Breakthrough ACTION Nepal Local Systems Strengthening to Reduce Child, Early and Forced Marriage Project

Quantitative Endline Assessment Report: Baseline and Endline Scores Comparison

R-CEFM Project's remedial education program

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Breakthrough ACTION
FOR SOCIAL & BEHAVIOR CHANGE

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Acknowledgements

Acronyms

CEFM	Child, Early, and Forced Marriage
CP	Child Protection
CSPro	Census and Survey Processing System
GON	Government of Nepal
R-CEFM	Reducing Child, Early, and Forced Marriage
SBC	Social and behavior change
USAID	United States Agency for International Development

Executive Summary

The USAID and Breakthrough ACTION Nepal's Reducing CEFM (Nepal R-CEFM) Project aims to strengthen the institutional and technical capacity of the Government of Nepal (GON) in Madhesh Province to design, implement, monitor, evaluate, and coordinate effective social and behavior change (SBC) activities and child protection (CP) system strengthening for reducing CEFM through a community-based, multi-sectoral, data-driven lens. This report focuses on R-CEFM Project activities designed to increase learning outcomes for adolescent girls (with the inclusion of boys) through non-formal education.

Schools in Nepal closed on March 19, 2020 in response to the COVID-19 outbreak. The school closures and the resulting loss of educational opportunities increased the vulnerability of adolescents, particularly girls, to drop out of school permanently, potentially leading to CEFM. The educational component of the R-CEFM project was added in response to this issue as a way to improve the learning outcomes of this group. The project first conducted a **baseline assessment among 10,621 students pursuing education in 83 selected schools** operational in its focal districts. Among them, **7,800 underperforming students were selected and enrolled in remedial classes**, which focused on improving their academic performance; educating them about CEFM, providing education on life skills and child rights; and offering psychosocial counseling when needed. After the completion of the remedial classes, an endline assessment was conducted among the students to quantitatively evaluate and document the effectiveness of the classes based on changes in test scores for the following subjects: Nepali, English, math and science.

The R-CEFM project designed a set of baseline questions to assess students' knowledge in Nepali, English, math, and science. The tests were graded by teachers at participating schools. The scores for each student were entered in the Census and Survey Processing System (CSPro) software, which was used to select underperforming students who were later enrolled in the remedial classes.

The same sets of questions – on Nepali, English, math, and science – were administered to students after they completed the remedial classes. The teachers at the schools examined the answer sheets, and the scores were again entered in CSPro. The data entered from the baseline and endline assessments were analyzed to generate aggregate scores as well as subject-specific scores.

Key Findings

- Out of 7,275 students who participated in both baseline and endline, 33.9% (n=2,468) studied in Grade 6, 33% (n=2,401) in Grade 7, and 33.1% (n=2,406) in Grade 8.
- Of the total respondents in the baseline and endline (n=7,275), 38.5% were boys and 61.5% were girls.
- The average score of Grade 6 and Grade 8 students combined increased from 19.8 marks at the baseline to 50.9 marks out of 100 full marks at the endline. This difference was statistically significant (p<0.001).

Average Score for Grade 6,7 ,8 and Combined at the Baseline and Endline						
	MAHOTTARI		RAUTAHAT		TOTAL	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
GRADE 6	14.7	49.4	19.0	53.9	16.6	51.4
GRADE 7	16.7	49.4	21.3	53.1	18.6	50.9
GRADE 8	22.0	51.3	27.5	48.8	24.1	50.3
GRADES 6,7, and 8	17.9	50.1	22.4	52.0	19.8	50.9

- While the average score of boys in all subjects increased from 20.1 to 50.4 out of 100 full marks at the endline, after the remedial classes ($p<0.001$), the average score of girls increased from 19.6 to 51.4 out of full marks at the endline, after the remedial classes ($p<0.001$).
- The average score of Grade 6 through 8 students in baseline and endline increased from 16.3 to 46.4 in Nepali, 13.3 to 40 in English, 31.5 to 67.4 in math and 27.1 to 65.3 in science. Differences were statistically significant ($p<0.001$) comparing baseline and endline scores by grade. In science and math, there was a higher percentage point increase in average scores as compared to Nepali and English.

Subject-wise average score for Grades 6,7,8 and combined								
	NEPALI		ENGLISH		MATH		SCIENCE	
GRADE	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
GRADE 6	12.6	46.5	11.0	41.3	28.6	67.3	22.3	65.2
GRADE 7	15.1	46.2	11.6	39.8	30.5	68.4	27.1	65.1
GRADE 8	21.3	46.4	17.2	38.8	35.4	66.5	32.0	65.6
GRADES 6, 7 and 8	16.3	46.4	13.3	40.0	31.5	67.4	27.1	65.3
*Note: All differences between baseline and endline for Grades 6, 7, 8 separately and overall were significant ($p<0.001$).								

- Improved learning outcomes were evident from the increment in the proportion of boys and girls obtaining higher marks at the endline as compared to baseline. While not a single boy and only one girl obtained 80 to 90 marks in the baseline, 2.5% boys and 3.5% girls obtained 80 to 90 marks at the endline, after the remedial classes.
- Municipality-wise analysis showed improved performance among students enrolled in schools in all municipalities. While 1.2% of students in Balawa and not a single student in Mahottari obtained 60 to 70 marks at the baseline, the proportion of students who obtained 60 to 70 marks at the endline increased to 28.5% in Balawa and 29.8% in Mahottari.

Conclusion

- The students who attended the remedial classes have exhibited significant improvements in learning outcomes. The proportion of students obtaining higher marks at the endline as compared to baseline increased in all subjects.
- The improved learning outcomes are evident in all students regardless of their castes/ethnicities.
- Though the students exhibited improved learning outcomes in all subjects, their scores showed greater progress in math and science compared to Nepali and English.

Introduction

Schools in Nepal closed on March 19, 2020 in response to the COVID-19 outbreak. After more than nine months of stay-at-home restrictions by the local government, schools started reopening in November 2020. Most of the schools were closed again from April 26 to June 15, 2021. The closure of schools and the resulting loss of educational opportunities increased the vulnerability of adolescents, particularly girls, to drop out of school permanently, potentially leading to child, early, forced marriage (CEFM). In response to this crisis, USAID added a remedial education component to the local Breakthrough ACTION project's scope of work. The overall objective of the remedial education program is to increase learning outcomes for adolescent girls (with the inclusion of boys) through non-formal approaches.

The remedial program focused on academics (English, Nepali, math, and science classes) as well as life-skills sessions, positive parenting sessions, and teacher-parent events. Remedial education activities were conducted in close coordination with the Government of Nepal's (GON) education system. The remedial program focused on underperforming students from grades 6, 7, and 8 belonging to marginalized communities who were deemed likely to drop out of school in the near future. The program aimed to support adolescent boys and girls to remain in school that ultimately contributed to delaying child marriage.

Before designing and implementing the remedial activities, it was imperative to identify underperforming students in the intervention schools. A baseline assessment was conducted among 10,621 students pursuing education in 83 selected schools operational in the respective intervention districts. Likewise, an endline assessment was conducted among **7,275 students enrolled in the remedial classes** of the same schools to evaluate the effectiveness of the program.

This report focuses on the endline assessment meant to evaluate the remedial program and compare results against the baseline in selected municipalities of Mahottari and Rautahat.

Overview of the Breakthrough ACTION R-CEFM Project

The USAID and Breakthrough ACTION Nepal's Reducing CEFM (R-CEFM) Project aims to strengthen the institutional and technical capacity of the Government of Nepal (GON) in Madhesh Province to design, implement, monitor, evaluate, and coordinate effective social and behavior change (SBC) activities and child protection (CP) system strengthening for reducing CEFM through a community-based, multi-sectoral, data-driven lens.

The project aims to:

- Build the capacity of newly elected ward, municipal, provincial officials, civil servants, and other community actors to advocate, design, and budget for local activities to reduce CEFM.

- Support the implementation of municipal and provincial-level activities and initiatives to reduce CEFM.

- Increase learning outcomes for adolescent girls (with the inclusion of boys) through non-formal education.

Methodology

Overview and Process

To identify eligible students for participation in the remedial education program, the R-CEFM project designed a set of baseline questions to assess students' knowledge in Nepali, English, math, and science (See Section 1.3 below). The tests were graded by teachers at participating schools. The scores for each student were entered in the Census and Survey Processing System (CSPro) software, which was used to select underperforming students who were later enrolled in the remedial classes.

These questions on Nepali, English, math, and science were administered to students prior to the beginning of the remedial education program in November 2021. The same sets of questions on Nepali, English, math, and science were then administered again at the end of the remedial education program in April 2022 after students completed the remedial classes. To prevent instrumentation bias due to changes in the data collection instruments from baseline to endline, the same sets of questions were used at both data collection time points.[1]

The teachers at the schools examined the answer sheets, and the scores were again entered in CSPro. The data entered from the baseline and endline assessments were analyzed to generate aggregate scores as well as subject-specific scores.

Average aggregate scores were calculated by grade, sex, caste/ethnicity, municipality, and district. Average scores were also calculated separately by subject area. The learning outcomes of the students were analyzed based on the scores they obtained in the endline against the baseline scores. Participants' scores at the baseline and endline were compared using paired t-tests to identify statistically significant differences in means. Statistical analyses were conducted using STATA17.

Students' scores were also grouped into nine categories (<20, 20-29.9, 30-39.9, 40-49.9, 50-59.9, 60-69.9, 70-79.9, 80-89.9, 90-100) to examine differences in distribution of scores between baseline and endline. The scores were grouped into these categories following the grading system of Nepal as explained in Annex 7 (Glossary: Description of Grades).

Below are the actions that were taken by the project to prepare for the endline assessment.

1.1 Meetings and Discussions

Meetings were held to inform and orient the assessment team. The evaluators were oriented on the tools, data analysis plan, tabulation plan, and specific requirements of data entry operators.

1.2 Desk Review

The assessment team reviewed project documents to understand the interventions and approaches of the project, especially those related to the remedial education program.

1.3 Development of Study Tools

To ensure the credibility of the assessment, a rigorous tool development, testing, and finalization process was followed. A series of consultations and discussion workshops were organized with

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[1] While there was a small chance that students might remember the specific questions from baseline to endline, the six-month time period between assessments and the administration of other education-related assessments as part of the remedial education program in between assessments reduced this risk.

participation from key education stakeholders including the R-CEFM team, Save the Children's Education team, the Education Review Office, the Center for Education and Human Resource Development, Curriculum Development Center, Education Development and Coordination Unit, Education Training Centers, and subject teachers to develop and refine the tools and guidelines. Drawing on feedback and recommendations gathered at these consultative meetings, the R-CEFM team revised, amended, and developed the new sets of tools and questionnaires for the four subjects of interest. The developed guidelines and tools were then pretested, and the final versions approved by the Save the Children Education Department. When the tools development and refinement was completed, baseline data collection was then initiated.

The primary steps of tool development included:

1. Preliminary consultations with relevant stakeholders
2. Development of the tools development framework, which included grade-wise curriculum competencies mapping, identification of minimum learning achievements, identification of minimum skills set to assess, questions to assess the skill set and type of questions
3. Drafting out the subject-wise tools, led by a subject-wise technical working group (CDC, ERO, ETC, EDCU)
4. Tool review and draft finalization workshops with relevant stakeholders.
5. Pretesting of tools and final revisions
6. Tool finalization and validation workshop

1.4   Data Entry Software Development

A data entry software package on Census and Survey Processing System (CSPro) was developed. The application contained data entry fields with structure flow and skips, range checks and other data control features to restrict the entering of ambiguous, inconsistent, incomplete and inaccurate data.

A pretest of the software program was conducted to ensure error-free generation of the data output. Issues identified from the pretest were shared for discussion and resolved before data from the baseline assessment was entered. This action also provided a prototype of a data set and dummy tables. The analysis plan was finalized with discussions between the project team and assessors.

1.5   Recruitment of Data Entry Operators

The same Data Entry Operators were engaged during both baseline and endline assessments to ensure data quality. Data Entry Operators were provided orientation and had to comply with the Child Safeguarding Policy.

1.6   Training and Orientation

A one-day training for 13 Data Entry Operators was organized to orient them on the project's background, objectives, interventions and approaches, assessment objectives, rationale, sampling overview, etc. Importantly, they were trained in data entry procedures, ensuring consistency, identifying ambiguities and inaccuracies, use of CSPro software, and troubleshooting. Specifically, the training focused on data entry processes (software use, data accuracy, key stock error, complete and incomplete entry, subject and class-wise marking system).

1.7   Data Collection

With approval from the relevant officials of the selected schools, a pretest of students' knowledge of various subjects was given to students. Upon explaining the objective of the tests, the students were asked to answer the questions in writing. The completed tests were collected, and teachers were

asked to check the answer sheets and provide marks or grade the tests. The graded tests were collected, and the scores were entered into CSPro. The same approach was used for both the baseline and endline assessments. This pretest of the Data Collection Tools was conducted to identify any final revisions to language necessary to ensure comprehension and clarity. Select questions were removed to ensure that the length of the assessments was not unnecessarily burdensome for students.

1.8   Data Entry and Analysis

Upon entering the data, the dataset was reviewed for any missing data. The control mechanism of data entry software required compulsory entering of data. Blank cells were not accepted by the software.

This report presents results comparing scores of students (n=7,275) participating in both the baseline and endline assessments. The data entered from baseline and endline were analyzed to generate aggregate scores as well as subject-specific scores.

Average aggregate scores were calculated by grade, sex, caste/ethnicity, municipality, and district. Average scores were also calculated separately by subject area. The learning outcomes of the students were analyzed based on the scores they obtained in the endline against the baseline scores. Participants' scores at the baseline and endline were compared using paired t-tests to identify statistically significant differences in scores. Statistical analyses were conducted using STATA17.

Students' scores were also grouped into nine categories (<20, 20-29.9, 30-39.9, 40-49.9, 50-59.9, 60-69.9, 70-79.9, 80-89.9, 90-100) to examine differences in distribution of scores between baseline and endline. The scores were grouped into these categories following the grading system of Nepal as explained in Annex 7.

1.9   Study Strengths and Limitations

This assessment was strengthened by the longitudinal nature of the data collected, which enabled the study team to compare performance for students prior to and following the implementation of a remedial education program. The collection of data from the same students at the baseline and endline enabled an examination of within student changes over time, rather than simply average changes over time. The assessment was also strengthened by the engagement of key stakeholders throughout the process, starting with the development, revision, and finalization of the data collection tools used to assess Nepali, English, math, and science skills. At the same time, the study was limited by the focus on education-related knowledge and skills. Additional social and behavioral factors or items related to child marriage were not assessed at the baseline or endline, which could have enabled the study team to examine changes not only in the four priority subjects, but also examine associations with child marriage-related attitudes, knowledge, or awareness. Furthermore, the lack of a control or comparison group means that the changes observed in learning performance between baseline and endline cannot necessarily be solely attributed to the remedial education program. It is possible that these changes were also affected by other events or programs taking place in these schools during this time period.

Key Findings

Comparison of baseline and endline results

A total of 10,621 students were assessed during the baseline. Of these, 7,800 underperforming students were selected and enrolled in the remedial classes. At the end of the remedial classes, an

endline assessment was conducted among 7,275 students and the baseline data of the same students were used in the analysis. Of the 7,275 students enrolled in remedial classes, 33.9% (n=2,468) were in Grade 6, 33% (n=2,401) were in Grade 7, and 33.1% (n=2,406) were in Grade 8 (Table 1).
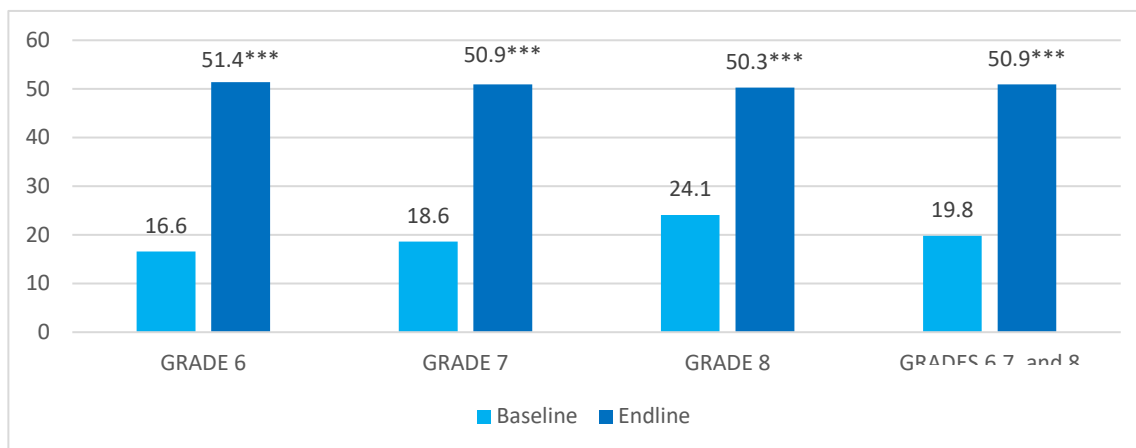
Figure 1 Aggregated average score obtained by students in baseline and endline in all four subject, per grade

Table 1: Distribution of respondents in baseline and endline assessment disaggregated by grade

Distribution of Respondents in Baseline and Endline Assessment Disaggregated by Grade								
	Grade 6		Grade 7		Grade 8		Total	
	N	%	N	%	N	%	N	%
Baseline	2468	33.9	2401	33.0	2406	33.1	7275	100.0
Endline	2468	33.9	2401	33.0	2406	33.1	7275	100.0

Of the total respondents in the baseline and endline, 38.5% were boys and 61.5% were girls.

In the following sections, we present changes in learning outcomes from before the implementation of the remedial education program to after the completion of the program. Please note that while this section presents changes from baseline to endline, the lack of control or comparison group means that the statistically significant changes observed in learning performance between baseline and endline cannot necessarily be solely attributed to the remedial education program. There remains the possibility that outside events or programs were also implicated in the changes identified and presented here.

Figure 1 shows that there was significant change in the average scores of students from baseline to endline. The average scores of students in Grade 6 were 16.6 at the baseline, and it increased to 51.4 at the endline. Grade 7 students' average score in all subjects was 18.6 at the baseline and 50.9 at the endline, and Grade 8 students' average score was 24.1 at the baseline and 50.3 at the endline. Similarly, the aggregated average scores of Grades 6-8 students were 19.8 at the baseline, which increased to 50.9 at the endline. All differences were statistically significant from baseline to endline ($p<0.001$).

Learning outcomes for students in Grades 6 - 8

Average score of students in aggregate for all four subjects

The average score of Grade 6 to 8 students was 19.8 marks out of 100 full marks before they attended remedial classes, but at the endline, after the remedial classes, the average score of Grade 6 to 8 students in all four subjects increased to 50.9 out of 100 full marks. This difference was statistically significant ($p < 0.001$).

Analysis by gender also showed similar improved learning outcomes for boys and girls. While the average score of boys increased from 20.1 to 50.0, girls' scores increased from 19.6 to 51.4 out of 100 full marks at the endline, after the remedial classes. All differences were statistically significant from baseline to endline ($p < 0.001$).

Analysis by caste/ethnicity showed similar improvements. However, more improved learning outcomes were evident among Janajati students. While the average score of students belonging to other caste/ethnic groups was 19.9 out of 100 full marks in the baseline, the students belonging to

Janajati obtained an average score of 17.6 out of 100 in the baseline. At the endline, after the remedial classes, the students belonging to caste/ethnicities other than Janajati scored less than 51.2 on average, but the students belonging to Janajati caste/ethnicity scored an average of 51.7 marks out of 100 in the endline (Figure 2). Increases from baseline to endline for students of all caste/ethnic groups were statistically significant ($p < 0.001$).
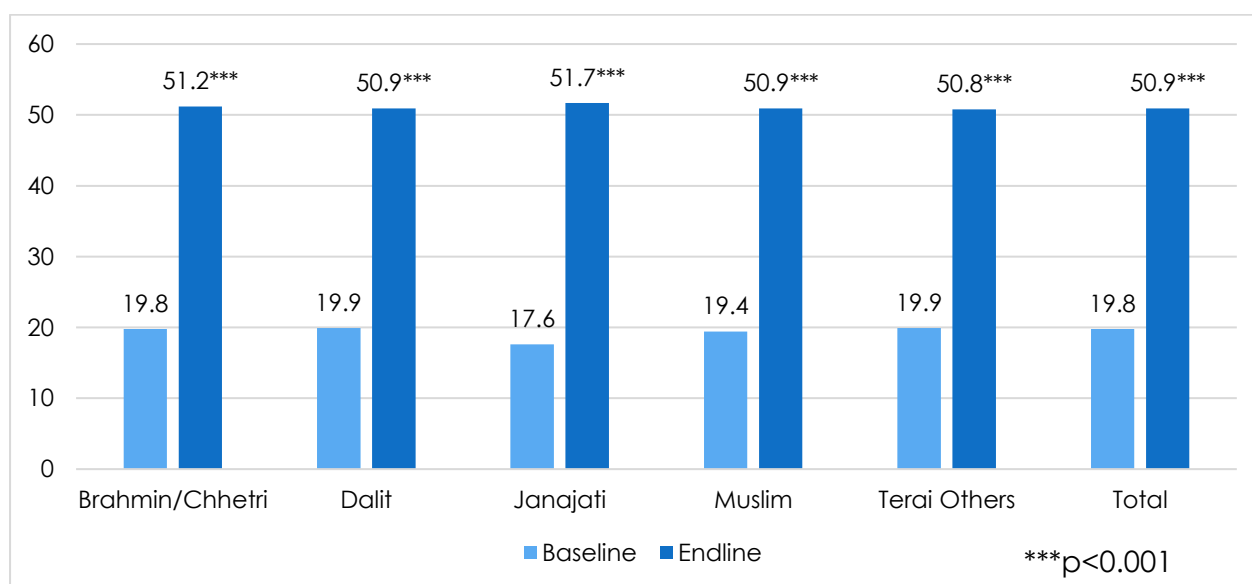
Figure 2: Average baseline and endline score of Grade 6 to 8 students in all four subjects

Marks obtained by gender

Of the total students (n=7,275), who participated in the baseline and endline assessments, the proportion of students, in Grades 6-8, who obtained 70 to 80 marks increased from 0.2% in baseline to 11% in endline. Similar increases were observed for those scoring 60 to 70 marks (0.6% to 18.8%), 50 to 60 marks (1.9% to 21.2%), and 40 to 50 marks (5.6% to 20.3%). Similarly, the proportion of students who obtained less than 20 marks decreased from 57.6% to 3.3%.

While only one girl and no boys obtained 80 to 90 marks in the baseline, 2.1% boys and 3.2% girls obtained 80 to 90 marks at the endline, after the remedial classes. Likewise, 11% students (boys: 10.3% and girls: 11.4%) scored 70-80 marks at the endline, while just 0.3% boys and 0.2% girls obtained 70-80 marks at the baseline. Improved learning outcomes were evident from the increase in the proportion of boys and girls obtaining higher marks compared to the baseline. On the other hand, the proportion of boys and girls obtaining less than 20 marks decreased – i.e., from 56.4% to 3.9% (boys) and 58.3% to 3% (girls).

Marks obtained by caste/ethnicity

Table 3 shows distribution of aggregated scores for all students by caste/ethnicity.

Improved learning outcomes were evident when analyzed by caste/ethnicity as well. While not a single student belonging to Janajati obtained more than 60 marks in all subjects before the remedial classes, 36.6% students belonging to Janajati obtained above 60 marks at the endline after the remedial classes.

Likewise, not a single student belonging to Brahmin/Chhetri obtained more than 70 marks in the baseline. At the endline, the proportion of Brahmin/Chhetri students obtaining more than 70 marks increased to 12.2%. In addition to this, 14.1% Dalit students, 14.8% Muslim students, and 14.1% students belonging to other Terai castes obtained more than 70 marks at the endline.

Table 3: Percent distribution of Grade 6 to 8 students disaggregated by their caste/ethnicity and marks they had obtained in all 4 subjects in baseline (B) and endline (E)

Marks	Brahmin/Chhetri (N=263)		Dalit (N=1,478)		Janajati (N=227)		Muslim (N=863)		Terai other (N=4,444)		Grand Total (N=7,275)	
	B	E	B	E	B	E	B	E	B	E	B	E
0-20	59.7	3.0	56.6	3.2	63.9	2.6	59.1	3.1	57.2	3.4	57.6	3.3
20-30	18.3	4.9	22.3	8.5	22.0	6.2	21.2	8.3	22.6	7.9	22.2	7.9
30-40	13.7	16.0	12.2	13.0	7.9	15.4	12.4	14.1	11.7	14.8	11.8	14.4
40-50	6.5	20.5	6.2	20.8	5.3	22.5	5.1	19.2	5.4	20.3	5.6	20.3
50-60	1.5	22.8	2.0	22.2	0.9	16.7	1.5	22.5	2.1	20.8	1.9	21.2
60-70	0.4	20.5	0.5	18.1	0.0	22.5	0.5	18.9	0.7	18.8	0.6	18.8
70-80	0.0	9.9	0.1	11.0	0.0	11.9	0.2	10.2	0.3	11.1	0.2	11.0
80-90	0.0	2.3	0.0	2.8	0.0	2.2	0.0	3.1	0.0	2.8	0.0	2.8
90-100	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.5	0.0	0.2	0.0	0.3

Marks obtained by Municipality

Municipality-level analysis showed improvements in scores from baseline to endline. For example, while 1.1% students in Balawa and no students in Mahottari obtained 60 to 70 marks at the baseline, the
proportion of students who obtained 60 to 70 marks in the endline increased to 19.5% in Balawa and 28.7% in Mahottari. *(See Annex 3).*

Learning outcomes for Grade 6 students

Average score in aggregate of all 4 subjects by gender

The average score of Grade 6 students from both districts scored an average of 16.6 marks out of 100 full marks before the implementation of remedial classes. At the endline, after the remedial classes, the average score in all four subjects increased to 51.4 out of 100 full marks. Analysis by gender also showed similar improved learning outcomes. While the average score of boys increased from 16.4 to 50.7 out of 100 full marks at the endline, after the remedial classes, the average score of girls increased

from 16.8 to 51.8 out of full marks during the same timeline. Increases from baseline to endline for boys, girls, and all students were statistically significant (p<0.001).

Average score in aggregate of all 4 subjects by caste/ethnicity

Analysis by caste/ethnicity showed similar results showing improvements in scores from baseline to endline. Improved learning outcomes were evident among Janajati students as well as other caste/ethnicities (Figure 3). While average scores of students belonging to castes/ethnicities other than Janajati were more than 16 out of 100 full marks at the baseline, the students belonging to Janajati had only obtained an average score of 15.1 out of 100 at the baseline. At the endline, after remedial classes, students belonging to the Janajati caste/ethnicity scored an average of 50.9 marks out of 100 at the endline. All differences from baseline to endline were statistically significant (p<0.001).
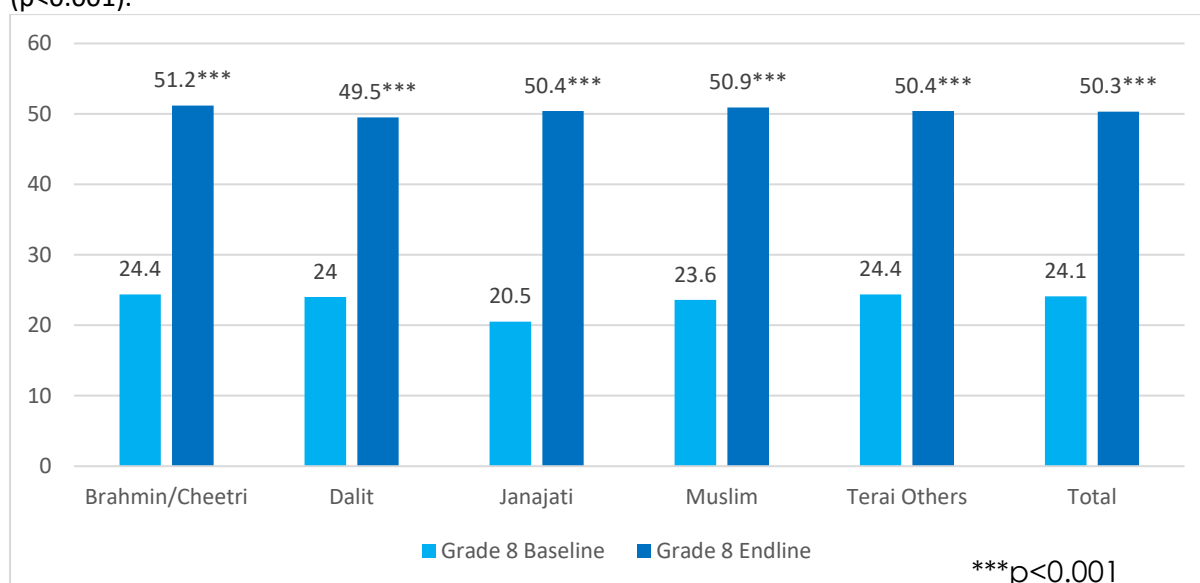
Figure 3: Average baseline and endline score of Grade 6 students in aggregated of all four subjects by caste/ethnicity

Marks obtained by gender

Table 4 shows distribution of aggregate scores in Grade 6 for boys, girls, and combined scores of boys and girls. Among boys (n=952) and girls (n=1516), the proportion of those obtaining 0 to 20 marks decreased at the endline compared to baseline (Table 4). For boys, this percentage decreased from 68.2% to 2.7%, while for girls it decreased from 67.3% to 2.8% at the endline. A similar trend was observed for those obtaining 20 to 30 marks (19.2% to 8.2% among boys and 16.7% to 7.8% among girls).

Table 4: Percent distribution of Grade 6 students disaggregated by their gender and marks they had obtained in all 4 subjects in baseline (B) and endline (E)

Marks	Baseline and Endline					
	Boys (N=952)		Girls (N=1516)		Grand Total (N=2,468)	
	B	E	B	E	B	E
0-20	68.2	2.7	67.3	2.8	67.6	2.8
20-30	19.2	8.2	16.7	7.8	17.7	8.0
30-40	7.8	15.3	10.0	13.3	9.1	14.1
40-50	3.6	20.2	4.9	19.6	4.4	19.8
50-60	1.2	20.8	1.0	20.6	1.1	20.7
60-70	0.1	19.5	0.1	20.2	0.1	19.9

70-80	0.0	11.3	0.0	11.9	0.0	11.7
80-90	0.0	1.5	0.0	3.4	0.0	2.7
90-100	0.0	0.4	0.0	0.3	0.0	0.4

Marks obtained by caste/ethnicity

Analysis by caste/ethnicity reveals improved learning outcomes among students belonging to all caste/ethnic groups in Grade 6 (Table 5).

Table 5: Percent distribution of Grade 6 students disaggregated by their caste/ethnicity and marks they had obtained in all 4 subjects in baseline (B) and endline (E)

Marks	Baseline and Endline											
	Brahmin/Chhetri (N=85)		Dalit (N=517)		Janajati (N=86)		Muslim (N=306)		Terai other (N=1,474)		Grand Total (N=2,468)	
	B	E	B	E	B	E	B	E	B	E	B	E
0-20	68.2	3.5	65.8	2.1	67.4	2.3	71.6	3.6	67.4	2.8	67.6	2.8
20-30	16.5	7.1	18.0	7.9	22.1	7.0	13.1	6.9	18.3	8.3	17.7	8.0
30-40	9.4	17.6	9.7	12.2	4.7	19.8	9.8	12.1	9.0	14.6	9.1	14.1
40-50	5.9	17.6	5.2	19.9	4.7	23.3	4.2	19.0	4.1	19.9	4.4	19.8
50-60	0.0	18.8	1.4	21.9	1.2	14.0	1.3	23.2	0.9	20.3	1.1	20.7
60-70	0.0	24.7	0.0	19.3	0.0	15.1	0.0	21.6	0.2	19.8	0.1	19.9
70-80	0.0	8.2	0.0	12.6	0.0	15.1	0.0	11.1	0.0	11.5	0.0	11.7
80-90	0.0	2.4	0.0	3.7	0.0	3.5	0.0	2.0	0.0	2.4	0.0	2.7
90-100	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.7	0.0	0.3	0.0	0.4

For students who were Janajati, for example, 1.2% obtained 50 to 60 marks, while 1.3% of Muslims and 1.4% of Dalit students obtained these same marks. In the endline, the proportion of students who obtained 50 to 60 marks increased for all groups to (e.g., to 15.1%, 23.2%, and 21.9% for Janajati, Muslims, and Dalit students respectively.

On the other hand, the proportion of students obtaining low marks decreased. The percentage of students who obtained less than 20 marks at the baseline was high (71.6% for Muslim, 67.4% for Janajati, 65.8% for Dalit, and 68.2% for Brahmin/Chhetri students). At the endline, after the remedial classes, the proportion of students who obtained less than 20 marks decreased to 3.6% for Muslim, 2.3% for Janajati, 2.1% for Dalit and 3.5% for Brahmin/Chhetri students.

Marks obtained by subjects

Table 6 shows subject-specific scores in Grade 6 for boys, girls, and combined scores.

While only 0.4% students had obtained 60 to 70 marks on the Nepali test at the baseline, the proportion of students obtaining 60 to 70 marks increased to 17.5% at the endline after the remedial classes. On the other hand, the proportion of students obtaining less than 20 marks on the Nepali test decreased. Additionally, 71.9% of students obtained less than 20 marks at the baseline, but at the endline after the remedial classes, the students who obtained less than 20 marks decreased to 8.7%. A similar trend was observed for boys and girls.

Table 6: Percent distribution of Grade 6 students disaggregated by the gender and the marks they had obtained in 4 different subjects in baseline (B) and endline (E).

Marks	Nepali		
	Boy (N=952)	Girl (N=1516)	Total (N=2,468)

Marks	B	E	B	E	B	E
0-20	73.2	11.6	71.1	6.9	71.9	8.7
20-30	15.9	11.8	16.8	11.9	16.5	11.9
30-40	6.3	13.8	6.3	16.2	6.3	15.2
40-50	3.6	19.4	4.4	16.9	4.1	17.9
50-60	0.8	13.8	0.5	17.9	0.6	16.3
60-70	0.1	18.4	0.7	16.9	0.4	17.5
70-80	0.1	5.8	0.2	6.3	0.2	6.1
80-90	0.0	5.0	0.1	6.4	0.0	5.9
90-100	0.0	0.5	0.1	0.6	0.0	0.6

Marks	English					
	Boy (N=952)		Girl (N=1516)		Total (N=2,468)	
	B	E	B	E	B	E
0-20	83.6	17.4	81.5	17.0	82.3	17.2
20-30	9.3	13.1	9.8	13.4	9.6	13.3
30-40	3.7	16.8	4.9	16.3	4.5	16.5
40-50	2.4	16.2	2.7	12.3	2.6	13.8
50-60	0.4	13.8	0.7	17.0	0.6	15.8
60-70	0.3	10.4	0.3	10.8	0.3	10.6
70-80	0.2	7.8	0.1	8.2	0.2	8.0
80-90	0.0	3.6	0.0	4.1	0.0	3.9
90-100	0.0	0.9	0.0	0.9	0.0	0.9

Marks	Math					
	Boy (N=952)		Girl (N=1516)		Total (N=2,468)	
	B	E	B	E	B	E
0-20	35.9	2.6	34.2	3.0	34.8	2.9
20-30	17.2	3.7	18.0	3.0	17.7	3.2
30-40	13.3	6.5	15.4	4.9	14.6	5.5
40-50	15.1	7.6	13.3	7.9	14.0	7.8
50-60	9.2	10.2	9.0	9.8	9.1	10.0
60-70	4.9	13.9	5.7	13.6	5.4	13.7
70-80	2.2	16.8	2.8	17.9	2.6	17.5
80-90	1.8	19.2	1.5	19.0	1.6	19.1
90-100	0.2	19.5	0.1	20.8	0.2	20.3

Marks	Science					
	Boy (N=952)		Girl (N=1516)		Total (N=2,468)	
	B	E	B	E	B	E
0-20	45.7	3.7	44.1	3.3	44.7	3.4
20-30	26.8	5.8	27.8	6.5	27.4	6.2
30-40	8.9	4.2	8.7	5.1	8.8	4.8
40-50	11.9	11.6	10.2	9.6	10.8	10.3
50-60	2.5	7.7	2.9	7.7	2.8	7.7
60-70	3.0	19.6	4.3	17.7	3.8	18.4
70-80	0.3	11.6	0.7	12.9	0.5	12.4
80-90	0.8	22.1	1.2	23.4	1.1	22.9
90-100	0.0	13.9	0.2	13.9	0.1	13.9

Likewise, while only 5.4% of students obtained 60 to 70 marks on the math test at the baseline, the proportion of students obtaining 60 to 70 marks in math increased to 13.7% at the endline after the remedial classes. Furthermore, 0.2% of students obtained 90 to 100 marks in math at the baseline, however the proportion of students obtaining 90 to 100 marks increased to 20.3% at the endline. A similar trend was observed for both boys and girls.

Similar improved outcomes were found for both boys and girls on English and science tests. While 0.3% students obtained 60 to 70 marks in English at the baseline, the proportion of students obtaining 60 to 70 marks in English increased to 10.6% at the endline. Additionally, the proportion of students obtaining less than 20 marks in English decreased from 82.3% at the baseline to 17.2% at the endline, after remedial classes. In science, improved learning outcomes were evident by the 22.9% of students who obtained 80 to 90 marks at the endline after the remedial classes. Only 1.1% of students obtained 80 to 90 marks in science at the baseline before the remedial classes began.

Marks obtained disaggregated by Municipality

Analysis by municipality reveals improvements across these localities.

Average scores increased from baseline (from a low of 9.7% in Loharpatti to a high of 23.6% in Mahottari) to endline (from a low of 43.2% in Yamunamai to a high of 69.4% in Gaur). All differences were statistically significant ($p < 0.001$).

Analysis by municipalities shows that the students attending schools in these areas have exhibited improved learning outcomes. While the proportion of students obtaining 60 to 70 marks in aggregate for all four subjects was 19.9% at the endline, it was 22.1% in Gaur, 17.9% in Balawa, and 9.1% in Yamunamai. In Mahottari, the proportion of students obtaining 60 to 70 marks in aggregate for all four subjects was 35.8%. *(See Annex 4).*

Learning outcomes of Grade 7 students

The average score of Grade 7 students enrolled in the selected schools scored an average of 18.6 marks out of 100 full marks at the baseline before they attended remedial classes. At the endline, after the remedial classes, the average score of Grade 7 students in all four subjects increased to 50.9 out of 100 full marks. This difference was statistically significant ($p < 0.001$).

Average score in aggregate of all subjects by gender

Analysis by gender also shows improved learning outcomes. While the average score of boys increased from 19.2 to 49.9 out of 100 marks at the endline, after the remedial classes ($p < 0.001$), the average score of girls increased from 18.2 to 51.6 at the endline, after the remedial classes ($p < 0.001$).

Average score in aggregate of all subjects by caste/ethnicity

Analysis by caste/ethnicity shows improved learning outcomes across caste/ethnic groups (Figure 4). While the average score of students was 18.6 out of 100 full marks at the baseline, it increased to 50.9 at the endline. However, more improved learning outcomes were evident among Janajati students (18.0 to 53.9, $p < 0.001$).
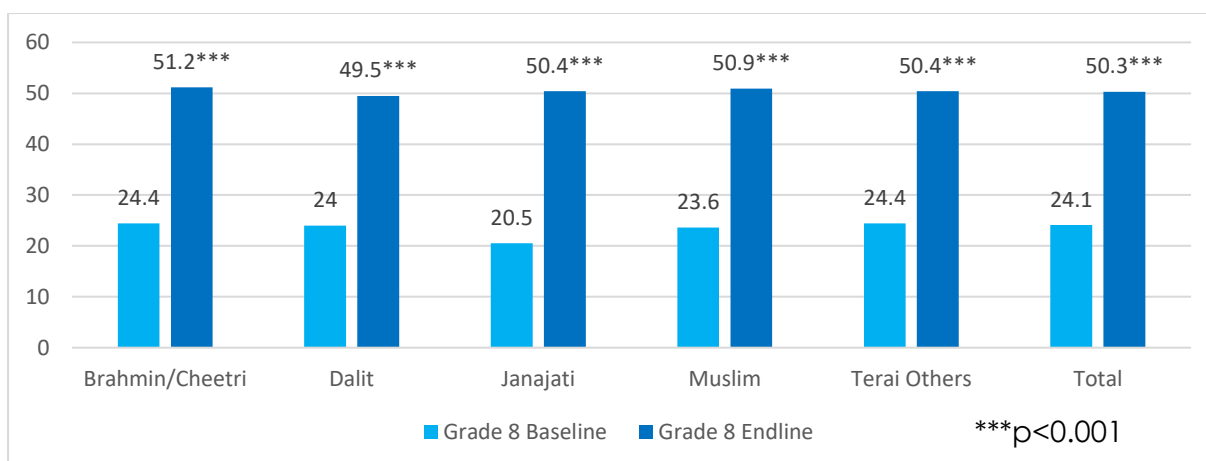
Figure 4: Average baseline and endline score of Grade 7 students in aggregated of all four subjects by caste/ethnicity

Marks obtained by gender

Analysis by gender reveals similar improved learning outcomes for students in Grade 7 (Table 7). Among the boys (n=944) and girls (n=1,457), the proportion of those obtaining high marks in Nepali, English, math, and science improved at the endline as compared to baseline. Overall, among boys, 0.5% scored 60 to 70 marks at the baseline, while 19.7% scored 60 to 70 marks overall at the endline. A similar trend was observed for girls (0.1% to 19.9% scoring 60 to 70 marks from baseline to endline).

Table 7: Percent distribution of Grade 7 students disaggregated by the gender and the marks they had obtained in aggregated of 4 different subjects in baseline (B) and endline €

Marks	Baseline and Endline					
	Boys (N=952)		Girls (N=1516)		Grand Total (N=2,468)	
	B	E	B	E	B	E
0-20	59.7	4.1	62.9	3.3	61.6	3.6
20-30	22.9	9.7	21.1	6.4	21.8	7.7
30-40	10.1	12.6	10.0	15.4	10.0	14.3
40-50	4.6	19.7	4.4	19.9	4.5	19.8
50-60	2.3	22.1	1.4	20.2	1.8	20.9
60-70	0.4	19.7	0.1	19.9	0.2	19.8
70-80	0.0	10.1	0.1	11.9	0.0	11.2
80-90	0.0	1.9	0.0	2.8	0.0	2.5
90-100	0.0	0.0	0.0	0.1	0.0	0.1

Marks obtained disaggregated by caste/ethnicity

Improved learning outcomes were evident among all the students in Grade 7 – across caste/ethnicities (Table 8). For example, while 1.1% of Brahmin/Chhetri and less than 1% of other caste/ethnic groups scored 60 to 70 marks at the baseline, 17.9% of Brahmin/Chhetri students, 19.4% of Dalit students, 27.6% of Janajati students, 17.5% of Muslim students, and 20.1% of Terai other students scored 60 to 70 marks at the endline.

Table 8: Percent distribution of Grade 7 students disaggregated by caste/ethnicity and the marks they had obtained in aggregated of 4 different subjects in baseline (B) and endline (E)

Marks	Baseline and Endline					
	Brahmin/Chhetri (N=95)	Dalit (N=463)	Janajati (N=76)	Muslim (N=263)	Terai other (N=1,504)	Total (N=2,401)

	B	E	B	E	B	E	B	E	B	E	B	E
0-20	69.5	3.2	61.3	3.9	67.1	1.3	60.5	3.0	61.2	3.8	61.6	3.6
20-30	10.5	5.3	22.2	6.9	21.1	3.9	25.5	9.9	21.7	7.9	21.8	7.7
30-40	12.6	13.7	9.9	14.0	6.6	10.5	8.7	16.0	10.3	14.4	10.0	14.3
40-50	5.3	21.1	4.8	20.7	3.9	23.7	3.4	20.2	4.5	19.2	4.5	19.8
50-60	1.1	24.2	1.7	22.9	1.3	21.1	1.9	19.4	1.9	20.4	1.8	20.9
60-70	1.1	17.9	0.0	19.4	0.0	27.6	0.0	17.5	0.3	20.1	0.2	19.8
70-80	0.0	13.7	0.0	8.9	0.0	10.5	0.0	11.8	0.1	11.7	0.0	11.2
80-90	0.0	1.1	0.0	3.0	0.0	1.3	0.0	2.3	0.0	2.5	0.0	2.5
90-100	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1

Marks obtained disaggregated by subjects

Table 9 shows subject-specific scores in Grade 7 for boys, girls, and overall.

The proportion of those obtaining high marks in Nepali, English, math, and science improved at the endline as compared to baseline. For example, among boys, 1% scored 60 to 70 marks in Nepali at the baseline, while 14.1% scored 60 to 70 marks in Nepali at the endline. A similar trend was observed for girls in Nepali (1.1% to 13.5% scoring 60 to 70 marks from baseline to endline). On the other hand, the proportion of students obtaining less than 20 marks on Nepali tests decreased i.e., 67% students had obtained less than 20 marks, but at the endline, after the remedial classes, the students who obtained less than 20 marks in Nepali decreased to 10.2%.

While 0.2% of students obtained 60 to 70 marks in English at the baseline, the proportion of students obtaining 60 to 70 marks in English increased to 10.6% at the endline, and the proportion of students obtaining less than 20 marks in English decreased from 75.8% at the baseline to 19.0% at the endline, after the remedial classes.

Table 9 shows similar improvements for boys and girls in math and science.

Table 9: Percent distribution of Grade 7 students disaggregated by the gender and the marks they had obtained in 4 different subjects in baseline (B) and endline (E)

Marks	Nepali					
	Boy (N=944)		Girl (N=1457)		Total (N=2,401)	
	B	E	B	E	B	E
0-20	66.1	12.9	67.5	8.5	67.0	10.2
20-30	19.5	10.5	20.2	13.9	20.0	12.5
30-40	6.0	15.8	5.6	15.7	5.7	15.7
40-50	5.1	17.5	3.9	19.1	4.4	18.5
50-60	1.9	16.5	1.2	12.1	1.5	13.8
60-70	1.0	14.1	1.1	13.5	1.0	13.7
70-80	0.4	5.8	0.5	6.9	0.5	6.5
80-90	0.0	5.6	0.0	7.5	0.0	6.7
90-100	0.0	1.3	0.0	3.0	0.0	2.3

Marks	English					
	Boy (N=944)		Girl (N=1457)		Total (N=2,401)	
	B	E	B	E	B	E
0-20	74.4	19.8	76.7	18.4	75.8	19.0
20-30	12.0	14.4	11.7	13.6	11.8	13.9

Marks						
30-40	6.6	16.3	6.6	16.3	6.6	16.3
40-50	4.6	13.8	3.5	16.0	3.9	15.1
50-60	1.9	15.7	1.3	13.6	1.5	14.4
60-70	0.3	9.3	0.2	11.5	0.2	10.6
70-80	0.2	7.3	0.0	6.5	0.1	6.8
80-90	0.1	3.1	0.1	3.6	0.1	3.4
90-100	0.0	0.3	0.0	0.6	0.0	0.5

Marks	Math					
	Boy (N=944)		Girl (N=1457)		Total (N=2,401)	
	B	E	B	E	B	E
0-20	22.9	3.8	25.9	2.2	24.7	2.8
20-30	25.5	2.3	24.5	1.9	24.9	2.1
30-40	19.8	5.0	19.6	5.2	19.7	5.1
40-50	14.9	8.6	13.2	5.9	13.9	7.0
50-60	7.3	9.6	7.9	11.9	7.7	11.0
60-70	5.3	14.1	4.1	12.6	4.6	13.2
70-80	2.2	16.4	2.8	18.3	2.6	17.5
80-90	1.7	20.7	1.7	20.4	1.7	20.5
90-100	0.3	19.5	0.3	21.6	0.3	20.7

Marks	Science					
	Boy (N=944)		Girl (N=1457)		Total (N=2,401)	
	B	E	B	E	B	E
0-20	24.5	5.3	27.9	3.0	26.5	3.9
20-30	32.4	5.9	33.8	6.2	33.2	6.1
30-40	14.9	3.8	13.5	5.0	14.0	4.5
40-50	20.0	10.2	17.6	10.5	18.5	10.4
50-60	4.4	6.9	3.8	8.5	4.1	7.9
60-70	3.3	18.6	2.8	18.7	3.0	18.7
70-80	0.3	12.4	0.4	11.7	0.4	12.0
80-90	0.1	20.8	0.2	21.8	0.2	21.4
90-100	0.0	16.1	0.1	14.5	0.0	15.1

Marks obtained disaggregated by Municipality

Analysis by the Municipality reveals improvements across localities.

Average scores increased from baseline (from a low of 12.1% in Loharpatti to a high of 22.8% in Kathariya) to endline (from a low of 43.4% in Yamunamai to a high of 66.7% in Gaur). All differences were statistically significant (p<0.001).

While the proportion of students obtaining 60 to 70 marks across municipalities was less than 1%, in aggregate of all four subjects, the percentage of students scoring 60 to 70 marks ranged from 9.4% in Yamunamai to 29.6% in Mahottari at the endline (See *Annex Table 5*).

Learning outcomes of Grade 8 students

The average score of Grade 8 students enrolled in selected schools of the project's focal municipalities of Mahottari and Rautahat districts scored an average of 24.1 marks out of 100 full marks before they attended remedial classes. At the endline, after the remedial classes, the average score of Grade 8 students in all four subjects increased to 50.3 out of 100 full marks. This difference was statistically significant ($p < 0.001$).

Average score by gender

Analysis by gender also shows similar improved learning outcomes. While the average score of boys increased from 24.9 to 49.5 out of 100 full marks at the endline, after the remedial classes ($p < 0.001$), the average score of girls increased from 23.6 to 50.8 at the endline, after the remedial classes ($p < 0.001$).

Average score by caste/ethnicity

Analysis by caste/ethnicity showed similar improvements in scores from baseline to endline (Figure 5). For example, the average score of Janajati students was 20.5% out of 100 full marks at the baseline, which increased to 50.4% at the endline ($p < 0.001$). This was similar to increases among other caste/ethnic groups. All increases from baseline to endline were statistically significant ($p < 0.001$).
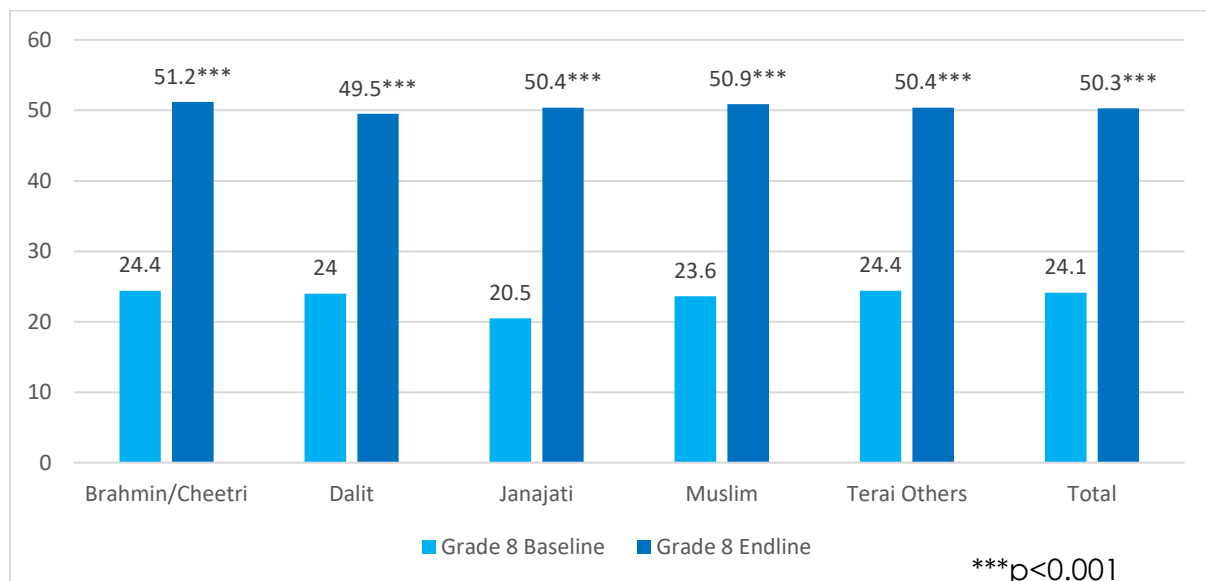
Figure 5: Average baseline and endline score of Grade 8 students across all four subjects by caste/ethnicity

Marks obtained disaggregated by gender

Table 10 shows the distribution of aggregate scores in Grade 8 for boys and girls at the baseline and endline. Analysis by gender reveals similar improved outcomes for boys and girls (Table 10). Among the boys (n=906), the proportion of those obtaining 60 to 70 marks improved at the endline compared to baseline. For example, the percentage of boys in Grade 8 scoring between 60 and 70 marks increased from 1.5% to 16.1%. Among the girls (n=1,500), the proportion of those obtaining 60 to 70 marks improved from baseline to endline (1.5% to 17.1%).

Table 10: Percent distribution of Grade 8 students disaggregated by genders and the marks they had obtained in 4 different subjects in baseline (B) and endline (E)

Marks	Baseline and Endline					
	Boy (N=906)		Girl (N=1500)		Total (N=2,406)	
	B	E	B	E	B	E
0-20	40.6	4.7	44.8	2.7	43.2	3.4
20-30	28.0	8.1	26.7	8.0	27.2	8.0
30-40	17.5	15.3	15.8	14.6	16.5	14.9
40-50	8.2	20.9	7.7	21.7	7.9	21.4
50-60	3.1	21.7	2.9	22.1	3.0	22.0
60-70	1.5	16.1	1.5	17.1	1.5	16.7
70-80	1.0	9.5	0.5	10.3	0.7	10.0
80-90	0.0	3.1	0.1	3.3	0.0	3.2
90-100	0.0	0.6	0.0	0.2	0.0	0.3

Marks obtained disaggregated by caste/ethnicity

Improved learning outcomes were evident among students in Grade 8 from different caste/ethnicities (Table 11). While less than 2% of students across all caste/ethnic groups scored between 60 and 70 marks at the baseline, between 16.4% (other terai) and 26.2% (Janajati) of students scored between 60 and 70 marks at the endline. While nearly all students did not obtain 80 to 90 marks at the baseline, endline data showed that 3.6% of Brahmins/Chhetri students, 1.8% of Dalit students, 1.5% of Janajati students, 5.1% of Muslim students, and 3.4% of students belonging to other Terai castes/ethnicities obtained 89 to 90 marks.

Table 11: Percent distribution of Grade 8 students disaggregated by caste/ethnicities and the marks they had obtained in 4 different subjects in baseline (B) and endline (E)

Marks	Baseline and Endline											
	Brahmin/Chhetri (N=83)		Dalit (N=498)		Janajati (N=65)		Muslim (N=294)		Terai other (N=1,466)		Total (N=2,406)	
	B	E	B	E	B	E	B	E	B	E	B	E
0-20	39.8	2.4	42.6	3.8	55.4	4.6	44.9	2.7	42.8	3.5	43.2	3.4
20-30	28.9	2.4	26.9	10.4	23.1	7.7	25.9	8.5	27.7	7.4	27.2	8.0
30-40	19.3	16.9	17.1	12.9	13.8	15.4	18.4	14.6	15.8	15.5	16.5	14.9
40-50	8.4	22.9	8.6	21.9	7.7	20.0	7.5	18.7	7.6	21.8	7.9	21.4
50-60	3.6	25.3	3.0	21.9	0.0	15.4	1.4	24.5	3.4	21.6	3.0	22.0
60-70	0.0	19.3	1.4	15.7	0.0	26.2	1.4	17.3	1.7	16.4	1.5	16.7
70-80	0.0	7.2	0.4	11.4	0.0	9.2	0.7	7.8	0.9	10.1	0.7	10.0
80-90	0.0	3.6	0.0	1.8	0.0	1.5	0.0	5.1	0.1	3.4	0.0	3.2
90-100	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.7	0.0	0.3	0.0	0.3

Marks obtained disaggregated by subject

Table 12 shows subject-specific scores in Grade 8 for boys, girls, and overall.

The proportion of students who obtained higher marks in Nepali increased at the endline, after the remedial classes. While only 2.4% students had obtained 60 to 70 marks on Nepali tests at the baseline, before the remedial classes, the proportion of students obtaining 60 to 70 marks on Nepali tests increased to 14.2% at the endline, after the remedial classes. On the other hand, the proportion of students obtaining less than 20 marks on Nepali tests has decreased. Specifically, 50.9% of students had obtained less than 20 marks at the baseline, but at the endline, after the remedial classes, that number fell to 11.1%.

Table 12: Percent distribution of Grade 8 students disaggregated by the gender and the marks they had obtained in 4 different subjects in baseline (B) and endline (E)

Marks	Nepali					
	Boy (N=944)		Girl (N=1457)		Total (N=2,401)	
	B	E	B	E	B	E
0-20	48.8	14.0	52.2	9.3	50.9	11.1
20-30	24.3	10.2	24.4	11.7	24.4	11.1
30-40	10.3	14.0	10.5	12.9	10.4	13.3
40-50	9.4	23.7	7.7	23.2	8.4	23.4
50-60	3.8	6.1	2.5	12.7	3.0	10.2
60-70	2.8	13.2	2.1	14.8	2.4	14.2
70-80	0.8	9.2	0.3	7.4	0.5	8.1
80-90	0.0	6.1	0.3	6.5	0.2	6.3
90-100	0.0	3.50	0.0	1.50	0.0	2.30

Marks	English					
	Boy (N=944)		Girl (N=1457)		Total (N=2,401)	
	B	E	B	E	B	E
0-20	62.5	21.6	64.8	20.8	63.9	21.1
20-30	14.0	14.6	13.5	13.2	13.7	13.7
30-40	10.5	15.3	10.7	15.4	10.6	15.4
40-50	6.0	15.5	5.0	15.6	5.4	15.5
50-60	3.1	13.1	2.3	15.4	2.6	14.5
60-70	1.2	10.8	1.9	9.7	1.6	10.1
70-80	1.9	6.0	1.1	6.1	1.4	6.1
80-90	0.8	2.1	0.8	2.9	0.8	2.6
90-100	0.1	1.0	0.0	0.9	0.0	0.9

Marks	Math					
	Boy (N=944)		Girl (N=1457)		Total (N=2,401)	
	B	E	B	E	B	E
0-20	16.1	4.0	17.5	2.3	17.0	3.0
20-30	19.5	3.1	20.6	2.7	20.2	2.8
30-40	22.6	6.2	22.7	5.6	22.7	5.8
40-50	16.4	8.7	15.8	8.1	16.0	8.4
50-60	10.5	10.7	9.1	11.9	9.6	11.4
60-70	8.3	15.2	7.9	14.2	8.0	14.6
70-80	3.2	18.3	3.5	16.9	3.4	17.5
80-90	1.7	15.5	1.7	18.3	1.7	17.2
90-100	1.7	18.3	1.2	19.9	1.4	19.3

Marks	Science					
	Boy (N=944)		Girl (N=1457)		Total (N=2,401)	
	B	E	B	E	B	E
0-20	17.3	3.3	18.7	3.1	18.2	3.2
20-30	29.6	6.0	32.5	6.1	31.4	6.1
30-40	14.6	4.9	14.9	4.6	14.8	4.7
40-50	23.0	11.1	20.0	11.5	21.1	11.4
50-60	6.6	7.5	6.1	6.7	6.3	7.0

60-70	5.1	19.1	5.3	16.3	5.2	17.4
70-80	2.6	13.7	1.4	12.7	1.9	13.1
80-90	0.9	21.1	0.6	22.8	0.7	22.2
90-100	0.3	13.4	0.4	16.1	0.4	15.1

Likewise, while 1.4% of students had obtained 90 to 100 marks in math at the baseline, the proportion of students who obtained 90 to 100 marks increased to 19.3% at the endline. On the other hand, the proportion of students obtaining less than 20 marks on math tests decreased from 17% at the baseline to 3 % at the endline.

Similar improved outcomes are evident from students' performance on the English and science tests. While 1.6% students had obtained 60 to 70 marks in English at the baseline, the proportion of students obtaining 60 to 70 marks in English rose to 10.1%, and the proportion of students obtaining less than 20 marks in English decreased from 63.9% at the baseline to 21.1% at the endline, after remedial classes. In Science, less than 1% of students at the baseline obtained 90 to 100 marks; however, 15.1% of those students had marks from 90 to 100 at the endline at the endline, after the remedial classes.

Marks obtained disaggregated by Municipality

Analysis by Municipality reveals that the students attending schools in these localities had improved learning outcomes from baseline to endline. Average scores increased from baseline (from a low of 18.4% in Loharpatti to a high of 31.0% in Yamunamai) to endline (from a low of 36.8% in Yamunamai to a high of 70.3% in Gaur). All differences were statistically significant (p<0.001).

While the proportion of students obtaining 50 to 60 marks in aggregate for all four subjects was less than 6% across all municipalities at the baseline, it increased at the endline to 18.5% in Balawa, 11.0% in Gaur, 18.8% in Jaleshwor, 33.8% in Katahariya, 18.6% in Loharpatti, 36.8% in Mahottari, 33.2% in Manara Shiswa, 24.4% in Rajdevi, and 13.4% in Yamunamai (See *Annex Table 6*).

Conclusion

- Students who attended the remedial classes exhibited impressive improvement in learning outcomes from baseline to endline. The proportion of students obtaining higher marks in all subjects increased while the proportion of students obtaining lower marks in all subjects decreased from November 2021 to April 2022.
- The improved learning outcomes are evident in all students irrespective of their gender and castes/ethnicities.
- The students enrolled in schools operational in Gaur and Mahottari municipalities exhibited slightly better learning outcomes compared to the students enrolled in schools in other rural/urban municipalities. When the average score of all municipalities remained 50.9, the average assessment scores of Gaur urban municipality and Mahottari rural municipality were 68.8 and 54.6, respectively. In Mahottari, baseline learning performance levels were slightly higher than in other municipalities, which may explain their above average learning performance at the endline. In Gaur, changes from baseline to endline were large (20.5 to 68.8). This could be due to a range of factors at the community level, from greater buy in and engagement from head teachers, teachers, parents, or students to other activities or events also being implemented in this municipality at the same time that led to the marked increase in learning outcomes as compared to other municipalities. Further qualitative investigation, including post-hoc analyses of monitoring data or the implementation processes in these two municipalities can be conducted to unpack why these two municipalities had such large, demonstrable improvements in learning performance.

- Though students have exhibited improved learning outcomes in all subjects, more progress was demonstrated on the math and science tests compared to the Nepali and English tests. A sequential mixed methods design with follow-up interviews with relevant stakeholders and students could have provided space for the research team to tailor questions for participants in the remedial education program to reflect on their learnings and the quantitative results and identify how and why these differential changes in learning performance occurred.
- These changes from before the implementation of the remedial education program to after the completion of the program are dramatic and suggest that the remedial education program has been effective in improving the learning outcomes of students enrolled in grades 6-8 in select schools in Rautahat and Mohottari. However, there remains the possibility that outside events or programs were also implicated in the changes identified and presented here. As a result, the remedial education program may not be solely responsible for all of the changes presented here. The inclusion of a control or comparison group at both baseline and endline would have strengthened the study design, allowing us to rule out unknown confounding of the relationships demonstrated here.

Annexes

Annex 1: District wise average score obtained by the students in the baseline and endline disaggregated in aggregate from Grade 6 to 8 and class-wise

Grade	Mahottari ***		Rautahat ***		Total ***	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
Grade 6	14.7	49.4	19.0	53.9	16.6	51.4
Grade 7	16.7	49.4	21.3	53.1	18.6	50.9
Grade 8	22.0	51.3	27.5	48.8	24.1	50.3
All classes combined (Grades 6,7, and 8)	17.9	50.1	22.4	52.0	19.8	50.9
***p<0.001 for Grade 6, Grade 7, Grade 8, and all grades combined						

Annex 2: Municipality level average score obtained by the students in the baseline and endline disaggregated in aggregate from Grade 6 to 8 and grade-wise

	Balawa		Gaur		Jaleshwor		Katahariya		Loharpatti		Mahottari		Manara Shiswa		Rajdevi		Yamunamai		Total	
	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E
Grade 6	20.1	44.0	16.3	69.4	12.7	50.6	21.6	52.5	9.7	52.2	23.6	54.9	11.6	45.1	18.6	50.9	15.9	43.2	16.6	51.4
Grade 7	22.1	46.6	17.6	66.7	13.9	50.0	22.8	54.4	12.1	47.2	21.2	57.7	17.7	44.5	21.8	51.3	20.1	43.4	18.6	50.9
Grade 8	23.1	48.3	27.9	70.3	19.7	47.1	25.8	49.7	18.4	52.6	25.1	51.3	23.4	50.0	25.1	48.9	31.0	36.8	24.1	50.3
Grades 6,7, 8	21.8	46.3	20.5	68.8	15.5	49.2	23.4	52.1	13.3	50.6	23.3	54.6	17.5	46.4	21.6	50.4	22.9	40.9	19.8	50.9

Annex 3: Percent distribution of Grade 6 to 8 students disaggregated by Municipalities and marks they had obtained in aggregated of all 4 subjects

Marks	Balawa (N=1032)		Gaur (N=807)		Jaleshwor (N=1183)		Katahariya (N=965)		Loharpatti (N=719)		Mahottari (N=324)		Manara Shiswa (N=665)		Rajdevi (N=913)		Yamunamai (N=667)		Grand Total (N=7275)	
	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E
0-20	51.3	6.6	53.7	0.0	72.2	1.6	46.6	1.3	81.1	6.3	42.3	1.5	65.4	4.5	47.4	2.7	50.2	4.9	57.6	3.3
20-30	22.5	13.3	22.1	0.1	18.2	9.5	25.5	3.4	12.2	7.2	25.0	4.3	21.1	11.1	28.4	5.0	26.2	15.9	22.2	7.9
30-40	15.4	15.3	14.0	1.2	6.6	20.2	13.9	11.8	4.2	12.7	24.7	9.9	8.9	15.6	15.8	16.1	9.7	23.1	11.8	14.4
40-50	7.8	20.6	7.6	5.3	1.8	21.6	8.8	23.1	1.3	17.1	6.2	16.0	3.0	23.0	6.4	23.4	7.5	30.6	5.6	20.3
50-60	1.8	15.7	2.1	16.0	1.1	19.1	4.2	30.7	1.0	20.6	1.9	28.4	1.1	25.3	1.5	22.7	2.5	17.2	1.9	21.2
60-70	1.1	19.5	0.5	24.0	0.2	15.8	0.9	20.4	0.3	22.3	0.0	28.7	0.5	16.5	0.4	20.0	1.5	6.7	0.6	18.8
70-80	0.1	7.9	0.1	36.3	0.0	9.1	0.0	8.8	0.0	12.1	0.0	9.6	0.2	3.5	0.1	8.7	2.1	1.5	0.2	11.0
80-90	0.0	1.1	0.0	14.9	0.0	3.0	0.0	0.4	0.0	1.8	0.0	1.5	0.0	0.5	0.0	1.3	0.1	0.0	0.0	2.8
90-100	0.0	0.0	0.0	2.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Annex 4: Percent distribution of Grade 6 students disaggregated by municipalities and marks they had obtained in aggregate of all 4 subjects

Marks	Balawa (N=346)		Gaur (N=281)		Jaleshwor (N=373)		Katahariya (N=354)		Loharpatti (N=241)		Mahottari (N=120)		Manara Shiswa (N=220)		Rajdevi (N=336)		Yamunamai (N=197)		Grand Total (N=2468)	
	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E
0-20	57.8	8.7	69.4	0.0	79.4	1.1	48.3	0.3	93.8	3.3	38.3	0.0	86.8	5.5	58.0	3.0	75.6	1.5	67.6	2.8
20-30	16.8	15.0	13.5	0.0	16.1	8.8	28.5	4.0	4.6	4.6	24.2	3.3	8.6	15.5	27.1	6.0	14.7	14.7	17.7	8.0
30-40	15.0	17.1	7.1	0.4	3.2	18.8	12.1	11.9	1.7	14.9	29.2	9.2	4.5	15.9	10.4	16.1	7.1	19.8	9.1	14.1
40-50	8.1	18.8	7.8	3.2	1.1	19.6	8.5	22.3	0.0	17.4	8.3	21.7	0.0	21.8	3.3	22.3	2.0	36.5	4.4	19.8
50-60	2.3	16.2	1.4	19.6	0.0	19.8	2.5	29.9	0.0	22.0	0.0	21.7	0.0	19.1	1.2	20.2	0.5	15.7	1.1	20.7
60-70	0.0	17.9	0.7	22.1	0.3	18.2	0.0	23.7	0.0	22.0	0.0	35.8	0.0	15.9	0.0	19.9	0.0	9.1	0.1	19.9
70-80	0.0	6.4	0.0	37.0	0.0	10.7	0.0	7.6	0.0	14.5	0.0	8.3	0.0	5.0	0.0	10.4	0.0	2.5	0.0	11.7
80-90	0.0	0.0	0.0	14.6	0.0	2.9	0.0	0.3	0.0	1.2	0.0	0.0	0.0	1.4	0.0	2.1	0.0	0.0	0.0	2.7
90-100	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4

Annex 5: Percent distribution of Grade 7 students disaggregated by municipalities and marks they had obtained in aggregate of all 4 subjects

Marks	Balawa (N=335)		Gaur (N=262)		Jaleshwor (N=400)		Katahariya (N=291)		Loharpatti (N=247)		Mahottari (N=98)		Manara Shiswa (N=237)		Rajdevi (N=307)		Yamunamai (N=224)		Grand Total (N=2401)	
	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E
0-20	47.5	6.6	62.2	0.0	79.5	1.2	57.7	2.7	84.6	7.7	45.9	1.0	61.2	6.8	48.9	2.3	54.9	4.0	61.6	3.6
20-30	26.9	14.3	24.8	0.4	15.2	6.0	13.4	3.4	11.3	12.1	31.6	3.1	29.1	12.7	25.1	4.6	28.1	11.2	21.8	7.7
30-40	14.9	15.2	10.7	2.3	4.0	23.0	11.7	7.9	3.6	14.2	18.4	12.2	5.9	18.1	16.3	12.1	9.8	20.1	10.0	14.3
40-50	8.4	20.9	1.5	6.9	0.8	22.5	8.9	18.9	0.4	15.4	4.1	7.1	3.4	19.8	7.8	26.1	4.0	31.7	4.5	19.8
50-60	2.4	12.2	0.8	17.2	0.2	18.8	7.2	28.2	0.0	21.1	0.0	27.6	0.0	24.1	1.6	23.8	2.7	22.8	1.8	20.9
60-70	0.0	19.4	0.0	26.0	0.2	15.2	1.0	23.4	0.0	23.5	0.0	29.6	0.0	16.5	0.3	21.8	0.4	9.4	0.2	19.8
70-80	0.0	9.0	0.0	35.5	0.0	10.8	0.0	14.4	0.0	5.3	0.0	14.3	0.4	2.1	0.0	8.8	0.0	0.9	0.0	11.2
80-90	0.0	2.4	0.0	11.1	0.0	2.5	0.0	1.0	0.0	0.8	0.0	5.1	0.0	0.0	0.0	0.7	0.0	0.0	0.0	2.5
90-100	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

Annex 6: Percent distribution of Grade 8 students disaggregated by municipalities and marks they had obtained in aggregate of all 4 subjects

Marks	Balawa (N=351)		Gaur (N=264)		Jaleshwor (N=410)		Katahariya (N=320)		Loharpatti (N=231)		Mahottari (N=106)		Manara Shiswa (N=208)		Rajdevi (N=270)		Yamunamai (N=246)		Grand Total (N=2406)	
	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E
0-20	48.4	4.6	28.4	0.0	58.5	2.4	34.7	1.2	64.1	7.8	43.4	3.8	47.6	1.0	32.6	3.0	25.6	8.5	43.2	3.4
20-30	23.9	10.5	28.4	0.0	22.9	13.4	33.1	2.8	21.2	4.8	19.8	6.6	25.0	4.8	33.7	4.4	33.7	21.1	27.2	8.0
30-40	16.2	13.7	24.6	1.1	12.2	18.8	17.8	15.3	7.4	8.7	25.5	8.5	16.8	12.5	21.9	20.7	11.8	28.5	16.5	14.9
40-50	7.1	22.2	13.3	6.1	3.4	22.4	9.1	27.8	3.5	18.6	5.7	17.9	5.8	27.9	8.5	21.9	15.0	24.8	7.9	21.4
50-60	0.9	18.5	4.2	11.0	2.9	18.8	3.4	33.8	3.0	18.6	5.7	36.8	3.4	33.2	1.9	24.4	4.1	13.4	3.0	22.0
60-70	3.1	21.1	0.8	24.2	0.0	14.1	1.9	14.1	0.9	21.2	0.0	19.8	1.4	17.3	1.1	18.1	3.7	2.4	1.5	16.7
70-80	0.3	8.5	0.4	36.4	0.0	6.1	0.0	5.0	0.0	16.9	0.0	6.6	0.0	3.4	0.4	6.3	5.7	1.2	0.7	10.0
80-90	0.0	0.9	0.0	18.9	0.0	3.4	0.0	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	1.1	0.4	0.0	0.0	3.2
90-100	0.0	0.0	0.0	2.3	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Grades	Letter grade	Score/ mark	Description
Outstanding	A+	90-100	Has deep and broad knowledge with highly-developed critical insight as well as comprehensive and perceptive appreciation of the theoretical or practical subject matter; an exceptional ability to organize, use, analyze and succinctly present subject matter fluently and clearly with extraordinary performance; a significant capacity for original, creative and logical thinking with superior communication skills.
Excellent	A	80-89.9	Has deep and broad knowledge with developed critical insight as well as comprehensive and perceptive appreciation of the theoretical or practical subject matter; an exceptional ability to organize, use, analyze and succinctly present subject matter fluently and clearly with exemplary performance; a significant capacity for original, creative and logical thinking with advanced communication skills.
Very Good	B+	70-79.9	Has broad knowledge with developed insight as well as comprehensive and independent appreciation of the theoretical or practical subject matter; a special ability to organize, use, analyze and succinctly present subject matter clear of performance; a highly-developed capacity for original, creative and logical thinking with sound communication skills.
Good	B	60-69.9	Has decent knowledge with developed insight as well as comprehensive and good appreciation of the theoretical or practical subject matter, an ability to organize, use, analyze and succinctly present subject matter with respectable performance; a developed capacity for original, creative and logical thinking with reasonable communication skills.
Above Average	C+	50-59.9	Has adequate knowledge with developing insight as well as comprehensive and reasonably good appreciation of the theoretical or practical subject matter; an ability to organize, use, analyze and succinctly present subject matter with blameless performance; some capacity for original, creative and logical thinking with sufficient communication skills.
Average	C	40-49.9	Has sufficient knowledge with developing insight as well as comprehensive and acceptable understanding of the theoretical or practical subject matter, an ability to organize, use, analyze and present subject matter with guiltless performance; limited capacity for original, creative and logical thinking with acceptable communication skills.
Below Average	D+	30-39.9	Has some knowledge with developing insight as well as comprehensive and partial understanding of the theoretical or practical subject matter; limited ability to organize, use, analyze and present subject matter with guiltless performance; limited capacity for original, creative and logical thinking with minimal participation in communication skills.
Above Insufficient	D	20-29.9	Has less knowledge with incomplete insight as well as comprehensive and negligible understanding of the theoretical or practical subject matter; seriously deficient ability to organize, use, analyze and present subject matter, very limited capacity for original, creative and logical thinking with inadequate communication skills.
Insufficient	E	<20	Insufficient knowledge with insufficient insight and insufficient understanding of the theoretical or practical subject matter; insufficient ability to organize, use, analyze and present subject matter, insufficient capacity for original, creative and logical thinking with insufficient communication skills.