2022 JUNE - 2025 MARCH

FOUNDATIONAL LEARNING ASSESSMENT REPORT

5TH JUNE 2025

Prepared For

COLLABORATIVE SCHOOLS NETWORK
WE PUT STUDENTS FIRST

Prepared by

Arc | Global Perspective Local Expertise

TABLE OF CONTENTS

1. Introduction 3
2. Methodology 5
3. Findings and Data Analysis 12
4. Interpretation and Discussion 19
Annex-1 Infographics 23
Annex-2 Summary Table 25

1. INTRODUCTION

The Collaborative Schools Network (CSN) is committed to transforming public education in Nepal through direct, systemic intervention at the school level. For a long time, CSN has managed several government schools in Kathmandu and Lalitpur, implementing a cost-effective and scalable model focused on improving foundational literacy and numeracy for children in Grades 1 to 3.

This research was conducted in partnership with Arc Private Limited to provide independent, rigorous evaluation of CSN's model, using a matched comparison group of six control schools. The study spanned three academic years, with seven rounds of data collection, to capture both baseline conditions and learning trends over time.

The central research question is:

TO WHAT EXTENT DO STUDENTS IN CSN-MANAGED SCHOOLS ACHIEVE BETTER FOUNDATIONAL LEARNING OUTCOMES THAN STUDENTS IN COMPARABLE LOCAL GOVERNMENT SCHOOLS?

This report is structured to provide a comprehensive answer to this question, following the reporting tradition and detailed narrative established in previous CSN research publications.

This final endline report presents the findings from a comprehensive, three-year (June 2022–March 2025), seven-phase longitudinal study conducted by the Collaborative Schools Network (CSN) in partnership with Arc Private Limited. The study compared foundational literacy and numeracy outcomes among Grades 1–3 students in five CSN-managed treatment schools and six socio-economically matched control schools in Kathmandu and Lalitpur districts.

Using a difference-in-difference methodology, with tools adapted from ASER Nepal, the research found that CSN-managed schools achieved a 24.8 percentage point gain (from 39.5% to 64.3%) in the mean percentage of correct answers, while control schools improved by only 12.6 percentage points (from 42.0% to 54.6%). The largest treatment effect was seen in mathematics, but gains were significant across Nepali and English as well.

These findings provide robust evidence for the effectiveness and scalability of the CSN school management model in Nepal's public education system, showing not only greater overall progress but also more equitable improvement in foundational learning.

2. METHODOLOGY

2.1 RESEARCH DESIGN

This study adopted a longitudinal, quasi-experimental design using a difference-in-difference (DiD) approach to assess the impact of the CSN management model on foundational learning outcomes in public schools. The research compared five CSN-managed (treatment) schools with six socio-economically similar control schools in Kathmandu and Lalitpur districts. The study focused on students in Grades 1, 2, and 3, following their progress over seven rounds of data collection between June 2022 and March 2025.

The DiD approach was chosen due to the impossibility of randomization at the school level, as school selection by the government and CSN followed operational and contextual priorities. This approach allows robust estimation of the effect of CSN intervention by controlling for both baseline differences and time trends, while isolating the additional gain attributable to the treatment.

The DiD model compared changes in mean scores across treatment and control groups over time. Standard errors were clustered at the school level to account for intra-school correlations. The treatment effect (β3β3) represents the interaction between treatment and post-intervention periods. Cluster-robust standard errors were calculated to ensure reliable inference, and 95% confidence intervals were reported for all key treatment effects. The margin of error for the overall literacy score was ±1.5%, based on a 95% confidence interval. This indicates that the observed differences fall within acceptable levels of precision. With a sample of 5,769 students across seven phases, the study achieved 80% power to detect a minimum effect size of 0.25 standard deviations in foundational literacy scores.

2.2 SELECTION OF SCHOOLS & PARTICIPANTS

The five treatment schools were directly managed by CSN. Control schools were identified in close collaboration with local municipality education officers, using criteria such as location, size, and socio-economic background to ensure comparability. Three control schools were selected from each of the two municipalities (Kathmandu and Lalitpur), ensuring a close match with the treatment sample.

All students present in Grades 1, 2, and 3 on assessment days were included in the census-based evaluation at each phase. The resulting dataset covers over 5,769 individual student records across all seven assessment phases.

2.3 ASSESSMENT TOOLS DEVELOPMENT

The assessment tool was adapted from internationally recognized frameworks, primarily the ASER Nepal foundational literacy and numeracy survey, the International Common Assessment of Numeracy (ICAN), and PAL-ELANA tools. The tool was piloted with 150 students in Lalitpur district, and revised in consultation with curriculum experts and stakeholders from government and academic institutions.

Reliability and validity were confirmed with a Cronbach's alpha of 0.89.

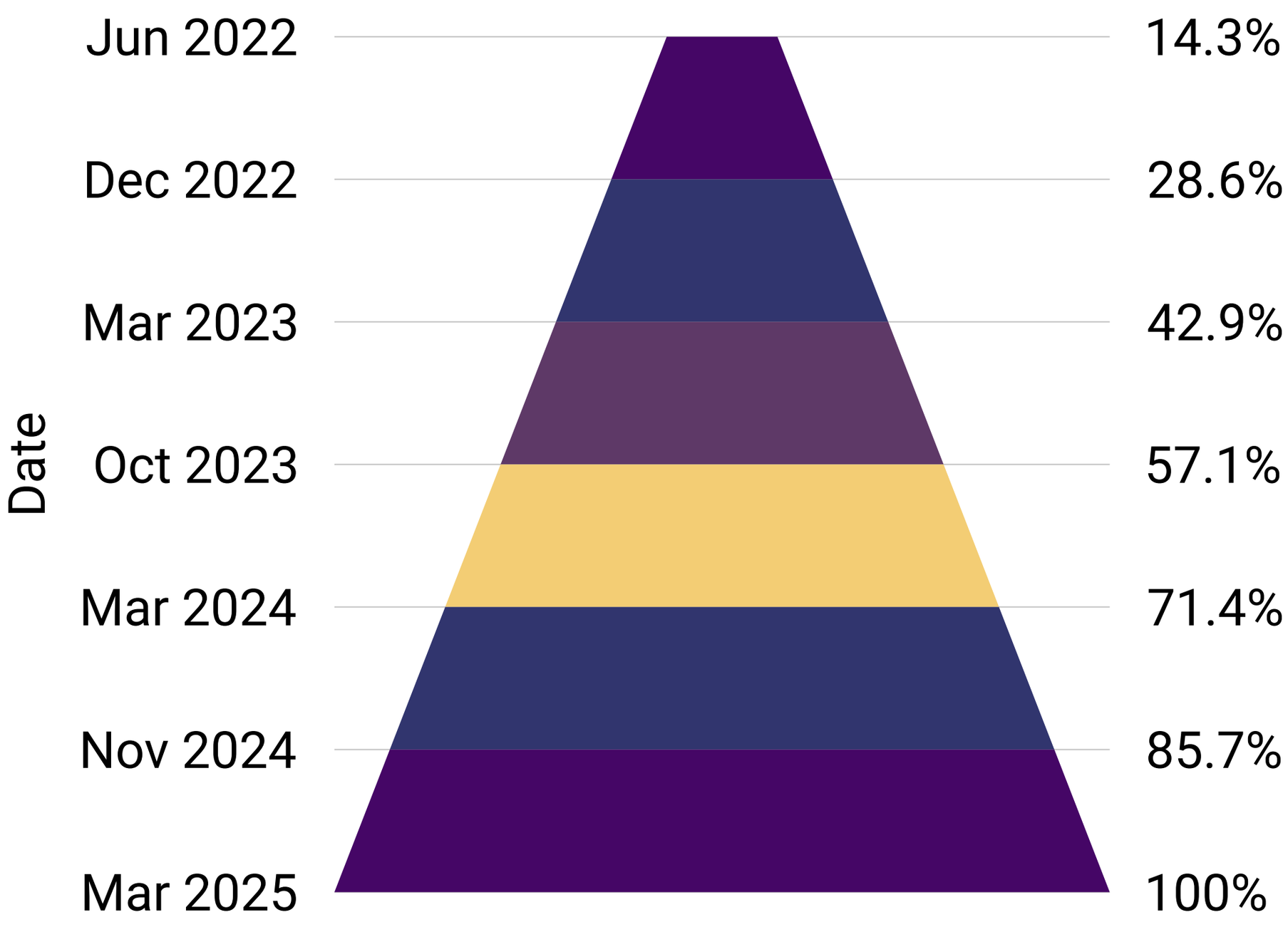
The tool included:

- Nepali Literacy: 21 items, covering letter recognition, word reading, sentence reading, and comprehension.
- Mathematics: 21 items, covering number recognition, counting, arithmetic, and problem-solving.
- English Literacy: 21 items, covering letter/word recognition, sentence reading, and comprehension.

For each grade, only the most developmentally appropriate items were analyzed, according to a predetermined inclusion matrix

2.4 DATA COLLECTION PHASES

Data was collected during the following seven phases:



At each phase, all present students in the sampled grades were assessed by trained enumerators, under the supervision of both CSN and Arc Private Limited. Enumerators received detailed training in standardized administration procedures and child safeguarding.

2.5 DATA MANAGEMENT & QUALITY ASSURANCE

All data were entered into MS Excel, double-checked for accuracy, and cleaned according to data quality protocols. Analysis was performed using Microsoft Excel and RStudio, with results cross-checked for consistency. Missing data were minimized through rigorous monitoring of assessment days and backup visits.

2.6 DATA ANALYSIS

The analysis utilized Microsoft Excel and R Studio to compare the performance of students in treatment (CSN-managed) and control schools. The finding section presents the major comparative charts and data between treatment and control schools.
The primary outcome was the percentage of correct answers per student, per subject, per phase. Analyses include:

Descriptive statistics:

Mean, standard deviation, and interquartile range by school type, subject, phase, and grade.

Difference-in-difference estimates:

Comparing baseline-to-endline gains in treatment versus control schools.

Regression modeling:

Adjusting for gender, baseline ability, and clustering at the school level.

Graphical analysis:

Line charts and bar graphs illustrate trends and treatment effects over time and by subject.

2.7 ETHICAL CONSIDERATIONS

Ethical approval was obtained from the relevant municipal education offices. Informed consent was secured from schools and verbal assent from all participating students. Enumerators were trained in safeguarding protocols, and all data were anonymized prior to analysis. Ethical approval was obtained from the local municipality education committee, and informed consent was secured from schools. All assessors were trained in child safeguarding protocols. Although participation rates were high, variability in classroom sizes between treatment and control schools may have influenced group comparisons. Adjustments were made in the regression model to account for these differences.

2.8 TOTAL RESEARCH PARTICIPANTS

Year	Phase	Control School Counts	Treatment School Counts	Total Counts
2022	1	434	361	795
2022	2	417	360	777
2023	1	395	343	738
2023	2	487	354	841
2024	1	488	370	858
2024	2	509	344	853
2025	1	507	400	907
	Total	**3237**	**2532**	**5769**

Due to the varying number of students in classrooms, the number of students assessed from each school type differed. All students (census) from grades 1 to 3 in both control and treatment schools were evaluated to compare learning outcomes effectively.

Research Process Summary

1. Development of Assessment Tool

- Drafting a foundational literacy & numeracy assessment tool. Consultation meetings with various stakeholders.
- Final draft of the assessment tool.
- Tool aligning with local curriculum standards & benchmarking international best practices.

2. Pilot Study

- A pilot study with 150 students in Lalitpur.
- Finalizing the assessment tools based on the pilot performance.
- Ensuring the reliability & validity of the tool.
- Achieving a Cronbach's alpha of 0.89 for internal consistency.

3. Coordination and Selection

- 6 treatment schools (4 in Kathmandu and 2 in Lalitpur) and 6 control schools (3 in Lalitpur and 3 in Kathmandu) in coordination with the municipality.
- Control schools ensuring socio-economic comparability for robust DiD analysis.

4. Recruitment and Training

- Recruiting assessors & training them on the process with simulation exercises, including safeguarding and child protection policies.

5. Conducting Assessments

- Administering assessments in 11 schools over seven phases: last week of June 2022, last week of December 2022, last week of March 2023, last week of October 2023, last week of March 2024, first week of October 2024, and first week of March 2025.

6. Data Management

- Entering data into MS Excel.
- Re-checking and cleaning data as per data quality standard guidelines.
- High-quality data entry and cleaning minimize errors, ensuring reliable results

7. Data Analysis

- Analyzing data using Microsoft Excel & R Studio statistical tools.
- Recording and comparing the correct answers given by students based on statistical measurements using the available data.

3. FINDINGS & DATA ANALYSIS

This section presents the main comparative results. Where relevant, results are shown both as aggregated means and as phase-by-phase trends, with treatment and control schools compared directly.

3.1 OVERALL MEAN PERFORMANCE TREATMENT VS. CONTROL SCHOOLS (ALL SEVEN PHASES COMBINED)

The aggregate performance across all seven phases and all subjects (Nepali, Mathematics, and English) shows a clear and sustained advantage for students in treatment (CSN-managed) schools compared to those in control schools.

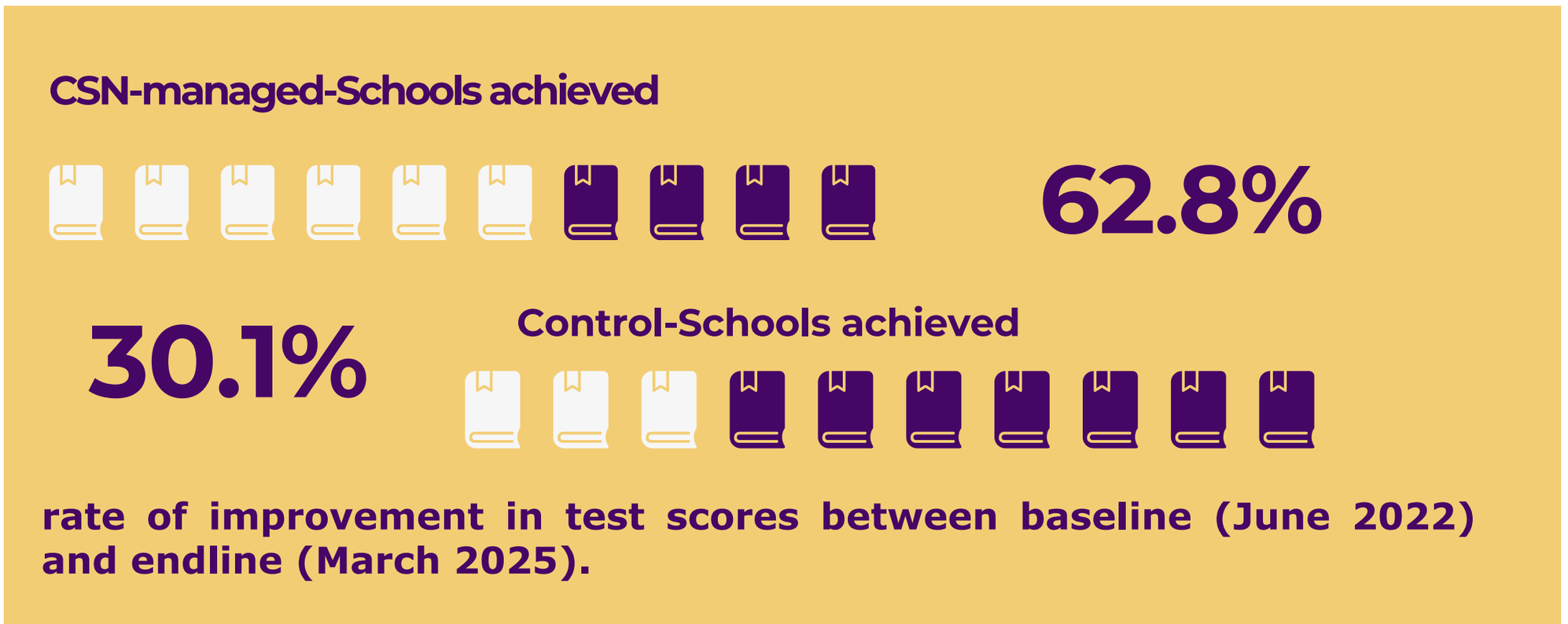


Table 3.1: Overall Mean Percentage of Correct Answers (All Phases, All Subjects)

School Type	Mean % Correct (Phases 1–7)
Treatment	55.60%
Control	48.30%

On average, students in treatment schools scored 7.3 percentage points higher than their peers in control schools, demonstrating the consistent positive effect of the CSN intervention.

3.2 BASELINE VS. ENDLINE PROGRESS COMPARISON (PHASE 1 VS. PHASE 7)

A direct comparison of baseline and endline performance provides strong evidence of the magnitude of learning gains under the CSN model.

Table 3.2: Baseline and Endline Performance (All subjects and all phases combined)

Phase	Control Schools	Treatment Schools	Treatment-Control Gap
Baseline (June 2022)	42.00%	39.50%	–2.5
Endline (March 2025)	54.60%	64.30%	9.7
Learning Gain	**12.6**	**24.8**	**12.2**

Treatment schools not only closed the initial achievement gap but finished nearly 10 percentage points ahead at endline, with double the learning gain seen in comparison to the control schools.

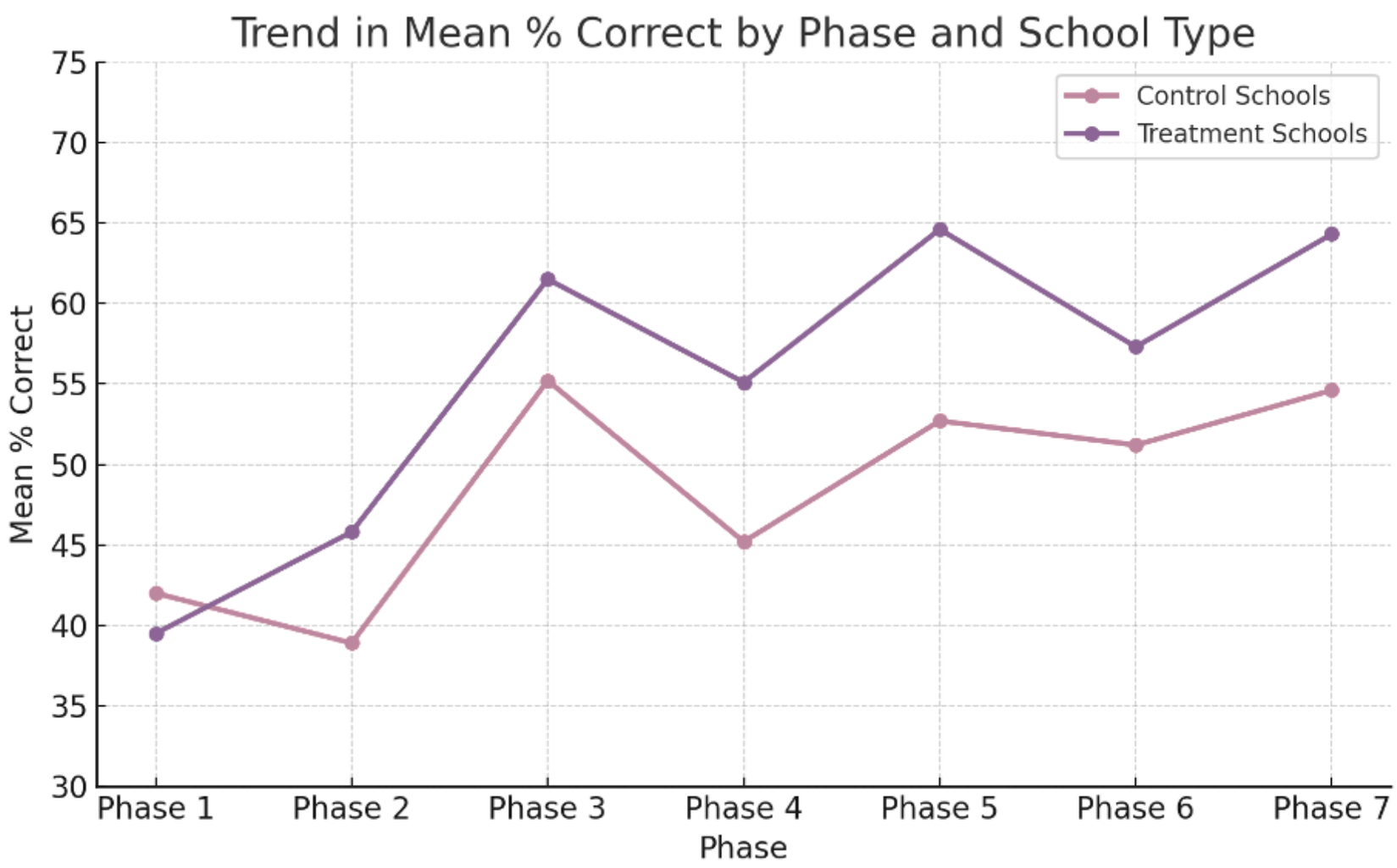
3.3 TRENDS OVER ALL SEVEN PHASES

The phase-by-phase analysis highlights key periods of progress and the timing of treatment effects.

Table 3.3: Mean Percentage of Correct Answers by Phase

Phase	Control	Treatment
Phase 1	42.00%	39.50%
Phase 2	38.90%	45.80%
Phase 3	55.20%	61.50%
Phase 4	45.20%	55.10%
Phase 5	52.70%	64.60%
Phase 6	51.20%	57.30%
Phase 7	54.60%	64.30%

Figure 3.1: Trend in Mean % Correct by Phase and School Type



Both groups improved over time, but the gap between treatment and control schools widened steadily after Phase 2, reaching its maximum at endline.

3.4 SUBJECT-WISE ANALYSIS

3.4.1 NEPALI LITERACY

Performance in Nepali literacy improved in both groups, with treatment schools showing larger and more consistent gains.

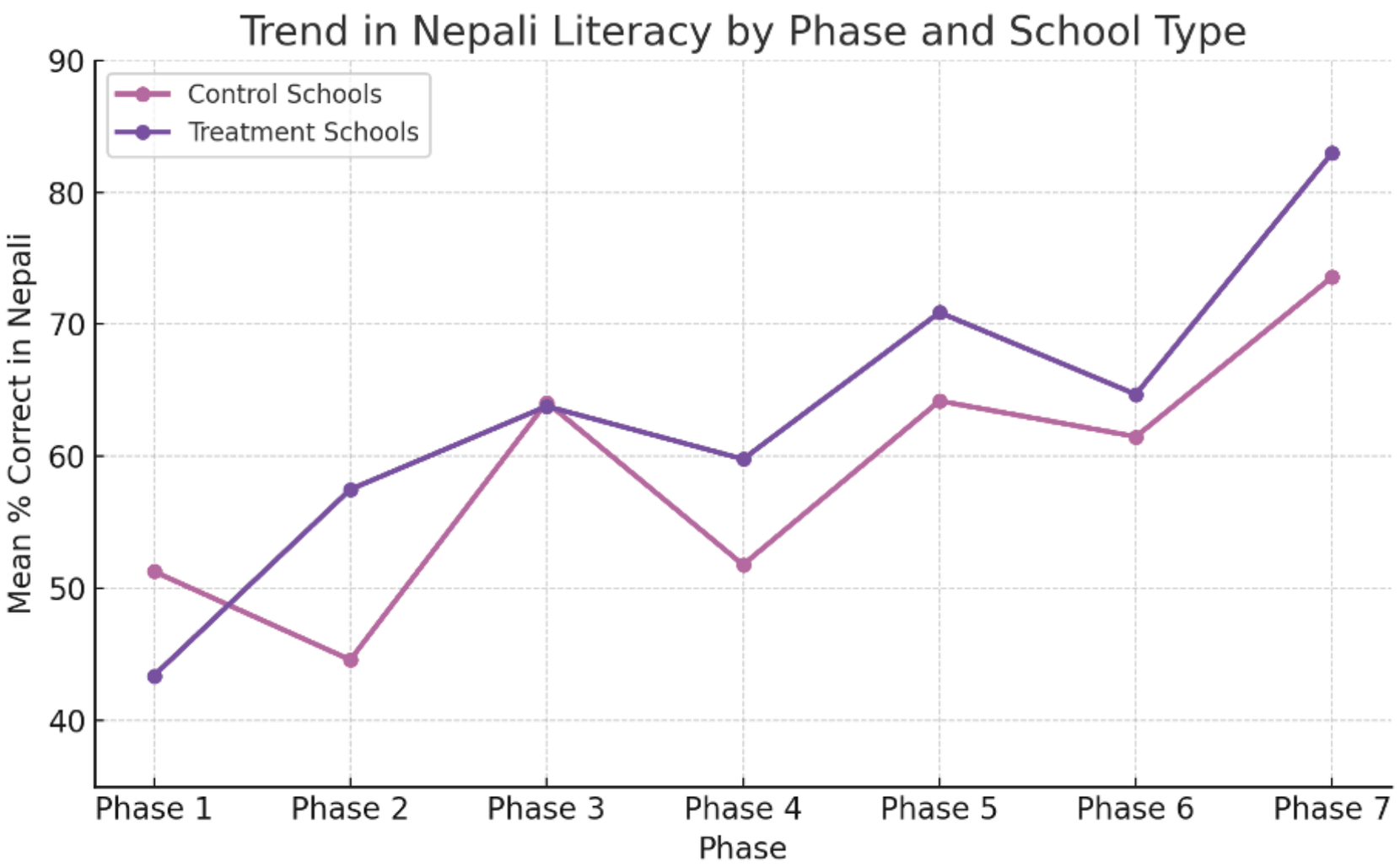
Table 3.4: Mean Percentage Correct in Nepali (All Phases)

School Type	Mean % Correct (Nepali)
Treatment	62.80%
Control	58.00%

Table 3.5: Nepali Literacy at Baseline and Endline

Phase	Control	Treatment
Phase 1 Baseline	51.30%	43.40%
Phase 7 Endline	73.60%	83.00%

Figure 3.2: Trend in Nepali Literacy by Phase and School Type



By endline, treatment schools outperformed controls by 9.4 percentage points in Nepali literacy, reflecting strong gains in foundational language skills. The progression shows almost double gain by the treatment schools than the control schools.

3.4 SUBJECT-WISE ANALYSIS

3.4.2 MATHEMATICS

Math performance saw the most significant difference between treatment and control groups.

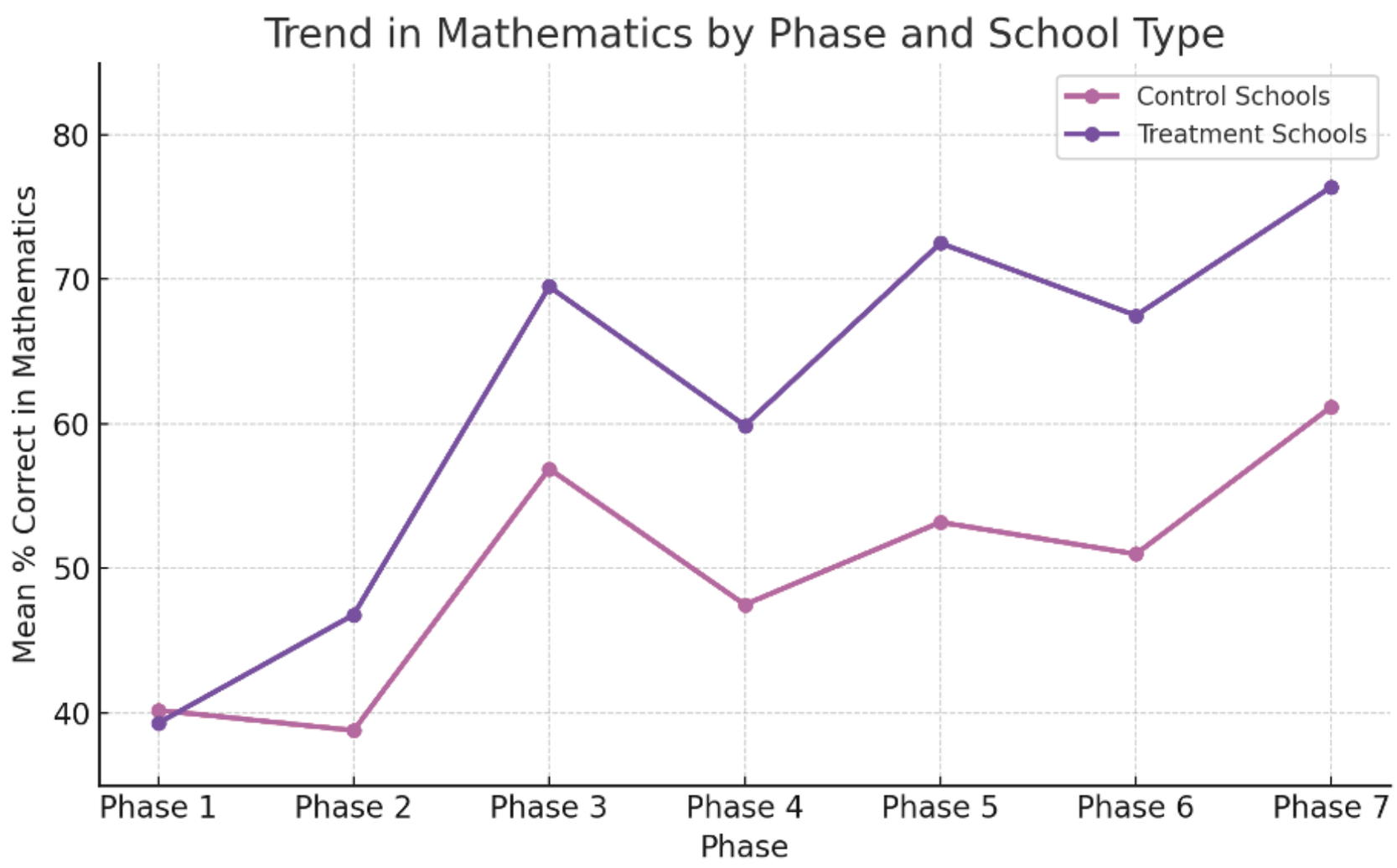
Table 3.6: Mean Percentage Correct in Mathematics (All Phases)

School Type	Mean % Correct (Math)
Treatment	67.10%
Control	54.50%

Table 3.7: Mathematics at Baseline and Endline

Phase	Control	Treatment
Phase 1 Baseline	40.20%	39.30%
Phase 7 Endline	61.20%	76.40%

Figure 3.3: Trend in Mathematics by Phase and School Type



At endline, students in treatment schools were 15.2 percentage points ahead of controls in mathematics, a strong indicator of the effectiveness of CSN interventions for numeracy.

3.4 SUBJECT-WISE ANALYSIS

3.4.3 ENGLISH LITERACY

English learning started at the lowest base but also saw substantial improvement at the end of 7th Phase.

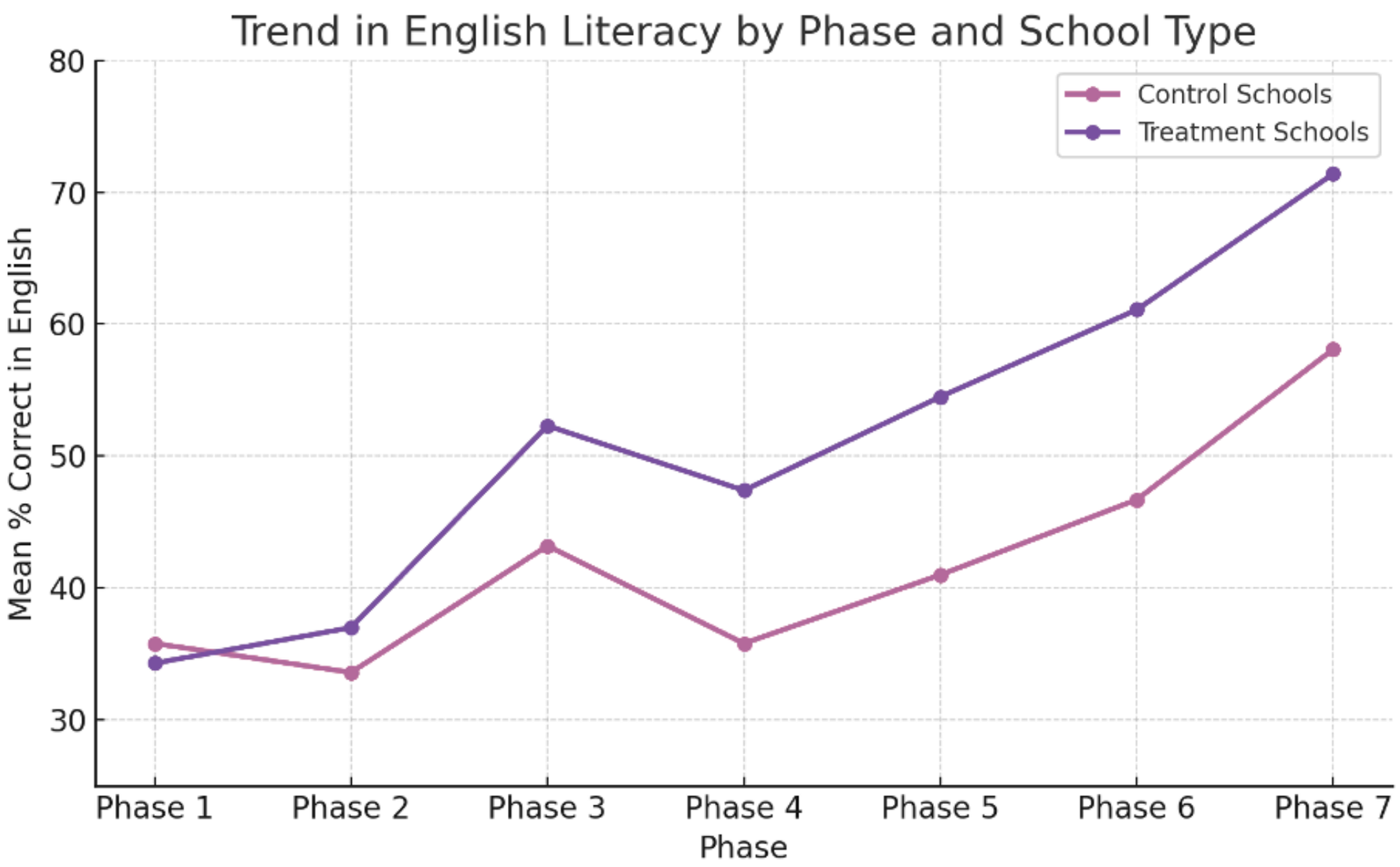
Table 3.8: Mean Percentage Correct in English (All Phases)

School Type	Mean % Correct (English)
Treatment	53.70%
Control	45.60%

Table 3.9: English Literacy at Baseline and Endline

Phase	Control	Treatment
Phase 1 Baseline	35.80%	34.30%
Phase 7 Endline	58.10%	71.40%

Figure 3.3: Trend in Mathematics by Phase and School Type



English scores increased by over 37 percentage points in treatment schools, outpacing controls by more than 13 points at endline.

4. INTERPRETATION & DISCUSSION

The data demonstrate that the CSN intervention led to

Sustained improvement

The gap in outcomes widened over time, as CSN's approach compounded its advantage through repeated cycles of teaching, assessment, and targeted support.

Significant learning gain

The largest effect in mathematics, with treatment schools achieving nearly double the gain of controls.

A strong equity impact

Students in the lowest-performing CSN schools made some of the largest gains, helping to close persistent achievement gaps.

Faster and more consistent progress

Faster and more consistent progress in all foundational domains—Nepali, mathematics, and English (nearly double gains in each domain).

These results validate the CSN school management model as a scalable and effective approach for raising foundational learning outcomes in Nepal's public schools.

The comprehensive analysis of foundational learning outcomes presented in this report offers robust evidence of the transformative effect of the Collaborative Schools Network (CSN) intervention in public schools of Kathmandu and Lalitpur. Spanning three years and seven phases of data collection, the study's findings reveal a compelling story of both overall progress and the deepening of equity in CSN managed primary education system.

First and foremost, the results show that CSN-managed treatment schools not only closed the initial achievement gap with control schools but quickly surpassed them across all subjects. The overall mean percentage of correct answers for treatment schools was 55.6%, compared to 48.3% in control schools. This difference is not just statistically significant; it is also educationally meaningful.

At baseline in 2022, treatment schools lagged behind, with a mean of 39.5% compared to 42.0% for controls. By the endline in March 2025, treatment schools had leapt to 64.3%, far exceeding the control schools' 54.6%. In effect, the learning gains in treatment schools (24.8 percentage points) were nearly double those seen in control schools (12.6 percentage points). These findings underscore the efficacy and scalability of CSN's school management approach.

When analyzing the trends phase by phase, as depicted in Figure 3.1, it is evident that both groups experienced some degree of improvement, but the gap widened markedly after Phase 2. This widening gap reflects not only the immediate effects of the intervention but also the cumulative power of CSN's continuous cycles of assessment, feedback, and pedagogical support. Treatment schools were able to convert initial disadvantages into long-term gains, illustrating the value of targeted school leadership, teacher mentoring, and data-driven classroom practices.

Subject-wise analysis further strengthens this conclusion. Mathematics emerged as the domain of greatest progress, with treatment schools improving from 39.3% at baseline to 76.4% at endline, compared to an increase from 40.2% to 61.2% in control schools (Figure 3.3). This almost 15 percentage point gap at endline signals the particular strength of CSN's support for numeracy, an area where systemic weaknesses are often most acute. Similar patterns were observed in Nepali and English literacy.

By the endline, treatment schools had achieved 83.0% in Nepali (versus 73.6% for controls; Figure 3.2) and 71.4% in English (compared to 58.1% in controls; Figure 3.4). In each domain, not only did treatment schools catch up, they outpaced controls by substantial margins.

Importantly, these results were not driven solely by top-performing students. One of the most significant impacts of the CSN intervention was on equity.

Learning gains were especially pronounced among students and schools that began with the lowest scores, suggesting that CSN's model helped to close entrenched achievement gaps. The repeated cycles of assessment, targeted remediation, and teacher coaching created a virtuous cycle, compounding advantages for the most disadvantaged learners.

In sum, the analysis of all tables and figures points to a sustained and equitable improvement in foundational skills for children in CSN-managed schools. The data make a clear case for the effectiveness of systemic school management reform, driven by local leadership and continuous data use. The results offer a compelling blueprint for scale-up and policy adoption, not only within Nepal but for similar contexts globally where the learning crisis persists.

ANNEX -1 INFOGRAPHICS

CSN-managed-Schools achieved

62.8%

Learning Growth

Control-Schools achieved

30.1%

rate of improvement in test scores between baseline (June 2022) and endline (March 2025).

Grade 1-3 Children of CSN-managed-Schools gained

24.8%

progress

Grade 1-3 Children of Control-Schools gained

12.6%

difference in the average number of correct answers between baseline (June 2022) and endline (March 2025).

Grade 2

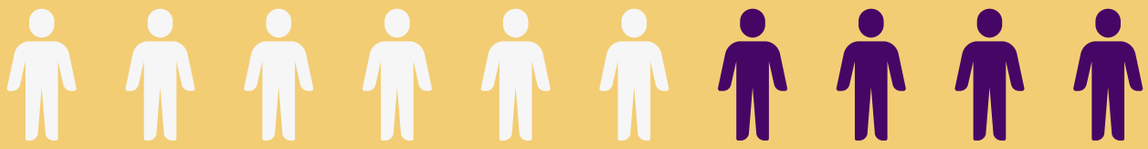
8 out of 10 children of CSN-managed-schools

4.5 out of 10 children of control schools

Can correctly recognize basic geometric shapes of grade 2 Mathematics.

Grade 3

6 out of 10 children of CSN-managed-schools

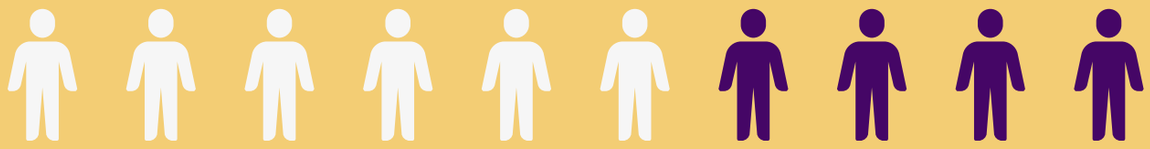


3 out of 10 children of control schools

Can correctly answer word problem of subtraction of double digit without borrow from Mathematics Subject.

Grade 3

6.2 out of 10 children of CSN-managed-schools

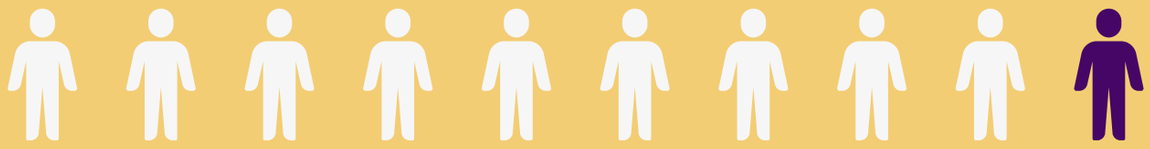


3.2 out of 10 children of control schools

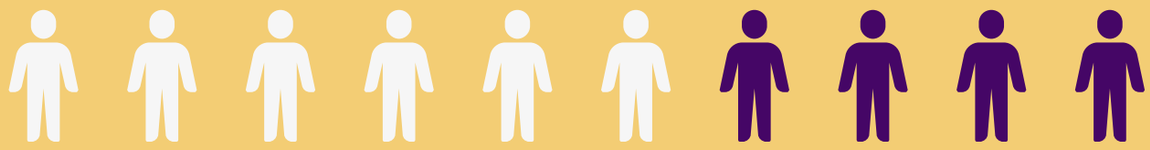
Can correctly answer the division problem (One digit divided by one digit without remainder from Mathematics)

Grade 2

9 out of 10 children of CSN-managed-schools



6 out of 10 children of control schools



Can correctly recognize three letter words with at least one vowel in English.

Grade 3

9 out of 10 children of CSN-managed-schools

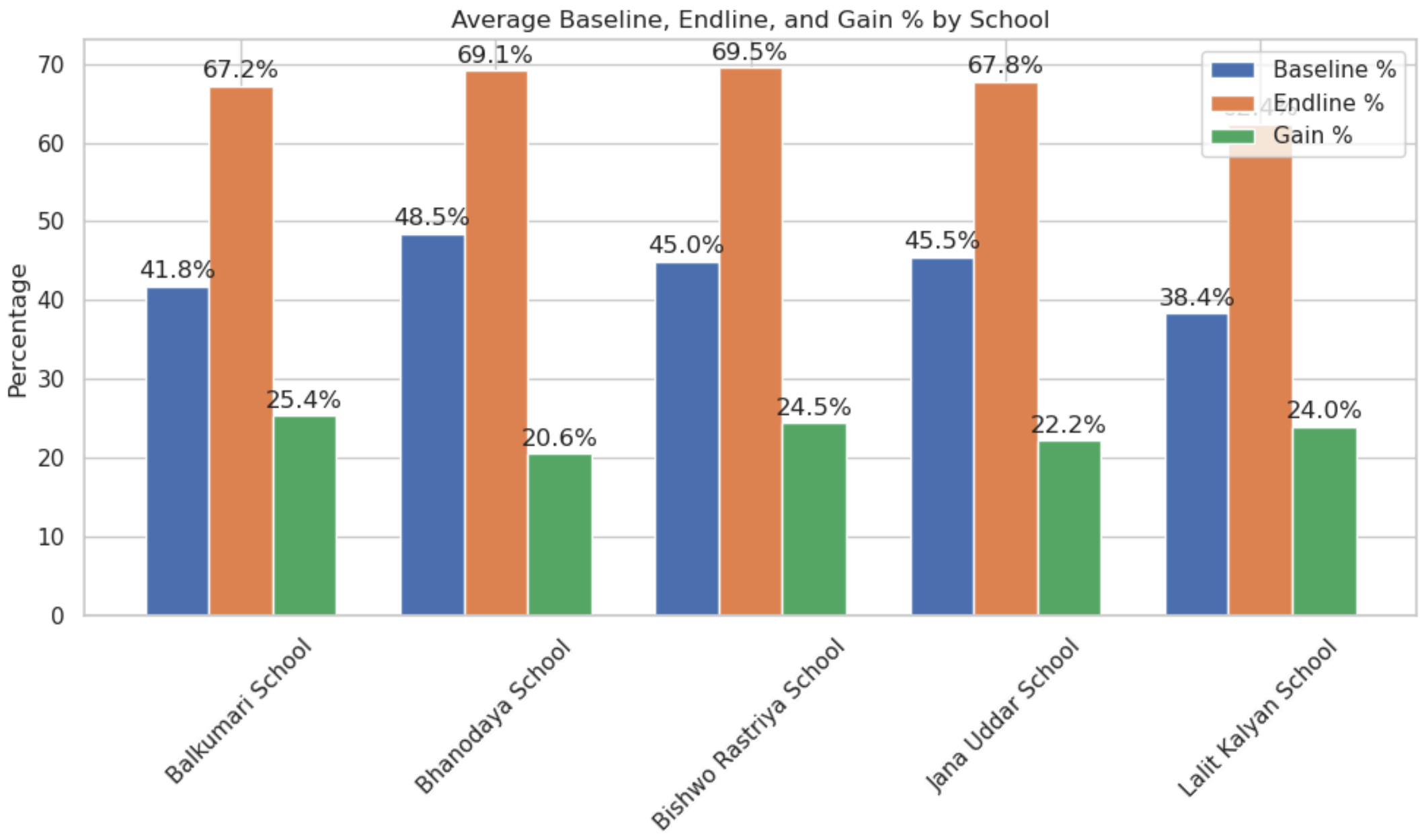
6 out of 10 children of control schools

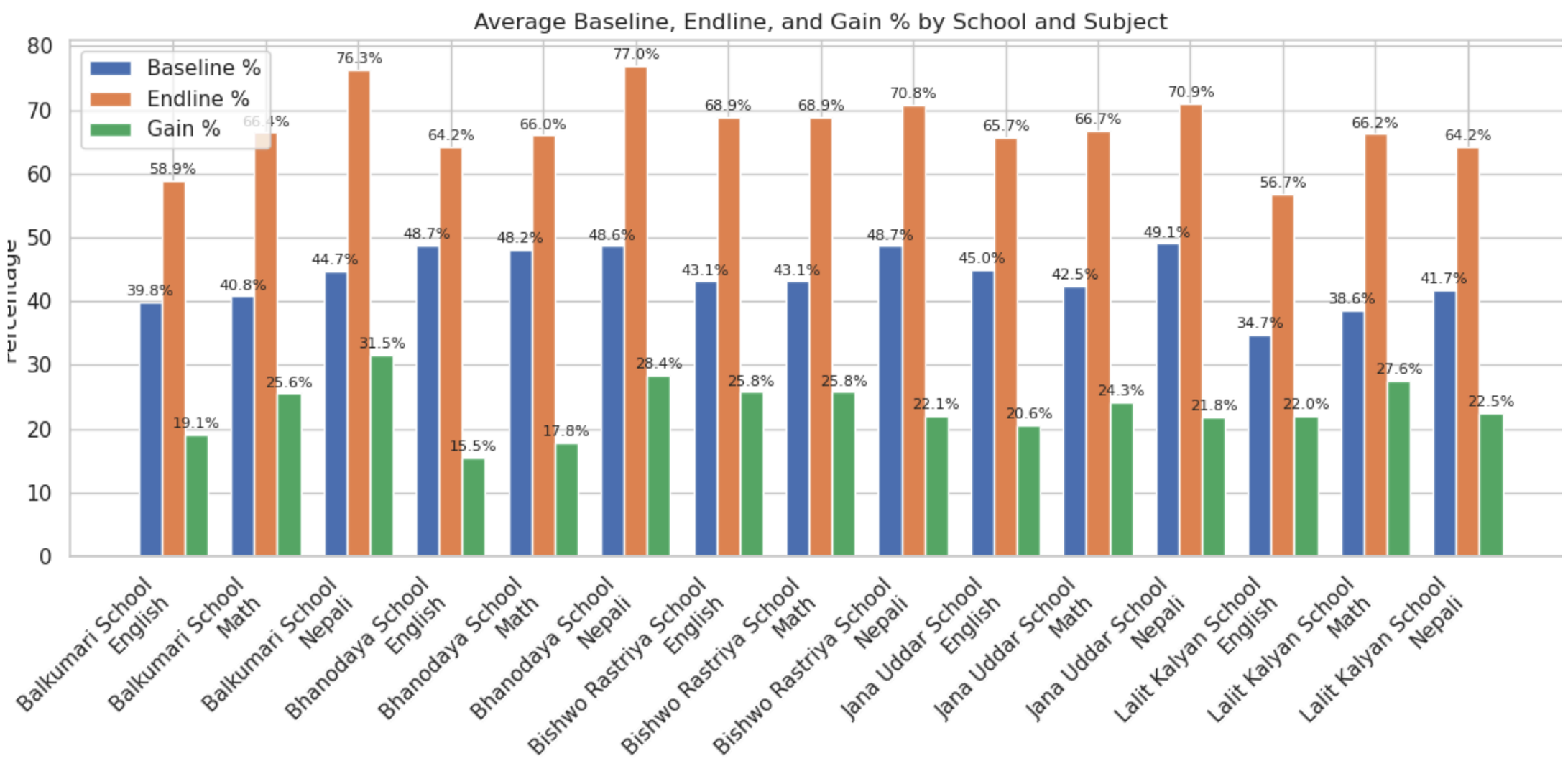
Can correctly recognize three letter words with at least one vowel in English

ANNEX-2 SUMMARY TABLE OF SKILLS WHERE STUDENTS FROM CSN MANAGED SCHOOLS OUTPERFORMED THE STUDNETS OF CONTROL SCHOOLS.

Subject	Grade	Skill	Treatment Baseline %	Control Baseline %	Treatment Endline %	Control Endline %	Endline Gap (T-C)
Math	2	Recognize basic geometrical shape	61.8	54.2	80.4	45.6	**34.8**
Math	3	Recognize basic geometrical shape	62.3	54.4	86.3	55.7	30.6
Math	3	Word problem of subtraction of double digit without borrow	9.3	13	60.6	30.8	29.8
Math	3	One digit divided by one digit without remainder	8.9	15.7	62	32.3	29.7
English	2	Three letter words with at least one vowel	66.7	59.4	86.2	58.6	27.6
Math	1	Subtraction of single digits resulting single digit answer	9.8	12	72.9	47	25.9
English	2	Reading a sentence using 3 words	16.6	21.2	61.3	37.3	24
Math	2	Subtraction of double digits numbers without borrowing	10.6	24.9	60.6	37.1	23.5
Math	1	Addition of single digits resulting single digit answer	23.7	20.1	82.5	59.9	22.6
English	3	Three letter words with at least one vowel	84.5	78.7	89.3	66.7	22.6

ANNEX-3 COMPARISON OF TREATMENT SCHOOL PROGRESS





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