

# Impact Evaluation Results of Ratnagiri Learning Outcomes Assessment

February 2024 - March 2024

A joint initiative of Ratnagiri Zilla Parishad and VOPA

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# Background

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- The Ratnagiri Zilla Parishad initiated a Learning Outcome (LO) based project.
- Ratnagiri DIET predefines specific LOs for each month across all subjects.
- Schools conduct an assessment at the end of each month.
- Teachers enter students' LO achievement data into the V-School Application after the assessment.
- The V-School Application automatically analyzes the data and presents it graphically.
- Administrative officials can access this analysis dashboard from their personal phones.
- VOPA conducted a one-month study, including baseline and endline assessments, to understand the project's impact.

# Sequence of Activities

## February 2024

- Baseline survey: 2<sup>nd</sup> and 3<sup>rd</sup> February 2024
- Convenience sampling was used to select 10 schools for the survey
- Subjects covered: **Marathi, English, Environmental Studies, and Maths.**
- Number of questions: 10 per subject.
- Participants: 672 students enrolled in grades 4 & 5
- VOPA team monitored the data collection in 10 schools.

## Intervention Phase

- Intervention phase: 4<sup>th</sup> February to 10<sup>th</sup> March 2024
- Ratnagiri DIET had defined LOs for the intervention phase.
- Teachers taught syllabi to students based on these defined LOs.

## March 2024

- Endline survey: 11<sup>th</sup> and 12<sup>th</sup> of March 2024.
- Subjects covered : **Marathi, English, Environmental Studies, and Maths.**
- 4th grade: Question papers were the same as baseline
- 5th grade: Slightly modified question papers with consistent LOs
- Participants: 662 students enrolled in grades 4 & 5
- VOPA team monitored the data collection in 10 schools.

# Methodology

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## Question paper design

- DIET selects LOs for Marathi, English, EVS, and Maths every month
- DIET designs the monthly assessment question papers
- At baseline and endline, the 4<sup>th</sup> grade students were assessed on 20 LOs and the 5<sup>th</sup> grade students on 14 LOs
- VOPA supervised the exams to ensure data quality

## Analytical approach

- An LO was considered achieved if 50% or more questions under that LO were answered correctly
- Calculate change in achievement of LOs with the same types of questions at baseline and endline.

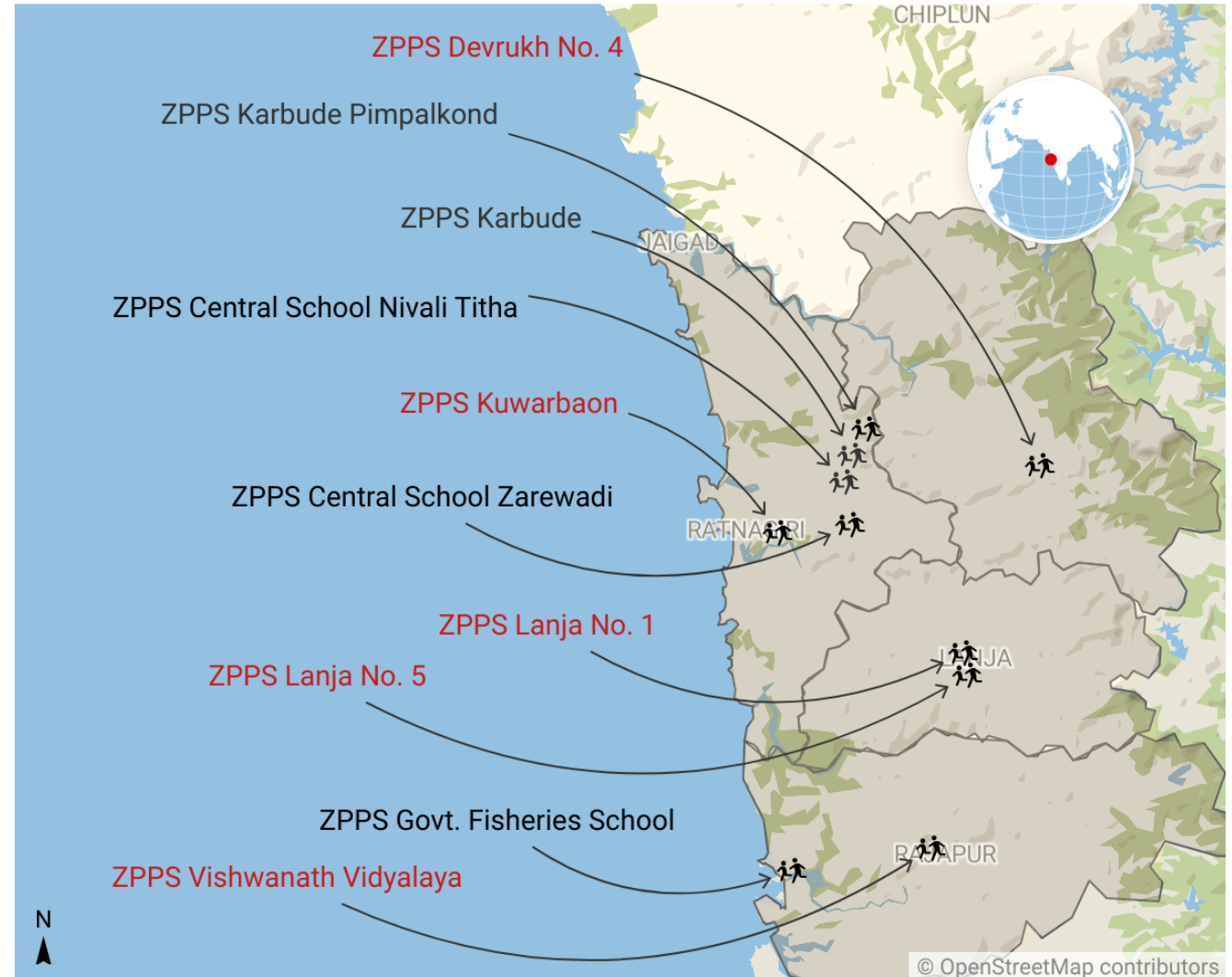
# Geographic Spread of Schools



Created with Datawrapper

Red school name - Urban schools (5)

Black school name - Rural schools (5)



Created with Datawrapper

# School-wise Distribution of Sample Students

School Name	Baseline			Endline		
	Male	Female	Total	Male	Female	Total
ZPPS KUWARBAON	13	25	38	19	21	40
ZPPS CENTRAL SCHOOL ZAREWADI	23	23	46	20	25	45
ZPPS CENTRAL SCHOOL NIVALI TITHA	26	21	47	21	21	42
ZPPS KARBUDE	24	16	40	23	15	38
ZPPS KARBUDE PIMPALKOND	23	13	36	25	15	40
ZPPS Lanja No. 5	48	77	125	47	78	125
ZPPS Lanja No. 1	37	40	77	37	40	77
ZPPS Govt. Fisheries School	26	41	67	32	38	70
ZPPS Devrukh No. 4	61	77	138	59	69	128
ZPPS Vishwanath Vidyalaya	30	27	57	29	29	58
<b>Total</b>	361	311	<b>672</b>	351	311	<b>662</b>

# Grade-wise Distribution of Sample Students

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Grade	Baseline			Endline		
	Male	Female	Total	Male	Female	Total
4	201	169	370	197	167	364
5	160	142	302	154	144	298

# Data Reliability & Quality Check

- Arrange question papers together for efficient data entry.
- Utilize Google Sheets Macros for streamlined data entry.
- Develop Standard Operating Procedure (SOP) for data entry.
- Conduct training for data entry operators.
- Complete pilot data entry for a few students.
- Verify accuracy and provide feedback if required before proceeding.
- Continuous monitoring by RME team member.
- **Random checks of 5% of daily entries per operator.**

Data Entry Operator	Total Entries (Rows)	Rechecking (~ 5% Rows)	Errors Identified
Shubham S.	1612	88	0
Naresh A.	1036	56	0
<b>Total</b>	<b>2,612</b>	<b>144</b>	<b>0</b>

# Glimpses of Assessment



Mr. Ulhas (Cluster head) and Mr. Vishvajeet supervised the LO assessment at ZPPS Kuwarbaon.



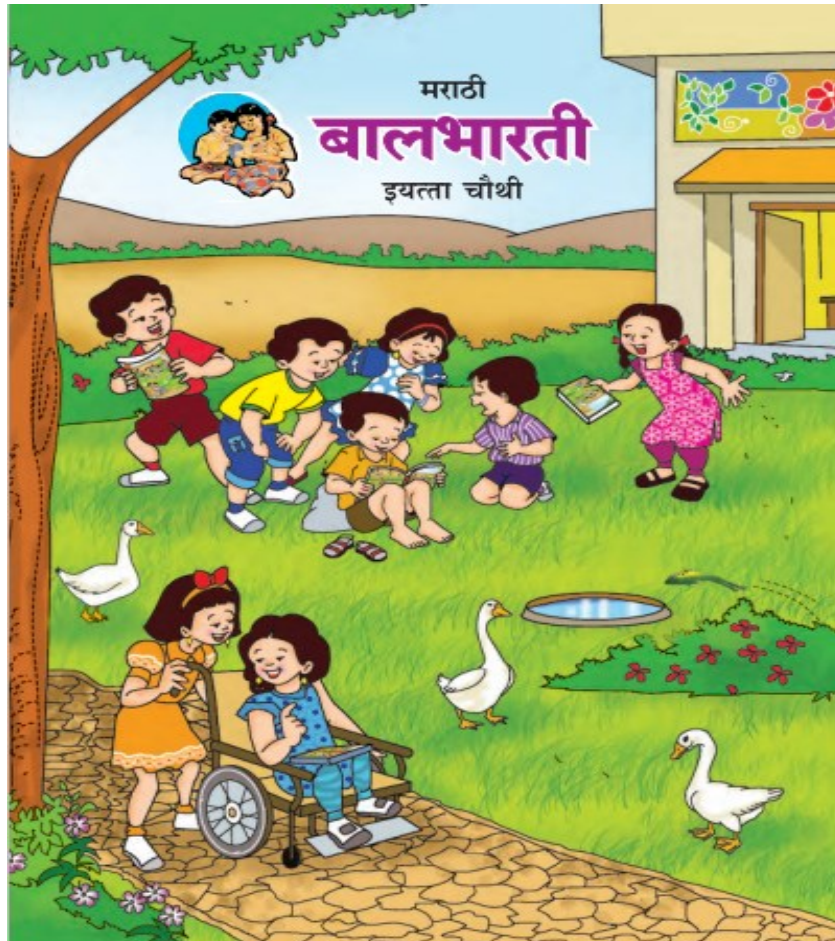
Mr. Laxman explained the assessment procedure at Vishwanath Vidyalaya, Rajapur.

# Glimpses of Assessment



Students solving endline LO assessment at ZPPS Kuwarbaon, ZPPS Govt. Fisheries School - Nate, and ZPPS Central School Zarewadi.

# Marathi



# 4<sup>th</sup> Grade - Marathi LOs

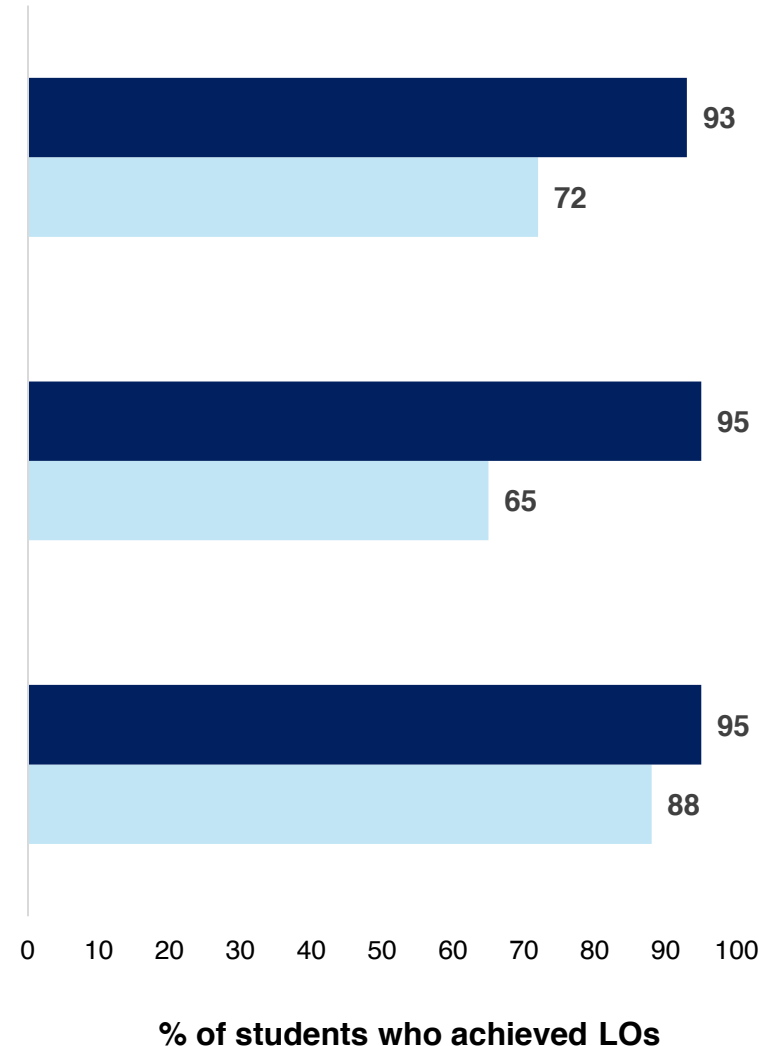
LO code	LO description	No. of questions in baseline & endline
04.01.01	Attentively listen to information told by others, express their opinions, and ask questions.	3
04.01.03	Incorporate personal thoughts when discussing literature like stories and poems.	1
04.01.08	Understand the contextual meaning of new words they come across in literature.	2
04.01.11	Understand the vocabulary used in different subjects, professions, arts, etc. (for example, maths, science, social studies, dance, medicine) as per their level.	1
04.01.14	Understand specific situation and objective (various kinds of information published on boards including instructions, poems, letters, stories, etc.) and write.	2
04.01.18	Creatively use language when crafting imaginative writing like stories and poems.	1

# 4<sup>th</sup> Grade - Percent of Students Who Achieved Marathi LOs

Understand the vocabulary used in different subjects, profession, arts, etc (example, maths, science, social studies, dance, medicine) as per their level.

Understand the contextual meaning of new words they come across in literature.

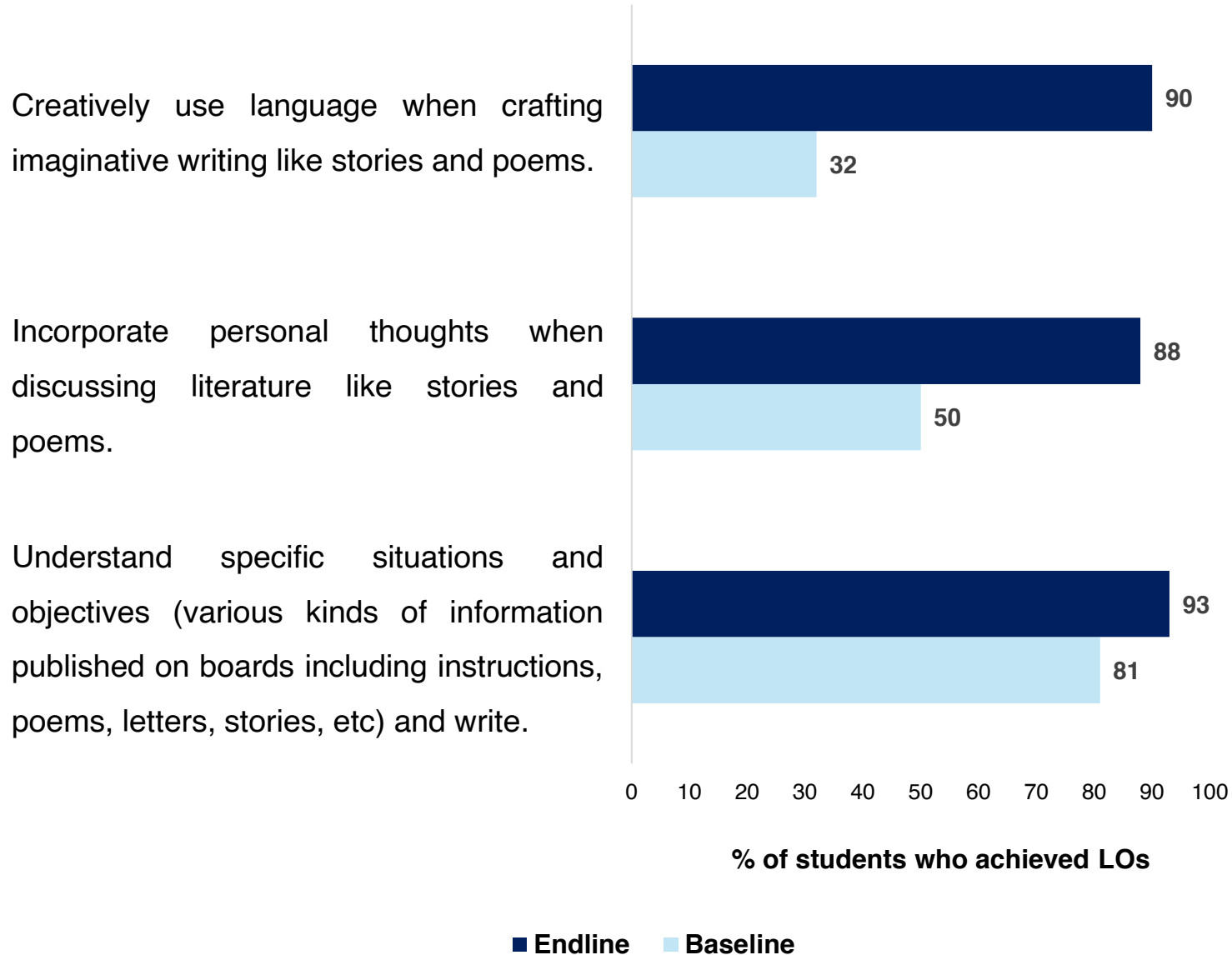
Attentively listen to information told by others and express their opinions and ask questions.



■ Endline ■ Baseline

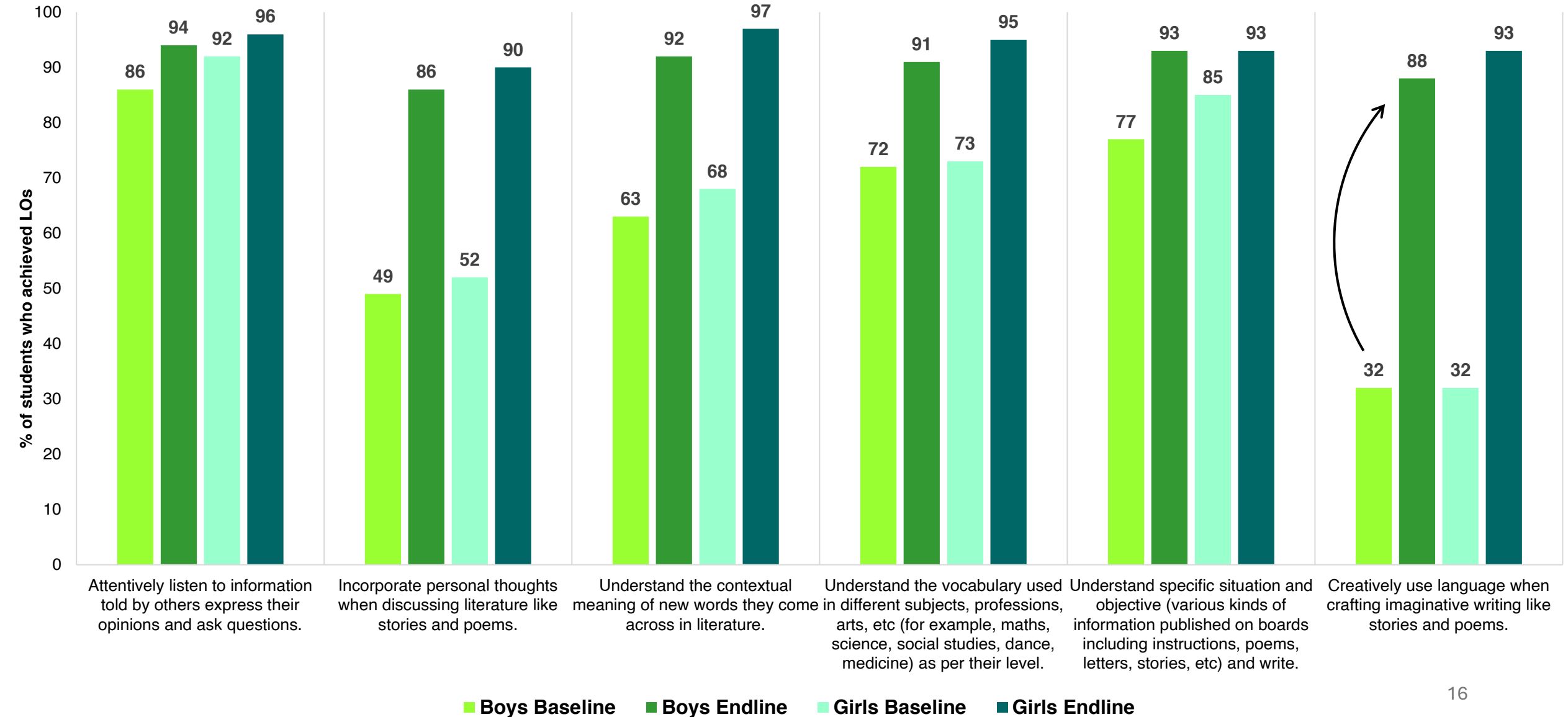
- The percentage of students who understood vocabulary increased by 21 percentage points at the endline.
- The percentage of students who understood the contextual meaning of new words they encountered in literature increased by 30 percentage points at the endline.

# 4<sup>th</sup> Grade - Percent of Students Who Achieved Marathi LOs



- The percentage of students who understood how to use creative language increased by 58 percentage points at the endline.
- All 6 LOs show significant growth.

# 4<sup>th</sup> Grade - Gender wise LOs Achievement



# 5<sup>th</sup> Grade - Marathi LOs

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LO code	LO description	No. of questions in baseline & endline
05.01.01	Discuss literature themes, characters, and titles, ask questions related to them, express their opinions and reasoning, and draw conclusions.	5
05.01.02	Closely observe the incidents happening in their surroundings, express their opinions related to them verbally, and ask questions on them.	3
05.01.03	Create own verbal language through close observation of a language.	1
05.01.10	Identify various grammar components (for example, full stop, tense, verb, gender, number) and use it to write.	1

# Illustrative Example of Questions

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In 5<sup>th</sup> Grade - Marathi:

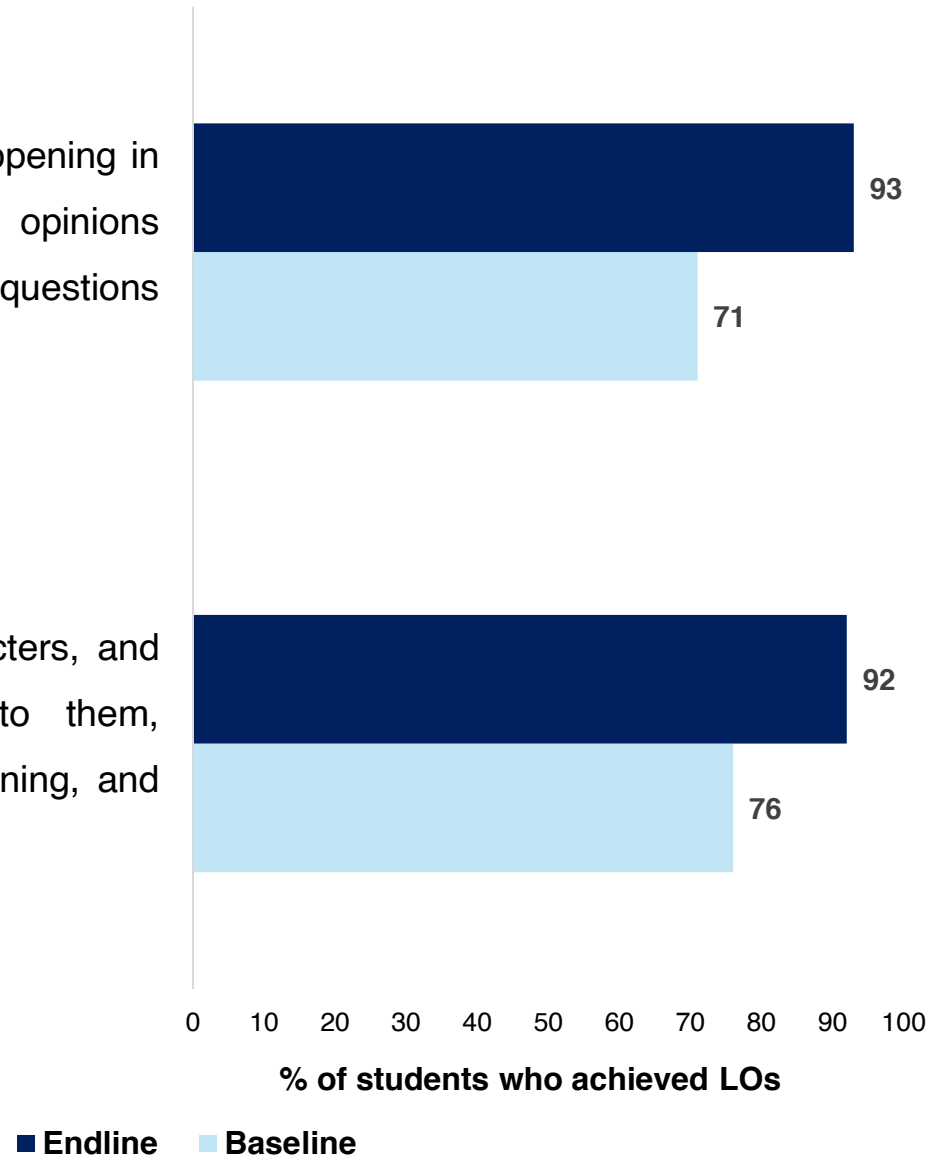
- Selected LOs contain the same number of questions in baseline and endline.
- Slightly modified questions across baseline and endline with consistent LOs.

LO code	LO description	Baseline question	Endline question
05.01.10	Identify various grammar components (for example, full stop, tense, verb, gender, number) and use them to write.	Which of the following sentences is present tense?	Identify the tense of the following sentence: "Irfan runs quickly."

# 5<sup>th</sup> Grade - Percent of students who achieved Marathi LOs

Closely observe the incidents happening in their surroundings, express their opinions related to them verbally, and ask questions on them.

Discuss literature themes, characters, and titles, ask questions related to them, express their opinions and reasoning, and draw conclusions.

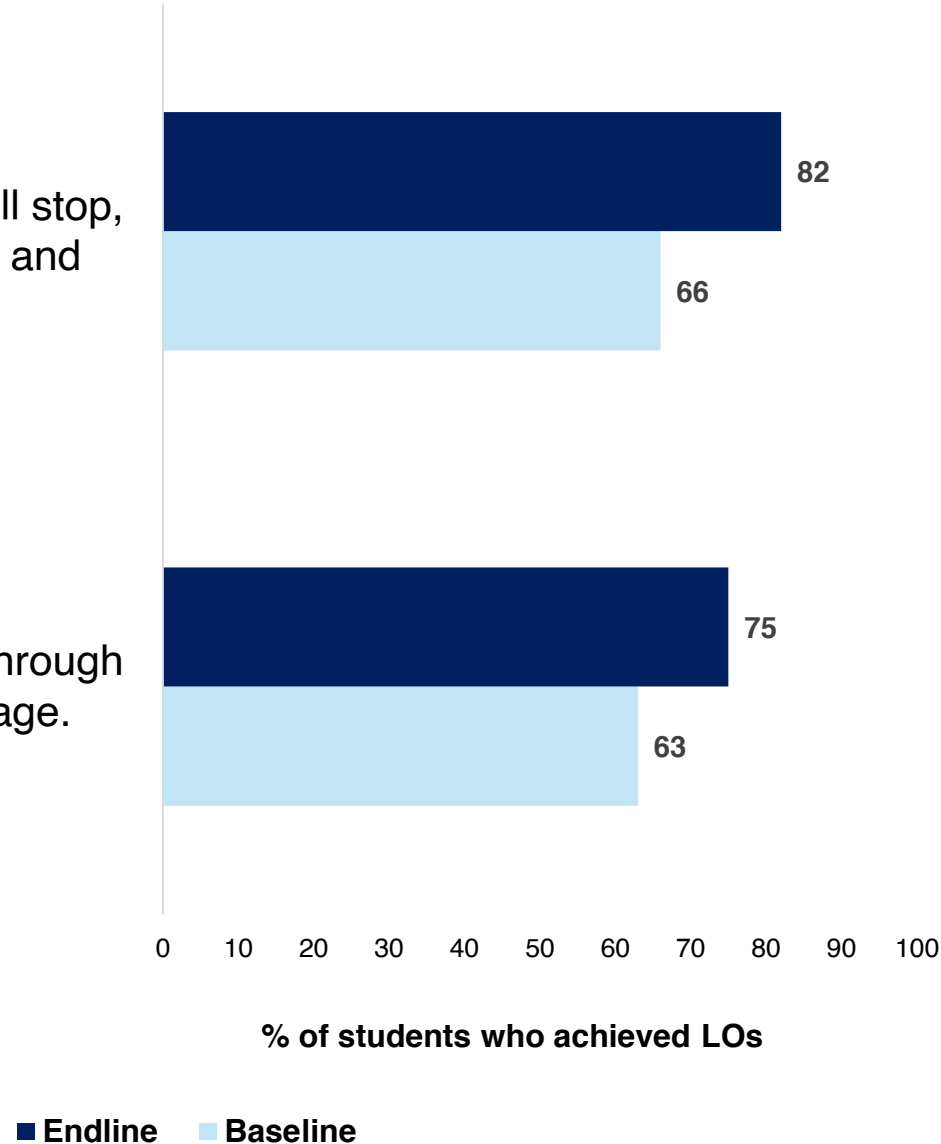


- The percentage of students who observed incidents expressed their opinions verbally and asked questions increased by 22 percentage points at the endline.
- The percentage of students who discussed literary themes, characters, titles, and expressed emotions increased by 16 percentage points at the endline.

# 5<sup>th</sup> Grade - Percent of students who achieved Marathi LOs

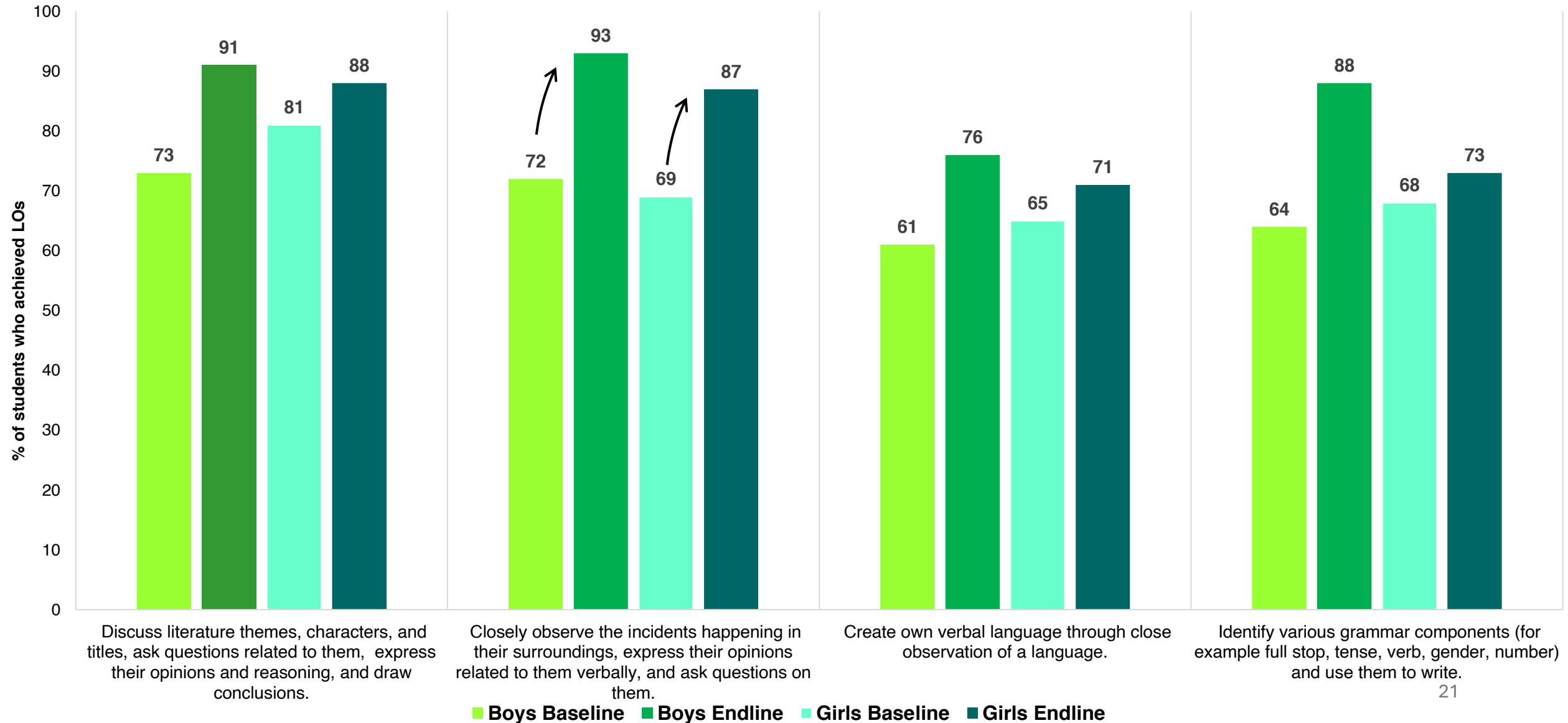
Identify various grammar components (for example, full stop, tense, verb, gender, number) and use it to write.

Create own verbal language through close observation of a language.

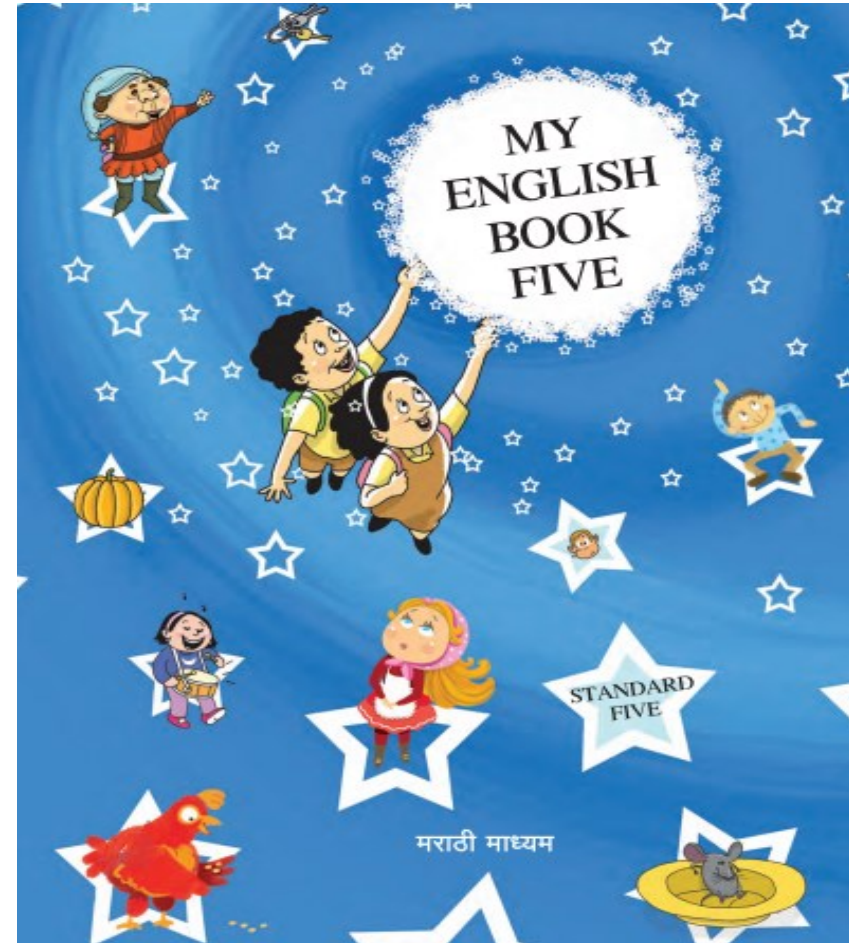
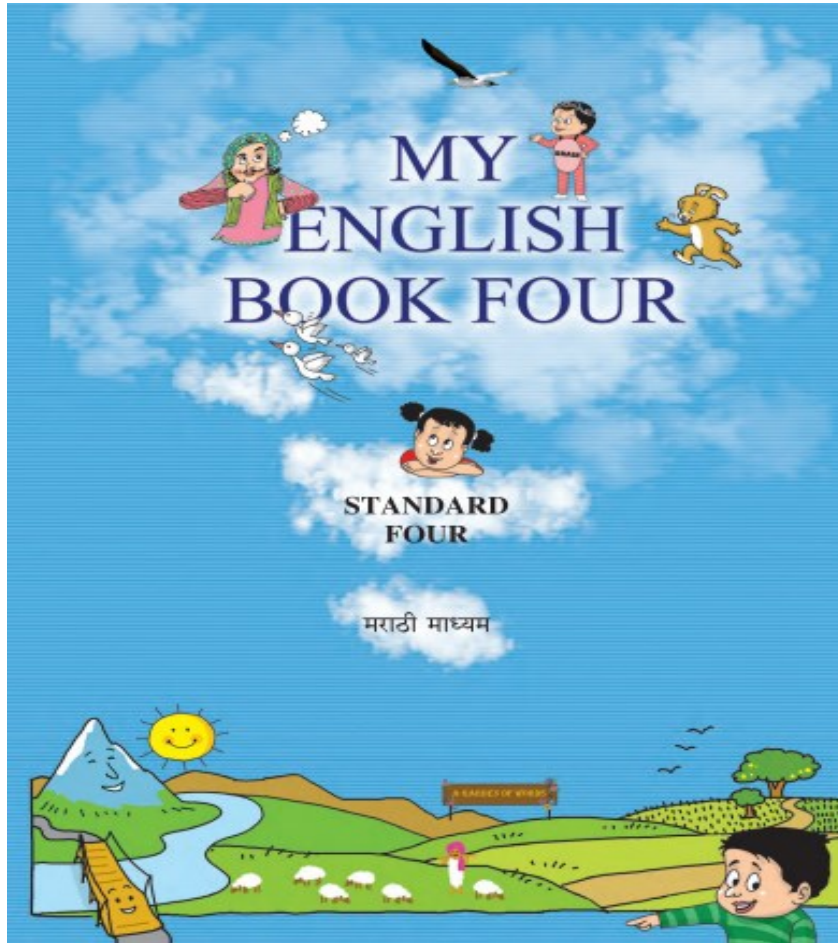


- The percentage of students who identify grammar components and use them to write increased by 16 percentage points at the endline.
- The percentage of students who create their verbal language through close observation of a language increased by 12 percentage points at the endline.

# 5<sup>th</sup> Grade - Gender wise LOs Achievement



# English

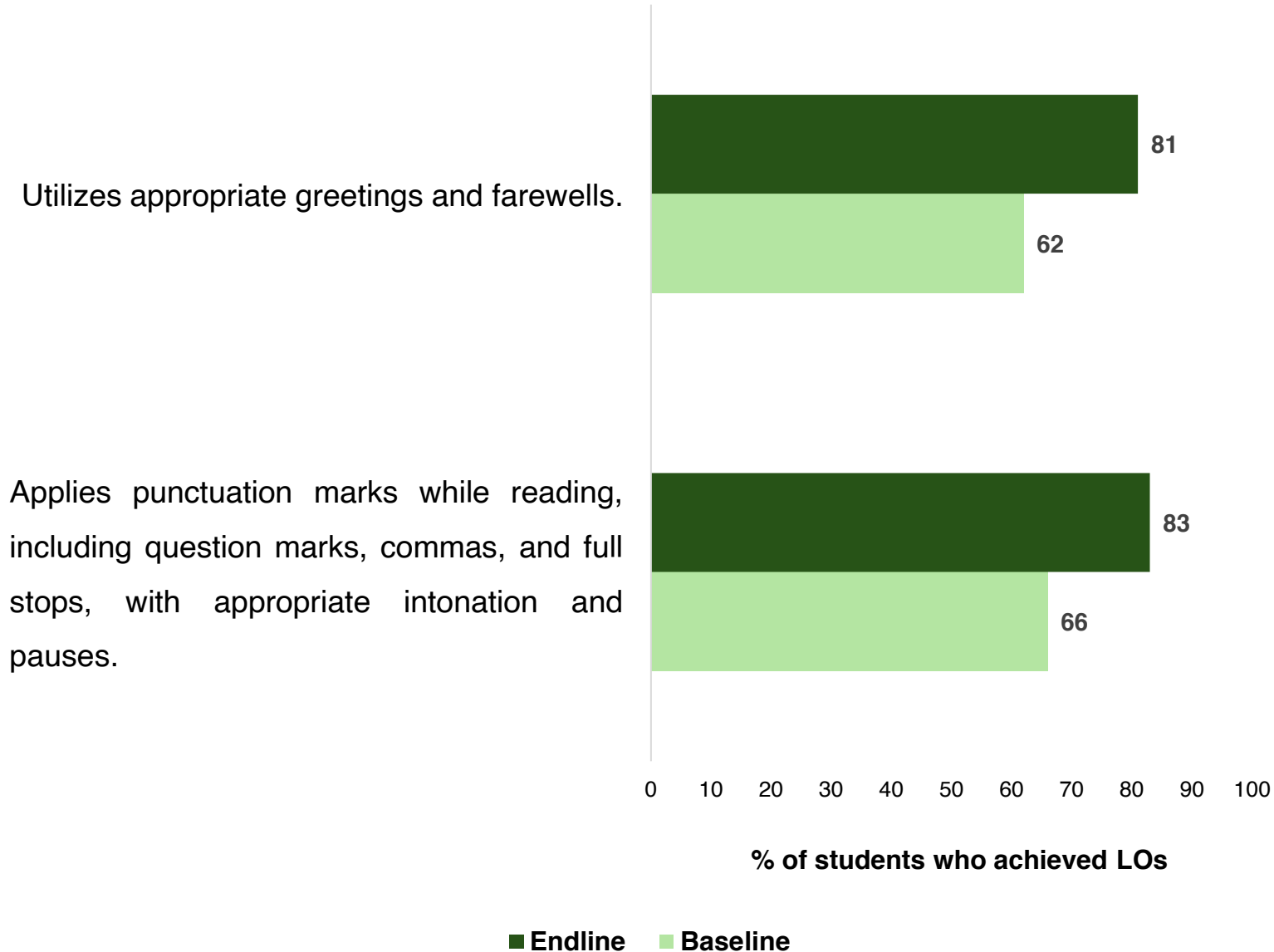


# 4<sup>th</sup> Grade - English LOs

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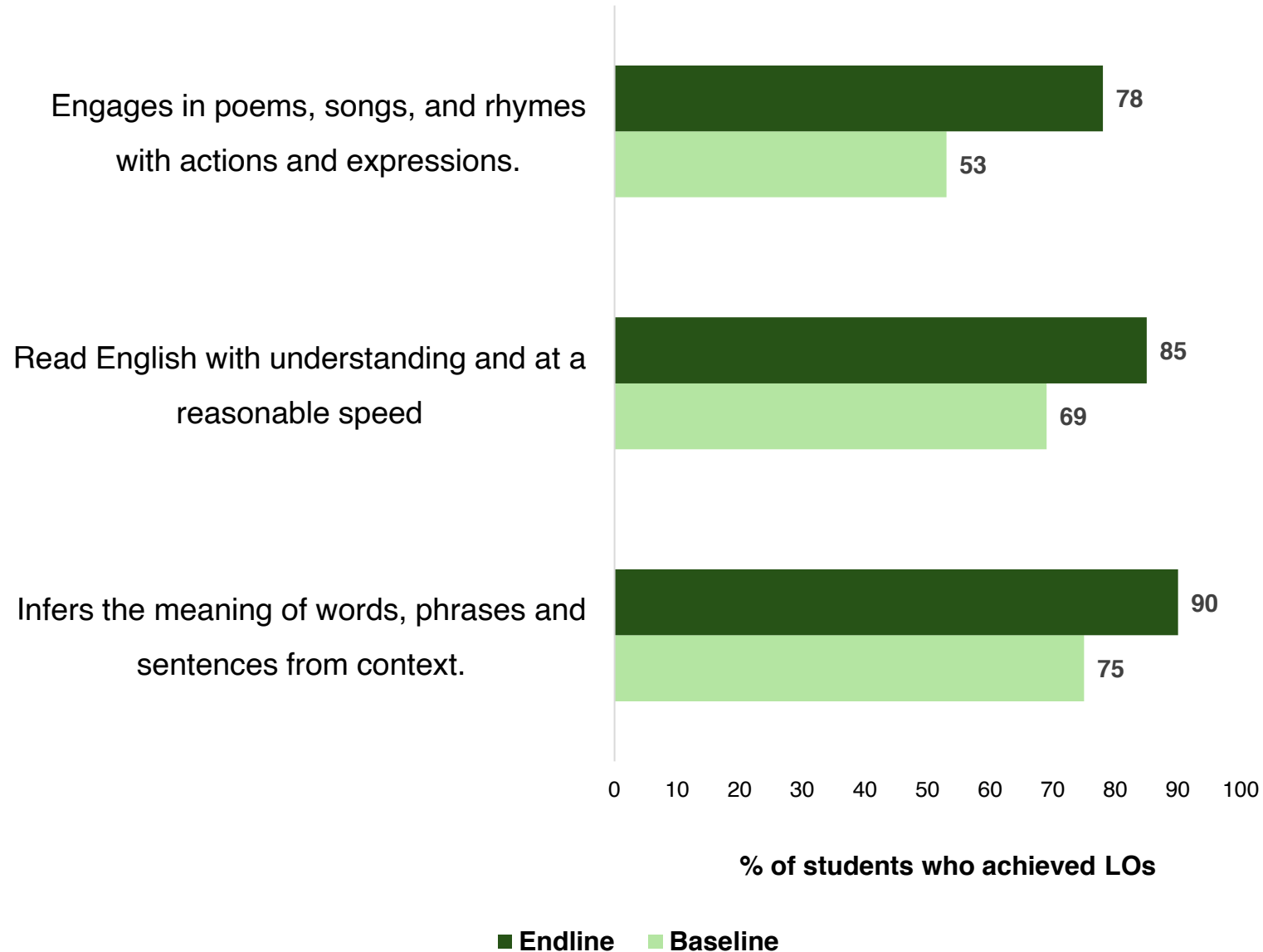
LO code	LO description	No. of questions in baseline & endline
04.17.02	Infers the meaning of words, phrases and sentences from context.	5
04.17.03	Engages in poems, songs, and rhymes with actions and expressions.	1
04.17.07	Read English with understanding and at a reasonable speed	3
04.17.12	Applies punctuation marks while reading, including question marks, commas, and full stops, with appropriate intonation and pauses.	1
04.17.17	Utilizes appropriate greetings and farewells.	1

# 4<sup>th</sup> Grade - Percent of Students Who Achieved English LOs



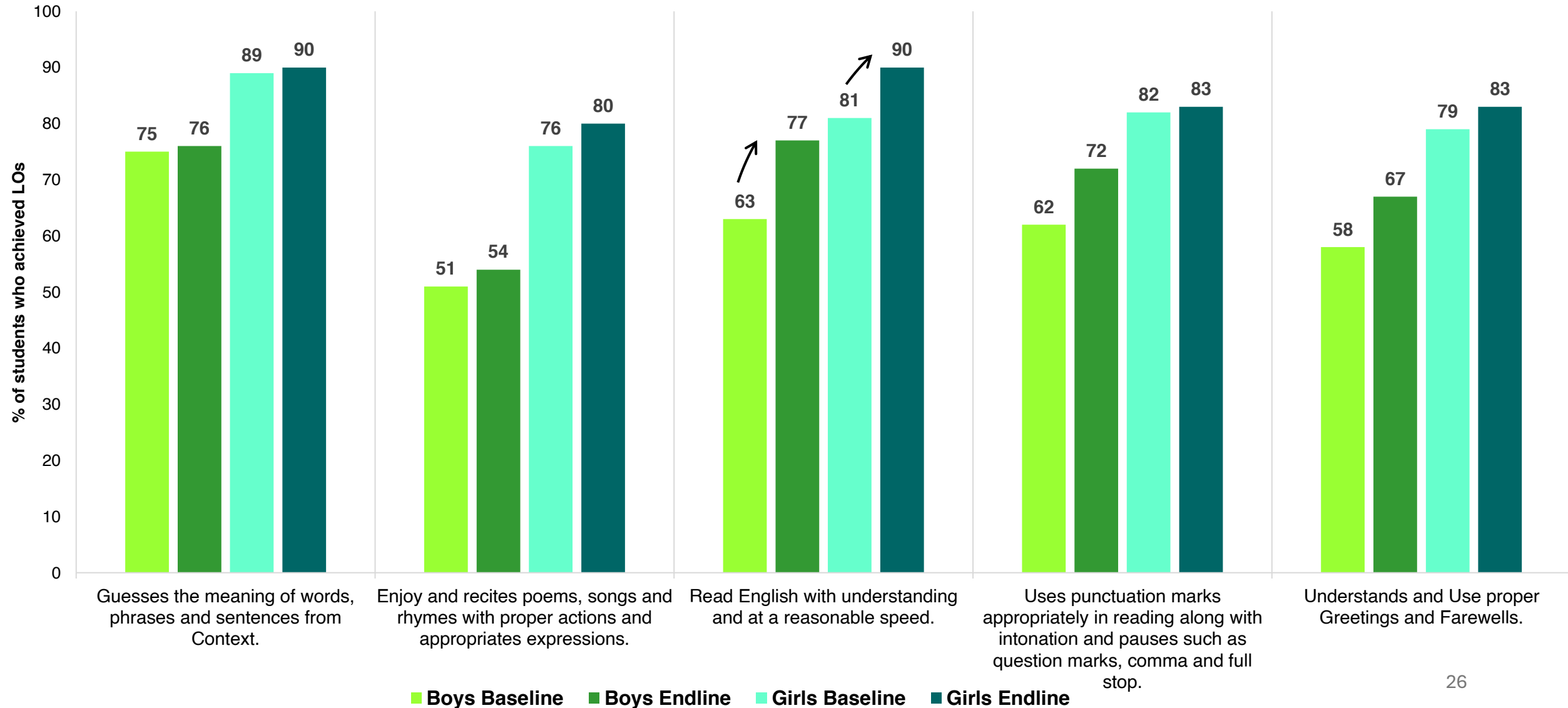
- The percentage of students who utilize appropriate greetings and farewells increased by 19 percentage points at the endline.
- The percentage of students who apply punctuation marks while reading increased by 17 percentage points at the endline.

# 4<sup>th</sup> Grade - Percent of Students Who Achieved English LOs



- The percentage of students who engage in poems, songs, and rhymes with actions and expressions increased by 25 percentage points at the endline.
- The percentage of students who read English with understanding and at a reasonable speed increased by 16 percentage points at the endline.

# 4<sup>th</sup> Grade - Gender wise LOs Achievement



# 5<sup>th</sup> Grade - English LOs\*

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\*Selected LOs contain an inconsistent number of questions in baseline and endline.

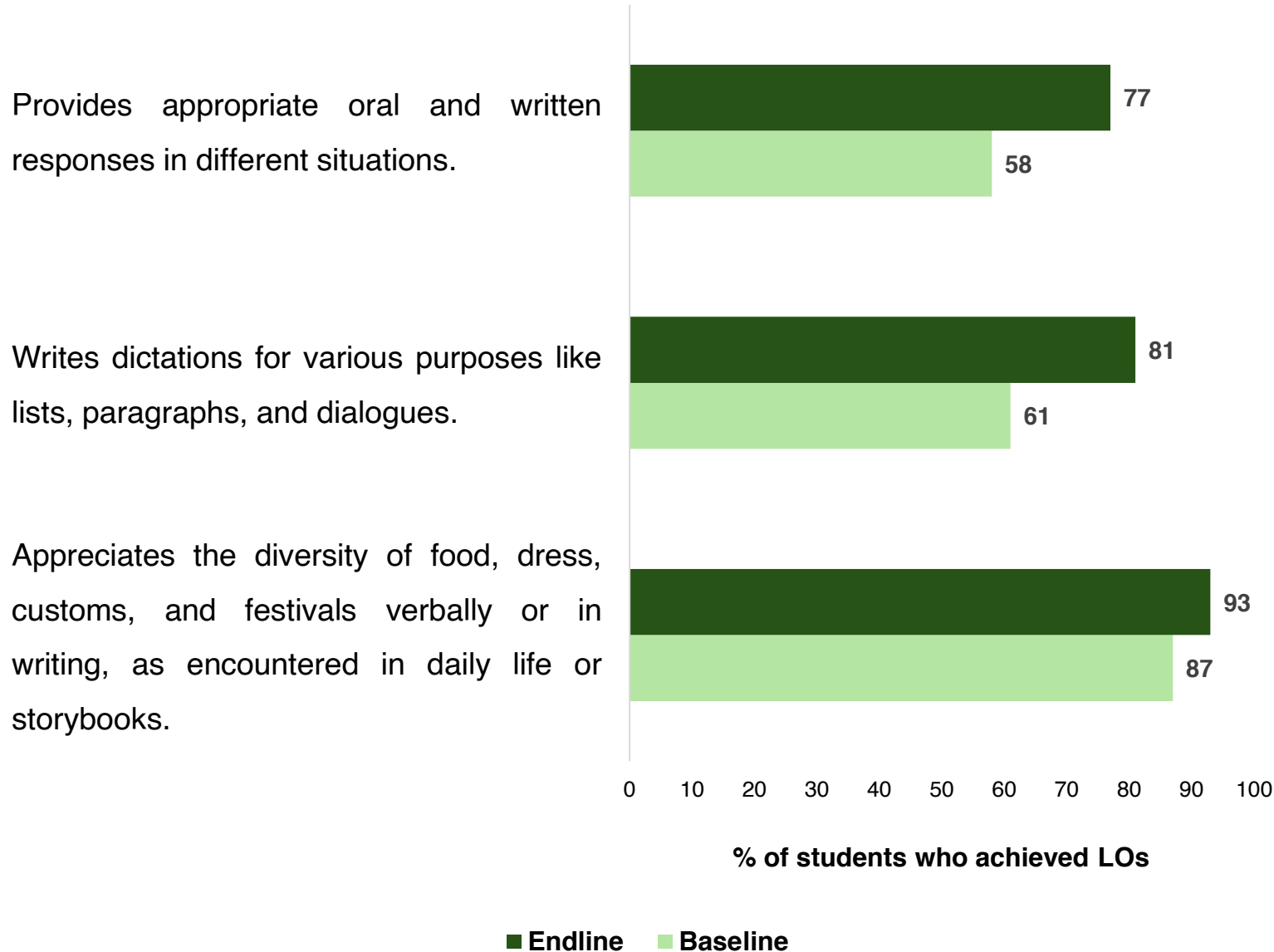
LO code	LO description	No. of questions in baseline	No. of questions in endline
05.17.02	Provides appropriate oral and written responses in different situations.	4	5
05.17.09	Writes dictations for various purposes like lists, paragraphs, and dialogues.	7	9
05.17.13	Appreciates the diversity of food, dress, customs, and festivals verbally or in writing, as encountered in daily life or storybooks.	1	2

# Illustrative Example of Questions\*

- Slightly modified questions across baseline and endline with consistent LOs.

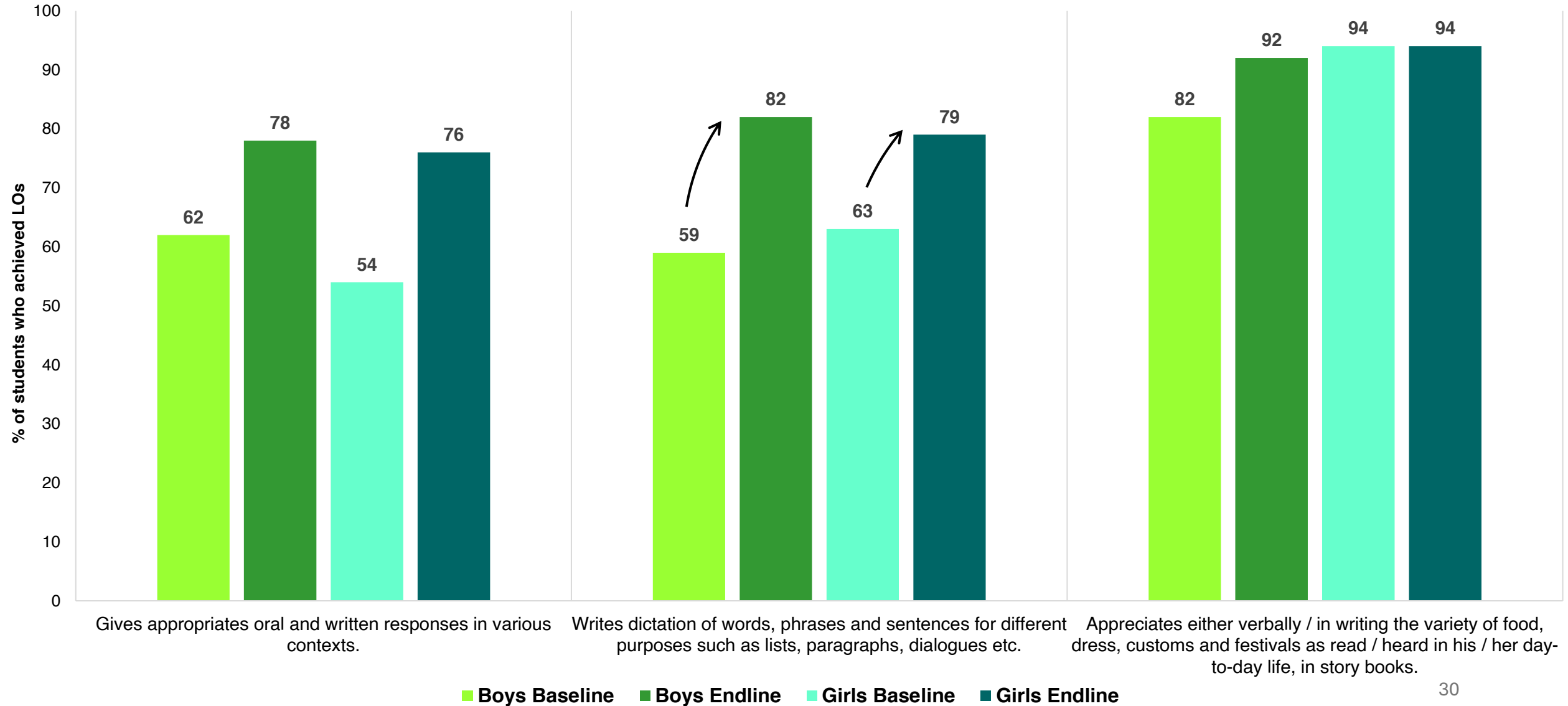
LO code	LO description	Baseline questions	Endline questions
05.17.02	Provides appropriate oral and written responses in different situations.	Write the opposite words of the following words: Little	Write the opposite words of the following words: Push
		Write the opposite words of the following words: Now	Write the opposite words of the following words: Catch
		The abbreviation of i.e. is _____	The abbreviation of “e.g.” means _____
		What can we say instead of ‘You are welcome’?	Instead of ‘continuing’ we can say _____
		-	“While walking in the garden, a snake bit me” is a _____ sentence.

# 5<sup>th</sup> Grade - Percent of students who achieved English LOs\*

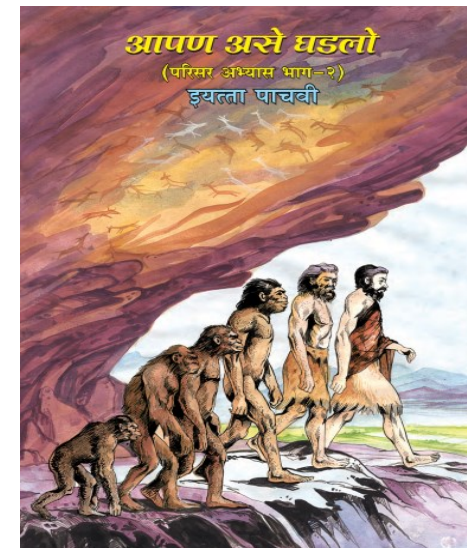
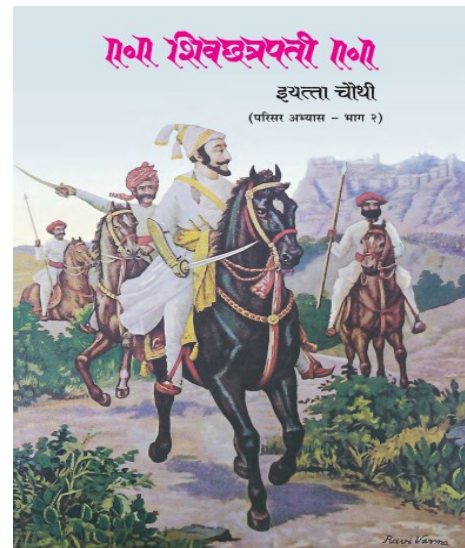
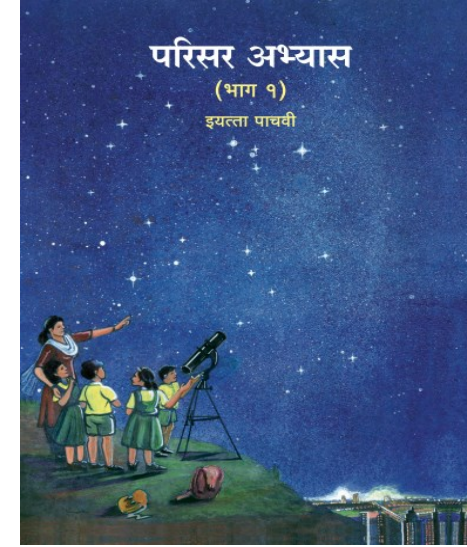


- The percentage of students who provide appropriate oral and written responses in different situations increased by 19 percentage points at the endline.
- The percentage of students who write dictations for various purposes like lists, paragraphs, and dialogues increased by 20 percentage points at the endline.

# 5<sup>th</sup> Grade - Gender wise LOs Achievement\*



# Environmental Studies (EVS)



# 4<sup>th</sup> Grade - EVS LOs

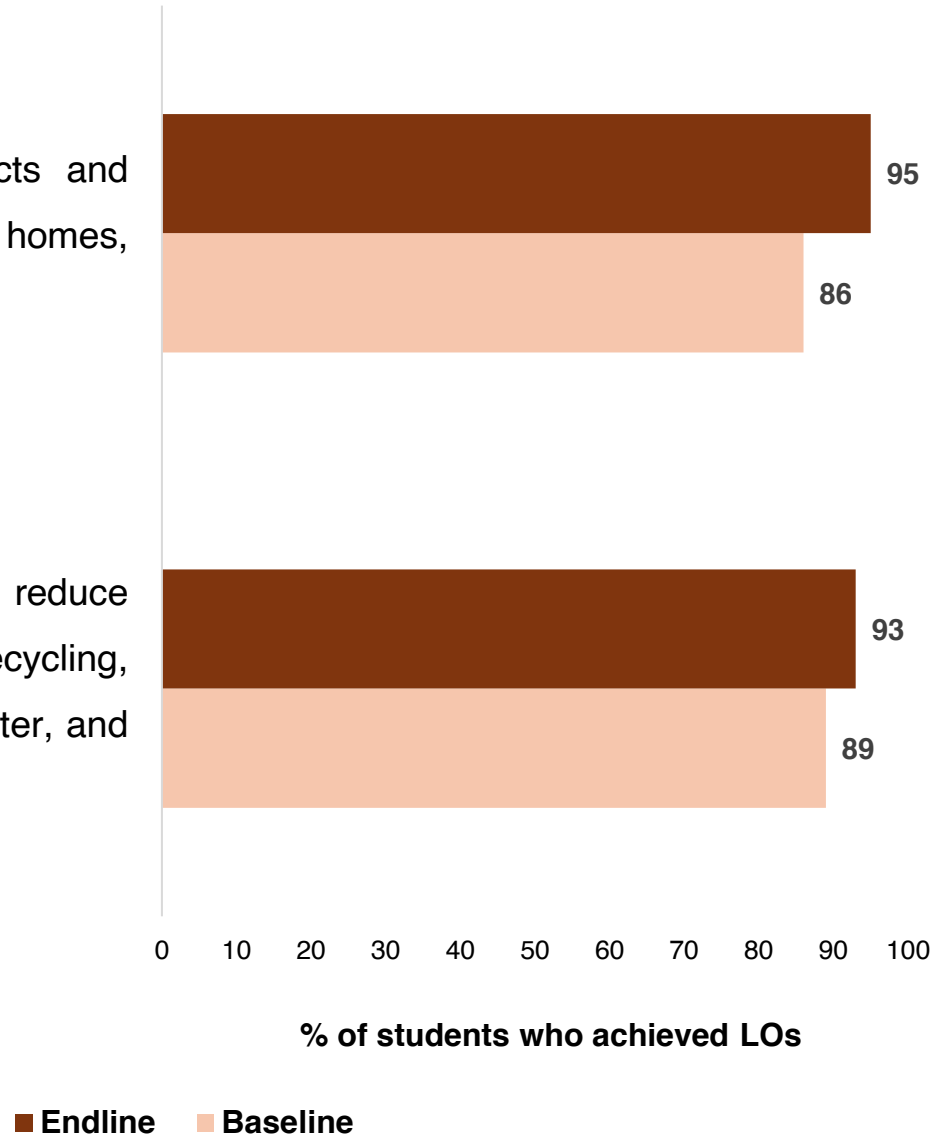
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LO code	LO description	No. of questions in baseline & endline
04.95A.06	Compare past and present objects and actions, like transportation, habits, homes, literature, tools, and skills.	2
04.95A.13	Advocate for health preservation, reduce waste suggest ways for recycling, and protect resources like food, water, and public property.	2
04.95A.17	Compare their district and state with regard to natural and man-made resources.	1
04.95B.04	Recount inspirational events related to Chhatrapati Shivaji Maharaj's personality.	1
04.95B.05	Understand through Shivaji Maharaj's biography that we can overcome a crisis through intelligence, courage and wisdom.	4

# 4<sup>th</sup> Grade - Percent of Students Who Achieved EVS LOs

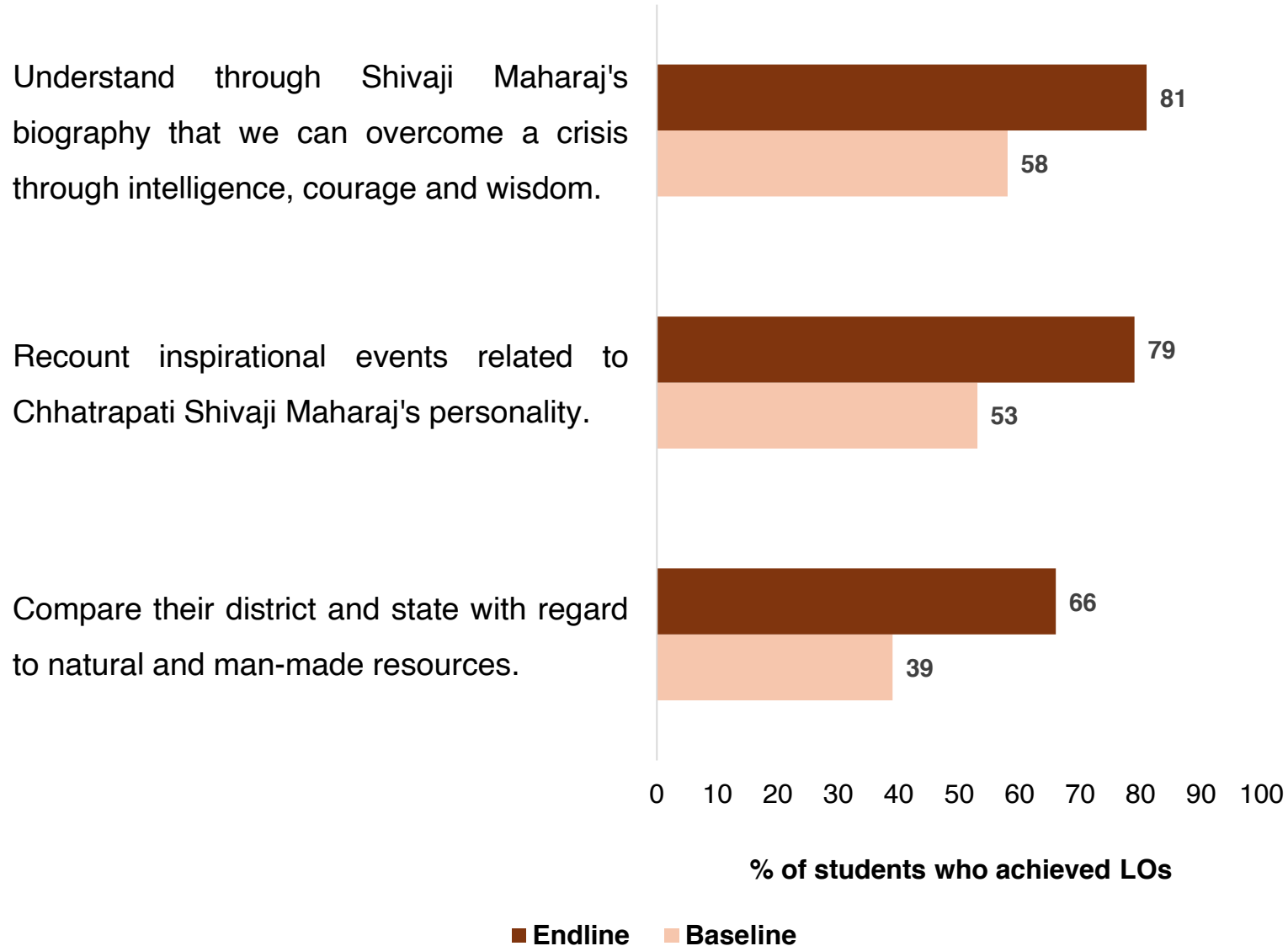
Compare past and present objects and actions, like transportation, habits, homes, literature, tools, and skills.

Advocate for health preservation, reduce waste and suggest ways for its recycling, and protect resources like food, water, and public property.



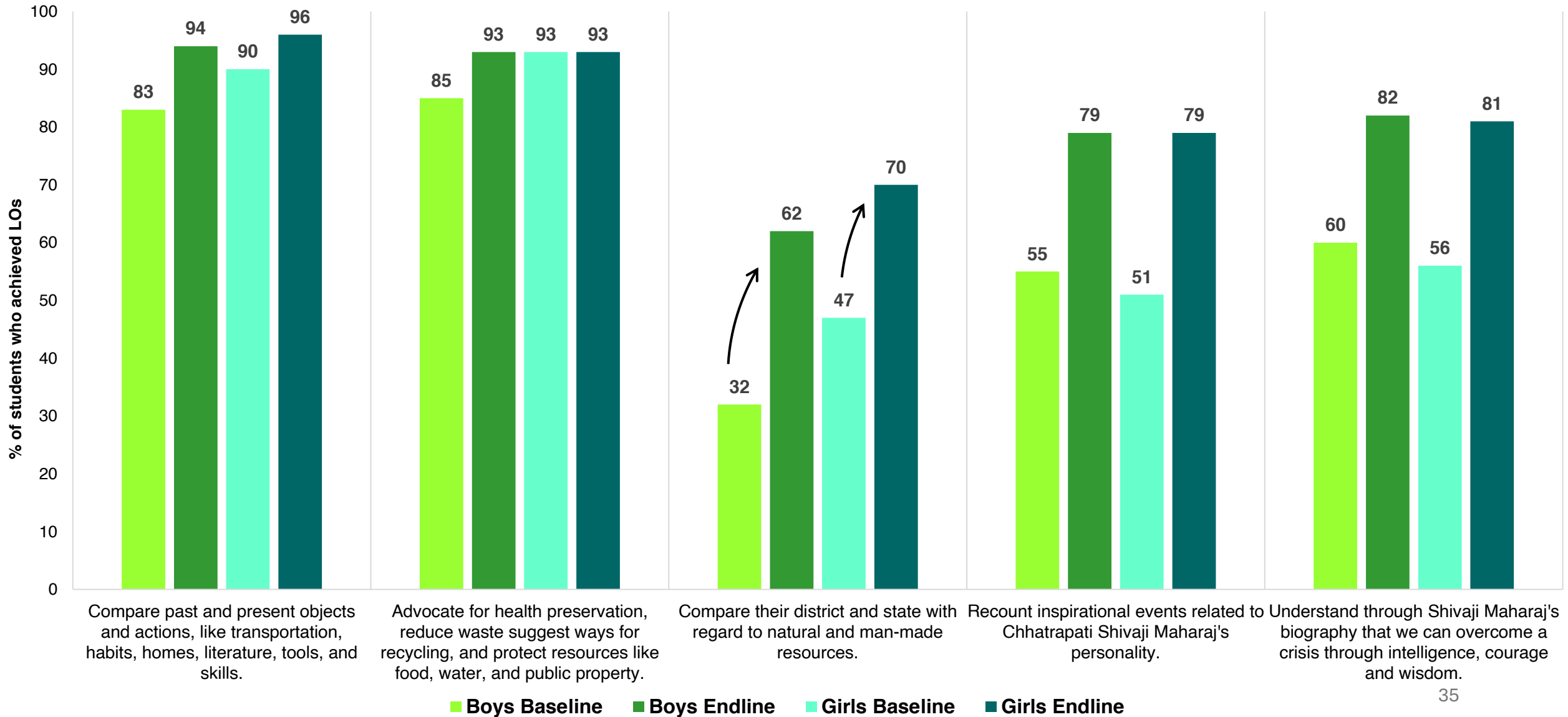
- The percentage of students who compare past and present objects & actions increased by 9 percentage points at the endline.
- The percentage of students who advocate for health preservation, reduce waste, suggest ways for recycling, and protect resources like food, water, and public property increased by 4 percentage points at the endline.

# 4<sup>th</sup> Grade - Percent of Students Who Achieved EVS LOs



- The percentage of students who understand through Shivaji Maharaj's biography that they can overcome a crisis through intelligence, courage, and wisdom increased by 23 percentage points at the endline.
- The percentage of students who analyze & compare their district and state with regard to natural and man-made resources increased by 27 percentage points at the endline.

# 4<sup>th</sup> Grade - Gender wise LOs Achievement



# 5<sup>th</sup> Grade - EVS LOs

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LO code	LO description	No. of questions in baseline & endline
05.95A.05	Classify actions to understand the characteristics of things such as material, shape, taste, color, image, and sound.	2
05.95A.06	Systematically document observations, experiences, and information.	2
05.95A.09	Express opinions based on observations/experiences.	2
05.95B.05	Acquire knowledge about human development from ancient to modern times.	2
05.95B.04	Discuss milestones of human evolution.	2

# Illustrative Example of Questions

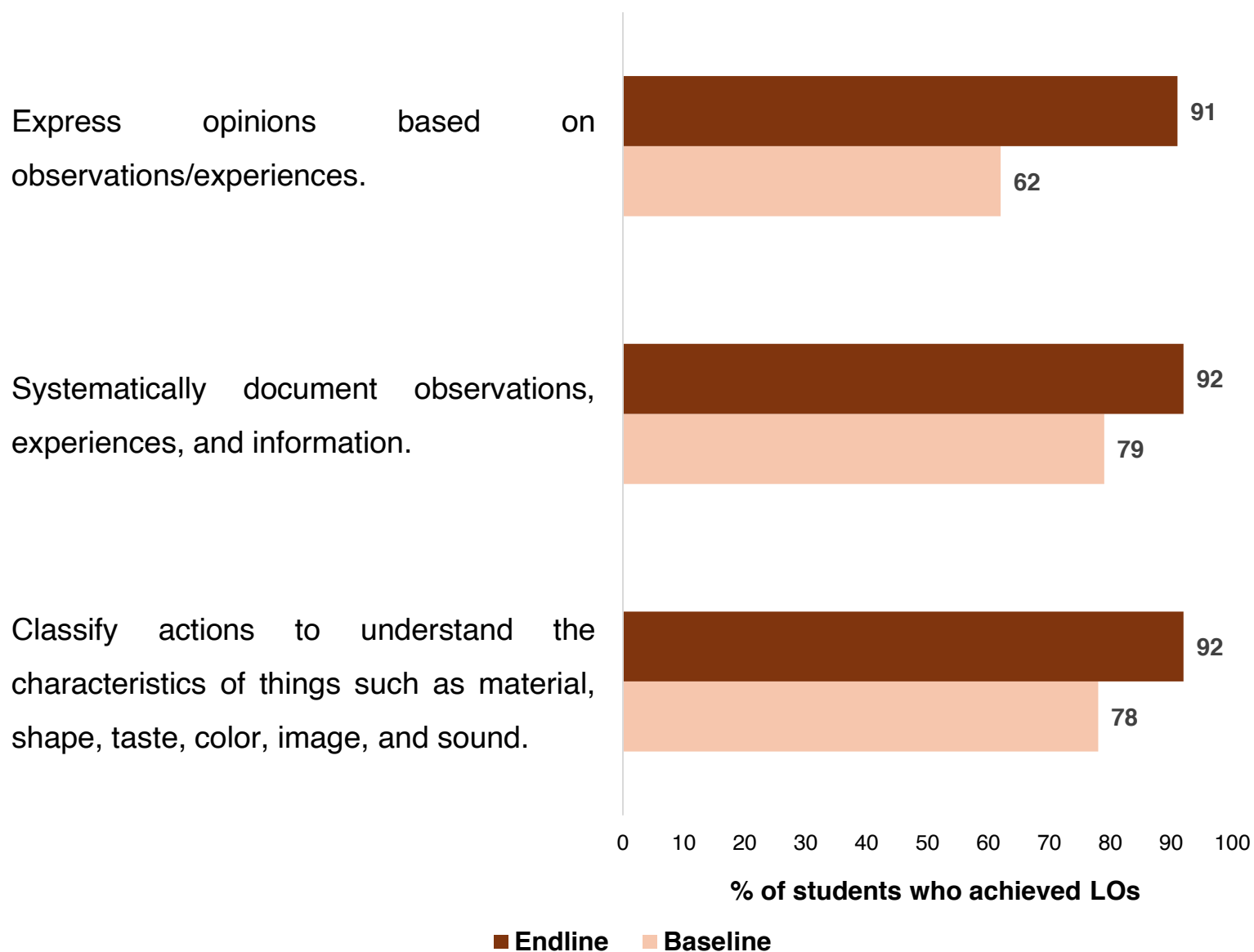
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In 5<sup>th</sup> Grade - EVS:

- Selected LOs contain the same number of questions in baseline and endline.
- Slightly modified questions across baseline and endline with consistent LOs.

LO code	LO description	Baseline questions	Endline questions
05.95B.04	Discuss milestones of human evolution.	In the Stone Age, the creation of weapons was carried out using _____	Stone age weapons: Stone age so, Copper age weapons: _____
		When was the wheel invented?	The extremely important invention undertaken during the Bronze Age is called _____.

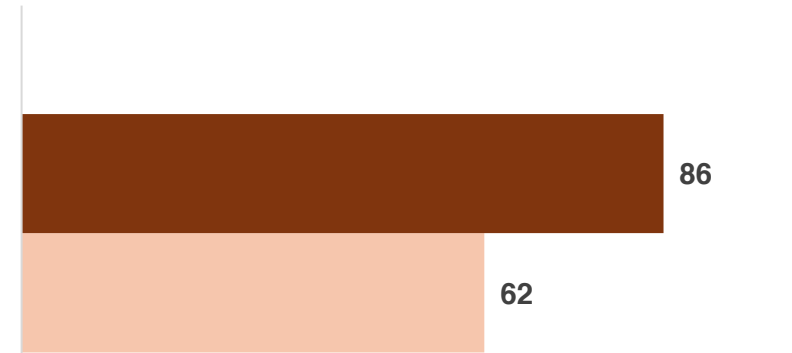
# 5<sup>th</sup> Grade - Percent of Students Who Achieved EVS LOs



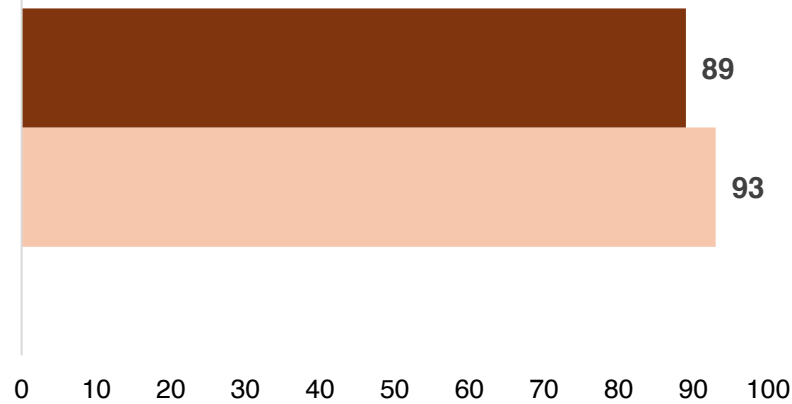
- The percentage of students who express opinions based on observations/experiences increased by 29 percentage points at the endline.
- The percentage of students who systematically document observations, experiences, and information increased by 13 percentage points at the endline.

# 5<sup>th</sup> Grade - Percent of Students Who Achieved EVS LOs

Acquire knowledge about human development from ancient to modern times.



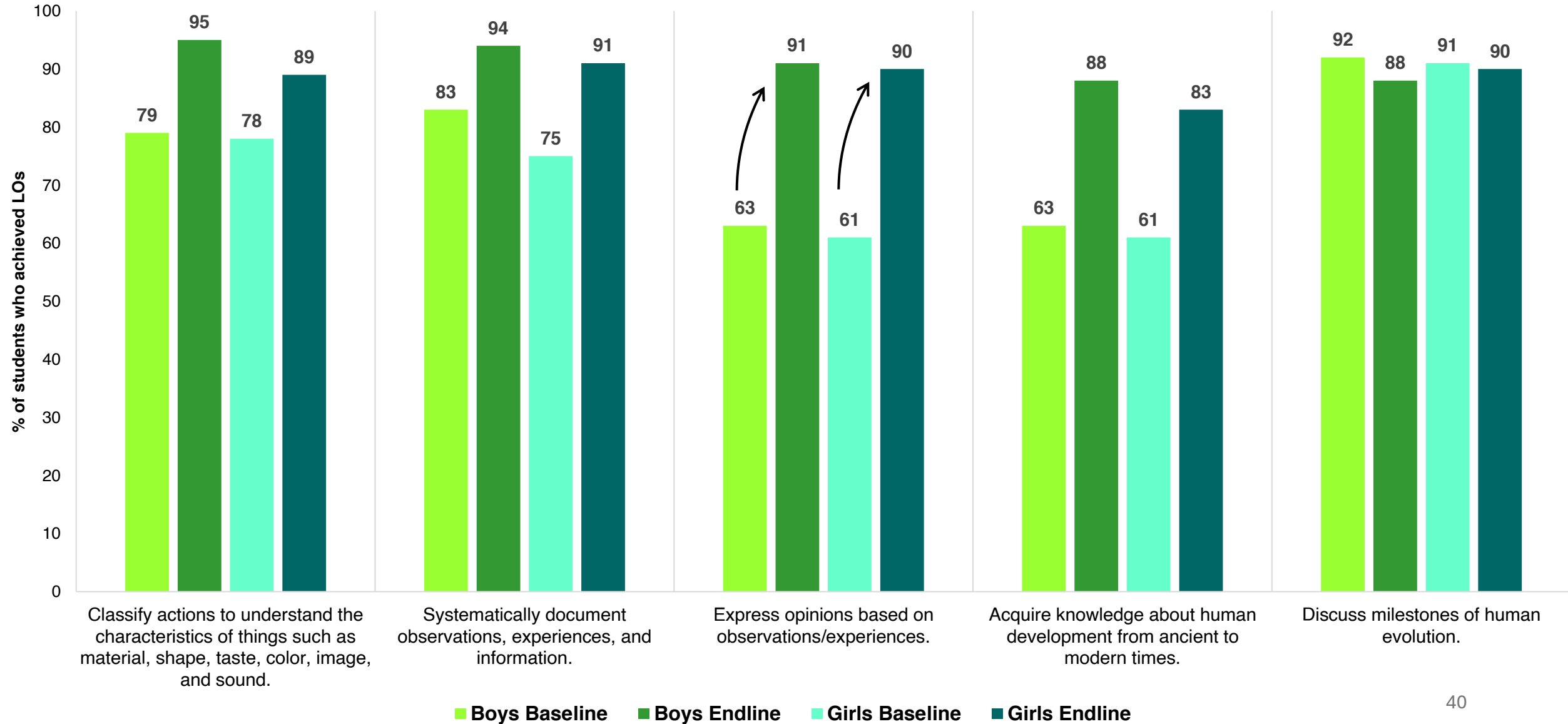
Discuss milestones of human evolution.



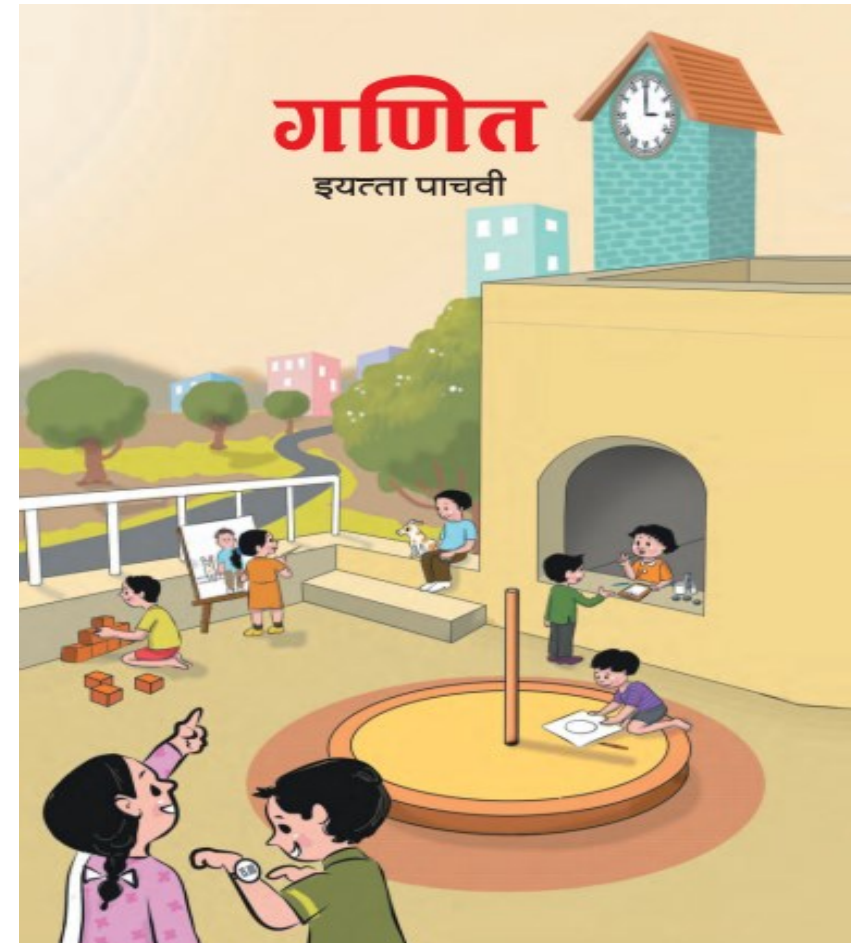
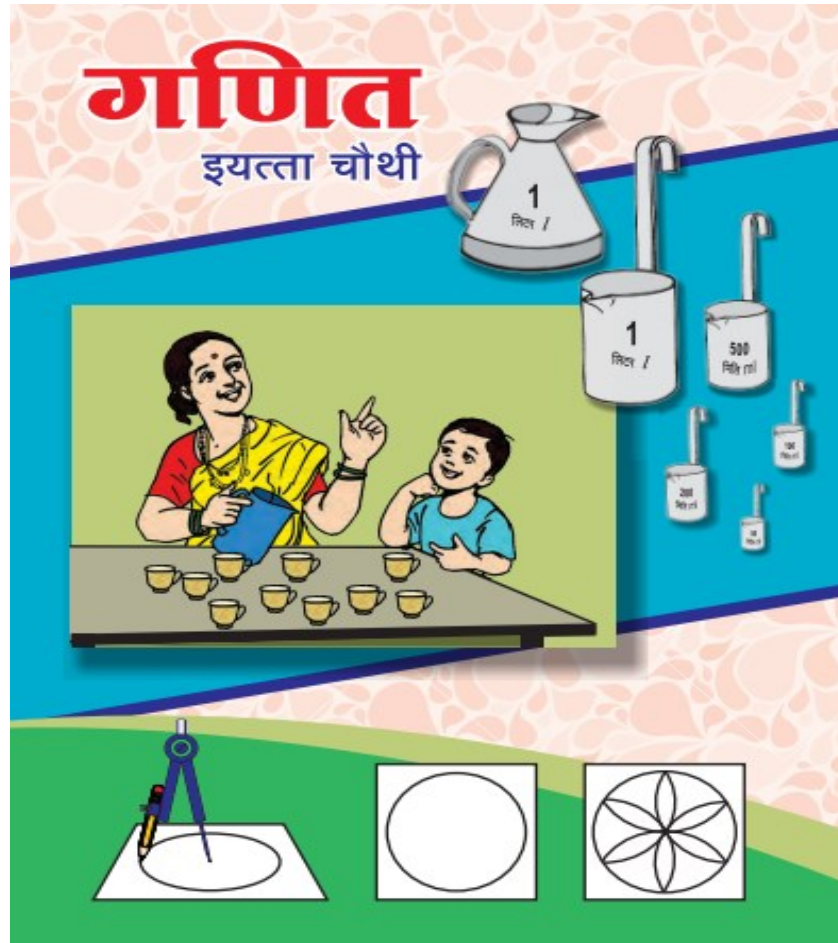
■ Endline ■ Baseline

- The percentage of students who acquire knowledge about human development from ancient to modern times increased by 24 percentage points at the endline.
- The percentage of students who discuss milestones of human evolution decreased by 4 percentage points at the endline.

# 5<sup>th</sup> Grade - Gender wise LOs Achievement



# Maths



# 4<sup>th</sup> Grade - Maths LOs

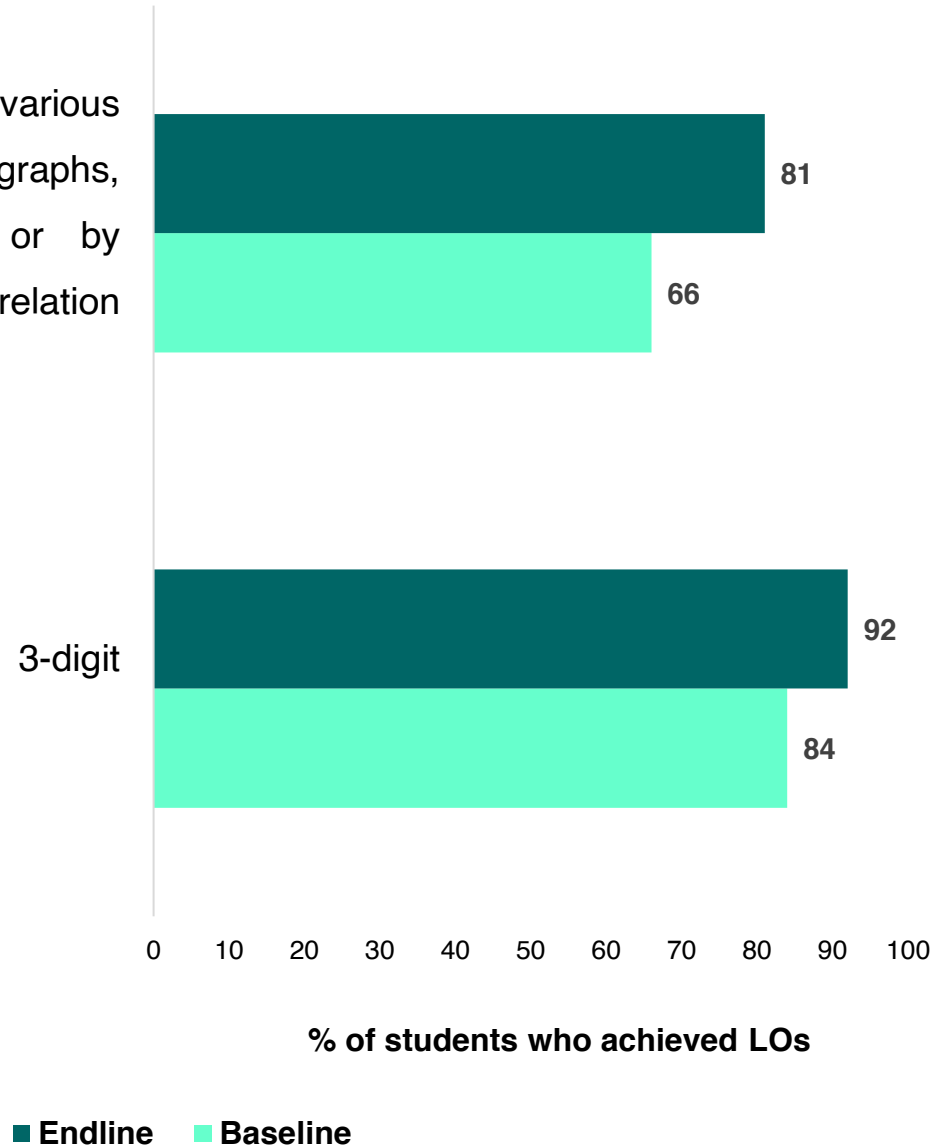
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LO code	LO description	No. of questions in baseline & endline
04.71.03	Multiply 2-digit numbers by 3-digit numbers.	4
04.71.04	Divide one by another using various methods such as: using pictographs, marking dots, equal grouping or by subtracting repeatedly using the relation between division and multiplication.	2
04.71.05	Use four operations to create questions or situations in everyday life involving coins, notes, length, weight, and capacity and to solve them.	1
04.71.18	Calculate event durations using forward/backward time movement and interval/difference calculations.	3

# 4<sup>th</sup> Grade - Percent of Students Who Achieved Maths LOs

Divide one by another using various methods such as: using pictographs, marking dots, equal grouping or by subtracting repeatedly using the relation between division and multiplication.

Multiply 2-digit numbers by 3-digit numbers.

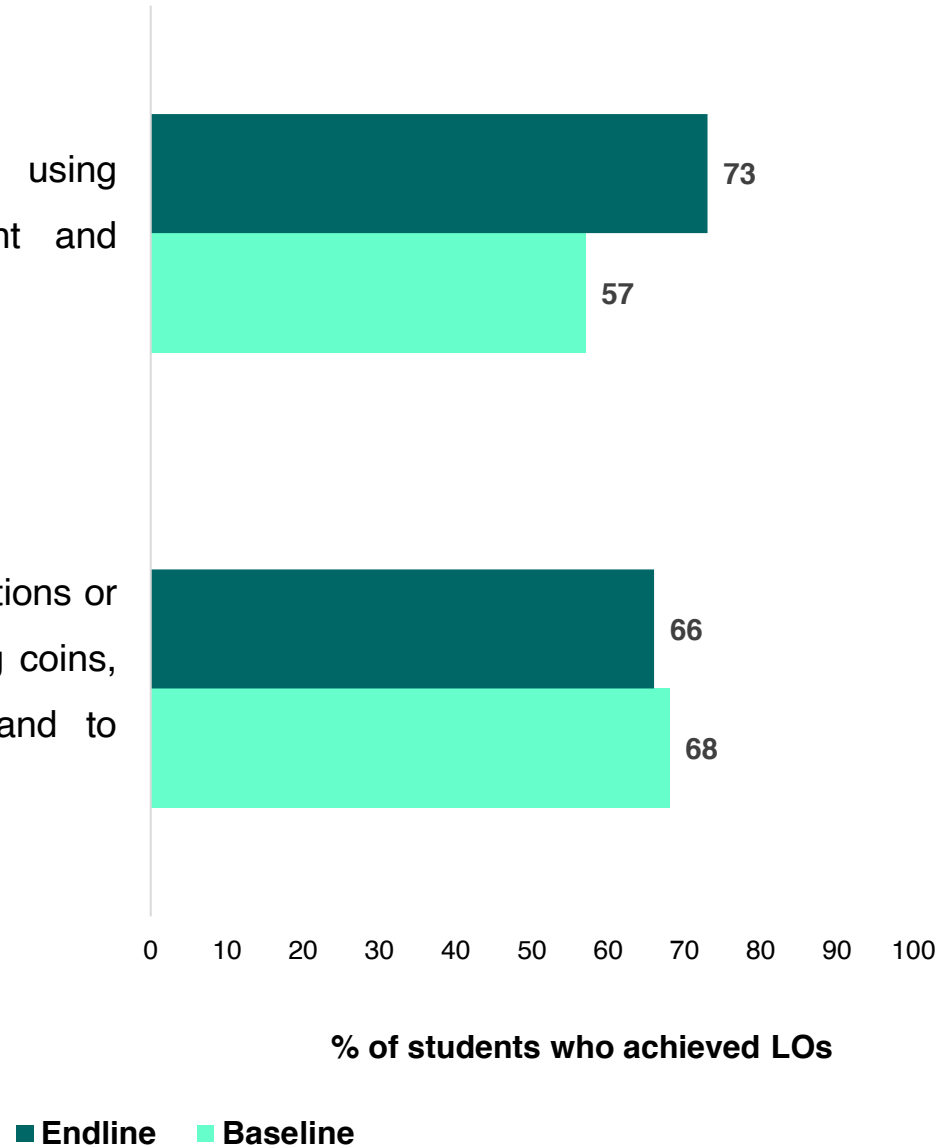


- The percentage of students who divide numbers using various methods increased by 15 percentage points at the endline.
- The percentage of students who multiply 2-digit numbers by 3-digit numbers increased by 8 percentage points at the endline.

# 4<sup>th</sup> Grade - Percent of Students Who Achieved Maths LOs

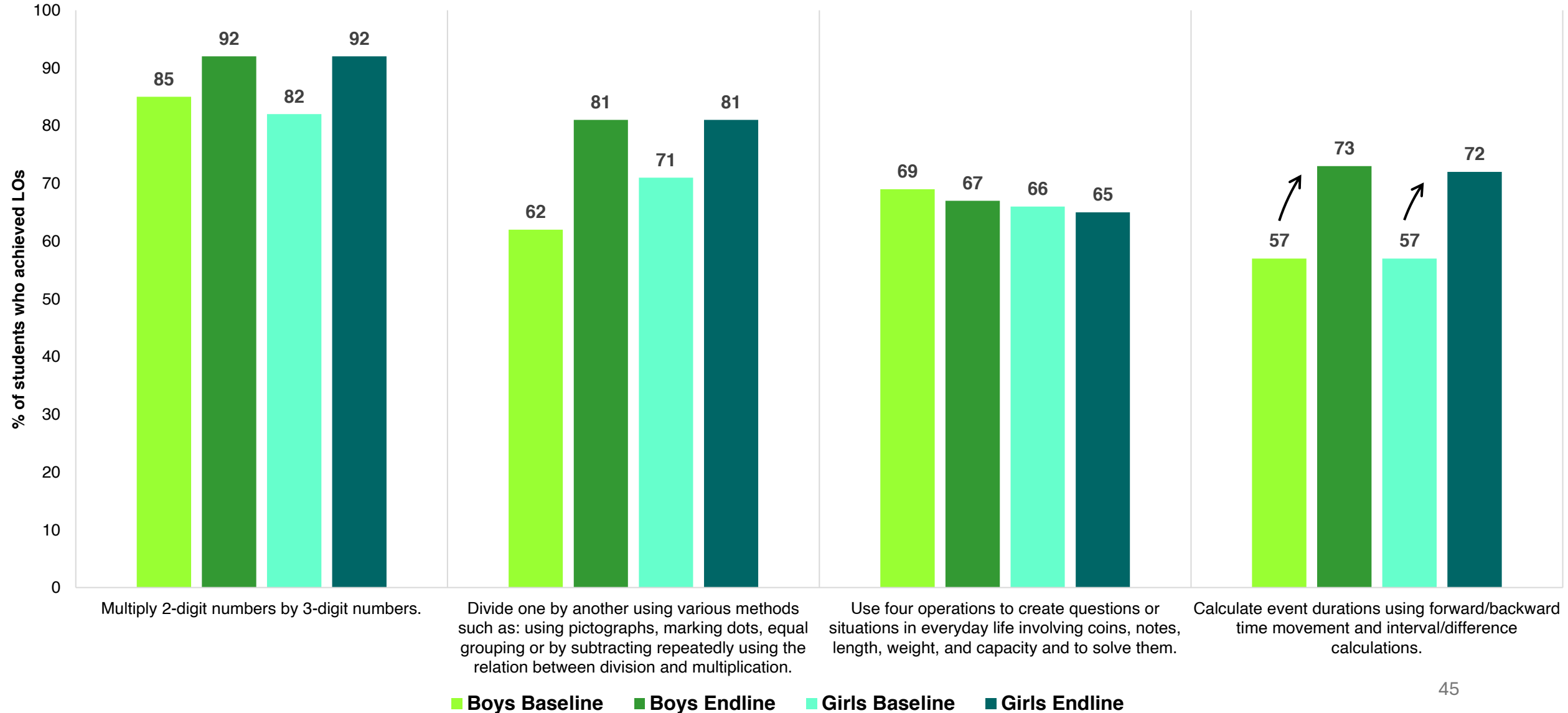
Calculate event durations using forward/backward time movement and interval/difference calculations.

Use four operations to create questions or situations in everyday life involving coins, notes, length, weight, capacity and to solve them.



- The percentage of students who calculate event durations increased by 16 percentage points at the endline.
- We need to focus on four operations to create questions or situations in everyday life, as around 1/3<sup>rd</sup> of students can't solve the basic four operations.

# 4<sup>th</sup> Grade - Gender wise LOs Achievement



# 5<sup>th</sup> Grade - Maths LOs

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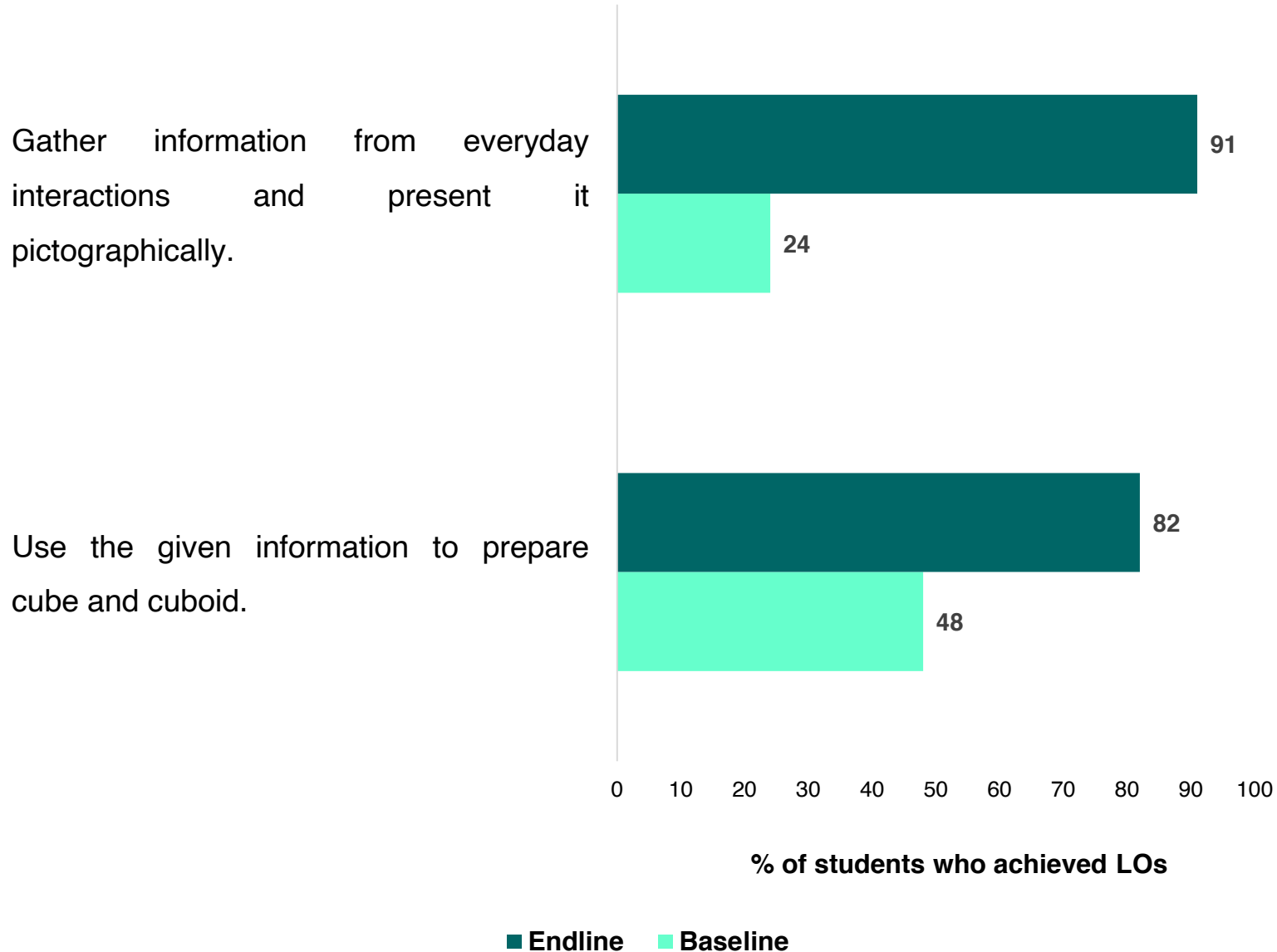
LO code	LO description	No. of questions in baseline & endline
05.71.10	Gather information from everyday interactions and present it pictographically.	5
05.71.07	Use the given information to prepare the cube and cuboid.	5

# Illustrative Example of Questions

- Selected LOs contain the same number of questions in baseline and endline.
- Slightly modified questions across baseline and endline with consistent LOs.

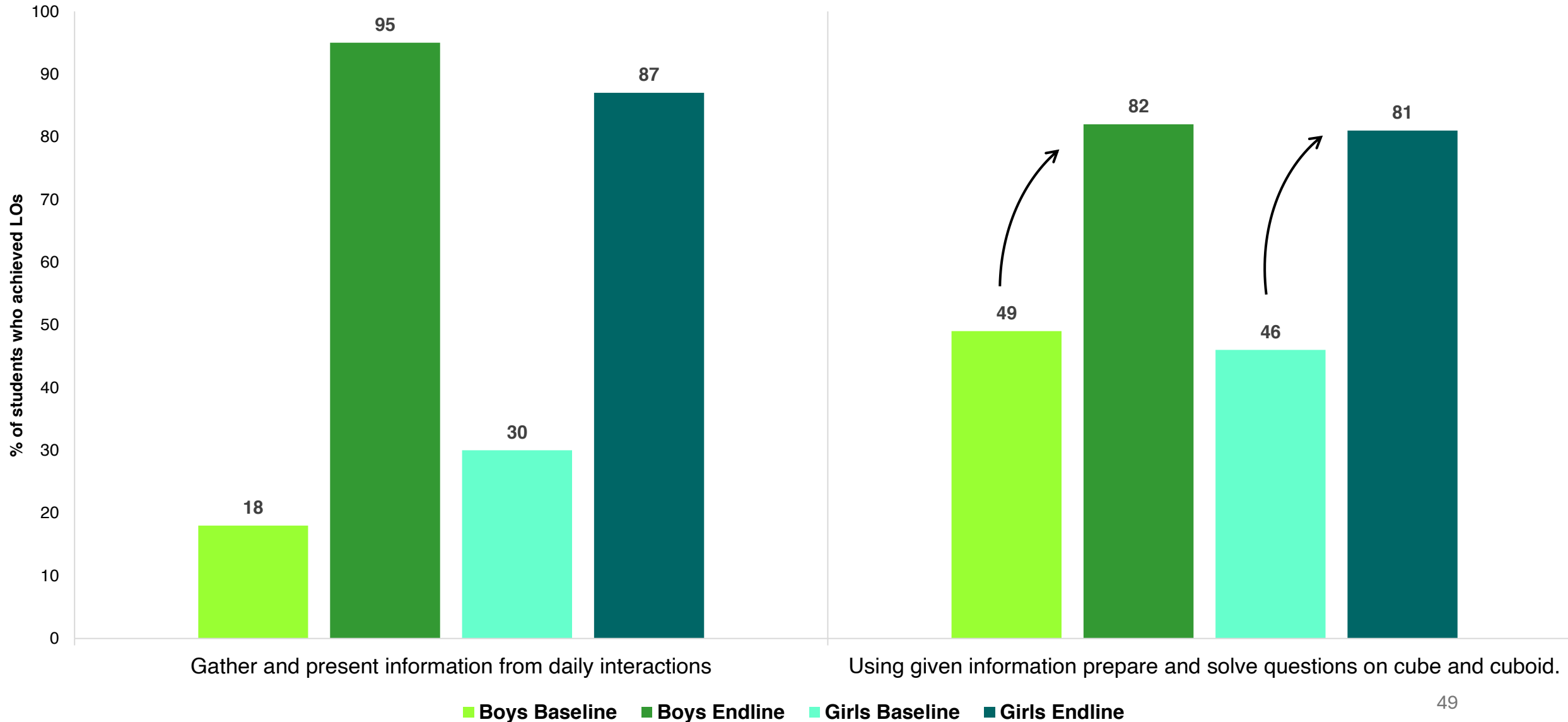
LO code	LO description	Baseline questions	Endline questions
05.71.10	Gather information from everyday interactions and present it pictographically.	Which player took the least wickets?	Information about how many bowlers was provided?
		Per each over, which player gave the least runs?	How many overs did Chandrakant bowl?
		How many balls did Suresh bowl?	How many overs were bowled?
		Who gave the least runs?	Who conceded the highest number of runs?
		Write the total number of wickets taken by all players combined.	Write the number of wickets taken by Ranakant.

# 5<sup>th</sup> Grade - Percent of Students Who Achieved Maths LOs



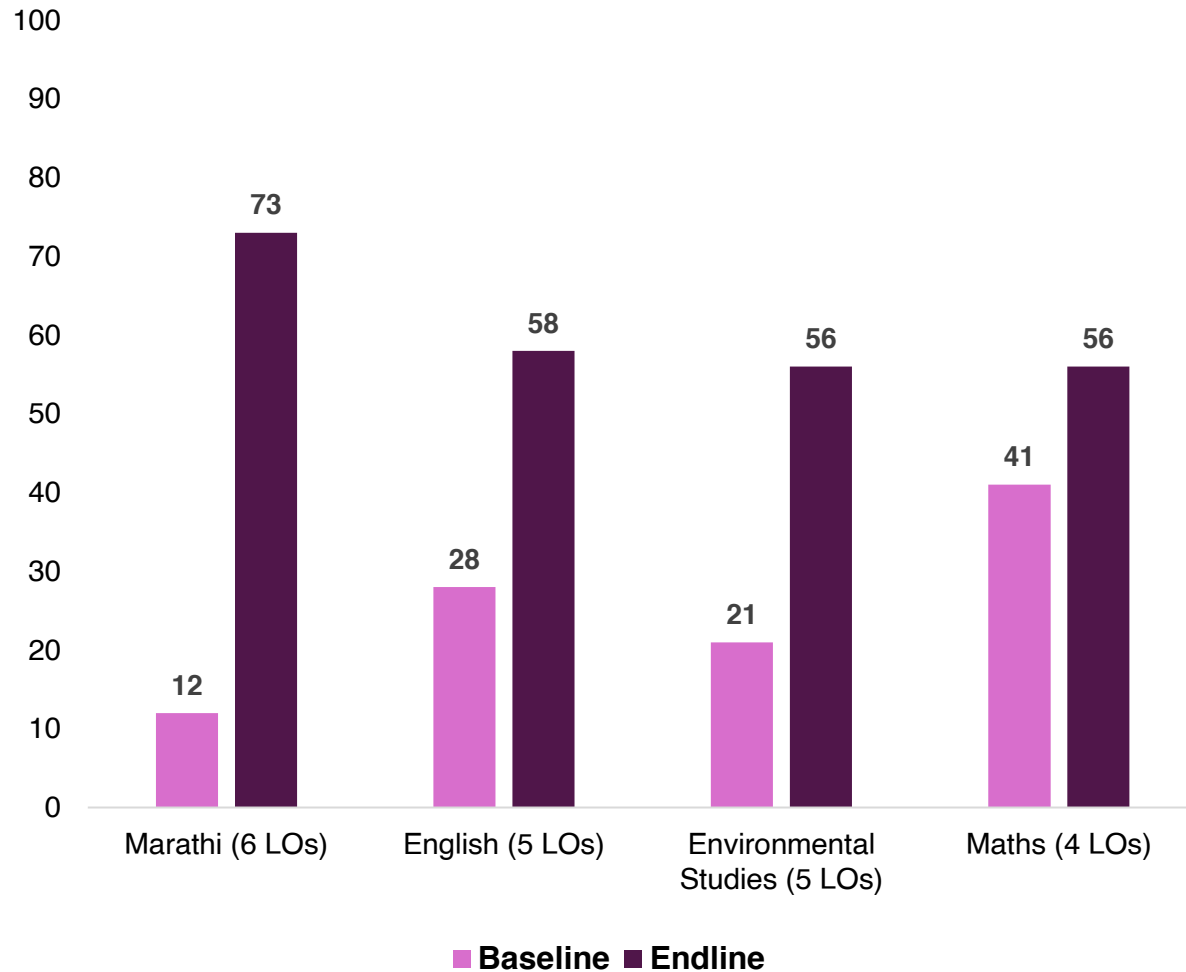
- The percentage of students who gather information from everyday interaction and present it pictographically increased by 67 percentage points at the endline.
- The percentage of students who use given information to prepare cubes and cuboids increased by 34 percentage points at the endline.

# 5<sup>th</sup> Grade - Gender wise LOs Achievement

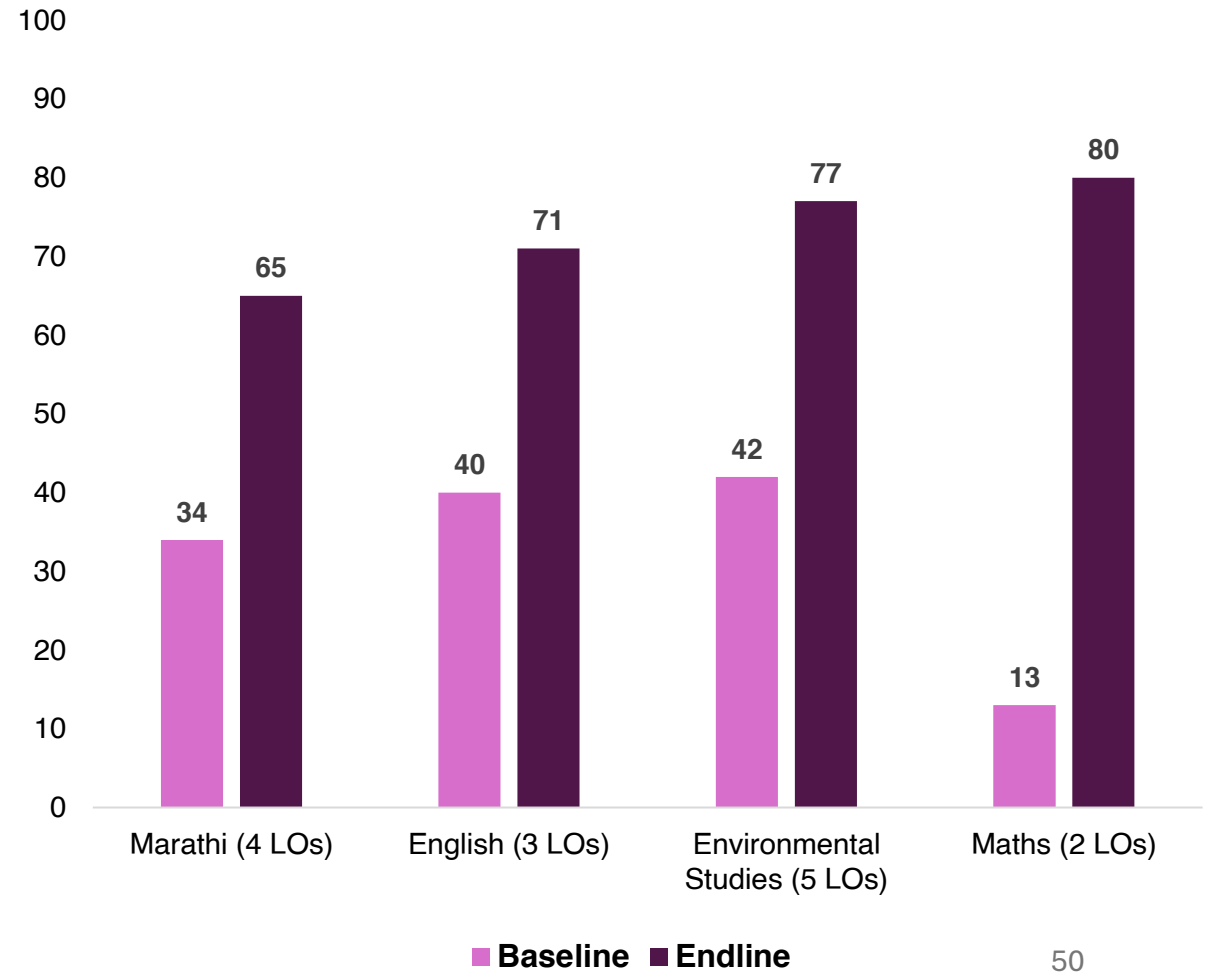


# Summary

**4<sup>th</sup> Grade - Percent (%) of students who achieved **all** LOs**

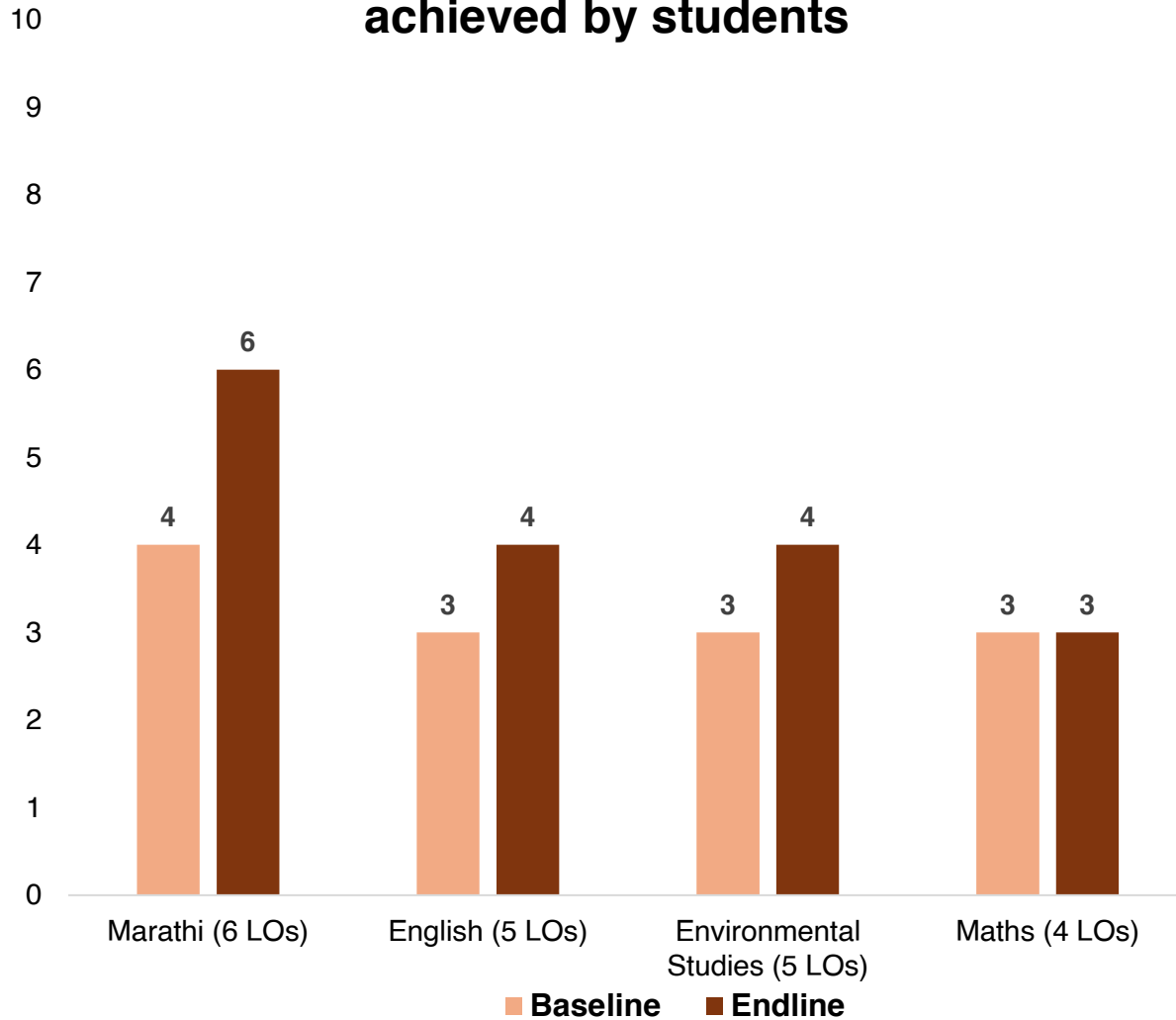


**5<sup>th</sup> Grade - Percent (%) of students who achieved **all** LOs**

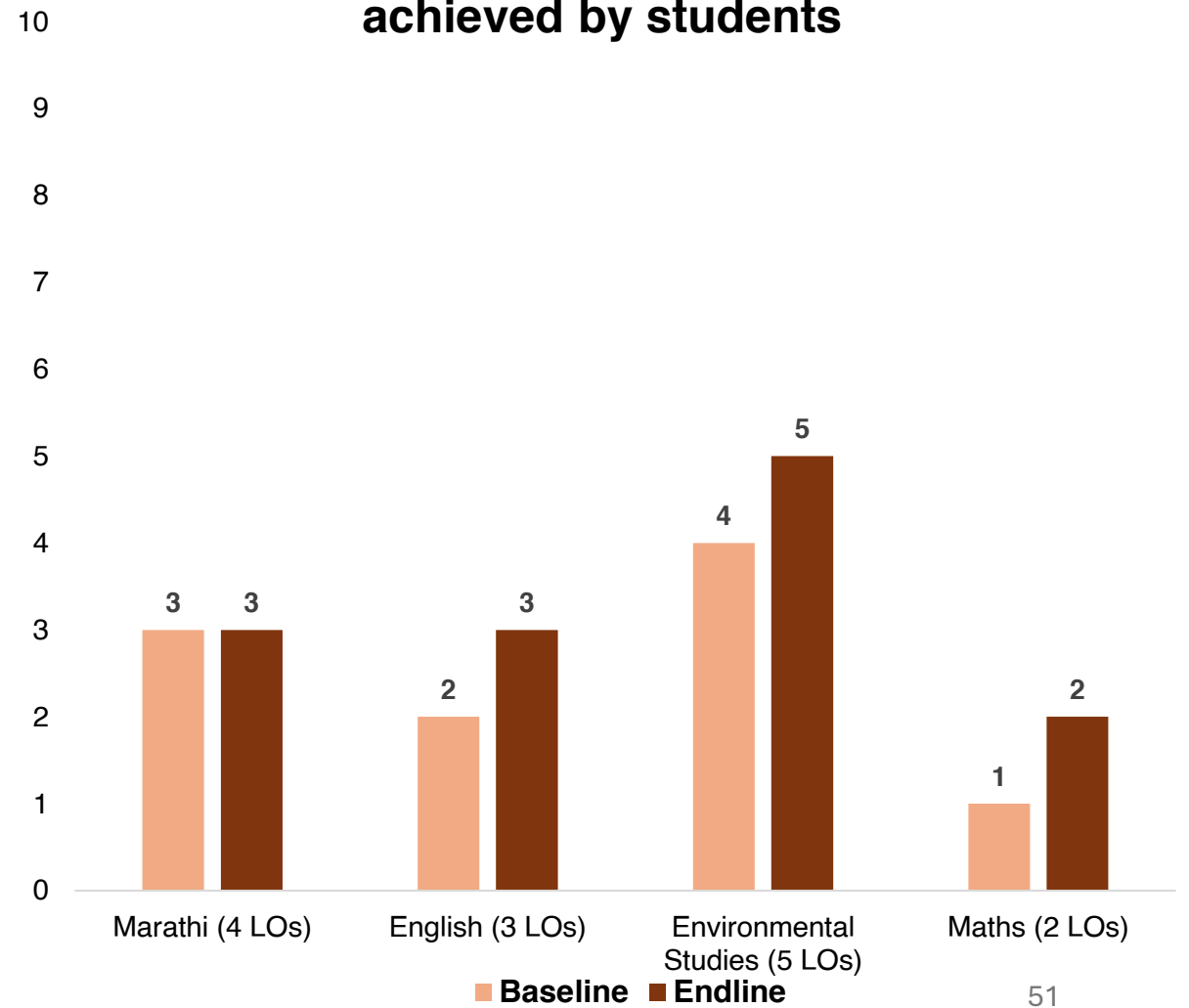


# Summary

**4<sup>th</sup> Grade - Average number of LOs achieved by students**



**5<sup>th</sup> Grade - Average number of LOs achieved by students**



# Reflections

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## On-field observations & learnings

- Students might have learned the February LOs syllabus before February itself.
- For endline assessment, schools printed question papers and collected printing costs from students.
- Teachers expressed workload concerns due to government mandates.
- Difficulty in photocopying due to lack of nearby shops.
- The VOPA team actively conducted feedback interviews with teachers and students, capturing valuable insights.
- The VOPA team successfully completed all field tasks despite facing numerous challenges.

# Reflections

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## Suggestions for improvement

- Adhere strictly to the format of 3 questions per LO.
- Allocate time for quality checks after designing question papers.
- Coordinate with schools to determine their language preference (English or Marathi) for Mathematics question papers in Semi-English medium.
- Implement booklet format for question papers otherwise, arrange student question papers sequentially.
- Minimize reliance on photocopying for question papers.

**Thank you**