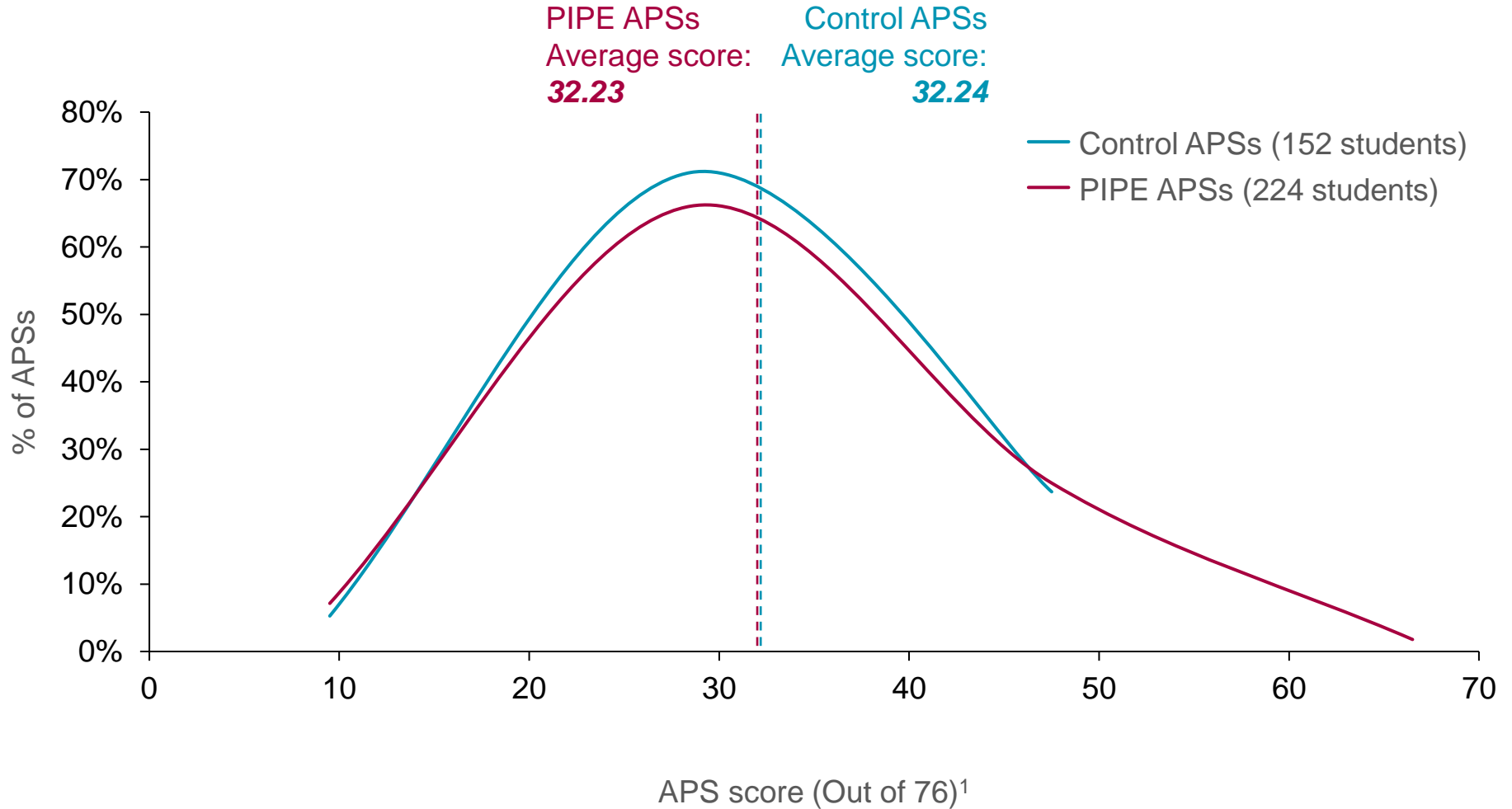
Domain level Sr. KG score per APS (in %)¹



Control (204 students) PIPE (378 students)

1. In each APS, 6 Sr.KG students were assessed on 14 questions across 5 domains. Domain level average was calculated as (Total domain level score for the APS)/ (Maximum possible score for the domain per APS). See Appendix section "Student learning outcomes" for question-level breakdown

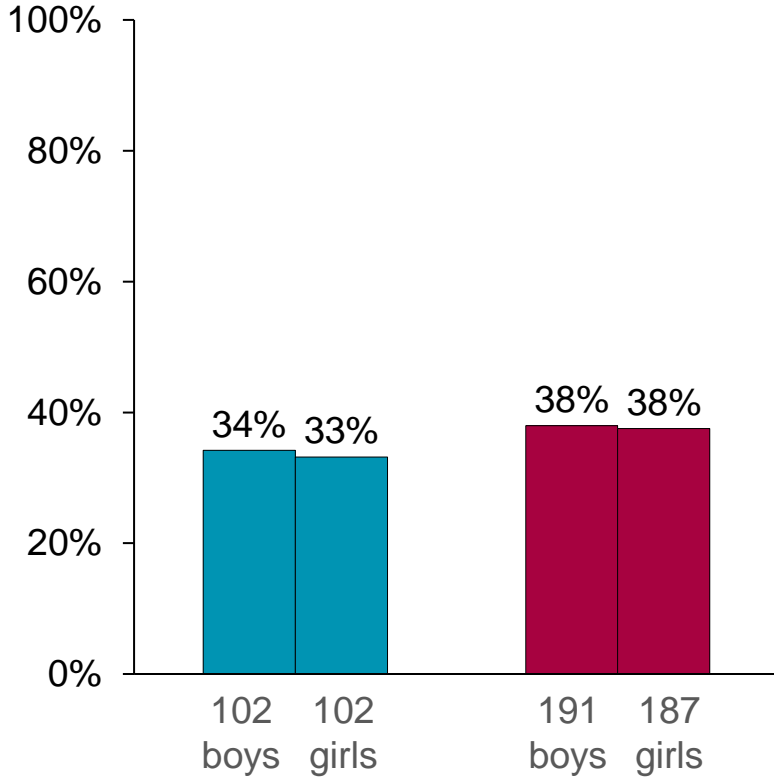
3 Grade 2 students in PIPE APSs scored similar to control APSs on learning outcomes



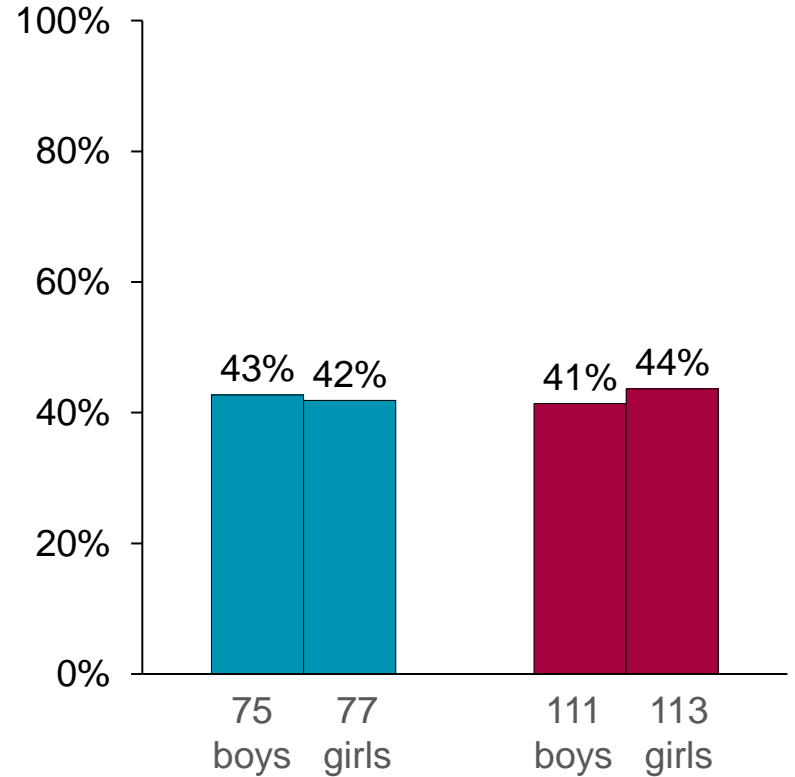
1. In each APS, 4 grade 2 students were assessed on 19 questions across English (9 questions) and Math (10 questions). Maximum score per APS is 76. See Appendix section "Student learning outcomes" for question or subject level breakdown

4 In both PIPE and control APSs, girls and boys scored similar on learning outcomes

Average Sr.KG learning outcomes score per APS (in %)¹



Average grade 2 learning outcomes score per APS (in %)²

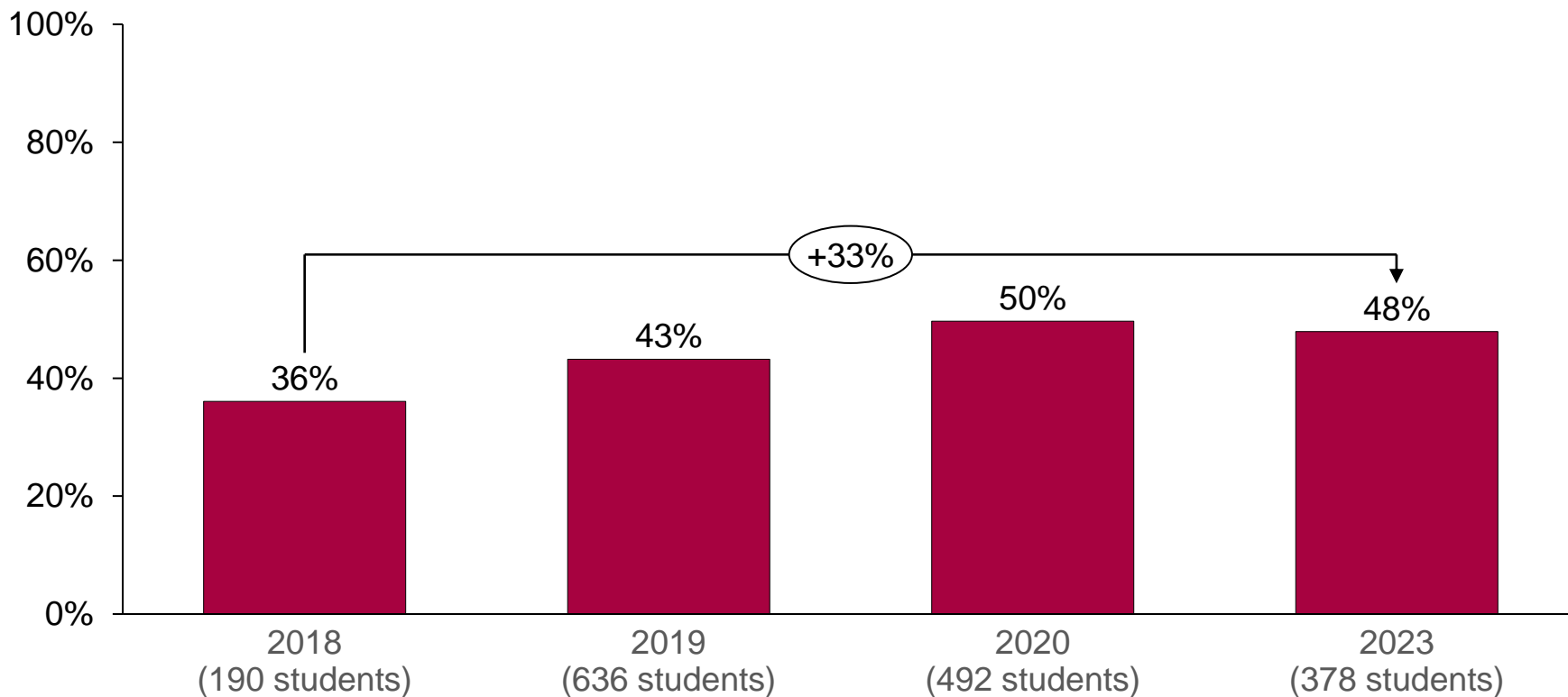


Control PIPE

1. In each APS, 6 Sr.KG students were assessed on 14 questions across 5 domains; numeracy (3 questions), literacy (3 questions), cognitive skills (1 question), socio-emotional skills (4 questions), and executive function (3 questions). Maximum score per APS is 84 | 2. In each APS, 4 grade 2 students were assessed on 19 questions across English (9 questions) and Math (10 questions). Maximum score per APS is 76

5 Compared to 2018, Sr. KG scores in PIPE APSs improved by 33%, although 2023 and 2020 scores remained similar

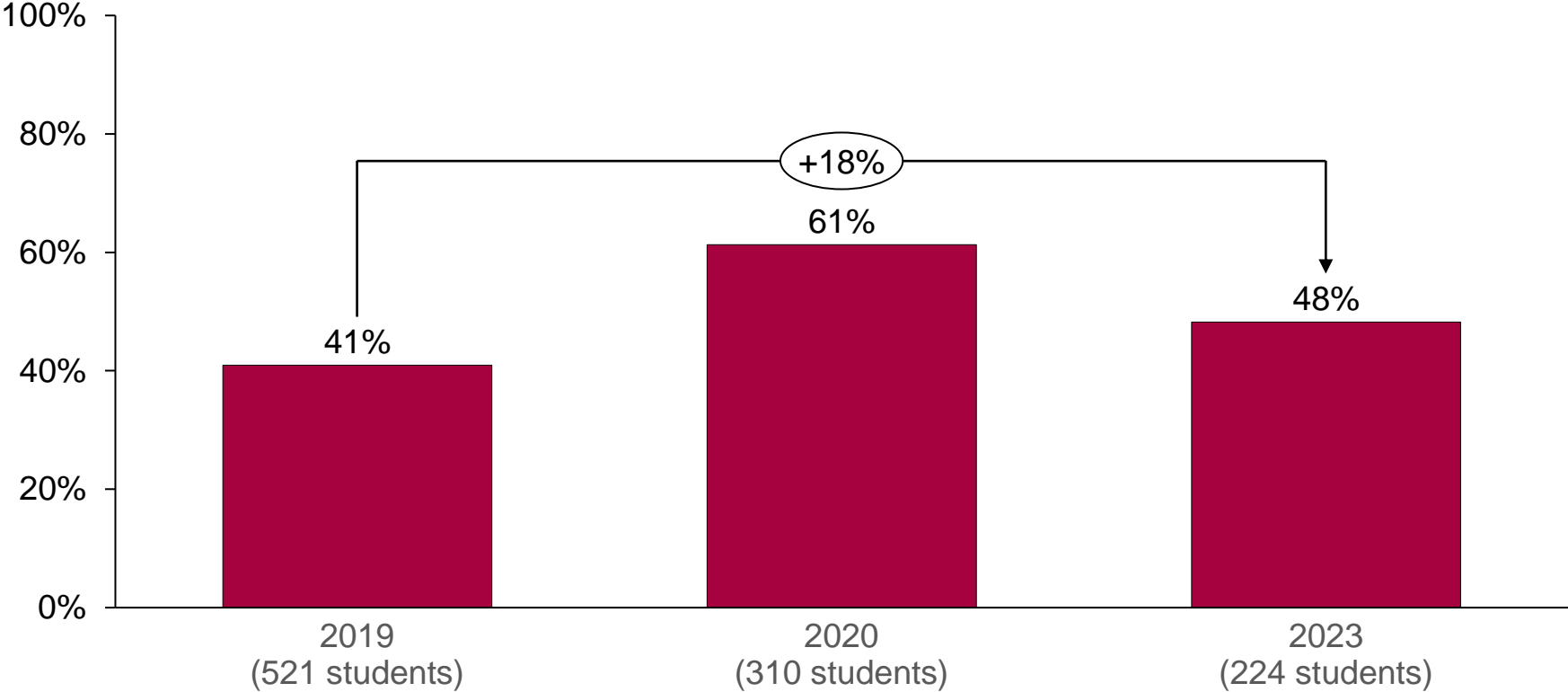
Average Sr.KG learning outcomes score per PIPE APS (in %)¹



1. Scores represent 4 common questions that were assessed in 2018, 2019, 2020 and 2023. In 2018, 5 Sr. KG students were assessed in each APS, while in 2019, 2020 and 2023, 6 Sr. KG students were assessed in each APS. See Appendix section “Student learning outcomes” for domain-level breakdown of Sr. KG learning outcomes scores in 2020 and 2023

6 Compared to 2019, grade 2 scores in PIPE APSs improved by 18%, although 2023 scores were lower than 2020

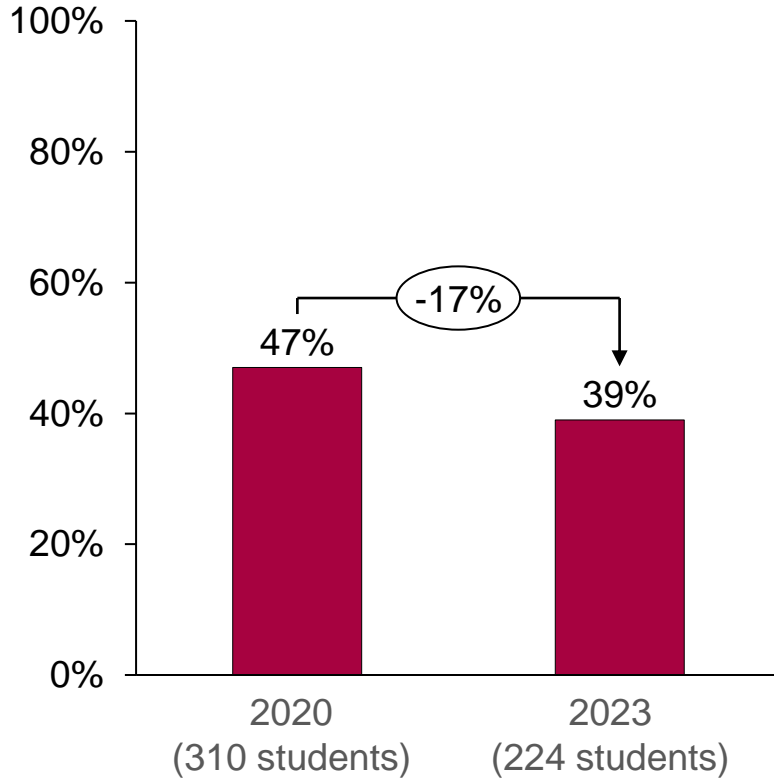
Average grade 2 learning outcomes score per PIPE APS (in %)¹



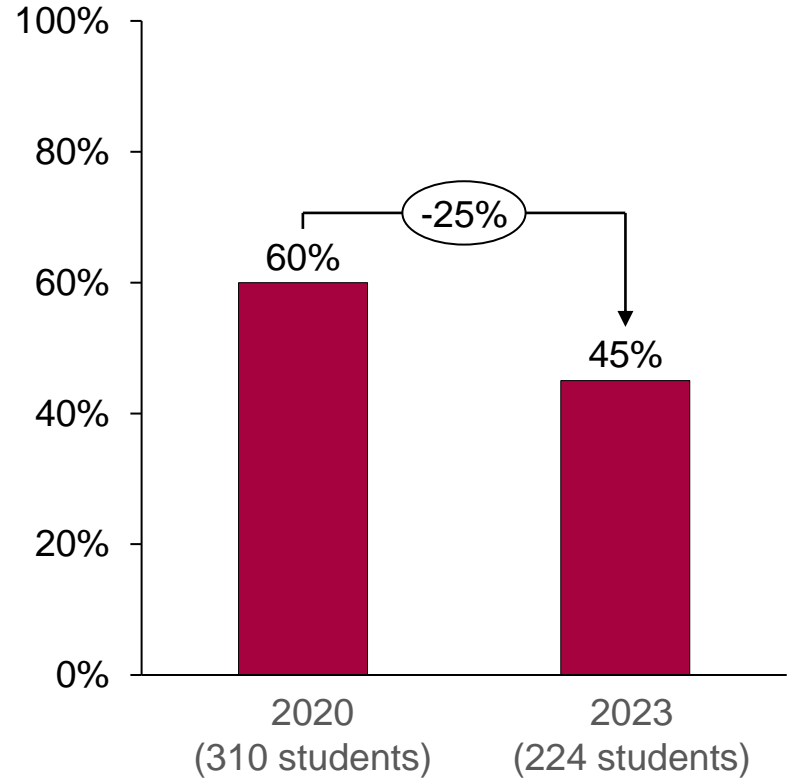
1. Scores represent 5 common questions that were assessed in 2019, 2020 and 2023. In 2023, 4 grade 2 students were assessed in each APS, while in 2019 and 2020, 5 grade 2 students were assessed in each APS. There was no PIPE intervention for grade 2 in 2018

7 Compared to 2020, grade 2 scores in PIPE APSs were lower for both English and Math

Average grade 2 English score per PIPE APS (in %)¹



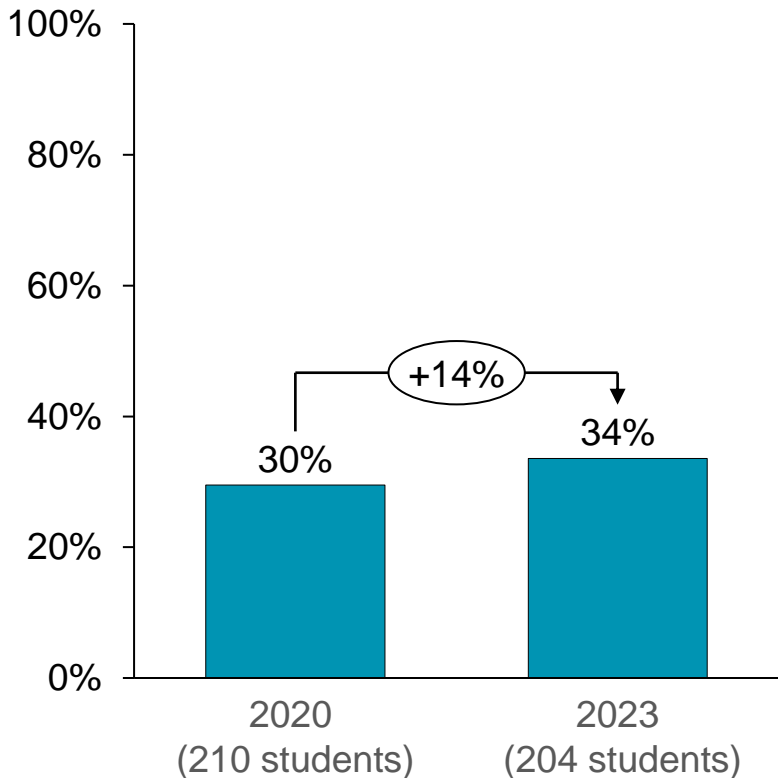
Average grade 2 Math score per PIPE APS (in %)¹



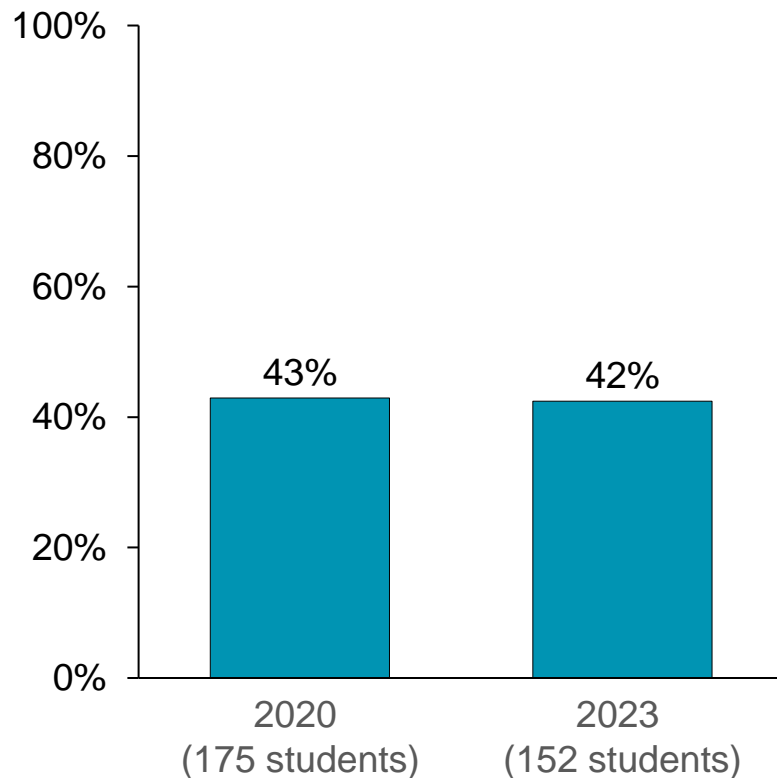
1. In each APS, 4 grade 2 students were assessed in 2023, and 5 grade 2 students were assessed in 2020. In both 2020 and 2023, each student was assessed on 19 questions across English (9 questions) and Math (10 questions)

8 Compared to 2020, Sr. KG scores in control APSs improved by 14%, while they remained similar for grade 2

Average Sr. KG learning outcomes score per control APS (in %)¹



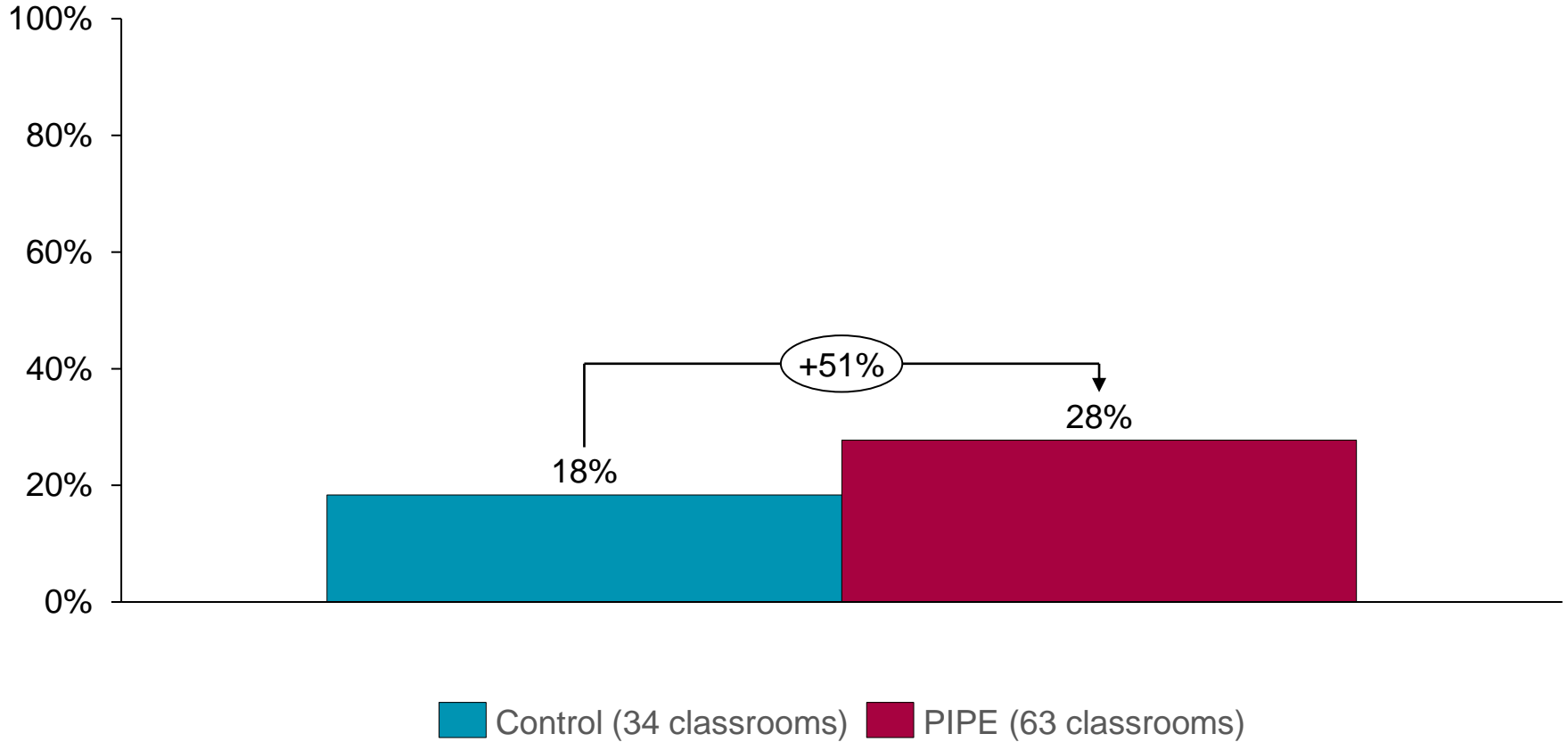
Average grade 2 learning outcomes score per control APS (in %)²



1. In each APS, 6 Sr.KG students were assessed on 14 questions across 5 domains; numeracy (3 questions), literacy (3 questions), cognitive skills (1 question), socio-emotional skills (4 questions), and executive function (3 questions) | 2. In each APS, 4 grade 2 students were assessed in 2023, and 5 grade 2 students were assessed in 2020. In both 2020 and 2023, each student was assessed on 19 questions across English (9 questions) and Math (10 questions). See Appendix section "Student learning outcomes" for data over time (2019 to 2023)

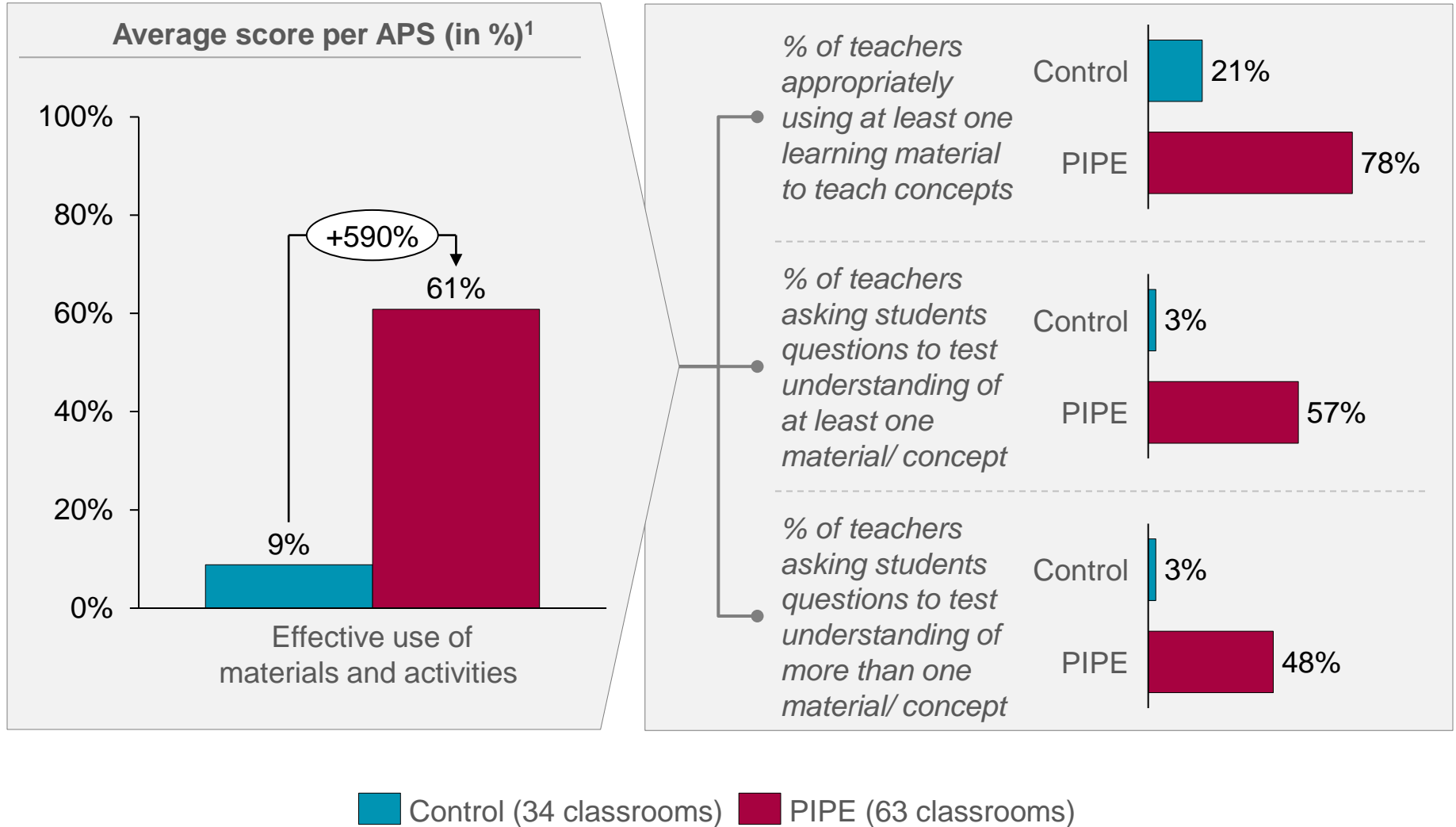
9 Classrooms scores in PIPE APSs were 51% higher compared to control APSs

Average classroom score per APS (in %)¹



1. Each APS was scored on a scale of 0-3 on 11 dimensions; hence, maximum score per APS is 33. Per APS score is shown as percentage in the chart. See Appendix section “Sr. KG classroom environment” for dimension-level breakdown

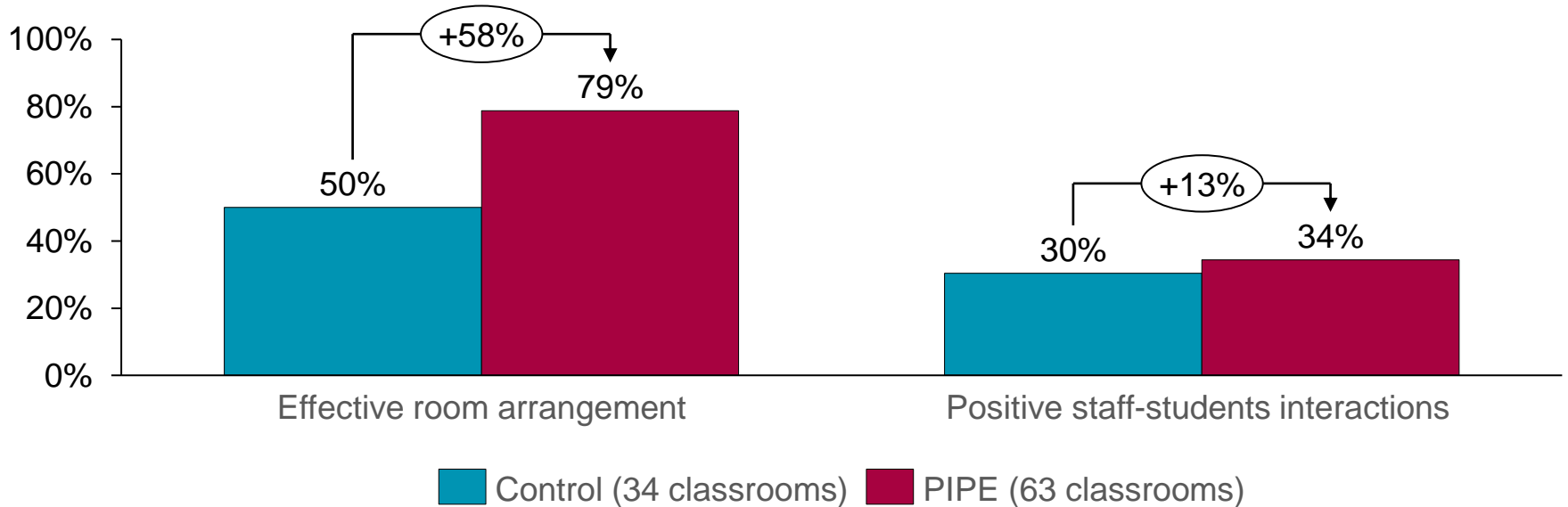
10 Higher classroom scores in PIPE APSSs were driven by effective use of materials and classroom space by teachers, and positive staff-student interactions (1/2)



1. Effective use of materials by teachers was assessed on a scale of 0-3

10 Higher classroom scores in PIPE APSs were driven by effective use of materials and classroom space by teachers, and positive staff-student interactions (2/2)

Average classroom score per APS (in %)¹



Effective use of classroom space refers to..

Organizing/ using the space to conduct one or more learning activities

Positive staff-student interactions refers to...

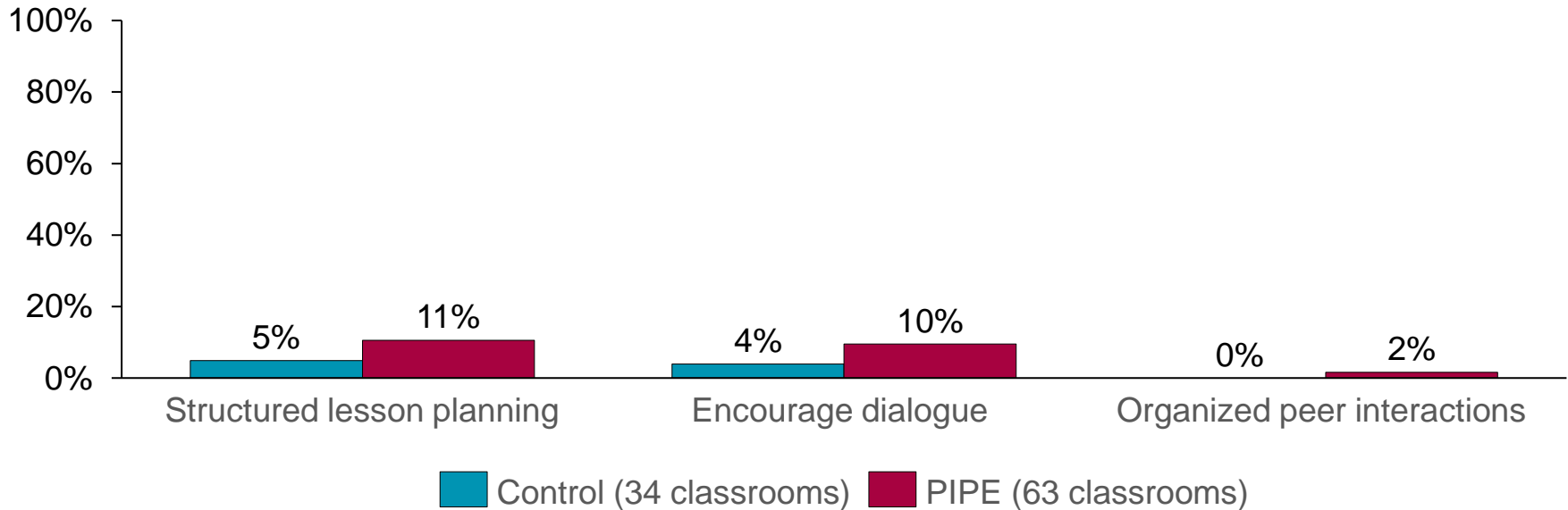
- Individual interactions between staff and students, where the teacher:
- Provides positive feedback/ reinforcement, or
 - Gives a message of warmth to students

1. Effective utilization of classroom space, and positive staff-student interactions were assessed on a scale of 0-3 each

11

Most teachers in both PIPE and control APSs did not use lesson plans, encourage dialogue, or organize peer interactions

Average classroom score per APS (in %)¹



A structured lesson plan has...

- Objectives of the lesson
- Steps to follow
- Materials required
- Questions to test understanding

Encouraging dialogue...

...refers to asking open-ended questions, and encouraging students to speak more

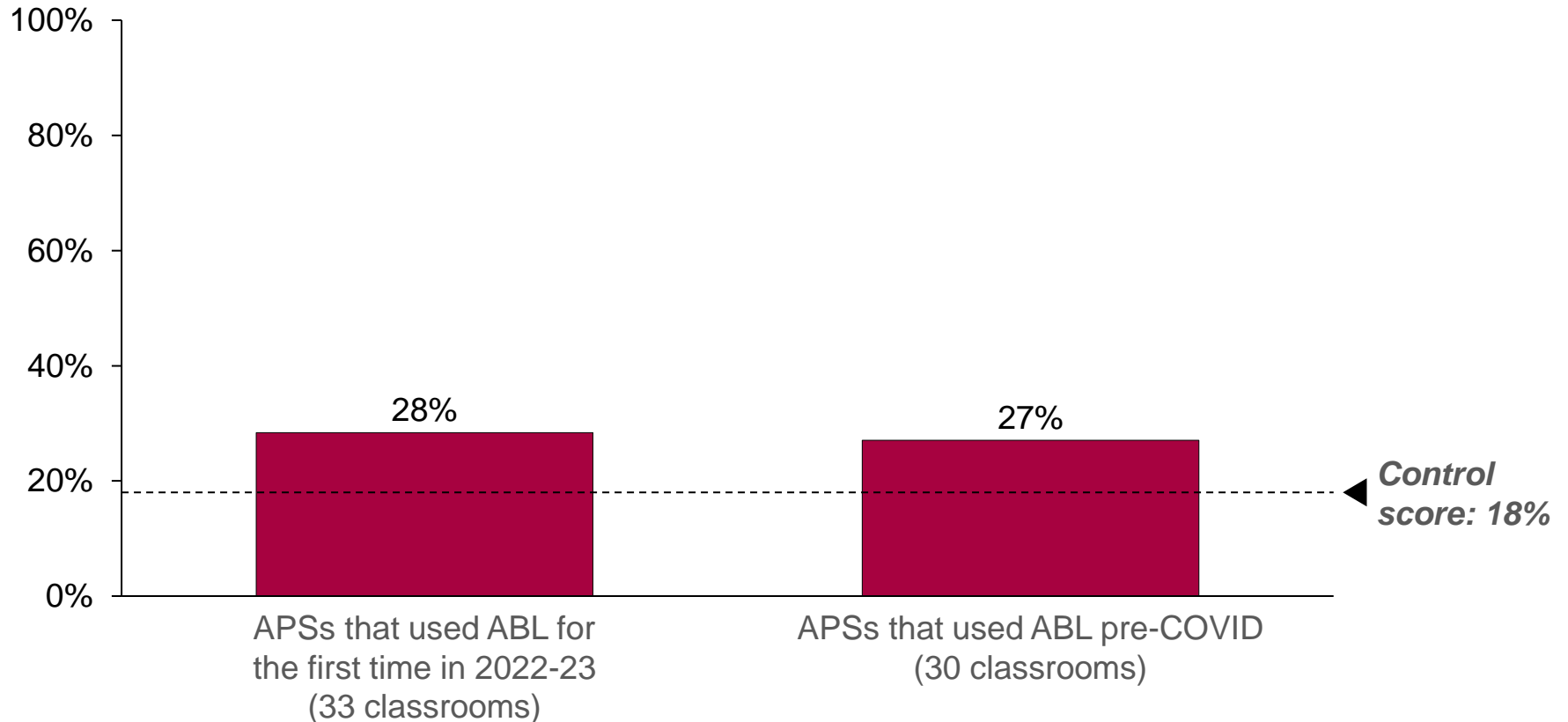
Peer interaction...

...refers to students engaging with each other in pairs and small/large groups

1. Use of lesson plan, encouraging dialogue, and organizing peer interactions were assessed on a scale of 0-3 each

12 APSs that used ABL pre-COVID had similar classroom scores as APSs that used ABL for the first time in 2022-23

Average classroom score per PIPE APS (in %) in 2023¹



1. Each APS was scored on a scale of 0-3 on 11 dimensions. See Appendix section "Sr. KG classroom environment" for dimension-level breakdown

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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

Approach

- **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
- **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



Please view in slide show mode. Please click on the image to open a video link. Requires internet connectivity

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 low-incomes in urban India send their children to affordable private schools (APSSs)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

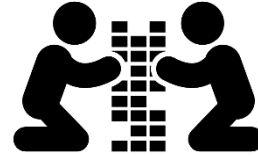
- Limited awareness of poor learning outcomes in children
- Limited awareness on the benefits of ABL
- Current rote memorization technique meets parents' demands

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



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 stakeholders¹

Goal by 2025

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

B **Improve quality:** 50% better learning outcomes across all skills²

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

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

1. Stakeholders are APS administrators, teachers and parents
2. Skills include numeracy, early language skills, executive function, motor skills and socio-emotional skills

 Detailed next

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

Scale supply: 2,000+ unique providers among 100+ APSs today

Improve quality: 50% better learning outcomes across all states

Shape demand: Personalized needs to 10% of the existing ABL, to one hour daily

Phase assessment: Share expertise, best practices, tools, and implementation of services with 100 organizations annually

Goal

3 ABL solution providers
>500 APSs each

Activities

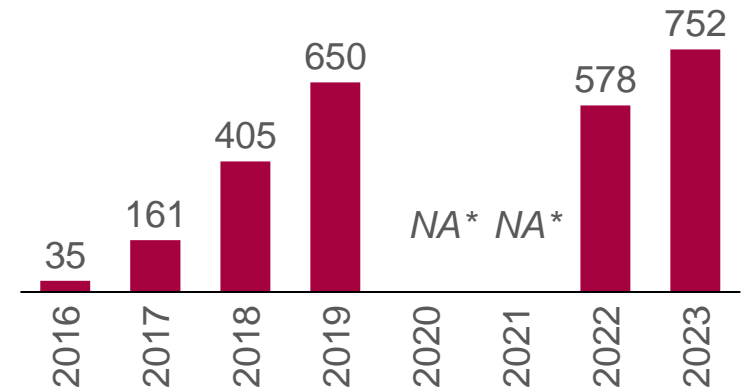
- Identified, convinced and **signed-up 8 partners** to the serve the APS market
- Developed a **profitable business model** for the APS market
- Identified barriers and developed 23 best practices across 4 business functions** (i.e. product, sales, implementation and management) to support partners 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

Impact to date

9 partners signed up



of APSs using PIPE partner solutions¹



*as schools were closed due to COVID-19²

1 –Based on data collected from partners | 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

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

1. Scale supply: 3 ABL, 1000+ questions, serving 1000+ APSs each
 2. Improve quality: 5% better learning outcomes across all APSs
 3. Shape demand: Personalized learning, 10% of APSs adopting ABL in one year's time
 4. Assess outcomes: Track outcomes, best practices, tools, and aspirations of families with 100 operations annually

Goal

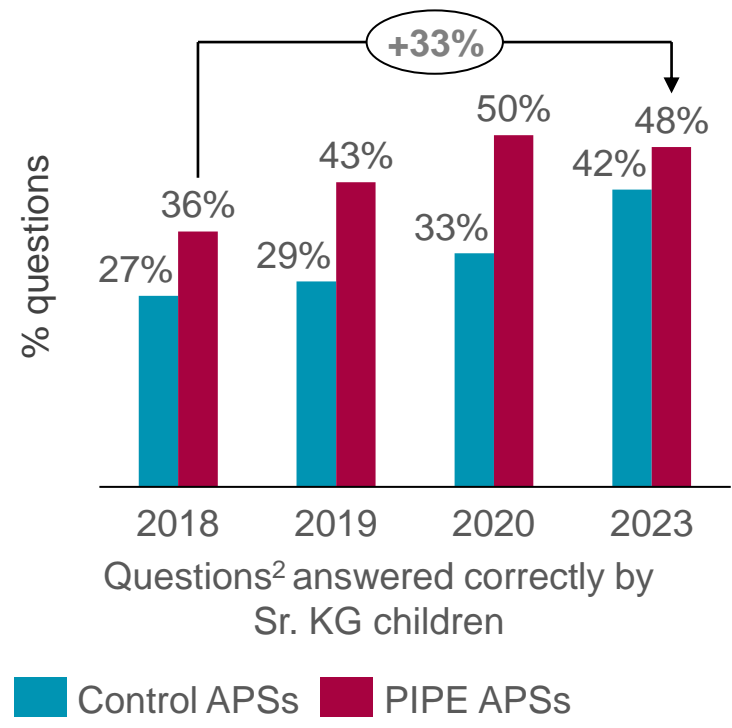
50% better learning outcomes across each skill

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



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) | 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? © FSG | 34

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

1. Scale supply 2 ABLs: 1000 APSS across 1000 APSS each
 2. Improve quality: 50%: 1000 APSS across 1000 APSS each
 3. Shape demand: 1000 APSS across 1000 APSS each
 4. Public awareness: 1000 APSS across 1000 APSS each

Goal

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

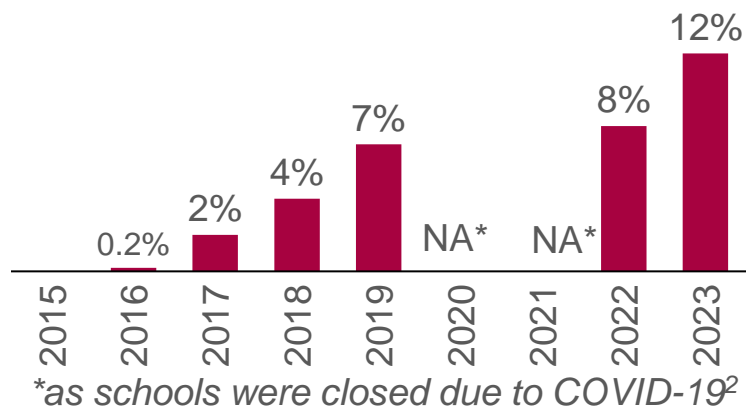
- Activities**
- Developed 'markers to test concepts' to shape parental demand
 - Developed **video and print collaterals** to educate stakeholders on key skills that children should be learning by age
 - Developed 8 videos to educate parents** about their child's current poor learning outcomes, and 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




% of APSS in Bangalore adopting ABL¹



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

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

 Enable supply 3 ABL solution providers serving 1000 APSs each
 Improve quality 10% better learning outcomes across all ABLs
 Increase demand 10% increase in demand leads to 15% of APSs adopting ABL, in some cases 1.5x
PIPE awareness: Share approach, best practices, tools, and aspirations of families with 100 organizations annually

Goal

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

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



- **Companies have used PIPEs best practices and business model** to better target the APS market



- **Godrej** developed 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

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Student learning outcomes

Sr. KG classroom environment

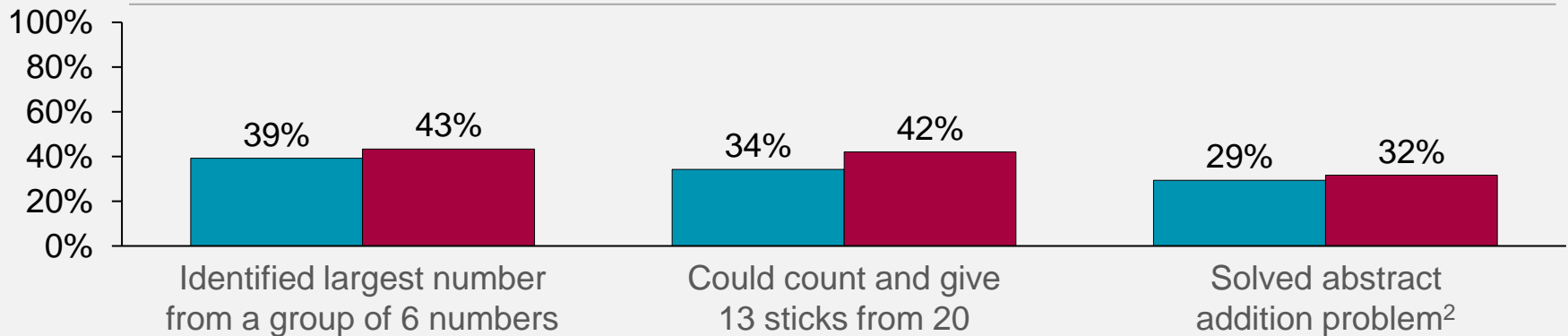
Profile of APSs assessed

Scoring Tool for Assessing Readiness at School
(STARS)

Student learning outcomes | Sr. KG students in PIPE APSs scored higher than control APSs on most questions (1/4)

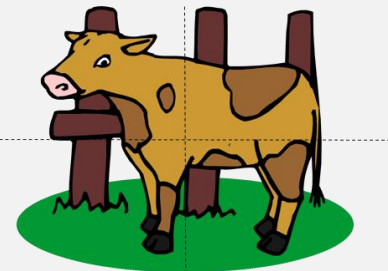
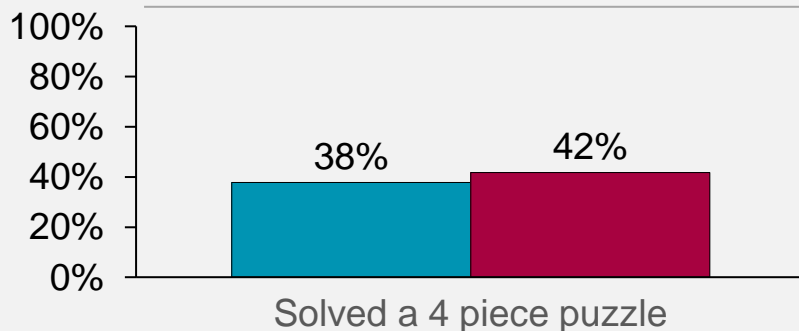
% of Sr. KG students in PIPE APSs who responded correctly to numeracy tasks was 14% higher compared to control APSs¹

% of Sr. KG students who responded correctly



% of Sr. KG students in PIPE APSs who responded correctly to cognitive tasks was 11% higher compared to control APSs¹

% of Sr. KG students who responded correctly

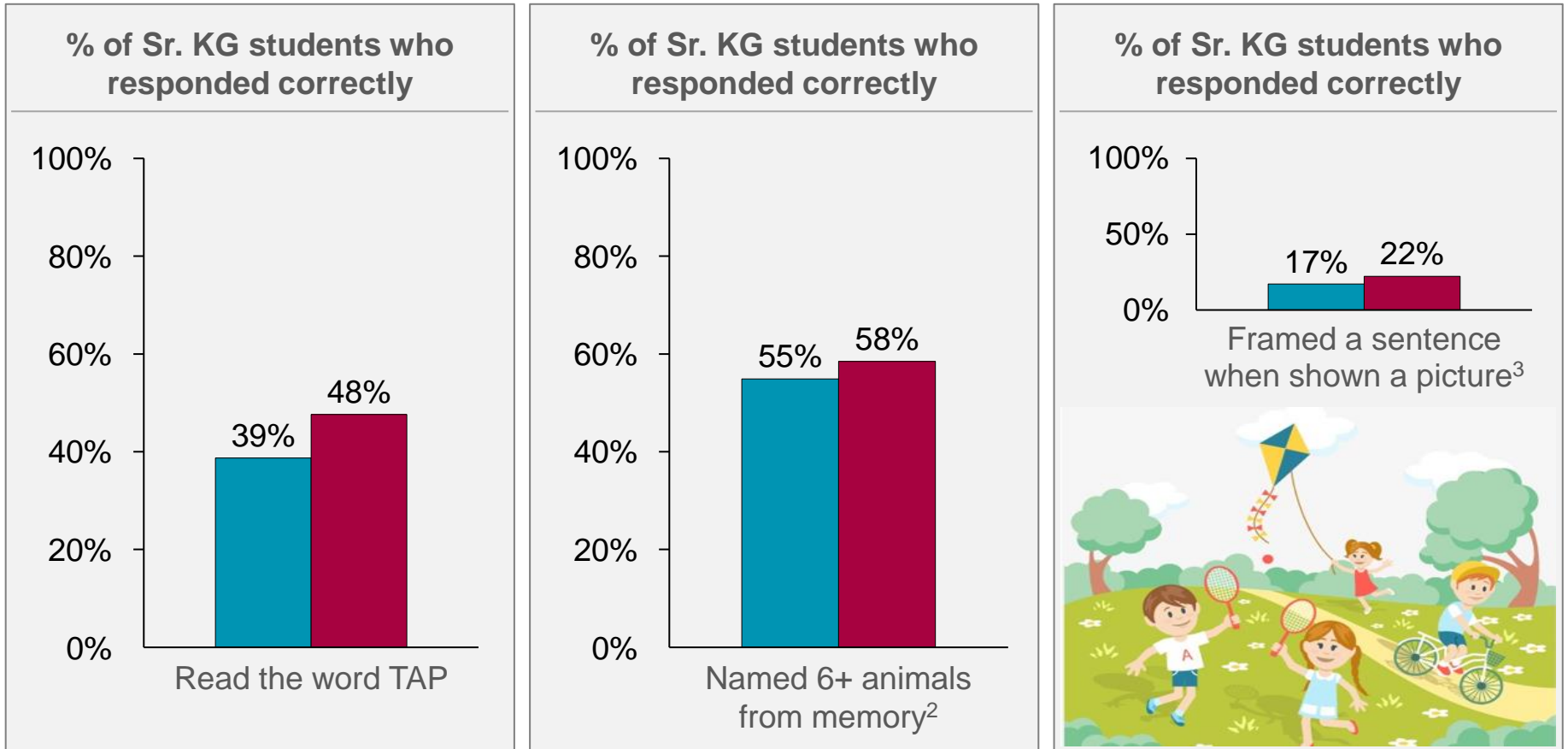


■ Control (204 students) ■ PIPE (378 students)

1. Overall percentage calculated based on total score of all questions in the 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 student a picture with 3 apples)

Student learning outcomes | Sr. KG students in PIPE APSs scored higher than control APSs on most questions (2/4)

% of Sr. KG students in PIPE APSs who responded correctly to literacy tasks was 16% higher compared to control APSs¹



■ Control (204 students) ■ PIPE (378 students)

1. Overall percentage calculated based on total score of all questions in the domain | 2. This question tests the student on expressive vocabulary, therefore it is considered as a literacy question | 3. Student is expected to frame a simple sentence consisting of one noun and one verb (e.g., girl playing)

Student learning outcomes | Sr. KG students in PIPE APSs scored higher than control APSs on most questions (3/4)

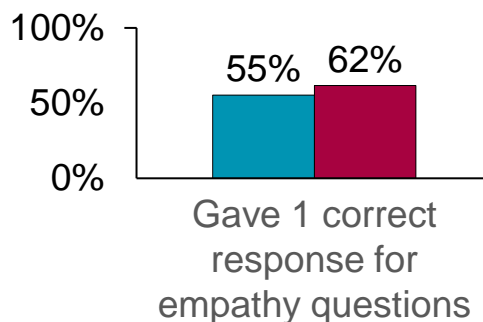
% of Sr. KG students in PIPE APSs who responded correctly to socio-emotional tasks was 9% higher compared to control APSs¹

Empathy (Question)²

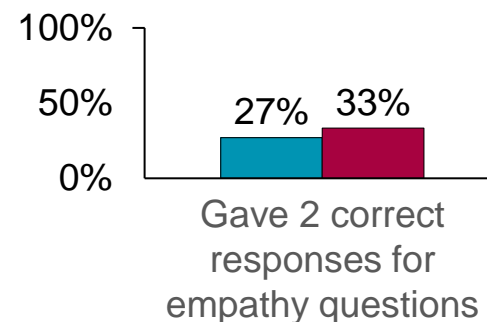


- a** "This girl is crying. What would you do to make her feel better?"
- b** Is there anything else you would do?

a % of Sr. KG students who responded correctly



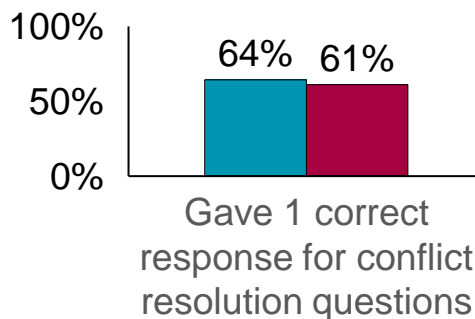
b % of Sr. KG students who responded correctly



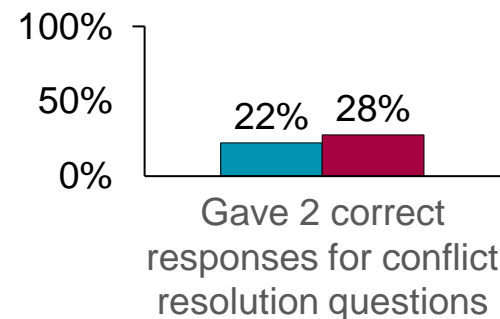
Conflict resolution (Question)³

- 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?"
- d** Is there anything else you would do?

c % of Sr. KG students that who responded correctly



d % of Sr. KG students who responded correctly



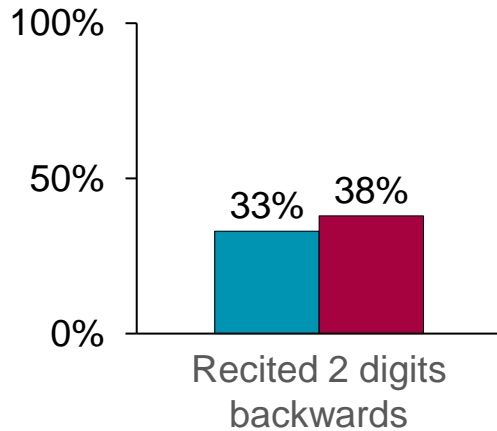
■ Control (204 students) ■ PIPE (378 students)

1. Overall percentage calculated based on total score of all questions in the domain | 2. Example response- 'I will give her a chocolate', 'I will call her mother' | 3. Example response- 'I will share the toy', 'I will give my toy to him/her'

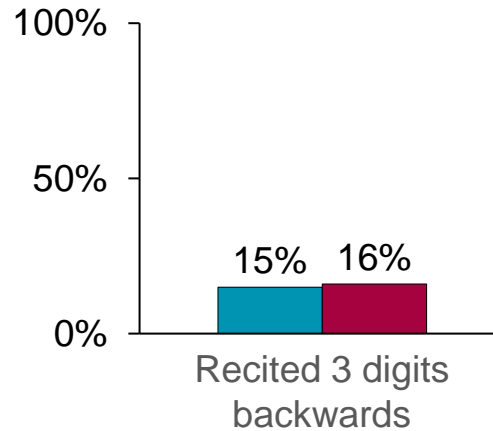
Student learning outcomes | Sr. KG students in PIPE APSs scored higher than control APSs on most questions (4/4)

% of Sr. KG students in PIPE APSs who responded correctly to executive function tasks was 17% higher compared to control APSs¹

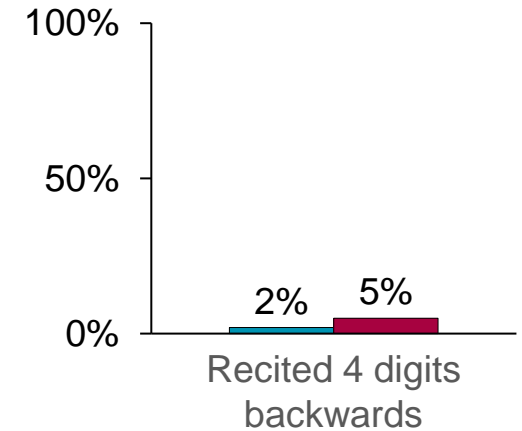
% of Sr. KG students who responded correctly



b % of Sr. KG students who responded correctly



c % of Sr. KG students who responded correctly



Control (204 students) PIPE (378 students)

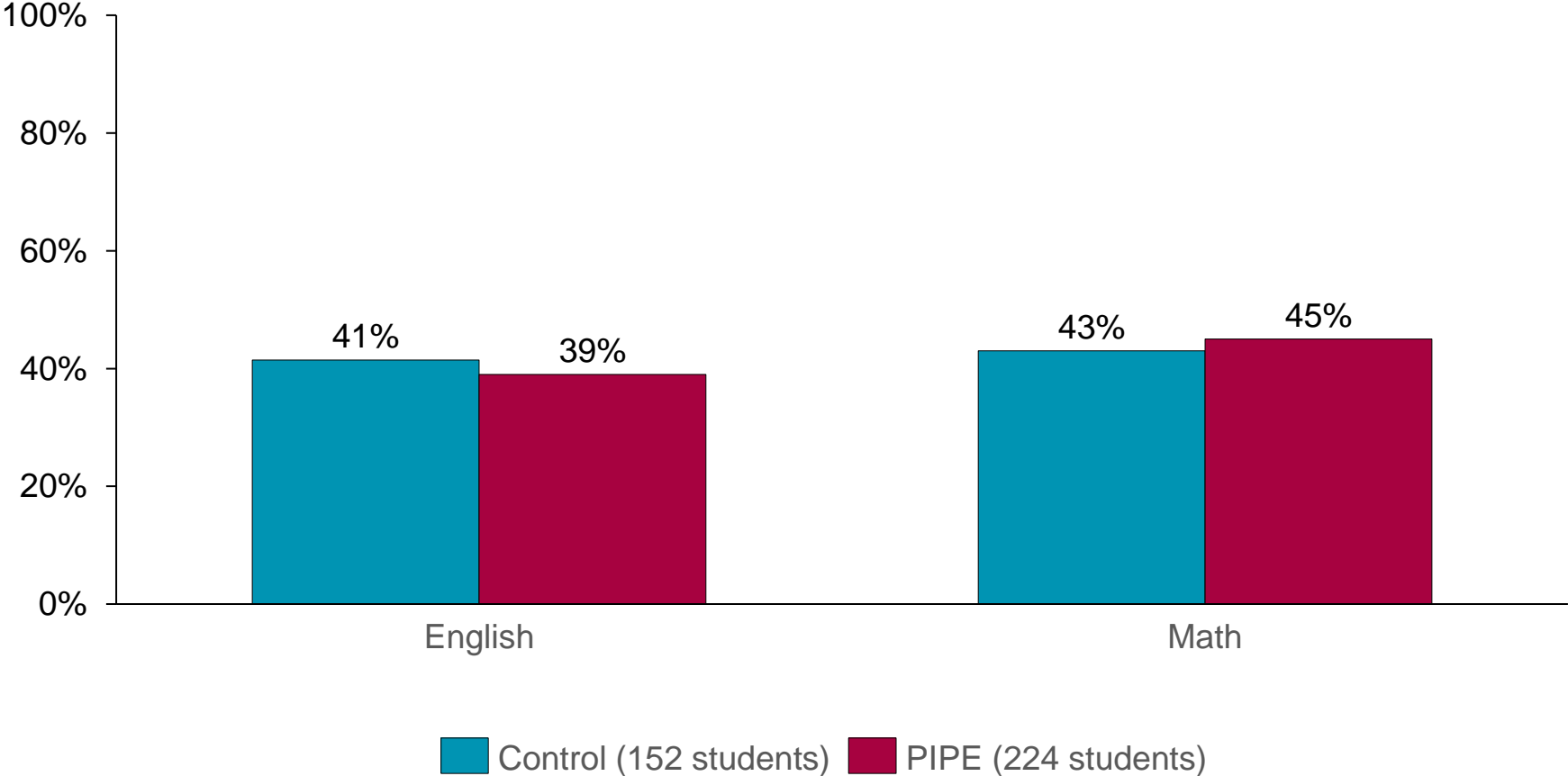
Executive function (Questions)

- a** “Whatever I say, you should say it backwards. So now I say 4-1, you say?”
- b** “Whatever I say, you should say it backwards. So now I say 3-5-6, you say?”
- c** “Whatever I say, you should say it backwards. So now I say 4-9-2-7, you say?”

1. Overall percentage calculated based on total score of all questions in the domain

Student learning outcomes | Grade 2 students in PIPE APSs scored similar to control APSs on both English and Math

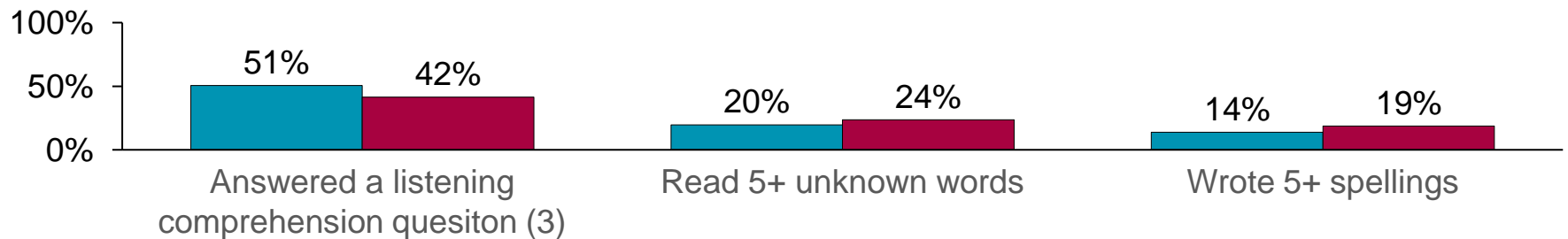
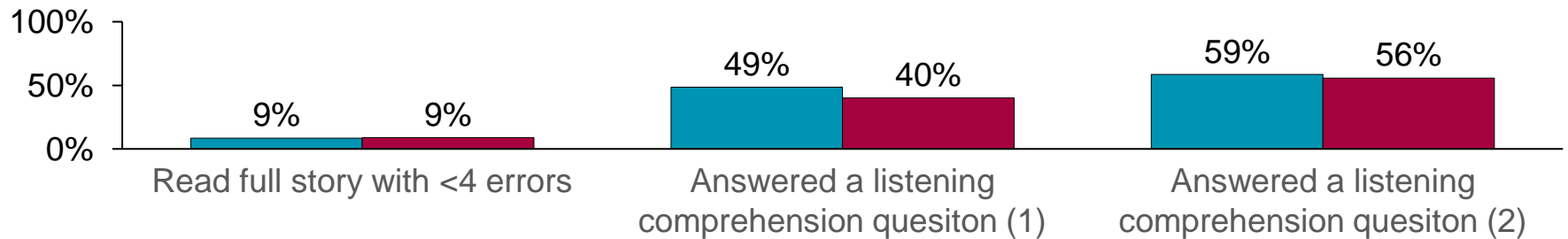
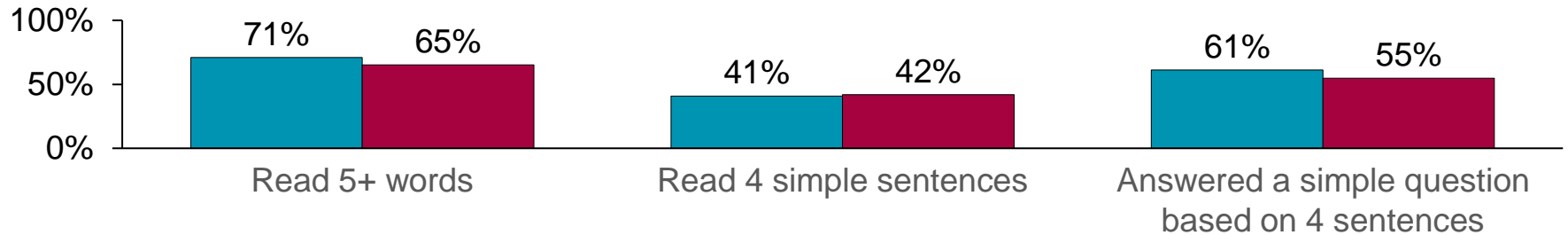
Average grade 2 learning outcomes score per APS (in %)¹



1. In each APS, 4 grade 2 students were assessed on 19 questions across English (9 questions) and Maths (10 questions)

Student learning outcomes | Grade 2 students in PIPE APSs scored similar to control APSs on most English questions

Average grade 2 English learning outcomes score per APS (in %)¹

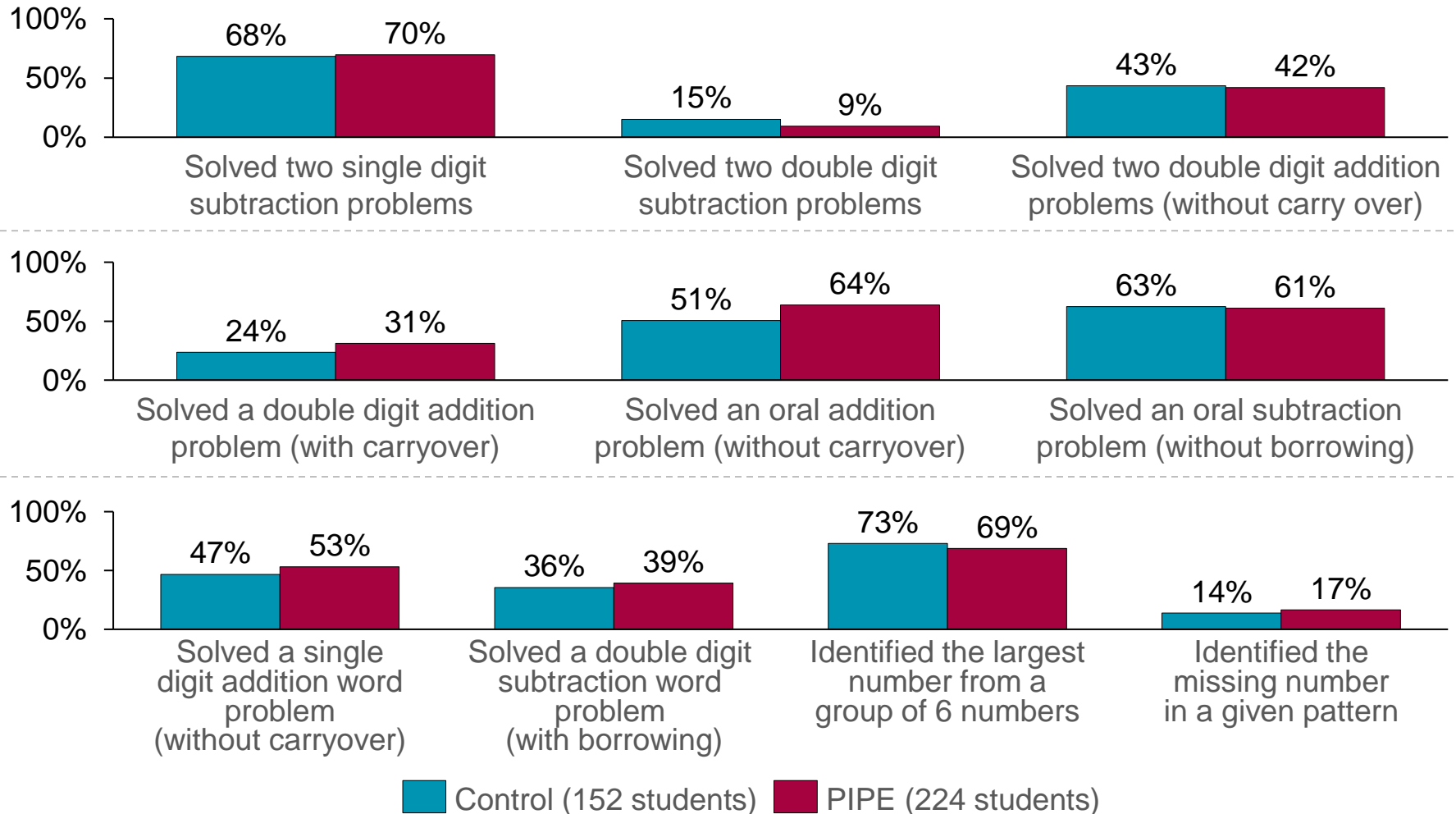


Control (152 students) PIPE (224 students)

1. In each APS, 4 grade 2 students were assessed on 19 questions across English (9 questions) and Maths (10 questions)

Student learning outcomes | Grade 2 students in PIPE APSs scored similar to control APSs on most Math questions

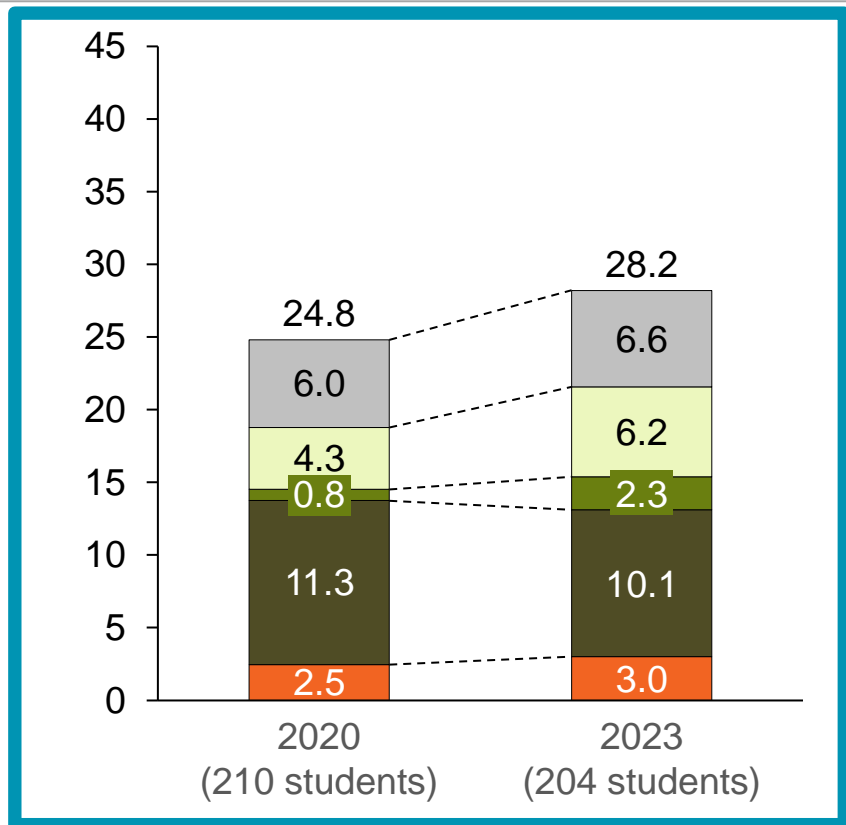
Average grade 2 Math learning outcomes score per APS (in %)¹



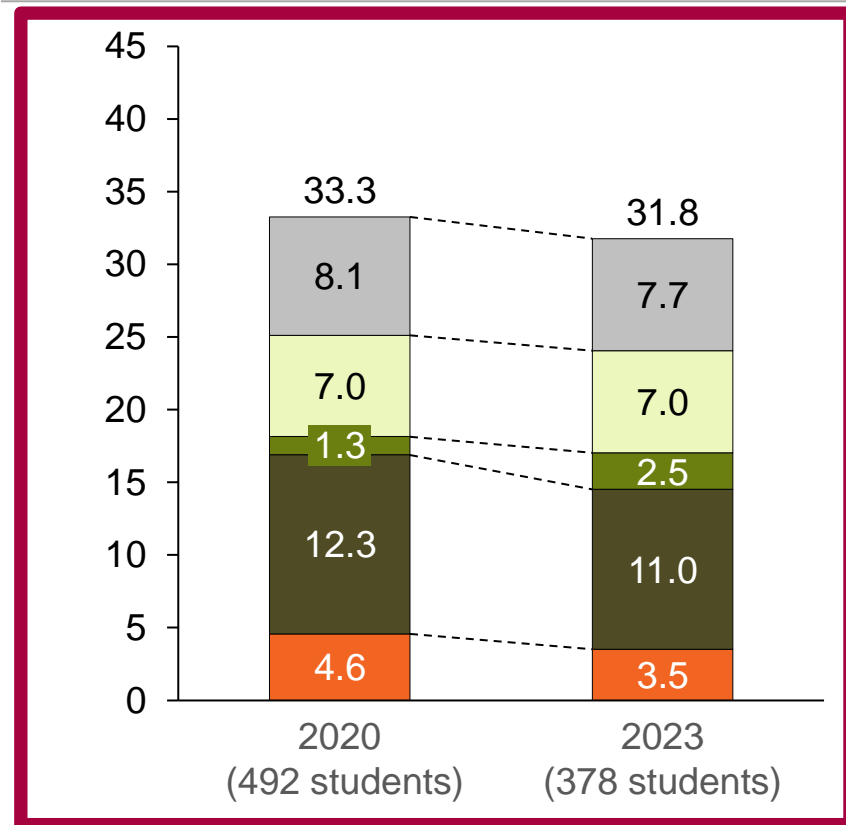
1. In each APS, 4 grade 2 students were assessed on 19 questions across English (9 questions) and Maths (10 questions)

Student learning outcomes – 2020 vs. 2023 | Sr. KG scores remained similar for PIPE APSs, but improved for control APSs

Average Sr. KG learning outcomes score per control APS (absolute score)¹



Average Sr. KG learning outcomes score per PIPE APS (absolute score)¹

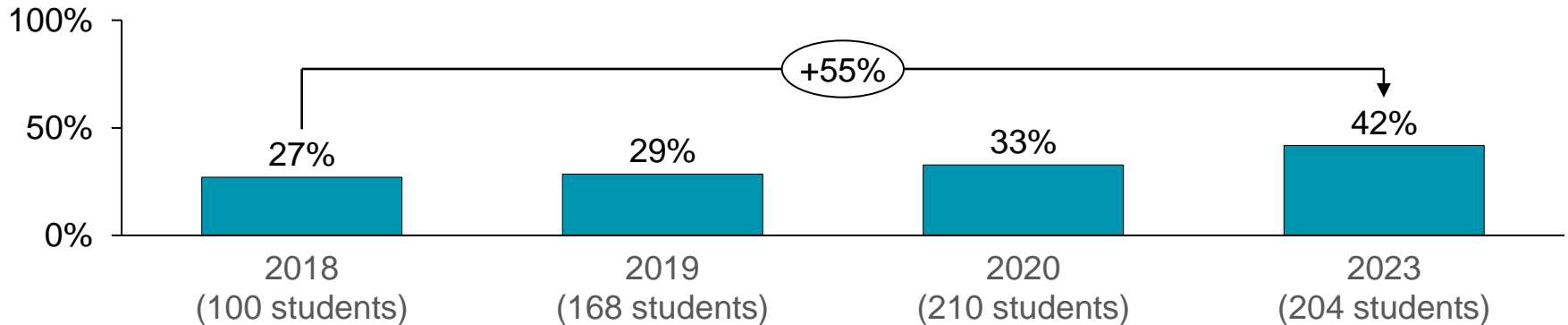


- Literacy (18)
- Cognitive (6)
- Executive function (18)
- Numeracy (18)
- Socio-emotional (24)

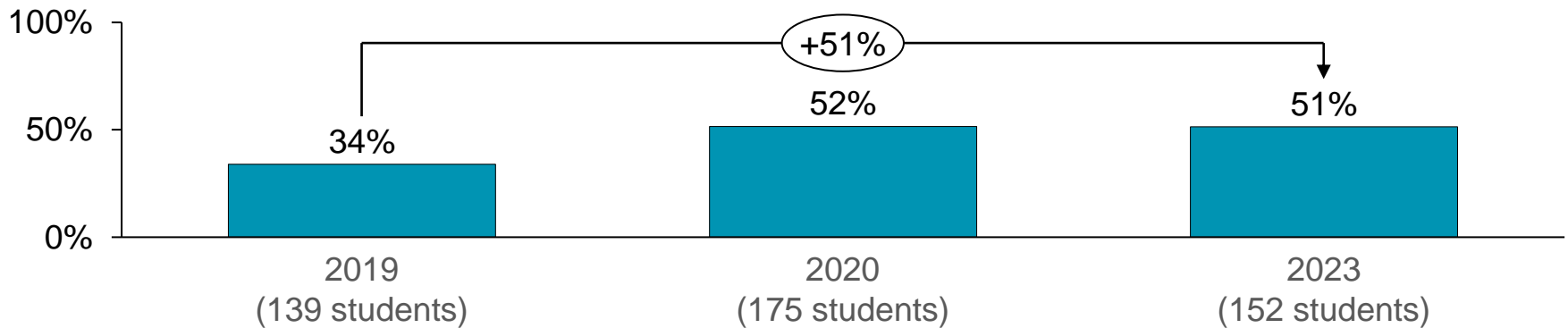
1. Maximum score per APS is 84. Maximum domain-level scores mentioned in brackets '()' in the legend

Student learning outcomes over time | Both Sr. KG and grade 2 learning outcomes for control APSs have improved

Average Sr. KG learning outcomes score per control APS (in %)¹



Average grade 2 learning outcomes score per control APS (in %)²



1. Scores represent 4 common questions that were assessed in 2018, 2019, 2020 and 2023. In 2018, 5 Sr. KG students were assessed in each APS, while in 2019, 2020 and 2023, 6 Sr. KG students were assessed in each APS | 2. Scores represent 5 common questions that were assessed in 2019, 2020 and 2023. In 2023, 4 grade 2 students were assessed in each APS, while in 2019 and 2020, 5 grade 2 students were assessed in each APS. There was no PIPE intervention for grade 2 in 2018

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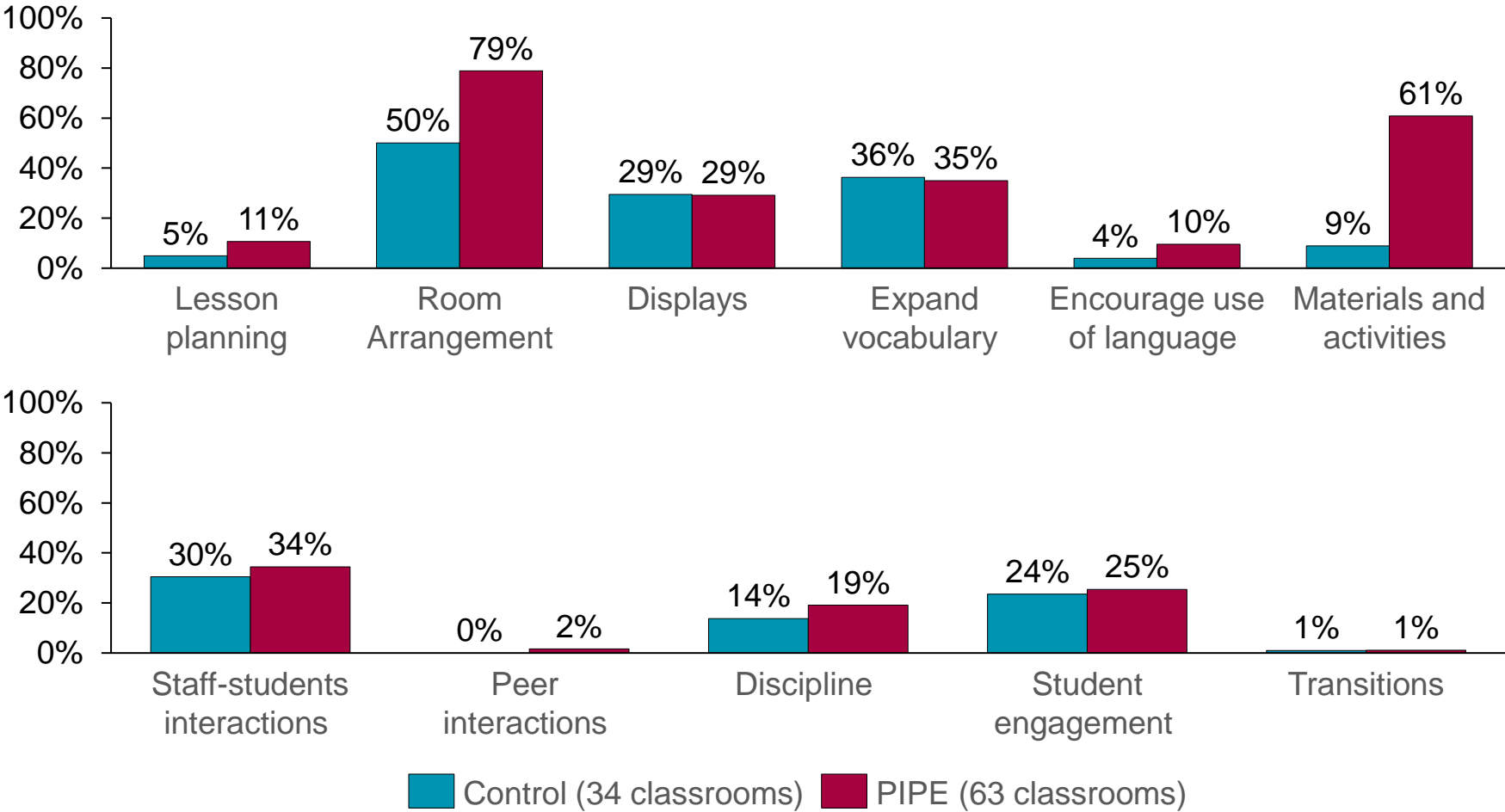
Sr. KG classroom environment

Profile of APSs assessed

Scoring Tool for Assessing Readiness at School
(STARS)

Sr. KG classroom environment | PIPE APSs scored higher than control APSs on 8 out of 11 dimensions

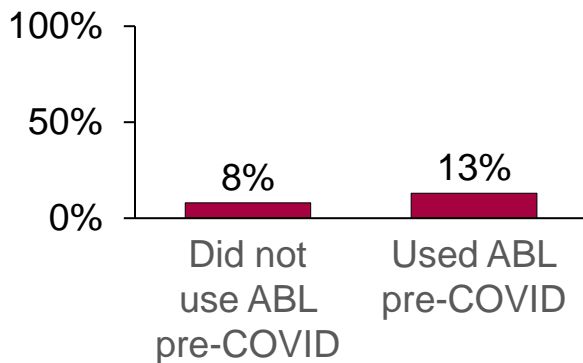
Average classroom score per APS (in %)¹



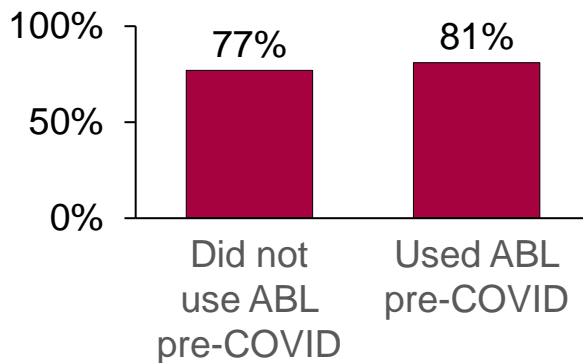
1. Each APS was scored on a scale of 0-3 on 11 dimensions. Per APS score is shown as percentage in the chart

Sr. KG classroom environment | In 2023, APSs that used ABL pre-COVID had similar classroom scores as APSs that did not use ABL pre-COVID (1/2)

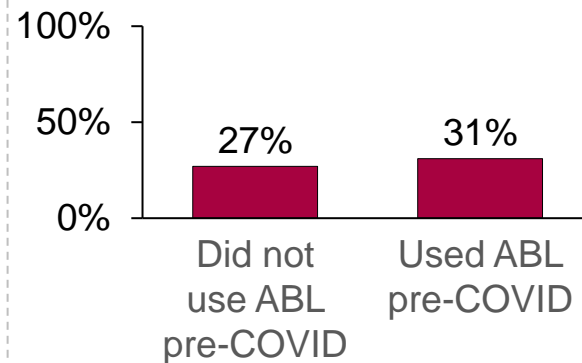
Average 'Lesson planning' score per APS (in %)¹



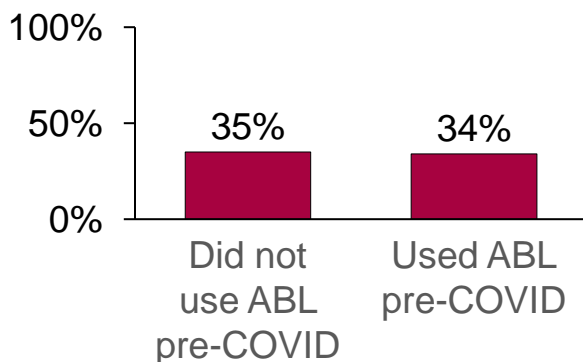
Average 'Room arrangement' score per APS (in %)¹



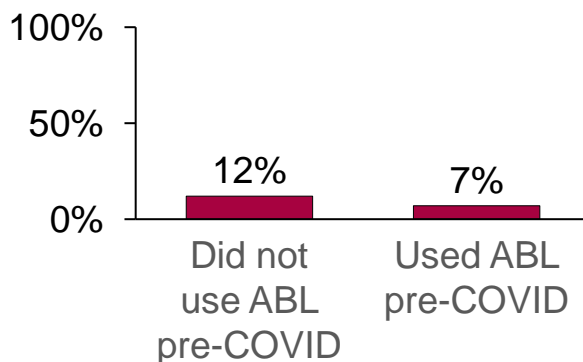
Average 'Displays' score per APS (in %)¹



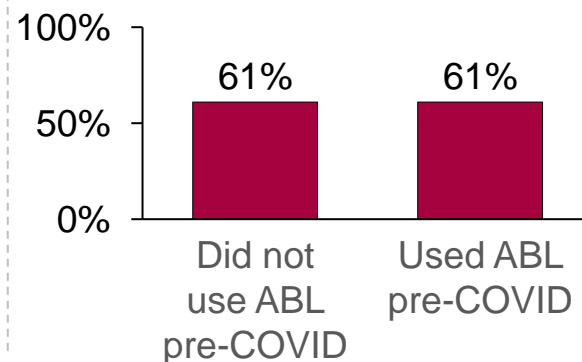
Average 'English vocabulary' score per APS (in %)¹



Average 'Encourage use of language' score per APS (in %)¹



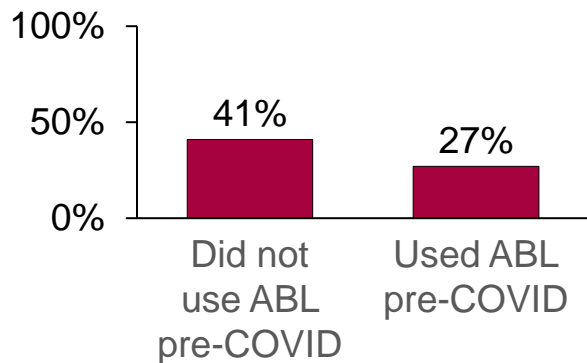
Average 'Materials and activities' score per APS (in %)¹



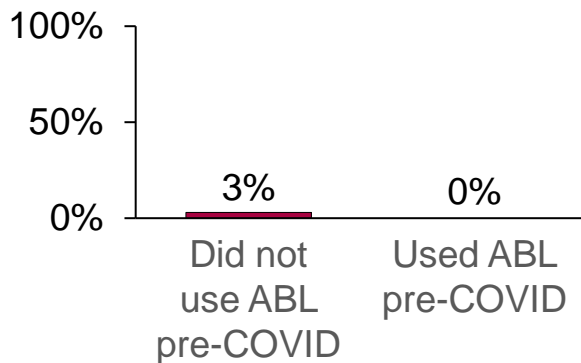
1. Each APS was scored on a scale of 0-3 on 11 dimensions, which were averaged to calculate the Classroom Environment score. Sample sizes: PIPE APSs that did not use ABL pre-COVID (33 classrooms), PIPE APSs that used ABL pre-COVID (30 classrooms)

Sr. KG classroom environment | In 2023, APSs that used ABL pre-COVID had similar classroom scores as APSs that did not use ABL pre-COVID (2/2)

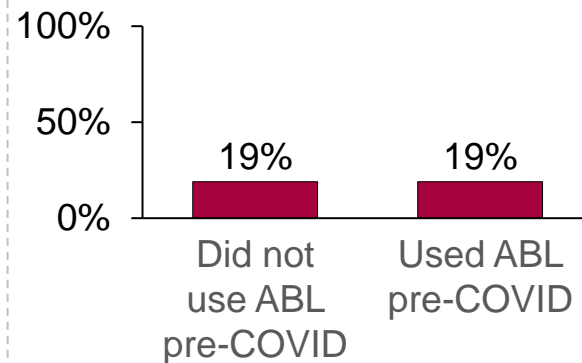
Average 'Staff-students Interactions' score per APS (in %)¹



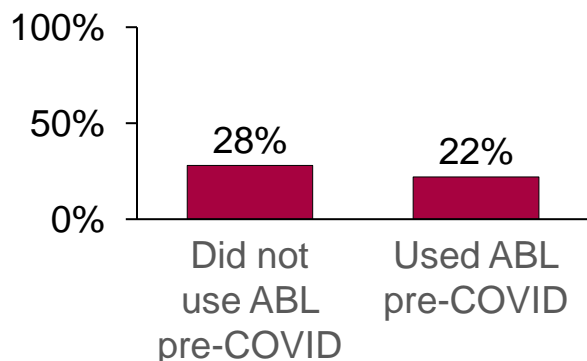
Average 'Peer interactions' score per APS (in %)¹



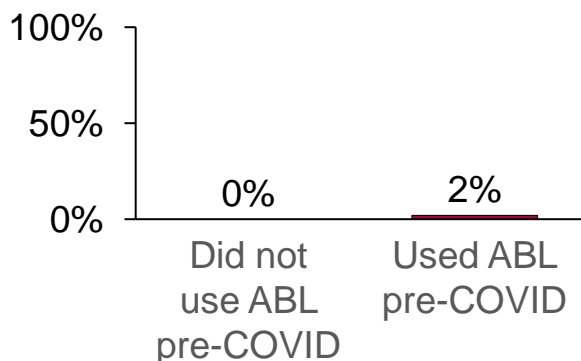
Average 'Discipline' score per APS (in %)¹



Average 'Student engagement' score per APS (in %)¹



Average 'Transitions' score per APS (in %)¹



1. Each APS was scored on a scale of 0-3 on 11 dimensions, which were averaged to calculate the Classroom Environment score. Sample sizes: PIPE APSs that did not use ABL pre-COVID (33 classrooms), PIPE APSs that used ABL pre-COVID (30 classrooms)

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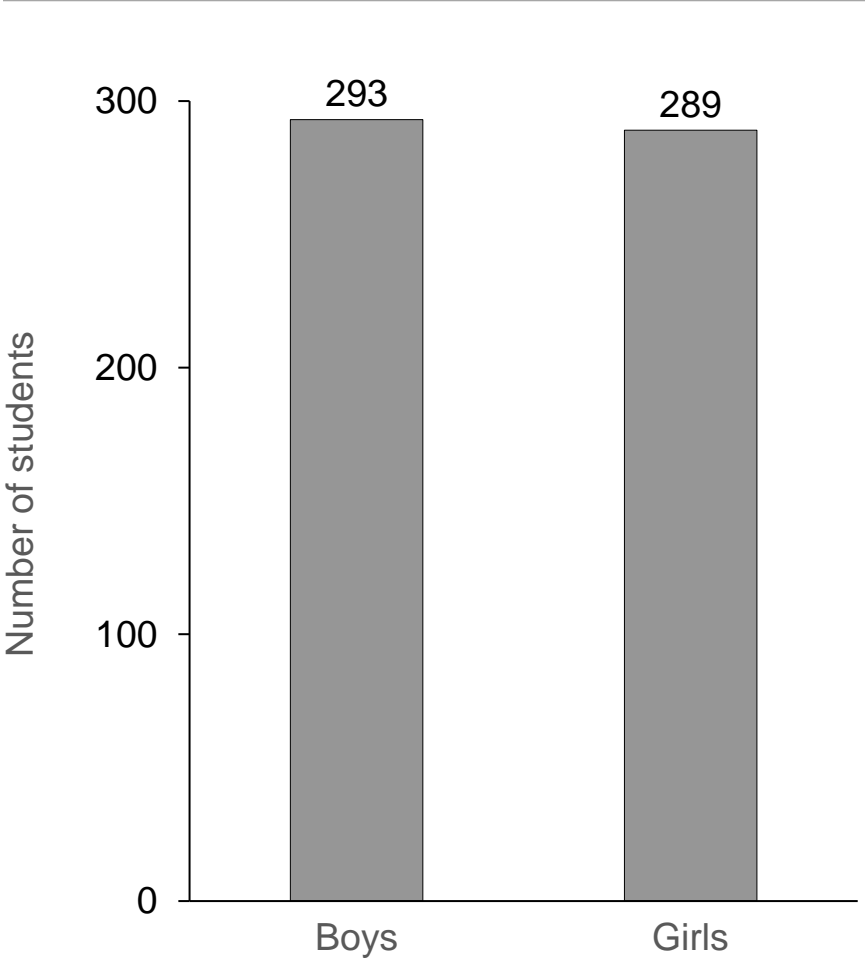
Sr. KG classroom environment

Profile of APSs assessed

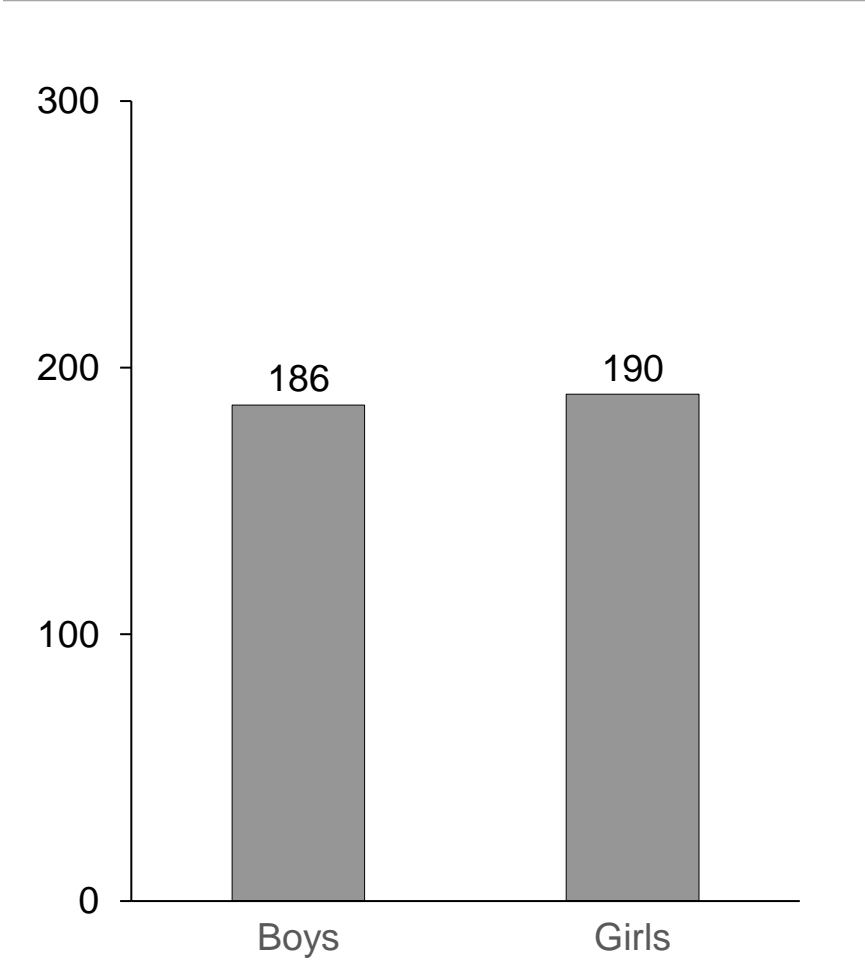
Scoring Tool for Assessing Readiness at School
(STARS)

Profile of APSs assessed | Sample size of students assessed in Sr. KG and grade 2

Number of Sr. KG boys and girls assessed¹



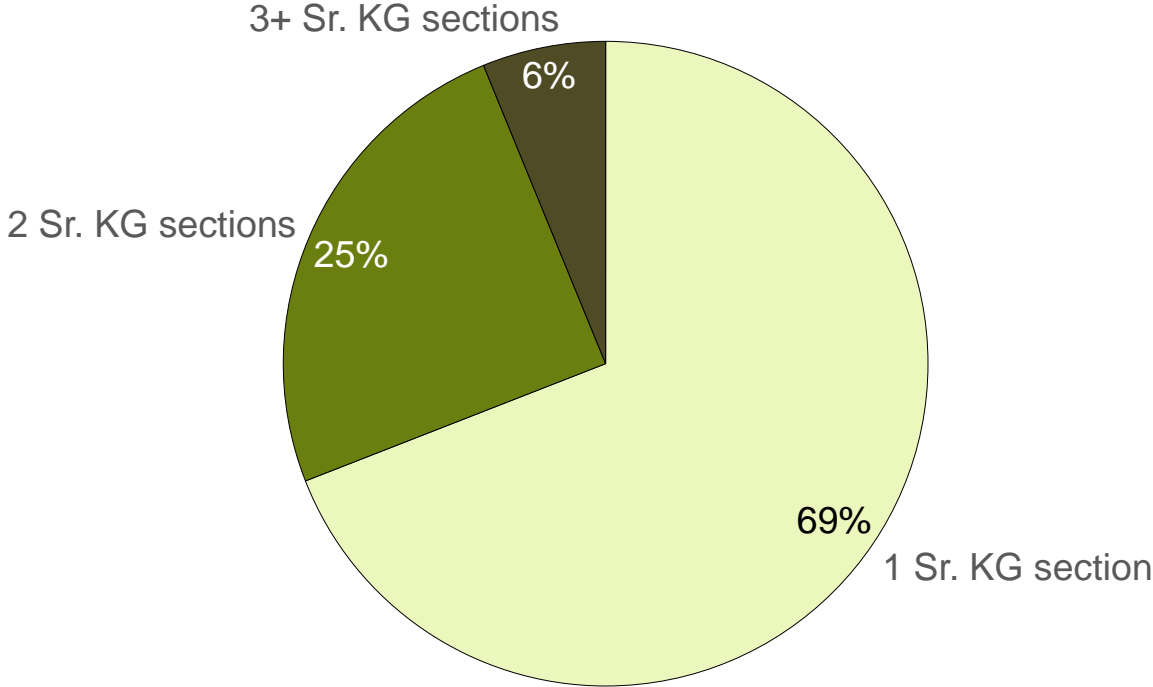
Number of grade 2 boys and girls assessed²



1. Sr. KG sample size includes 102 boys and 102 girls from control schools and 191 boys and 187 girls from PIPE schools | 2. Grade 2 sample size includes 75 boys and 77 girls from control schools and 111 boys and 113 girls from PIPE schools

Profile of APSs assessed | Average number of sections in each APS is 1.41

Spread of APSs by number of Sr. KG section(s) in each APS¹



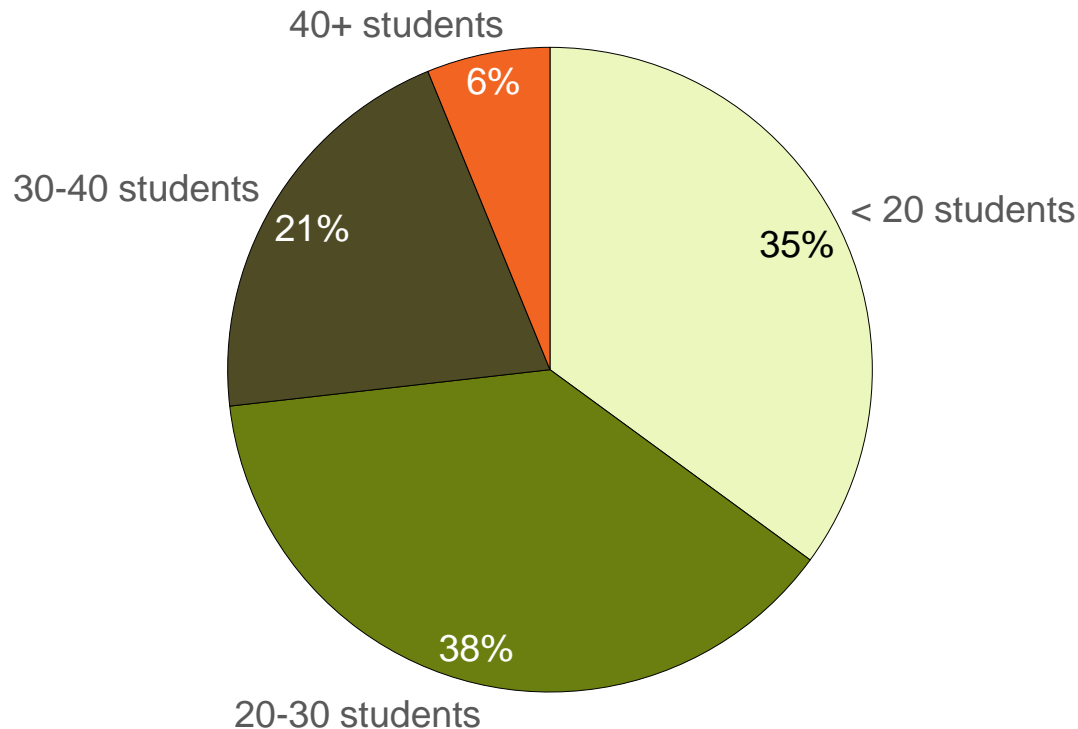
Sample size (no. of classrooms)

97

1. Sample size includes 34 control APSs and 63 PIPE APSs

Profile of APSs assessed | Average number of students in a Sr. KG classroom is 24

Average number of students¹ per Sr. KG classroom



Average no. of students

24

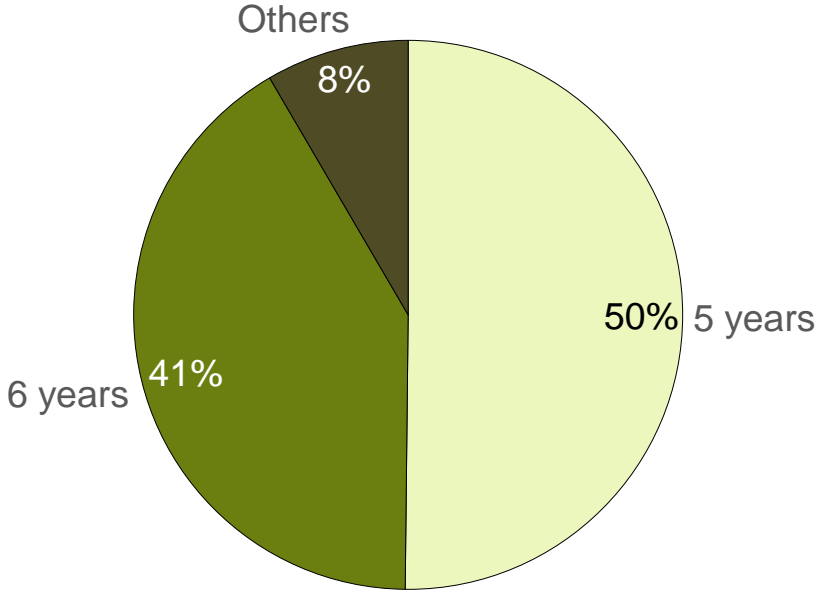
Sample size (no. of classrooms)

97

1. Number of students per classroom were documented based on attendance register and manual counting on the day of observation

Profile of APSs assessed | Average age of Sr. KG students is 5.48 years, and that of grade 2 students is 7.84 years

% of Sr. KG students by age¹



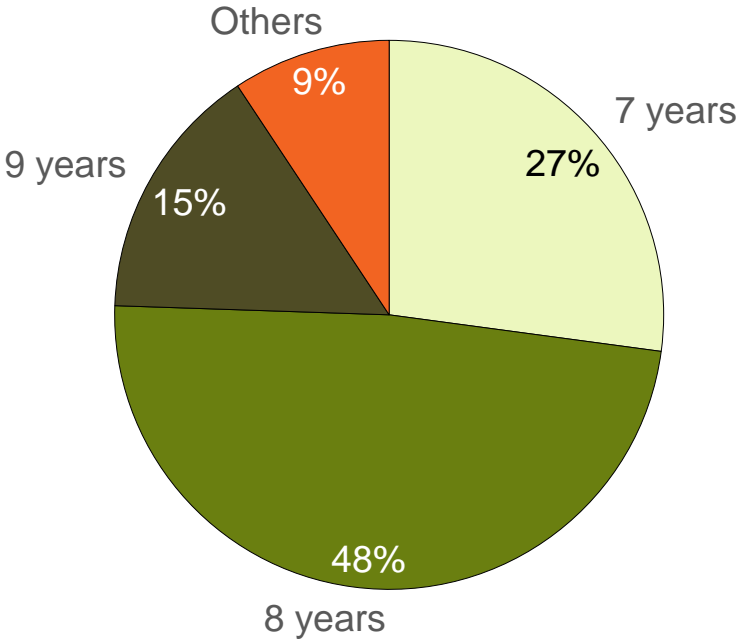
Average age

5.48

Sample size (No. of students)

582

% of grade 2 students by age¹



7.84

376

1. Age as provided by teachers

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Sr. KG classroom environment

Profile of APSs assessed

**Scoring Tool for Assessing Readiness at School
(STARS)**

STARS | Details on classroom environment dimensions observed (1/2)

Dimensions	0	1	2	3
Lesson planning	No plan available (or) Time table available	Plan available without detailed steps and/or materials required (e.g. "phonics for A-E", "counting 11-15")	Plan available with -Steps to follow -Materials required (and) Teacher follows plan	Teacher articulates learning objectives (or) Teacher checks for learning outcomes in at least one way
Room arrangement	Most of the classroom area is so crowded that learning activities cannot be conducted (and) There are no alternate spaces available to conduct activities	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)	The class/ alternate space is organized such that two or more learning activities can be conducted (and) The teacher can supervise most students	Students are observed using the space for more than one activity
Displays	There are no relevant displays (e.g. alphabets, numbers, weather charts, shapes, posters about transport, my body) on the classroom walls	Relevant materials are displayed on the classroom wall	Relevant materials are displayed on the classroom wall and referred to at least twice (by teacher or students)	Students' artwork displayed on the wall
Expand English vocabulary	Teacher may use new words but does not introduce them with an explanation	Teacher introduces 1-2 new words with minimal explanation (e.g. for the word "nib"; the teacher states "the pen has a nib")	Teacher introduces 1-2 new words and correctly explains their meanings (e.g. for the word "nib", the teacher (i) shows a pen, (ii) points to the nib; (iii) provides explanation about the object)	Teacher exposes students to language by (any of the below): <ul style="list-style-type: none"> • Using adjectives or descriptions • Using multiple scenarios or examples to explain something • Telling stories/ anecdotes
Encourage use of language	Majority of questions are rote based (i.e. have specific one or two word responses) or yes/ no answers (or) Talking among students or with staff is not encouraged	Staff asks at least two open-ended questions during the observation	Staff responds positively to students' communication (and) Encourages them to talk more	Staff student 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)
Staff-student interaction	Staff* is unresponsive or interacts negatively with students <i>*Staff refers to all adults observed in classroom</i>	Whole class interactions between staff and students are positive	Staff interacts positively with some students individually by providing positive feedback/ reinforcement	Staff gives a message of warmth through actions (any of the below): <ul style="list-style-type: none"> • appropriate physical contact • respectful tone • showing sensitivity to students' needs

STARS | Details on classroom environment dimensions observed (2/2)

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

STARS | Sr. KG assessment questions (1/3)

Sl no.	Domain	Questions	Expected response
1	Literacy	“Can you read ‘tap’?” <i>[Show word ‘tap’]</i>	Student should be able to read new and unfamiliar 3 letter phonic words correctly
2	Literacy	“Can you tell me in English what is happening in this picture?” <i>[Show a picture of park with 2-3 students playing different games]</i>	Student should be able to say at least one sentence using English words about a familiar topic/ theme
3	Numeracy	“Can you give me 13 sticks?” <i>[Ask while pointing to 20 sticks placed on the desk/ floor]</i>	Student should be able to count up to 13 sticks correctly
4	Numeracy	“Can you identify the greatest number here?” <i>[Show numbers 7, 3, 2, 8, 6, and 5 arranged randomly]</i>	Student should be able to identify the greatest single digit number from a random group of numbers
5	Numeracy	“There are 3 apples in this box. If I were to add 2 more, how many would be there in total?” <i>[Point towards a photo of 3 apples. Do not indicate the numbers with fingers or otherwise]</i>	Student should be able to do abstract addition with single digit numbers

STARS | Sr. KG assessment questions (2/3)

SI no.	Domain	Questions	Expected response
6	Cognitive skills	“Can you complete this puzzle?” <i>[Give the student a four-piece puzzle]</i>	Student should be able to complete up to 4-piece puzzles
7	Literacy	“Name as many animals as you can.”	Student should be able to recall and name at least 6 animals
8	Socio-emotional skills	“This girl is crying. What would you do to make her feel better?” <i>[Show a picture of a girl crying. Wait for the student to respond and if answer is unclear ask, “How/ why does this make her feel better?”]</i>	Student should be able to give at least one valid response (e.g., “I will give her a chocolate”, “I will call her mother”)
9	Socio-emotional skills	[Contd.] “Is there anything else you would do to make her feel better?” <i>[Show a picture of a girl crying. Wait for the student to respond and if answer is unclear ask, “How/ why does this make her feel better?”]</i>	Student should be able to give at least one valid response, that is different from the response to question 8

STARS | Sr. KG assessment questions (3/3)

SI no.	Domain	Questions	Expected response
10	Socio-emotional skills	“Imagine that you are playing with a toy that you like. Now another student wants to play with that same toy, but there is only one toy. What would you do in this situation?”	Student should be able to share one way to resolve the conflict
11	Socio-emotional skills	[Contd.] "Is there anything else you would do?"	Student should be able to share one more way to resolve the conflict, that is different from the response to question 10
12, 13, 14	Executive function (Working memory)	<p><i>[Before asking the questions, explain to the student what backward counting means, and practice a couple of examples]</i></p> <p>Ask:</p> <ul style="list-style-type: none"> • “Whatever I say, you should say it backwards. So now I say 4-1, you say?” • “Whatever I say, you should say it backwards. So now I say 3-5-6, you say?” • “Whatever I say, you should say it backwards. So now I say 4-9-2-7, you say?” 	Student should be able to remember and recite the digits backwards

STARS | Grade 2 assessment questions – English (1/2)

Ask the student to read this tool¹

Q1. Ask the child to read out all the words given on the box

cat		star
	bold	
old		book
	hand	
day		few

Q2. Ask the child to read the paragraph given in the box.

There is a big monkey.
He lives on a tree.
He likes to jump.
He also likes bananas.

Q3. Ask the child: **What does the monkey like?**

Q4. Ask the child to read the story in the given box

A big tree stood in a garden. It was alone and lonely. One day a bird came and sat on it. The bird held a seed in its beak. It dropped the seed near the tree. A small plant grew there. Soon there were many more trees. The big tree was happy.

Q8. Ask the child to read the following words

leb		ral
	gax	
nom		tob
	diz	
fut		hig

Question number	1	2	3	4	8
Expectation	Student must read 5 or more words correctly	Student must make 3 or less errors	Student says either jumping or banana	Student must read full story fluently with 3 or less errors	Student must read 5 or more words

STARS | Grade 2 assessment questions – English (2/2)

SI no.	Construct	Questions ¹	Expected response
5,6,7	Listening comprehension²	<p>“Now I will read you a small story. Then I will ask you some questions. Listen carefully.</p> <p>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.”</p> <p>Ask the student:</p> <ul style="list-style-type: none"> ● Why is Rani sad? ● Who helps Rani? ● Why is Rani happy now? 	Student should give correct answers to the question based on the read-aloud passage
9	Oral dictation	<p>Ask student to write legibly</p> <p style="text-align: center;">jot mud ship tram goat best spray fight</p>	Student must write 5 or more spellings correctly to get a tick

1. Questions have been sourced from [ASER Centre Test Samples](#) and [EGRA](#); 2: Question 5,6,7: Added by PIPE

STARS | Grade 2 assessment questions – Maths (1/3)

Ask the student to complete the below questions¹

Q1. Ask the child to do both problems from any one set below

SET A	9 - 5 _____	6 - 3 _____
SET B	4 - 3 _____	8 - 2 _____
SET C	5 - 2 _____	9 - 1 _____
SET D	3 - 1 _____	8 - 4 _____
SET E	5 - 3 _____	4 - 2 _____

Q2. Ask the child to do both problems from any one set below

SET A	66 - 48 _____	47 - 28 _____
SET B	63 - 44 _____	71 - 35 _____
SET C	92 - 48 _____	45 - 27 _____
SET D	34 - 19 _____	46 - 17 _____
SET E	84 - 57 _____	52 - 14 _____

Q3. Ask the child to do both problems from any one set below

SET A	13 + 35 _____	37 + 22 _____
SET B	44 + 21 _____	43 + 36 _____
SET C	41 + 37 _____	13 + 32 _____
SET D	45 + 12 _____	43 + 24 _____
SET E	12 + 14 _____	56 + 31 _____

STARS | Grade 2 assessment questions – Maths (2/3)

Ask the student to complete the below questions¹

Q4. Ask the child to do both problems from any one set below

SET A

$$\begin{array}{r} 18 \\ + 35 \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} 37 \\ + 44 \\ \hline \\ \hline \end{array}$$

SET B

$$\begin{array}{r} 24 \\ + 29 \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} 43 \\ + 39 \\ \hline \\ \hline \end{array}$$

SET C

$$\begin{array}{r} 38 \\ + 26 \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} 49 \\ + 12 \\ \hline \\ \hline \end{array}$$

SET D

$$\begin{array}{r} 18 \\ + 27 \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} 43 \\ + 19 \\ \hline \\ \hline \end{array}$$

SET E

$$\begin{array}{r} 13 \\ + 19 \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} 59 \\ + 31 \\ \hline \\ \hline \end{array}$$

Q9. Ask the child to identify the biggest number below

83

72

38

91

27

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

STARS | Grade 2 assessment questions – Maths (3/3)

Sl no.	Construct	Questions ¹	Expected response
5	Word problem (Simple)	How much is 9 and 4 altogether?	Student must say 13
6	Word problem (Simple)	If I take away 5 from 9, what is left?	Student must say 4
7	Word problem (Complex)	Pooja had 4 chocolates. Her father gave her 7 more chocolates. How many chocolates does Pooja have altogether?	Student must say 11
8	Word problem (Complex)	Raju had 12 chocolates. He gave 5 chocolates to Pooja. How many chocolates does he have left?	Student must say 7



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